Board of Education Meeting Minutes
November 6, 2017

The Board of Education met in regular session at 6:00 pm in the Glenwood Community Room. Vice President Dysinger called the meeting to order. Present were Mrs. Dysinger, Mrs. Robertson, Dr. Siebenaler Wilson, Treasurer Mr. Barnhart, Assistant Superintendent Mr. Roth, and Superintendent Mr. Kurt.

CELEBRATIONS

Mr. Payne welcomed the Board to Glenwood. He reported on Northview and celebrated his staff for reaching out to their student's families who were effected by yesterday's storm. Dr. Siebenaler Wilson celebrated Millstream BEST Robotics team that qualified for a national competition in North Dakota. She also read an email recognizing the hockey team. Mr. Kurt spoke about the weekend cardboard challenge at the Mall. He also celebrated the work of Dennis Mcpheron and Dennis Doolittle and their staff for their work the past 24 hours. Judy Ennis made presentations on behalf of NWOhio Tech Prep to Pam Hamlin, Tiffany Ruppright, Kathy Huffman, Dave Danhoff, Laurie Zydonik, Ryan Imke and Justin Shank for their work on Career Day.

PUBLIC PARTICIPATION

Becky Biesiada spoke on behalf of FEA and celebrated Mr. Kurt's work during the storm.

2017-011-001 Approval of Minutes

It was motioned by Dr. Siebenaler Wilson, seconded by Mrs. Robertson to approve the Regular Meeting minutes from October 16, 2017.

Roll call: Dr. Siebenaler Wilson, aye; Mrs. Robertson, aye; Mrs. Dysinger, aye. Vice President Dysinger declared the motion carried.

2017-011-002 CONSENT ITEMS (A – Q)

It was motioned by Mrs. Robertson, seconded by Dr. Siebenaler Wilson to approve consent items A-Q.

CERTIFICATED PERSONNEL

A. Leave of Absence (will use paid sick, personal, and/or vacation time, if available)

Jennifer Bain (Lincoln, Int. Specialist)
Effective: 10/31/17 -12/11/17
Reason: FMLA

Cynthia Whitson (Lincoln, Speech Pathologist)
Effective: October 11, 2017 - May 25, 2018 Intermittent
Reason: FMLA

B. Resignation

Lynsey Davis (FHS, Freshman Principal) (4 years)
Reason: Other Employment Effective: November 12, 2017

C. Reclassification

Michael Leddy
From: Secondary Special Education Coordinator @ $75,296 for 204 days
To: High School Assistant Principal @ $87,516 for 224 days
Effective: November 13, 2017

D. Correction to October 2nd Minutes

Judith Lentz
From: Mentor/Facilitator Stipend for Resident Educators @ $650 (Acct#001-1100-113)
To: Mentor/Facilitator Stipend for Resident Educators @ $800 (Acct#001-1100-113)

E. Appointments

The superintendent recommends approval of the following appointments, at salaries in accordance with the adopted salary schedules; and contingent upon subsequent receipt by the Board of a report B.C.I. which is not inconsistent with the applicant's answers on the employment application:

1. DLT Mtg @ $22.01/hr for up to 2 hrs on either Oct 19 or Oct 26, 2017 (Acct#001-1100-432)

Martie Andrews	Jeanine Baker	Brad Boes	Lindsey Boes	Candace Bundren
Kelly Cheney	Anthony DeRose	Robynn Drerup	Rebecca Ellerbrock	Tina Gephart
Kristin Hudok	Lori Huffman	Brooke Imke	Ben Kirian	Jane Kniss
Ellen Laube	Mark Laux	Darlene Mack	Tricia Might	Becky Pfaltzgraf
Lisa Schadel				

2. Glenwood Building Intervention Block Grant @ $22.01

Chad Mathewson
Kim Murphy

3. Supplemental Duty Assignments – Certificated Personnel for 2017-2018 School Year

Craig Perry	Head Hockey Coach – FHS @ $4,897.60
Ben Kirian	Head Wrestling Coach – FHS @ $5,636.86
Don Matthews	Head Boys'/Girls' Swimming Coach - FHS @ $4,897.60
Jason Chomic	Assistant Swimming Coach - FHS (20%) @ $983.22
Jason Chomic	Assistant Boys'/Girls' Swimming Coach - FHS (20%) @ $632.07
Ray Elbin	Assistant Boys' Basketball Coach - FHS @ $4,916.08
Luke Kohls	Assistant Boys' Basketball Coach - FHS @ $4,176.82
Brian Rosendale	Assistant Girls' Basketball Coach - FHS @ $4,916.08
Aaron Moyer	Freshman Boys' Basketball Coach - FHS @ $4,897.60
Kyle Watts	Head Middle School Wrestling Coach - Glenwood @ $3,585.41
Dan Pack	Head Middle School Wrestling Coach – Donnell @ $4,324.67
Jason Karcher	Head 8th Grade Boys' Basketball Coach – Glenwood @ $3,585.41
Ryan Brooks	Head 8th Grade Girls' Basketball Coach – Glenwood @ $3,585.41
Jeff Stutzman	Head 8th Grade Girls' Basketball Coach - Donnell @ $4,324.67
Blake Delaney	7th Grade Boys' Basketball Coach - Glenwood @ $3,049.45
Kevin Swan	7th Grade Girls' Basketball Coach – Glenwood @ $3,788.71
Mike Wilson	7th Grade Girls' Basketball Coach – Donnell @ $3,788.71
Tim Montgomery	Musical Assistant Director - High School @ $2,421.08
Laura Dyer	Musical Vocal Director - High School @ $1,108.89
Jon Gaberdiel	Musical Scenery - High School @ $1,829.67

4. Volunteer – 2017-2018 Certified Club Advisors/Helpers

Aaron Roth

F. Trauma Informed presentation for University of Findlay in October (acct 019-2120-111-9259)

Kelly Glick—$210.97 for ½ day prep time
Darlene Mack— $184.76 for ½ day prep time

CLASSIFIED PERSONNEL

G. Leave of Absence (will use paid sick, personal, and/or vacation time, if available)

Linda Klopp - (Wilson Vance, Custodian)
Effective: 10/20/17 - 12/01/17
Reason: FMLA

Denine Cowden (Lincoln, Custodian)
Effective: 10/2/17 - 11/27/17
Reason: FMLA

Sara Sublett (FHS, Attendance Case Manager)
Effective: October 28, 2017 - December 8, 2017
Reason: FMLA

H. Leave of Absence (unpaid)

Sara Sublett (FHS, Attendance Case Manager)
Effective: December 9, 2017 - December 19, 2017
Reason: FMLA

I. Resignation

Theresa Fisher (Secretary, Findlay Learning Ctr)	(8 months)
Reason: Personal	Effective: November 1, 2017
Trayci Householder (Food Service Worker)	(6 years)
Reason: Personal	Effective: October 25, 2017
Tammy Montgomery (Food Service Worker)	(1 year)
Reason: Personal	Effective: November 6, 2017

J. Correction from October 6, 2017 Minutes

Rebecca Shardo - Whittier
From: Building Intervention Grant @ $10.32 per hour
To: Building Intervention Grant @ $13.21 per hour

K. Reclassification

Linda Scherf
From: Chamberlin Hill Noon Hour Monitor @ $9.98 per hour
To: Jacobs Food Service Worker @ $11.08 per hour
Effective: October 23, 2017

L. Appointments

The superintendent recommends approval of the following appointments, at salaries in accordance with the adopted salary schedules, and contingent upon subsequent receipt by the Board of a report from B.C.I. which is not inconsistent with the applicant's answers on the employment application.

1. Assistant Treasurer

Sean Swisher (Assistant Treasurer)
Salary: $48,130 (Year 2 on compensation plan) at 260 days per year prorated for 2017-2018.
Effective: November 13, 2017

2. Food Service

KaSaundra Arellano (Secondary Cashier, Donnell)
Salary: Step 1 @ $11.61/hour
Effective: November 6, 2017

Diana Lane (Food Service Worker, High School)
Salary: Step 1 @ $11.08/hour
Effective: October 25, 2017

3. FABSS Aide

Todd Daniels – FABSS Aide
Salary: Year 1, Step 2 @ $8.63/hour
Effective: October 30, 2017

4. 2017-18 Band Stipend @ $300 (DN Band Activity Acct)

Matt Gordon

5. Substitute and/or Per Diem Employees

Anthony Suggs ~ Substitute Custodian @ $11.25/hour

6. Supplemental Duty Assignments – Non-Certificated Personnel for 2017-2018 School Year

WHEREAS, in accordance with the provision of the Ohio Revised Code 3313.53, the duly appointed representatives of the Findlay Board of Education have offered the following extra-duty positions, listed below, to the certificated employees of the district and have advertised the positions to certificated personnel not employed by the district, and

WHEREAS, no qualified certificated individuals have been found for these positions,

NOW BE IT THEREFORE RESOLVED, that the Findlay Board of Education hereby deems it appropriate to employ non-certificated personnel for the specified positions for a period not to exceed one (1) year and that the compensation shall be according to the adopted salary schedule for said position(s):

Christopher Ireland	Head Girls' Basketball Coach – FHS @ $8,871.12
Traci Dunn	Head Gymnastics Coach – FHS @ $5,008.49
Jeff Wobser	Assistant Swimming Coach - FHS (40%) @ $1,966.43
Tim Lauth	Assistant Swimming Coach - FHS (40%) @ $1,966.43
Brie Lemire	Assistant Girls' Basketball Coach - FHS @ $4,176.82
Fred Nanamaker	Freshman Girls' Basketball Coach - FHS @ $4,897.60
Oliver Hardman	Head 8th Grade Boys' Basketball Coach – Donnell @ $4,324.67
Maddie (Madeline) Bell	Assistant Boys'/Girls' Swimming Coach - FHS (40%) @ $968.43
Zach Brunner	Assistant Middle School Wrestling Coach – Glenwood @ $2,051.45
Tom Miller	Assistant Middle School Wrestling Coach – Donnell @ $2,790.71
Jim Rucki	Head Boys' Basketball Coach – FHS @ $8,871.12

7. Volunteer – 2017-2018 Classified Club Advisors/Helpers

John (Brooks) Bosse – Volunteer Hockey Coach
Joseph Dunn – Volunteer Gymnastics Coach
James Jolliff – Volunteer High School Wrestling Coach
Matt Thomas – Volunteer Hockey Coach

M. Student Activity Budget

The treasurer recommends approval of the Student Activity Budget for Dress-A-Girl Around the World as shown in **EXHIBIT A.**

N. Legal Counsel

The treasurer recommends approval to continue to use Rich & Gillis Law Group for property appraisal and appeals in 2018 per **EXHIBIT B**.

O. FABSS Administrative Fee

The treasurer requests authorization to annually charge a 5% administrative fee to the FABSS program to be paid to the general fund to cover payroll and purchasing costs as well as utilities and space that are used by the FABSS program. The fee will be based on the total FABSS costs from the prior fiscal year.

P. 2018 Board of Education Meeting Dates

The superintendent recommends approval of the 2018 BOE meeting dates as presented in **EXHIBIT C**.

Q. Acceptance of Gifts

GIFT:	$750.00
FROM:	GSW Manufacturing, Inc.
TO:	Bigelow Hill's Cardboard Project

GIFT:	Percussion Kit valued at $375.00
FROM:	Kent Phillips
TO:	Donnell Middle School Band

Roll call: Mrs. Robertson, aye; Dr. Siebenaler Wilson, aye; Mrs. Dysinger, aye. Vice President Dysinger declared the motion carried.

DISCUSSION ITEMS

Mr. Steiner presented the New Courses of Study, pilot and textbooks as shown in **EXHIBIT D:**

- Digital Media course of study
- Drawing and Advanced Drawing courses of study
- Jewelry and Advanced Jewelry courses of study
- College-Prep Economics course of study
- Economics course of study
- College-Prep Physical Science course of study
- Honors Physical Science course of study
- Teaching Professions Pilot Course Application
- Advanced Placement Economics Pilot Course Application
- Middle School MD Unit Science textbook
- Textbook request for Nov. 6 board meeting

Mr. Kurt discussed the need to renew the contract between FCS and FDA as shown in **EXHIBIT E.**

ACTION ITEM

2017-011-003 Board Resolutions Supporting SB216

It was motioned by Dr. Siebenaler Wilson, seconded by Mrs. Robertson to approve the Resolutions Supporting SB216 as shown in **EXHIBIT F.**

Roll call: Dr. Siebenaler Wilson, aye; Mrs. Robertson, aye; Mrs. Dysinger, aye. Vice President Dysinger declared the motion carried.

2017-011-004 Adjournment

It was motioned by Dr. Siebenaler Wilson, seconded by Mrs. Robertson to adjourn the meeting at 6:40 pm.

Roll call: Dr. Siebenaler Wilson, aye; Mrs. Robertson, aye; Mrs. Dysinger, aye. Vice President Dysinger declared the motion carried.

_____
Treasurer

_____
President

To be read and approved on Monday, December 11, 2017 at 5:30 PM in the Washington Building.

EXHIBIT A

FINDLAY CITY SCHOOL DISTRICT
STUDENT ACTIVITY BUDGET

Activity Code XDAG **Date** 10/18/2017

Activity Name Dress A Girl Around the World

Activity Purpose (define concisely)

Dress A Girl Around the World is a service project whose purpose is to construct dresses for girls in underdeveloped countries. The one-day event is also open to the public to encourage intergenerational involvement and community support.

Activity source of income with estimated amounts in dollars:

		Fund Raiser Beginning Balance	**$ 573.94**
a.	Donations	$ 150.00	
b.		$	
c.		$	
d.		$	
e.		$	
		Revenue Anticipated	**$ 150.00**
		Total Balance & Revenue	**$ 723.94**

Activity Estimated Expenditures

a.	Flyers Printed/Millstream	$ 50.00	
b.	Wilson's-Window Painting	$ 25.00	
c.	Shipping	$ 300.00	
d.	Refreshments	$ 100.00	
e.		$	
		Total Estimated Expenditures	**$ 475.00**
		Anticipated Balance at End of Year	**$ 248.94**

Activity Advisor (Please Print) Stephanie Inbody, Jane Recknagel, and Carmen Brown

Building Principal

Superintendent Edward P Kurt

EXHIBIT B

RICH & GILLIS LAW GROUP, LLC

Jeffrey A. Rich, Esq.
JRich@RichGillisLawGroup.com

RECEIVED
TREASURER
OCT 10 2017
BOARD OF EDUCATION
FINDLAY CITY SCHOOLS

Partners
Jeffrey A. Rich*†
Mark H. Gillis

Associates
Karol C. Fox
Kelley A. Gorry
Kimberly G. Allison
Richelle L. Thoburn

October 6, 2017

Mike Barnhart, Treasurer
Findlay City Schools
1100 Broad Avenue
Findlay, Ohio 45840

*†also admitted in AZ & FL
*‡also admitted in AZ

Re: Annual Report on Decisions from 2017 Tax Cases and Appeals and Proposal for 2018 Actions

Dear Mr. Barnhart:

This letter contains a summary to date of decisions in tax cases where this office has represented your School Board, along with our recommendations for monitoring your tax duplicate for 2018. As you know by our proven results for your school board, not only have we been very successful in raising the values of recently sold property, which account for a very small portion of the time we spend representing you, but we also win for you huge tax benefits in the defense of taxpayer reduction complaints and exemption requests. We, therefore, propose to continue to monitor aggressively your tax duplicate. We hope you will consider favorably our recommendations, based on the success we have had for you, as we predicted.

1. Status of 2016 tax year Board of Revision Cases.

The Board of Revision has heard and decided most of our cases for this year.

(a) **Sale Cases.** The Board of Revision has completed all of the 8 sale cases. As a result of those hearings, the Board of Revision increased the assessed value on the Auditor's tax duplicate by $2,260,160 ($6,457,600) which will generate an additional $120,646 in new taxes for our school system this year, and depending upon future tax rates and reduction factors, including CAUV conversions, the potential new taxes until the next reappraisal is $144,604. A copy of that index is attached as Exhibit A.

(b) **Counter-Complaints.** The Board of Revision has heard and decided 1 of our 5 counter-complaint cases we filed this year. As a result of those hearings, we have saved from being removed from the tax duplicate $31,350 in assessed value ($89,571 appraised value), which will save our district $1,673 in taxes this year, and depending upon future tax rates and reduction factors, the potential tax loss savings until the next reappraisal is $2,172. A copy of that index is attached as Exhibit B.

(c) **Summary of Legal Fees Compared to Tax Benefits Received**. Thus, the total tax benefits to date this year are $122,320, and the potential benefits until the next reappraisal is $146,776. Our records indicate that payment of legal fees to our office for the aforementioned matters for 2016, including those still pending but not yet determined, but exclusive of any out-of-pocket expenses, is $24,015. Thus, for every dollar spent on legal services you have derived tax benefits of $5.11, or a 511% return on your investment.

2. Status of Pending Appeals from Previous Year Board of Revision Decisions.

(a) 2016: One (1) case has been appealed for 2016; which has been decided. A copy of that index is attached as Exhibit C.
(b) 2017: Two (2) cases have been appealed for 2017; all of which are still pending. A copy of that index is attached as Exhibit D.

3. Exemptions. We have continued to monitor the exemption requests of the Tax Equalization Division of the Ohio Department of Taxation and file objections where appropriate. Our efforts have always been to minimize or eliminate any reduction in value to your tax duplicate.

4. Outline of Actions for 2018 Tax Matters.

(a) **Sale Cases.** Examine the 2017 sales in our school district, and in those cases where the sale of commercial and industrial properties are in excess of $100,000, and where the properties are under-assessed in relationship to their sale price, file a complaint with the appropriate Board of Revision. We have on an ongoing basis been reviewing sales all year, and are finished with most sales through Mid-September, 2017. In this manner, we are able to spread the expense of our study to you more evenly throughout the year, while avoiding the last minute rush which used to occur before we revised our sale study procedures.

(b) **Counter-Complaint Cases.** Review all complaints by taxpayers for reduction in tax value at the Board of Revision. Where the reductions appear to be unjustified, file a counter-complaint to resist and oppose those reductions. Where approved by you, have appraisers review those complaints and assist us in determining the fair market value of the property, and so indicate to the Board of Revision at some subsequent hearing.

(c) **Review Other Properties.** Review any other specific large properties that you desire, in order to make certain they are fairly appraised. If any of those properties are determined to be under-appraised, file the appropriate complaint at the Board of Revision.

(d) **Appeals**. Continue to prosecute or defend any pending appeals.

(e) **Exempt Properties.** We will continue to review exempt parcels and attend hearings at the Division of Tax Equalization, in order to be certain that no parcel receives an exemption to which it is not entitled. We also will assist you in any matter having to do with tax abatement.

(f) **Other School Law Matters.** We are also available to assist you in other matters, including, but not limited to, annexations, EPA and environmental issues, ordinances, legislative relations with state and local governments, personnel problems, student discipline, labor contracts and negotiations, drug testing policies, mandatory random drug testing of student athletes, construction and other contract disputes, freedom of speech and press issues, search and seizure, public records requests, and sexual harassment matters, including student on student claims. If at anytime you feel you need our assistance in any of these areas please contact us. This agreement, however, does not require you to use our services in the areas described in this paragraph, but merely serves to inform you of their availability through our offices. We would welcome the opportunity to discuss any of these areas with you in greater detail.

As indicated, we have throughout the year examined sales in your district. However, our results will have to be coordinated with the new tax duplicate to be issued later this year, and we still have to study the sales for the remainder of 2017. Thus, we still need many months to complete our review, and, therefore, are making these recommendations to you at this time. If they meet with your approval, we would appreciate your signing the attached copy of this letter where appropriate and returning it to us as soon as possible, or give us other written instructions as you may desire. It is necessary, however, for us to confirm your intentions for 2018 as soon as possible so that we only have to complete and verify our survey of the 2017 sales once for all our clients, which, of course, minimizes your share of those costs.

As compensation for our services, we propose the following: you will be billed monthly with a fully itemized statement, for legal fees and professional services at no less than $160.00 per hour, and no more than $230.00 per hour, depending on the level of skill and experience of the individual in our office handling the task. You will also be responsible for the payment of any out-of-pocket expenses or appraisal costs.

We would be happy to meet with you and the Board of Education at any time to review these matters in person. Thank you for your confidence and we hope that you agree that for the relatively modest investment in monitoring your tax duplicate you have derived significant tax benefits.

Sincerely,

Jeffrey A. Rich

Enclosure
JAR/bjl

I have read the report and recommendations for 2018 tax matters and hereby authorize Jeffrey A. Rich and RICH & GILLIS LAW GROUP, LLC, its successors, partners, associates and employees to proceed as described therein for 2018.

_____ _____

Date

Mike Barnhart, Treasurer
Findlay City Schools

EXHIBIT C

2018
BOARD OF EDUCATION MEETING LOCATIONS

All Meetings begin at 6:00 P. M. (unless noted)

January 8	Donnell Middle School – Organizational Meeting Community Room (Don)
January 22	Millstream Café – (Krista M. - JA)
February 12	Glenwood Middle School – Community Room Board Appreciation (Lyndsey S.)
March 12	Washington (K. Stahl - WH)
April 16	Donnell Middle School – Community Room (Dave B. - WV.)
May 7	Glenwood Middle School – Community Room (Janice)
May 21	Millstream Café- (Jen T. - BH)
June 11	Washington
June 25	Donnell Middle School – Community Room
July 16	Glenwood Middle School - Community Room
August 6	Millstream Cafe
August 20	Donnell Middle School - Community Room (Kim P. - JF)
September 10	Glenwood Middle School – Community Room (Eric P. -NV)
October 8	Washington (Kathy Y. – Washington)
October 22	Millstream Café- BOE Retreat
November 12	Glenwood Middle School - Community Room (Mike S. - Lincoln)
December 10	Washington

Approved on

EXHIBIT E

FINDLAY DIGITAL ACADEMY

Where Learning Fits You™

1219 W. Main Cross, Suite 101 • Findlay, OH 45840 • 419-425-3598 • Fax 419-425-3588

Rosemary Rooker, Executive Director • Larry Grove, Principal • Linda Huffman, Guidance

October 31, 2017

Findlay City School Board Members
Mr. Edward Kurt, Superintendent
Findlay City Schools
2019 Broad Avenue
Findlay, Ohio 45840

Dear Findlay City School Board Members and Superintendent Kurt,

Findlay City Schools has been the sponsoring school district for Findlay Digital Academy since the program began. The Academy's performance has consistently demonstrated that the most at risk students in our community can be successful and earn a diploma via the non-traditional approach offered at FDA. The current sponsor contract between Findlay City Schools and Findlay Digital Academy expires June 30, 2018.

As the Executive Director of Findlay Digital Academy, I am requesting that Findlay City Schools continue to sponsor Findlay Digital Academy and renew the Sponsor Contract for two years.

As per the current contract, Findlay Digital Academy is required to go through a Sponsor Contract Renewal process before the contract can be considered for renewal. Findlay Digital Academy has met these requirements by submitting an Application for Renewal, gone through the High Stakes Review Process and participated in a Sponsor Oversight Committee Interview. We appreciate all the time the Oversight Committee has taken to meet with us and were delighted to hear that Findlay Digital Academy had earned 77 of the 78 possible points on the contract renewal application rating rubric.

On behalf of the staff and the students of Findlay Digital Academy, we look forward to our continued collaborative efforts, and thank you again for your support of the good work being done at the Academy!

Sincerely,

Rosemary Rooker
Executive Director
Findlay Digital Academy

EXHIBIT F

A Resolution of the Findlay City Schools Board of Education in Support of Ohio Senate Bill 216

WHEREAS, the increasing burden of state mandated regulations on Ohio's public schools has reached a critical point.

WHEREAS, many of these regulations waste valuable time and money that should spent on teaching and learning.

WHEREAS, we desire to work in collaboration with our appointed and elected officials to address the accumulation of problems being generated by these regulations.

WHEREAS, Senate Bill 216 (Ohio Public School Deregulation Act) has been introduced to addresses some of these problems by:

- **eliminating barriers to employing high quality teachers,**
- **eliminating the unnecessary duplication of tests used to assess student learning,**
- **providing a more accurate method (paper test) of assessing a third-grade student's ability to read and write versus their technical ability on the high stakes third grade reading test,**
- **requiring the national testing service to provide meaningful information for teachers to use to help children learn and grow,**
- **restoring the rights of parents to have some control over their children's attendance,**
- **restoring the ability of school boards to enforce education policy that meets local community needs,**
- **consolidating and streamlining state reporting requirements to reduce time expended on unproductive paperwork, and**
- **providing relief from other mandates that have accumulated over time.**

BE IT RESOLVED, that the Findlay City Schools Board of Education, being duly elected and acting as representatives of a legal and statutorily independent local board, supports Senate Bill 216 as a start to increasing efficiency and effectiveness in the state system of education.

BE IT FURTHER RESOLVED, that a copy of this resolution be sent to all members of the Ohio Senate Education Committee.

_____moved to adopt the above resolution, _____seconded the motion.

Upon roll call vote on the adoption of this Resolution, the vote was as follows:

, yes	**, yes**
_____	_____
, yes	**, yes**
_____	_____

The Governing Board of the Findlay City Schools District met in regular session on November 6, 2017 at Glenwood Middle School, Findlay, Ohio with 3 members present.

EXHIBIT D

ADVANCED DRAWING

Course #273A

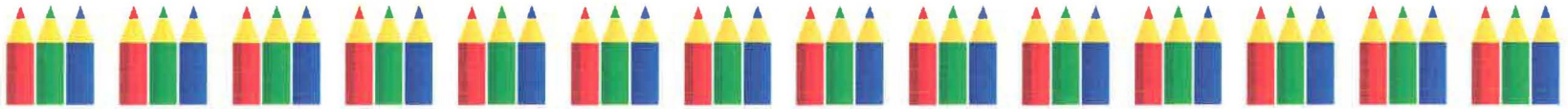
Course of Study

Findlay City Schools

2017

TABLE OF CONTENTS

Course Description: This course requires instructor approval. The Advanced Drawing course builds on the knowledge and skills learned in Drawing and is designed to help students find their personal voice. The class will explore a variety of approaches and materials, with emphasis of proportion, perspective, and composition.



ADVANCED DRAWING

Course #273A

Writing Team

Jon Gaberdiel

Mission Statement

Educating and Empowering for Life

Beliefs

Our beliefs form the ethical foundation of the Findlay City Schools.
We believe....

- *All students and families have worth and are to be valued.*
- *Students need a safe and inclusive environment in order to fully express who they are.*
- *All students can learn.*
- *In order for each student to thrive, students, families, staff and community must be vested in their growth and development.*
- *All students need opportunities in and out of the classroom.*
- *FCS must be a reflection of our growing community and its needs.*
- *The Seven Habits of Highly Effective People supports life skills:*
    - *Habit 1: Be Proactive*
    - *Habit 2: Begin with the End in Mind*
    - *Habit 3: Put First Things First*
    - *Habit 4: Think Win-Win*
    - *Habit 5: Seek First to Understand, Then to Be Understood*
    - *Habit 6: Synergize*
    - *Habit 7: Sharpen the Saw*

ADVANCED DRAWING
CURRICULUM MAP

WEEK	UNIT	TOPIC	STANDARDS
1	Introduction	Contour Line: Blind vs. Modified; Gesture Line; Composition: Open vs. Closed	2 PE, 1 PR, 2 PR, 3 PR, 4 PR
2	Value Color	Value Review: shade forms, hatch/cross hatch, stipple Color Theory: colored pencil exercises	2 PE, 1 PR, 2 PR, 3 PR, 4 PR
3	Colored Pencil	Student derived subject matter and composition with focus on development of drawing portfolio	2 PE, 1 PR, 2 PR, 3 PR, 4 PR
4			
5			
6	Pen & Ink	Student derived subject matter and composition with focus on development of drawing portfolio	2 PE, 1 PR, 2 PR, 3 PR, 4 PR
7			
8			
9	Pastel	Student derived subject matter and composition with focus on development of drawing portfolio	2 PE, 1 PR, 2 PR, 3 PR, 4 PR
10			
11			
12	Mixed Media	Student derived subject matter and composition with focus on development of drawing portfolio	2 PE, 1 PR, 2 PR, 3 PR, 4 PR
13			
14			
15	Culminating Project	Student choice of media and subject matter	2 PE, 1 PR, 2 PR, 3 PR, 4 PR
16			
17			
18			

Findlay City Schools
ADVANCED DRAWING – Grades 9-12

Subject(s)	ADVANCED DRAWING
Grade/Course	9-12
Unit of Study	Introduction: Contour Line: Blind vs. Modified; Gesture Line; Composition: Open vs. Closed
Pacing	1 week

STATE STANDARDS

2 PE, 1 PR, 2 PR, 3 PR, 4 PR, (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Artists use contour and gestural line along with compositional exploration to develop and refine their artwork.	• How do artists use contour, gesture and composition to develop more refined art work?	Evaluation Synthesis Analysis Application

Enduring Understandings	Program Components (Learning Activities)
• Contour and gesture drawing serve as preliminary or planning activities that artists use to organize information on to a picture plane.	• Students will demonstrate both contour and gesture line techniques by drawing still life objects. They will also explore both open and closed compositions by developing a variety of thumbnail drawings.

Vocabulary	Resources/Best Practices
See Appendix I	• Demonstration • Hand outs • Videos • Graphic organizer

Subject(s)	ADVANCED DRAWING
Grade/Course	9-12
Unit of Study	Value and Color
Pacing	1 week

STATE STANDARDS

2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Value and color are two art elements that when used correctly can aide an artist in creating believable 3D forms and spaces.	• How can mark making be used to create value? • What is color theory and how does it influence the way we interpret a composition?	Evaluation Synthesis Application Analysis

Enduring Understandings	Program Components (Learning Activities)
• Color theory allows an artist to direct attention and create mood in a composition. The way in which value is created affects the feel of an artwork	• Students will review value by shading forms using these techniques: stippling, hatching, cross-hatching and gradation. • Students will apply color theory through a variety of colored pencil exercises.
Vocabulary	**Resources/Best Practices**
See Appendix I	• Demonstration • Videos • Hand outs • Graphic Organizers

Subject(s)	ADVANCED DRAWING
Grade/Course	9-12
Unit of Study	Colored Pencil
Pacing	3 weeks

STATE STANDARDS

2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Artists may use colored pencil to layer and create value, yielding the illusion of 3D forms.	• What is the technique for properly layering colored pencil? • What is the benefit of an artist taking their own subject matter photo?	Evaluation Synthesis Application Analysis

Enduring Understandings	Program Components (Learning Activities)
• Taking your own subject matter photo allows the artist control over the composition that use of stock photography does not.	• Students will derive a composition from their own photograph and render a drawing using colored pencil as the medium.

Vocabulary	Resources/Best Practices
See Appendix I	• Demonstration • Videos • Web research • Hand outs • Graphic organizers

Subject(s)	ADVANCED DRAWING
Grade/Course	9-12
Unit of Study	Pen and Ink
Pacing	3 weeks

STATE STANDARDS

2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Pen and ink as a drawing media creates a different visual effect than a drawing media like graphite.	• What types of line, value and mark making can be achieved with pen and ink?	Evaluation Synthesis Application Analysis

Enduring Understandings	Program Components (Learning Activities)
• Pen and ink drawings may evoke an emotional response from use of texture, line quality and pattern of line created by the medium.	• Students will compose an arrangement from an original photograph and use pen and ink to render a drawing.

Vocabulary	Resources/Best Practices
See Appendix I	• Demonstration • Graphic organizers • Hand outs • Videos • Web research

Subject(s)	ADVANCED DRAWING
Grade/Course	9-12
Unit of Study	Pastel
Pacing	3 weeks

STATE STANDARDS

2 PE, 1 PR, 2 PR, 3 PR, 4 PR, (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Pastels offer artists a colored medium that lends itself to gradation.	• How do colors layer and blend with pastels to create value? • How does color scheme affect the mood of a drawing?	Evaluation Synthesis Analysis Application

Enduring Understandings	Program Components (Learning Activities)
• Artists may use pastels to stylize marks, create value and/or use color expressively to impact the viewer's interpretation of the drawing.	• Students will create a composition from an original photo and render the drawing using colored pastels.

Vocabulary	Resources/Best Practices
See Appendix I	• Demonstration • Hand outs • Videos • Graphic organizers • Web research

Subject(s)	ADVANCED DRAWING
Grade/Course	9-12
Unit of Study	Mixed Media
Pacing	3 weeks

STATE STANDARDS

2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Artists often combine drawing media to satisfy an aesthetic approach not achievable by a single medium.	• Can all media be combined? • Is there an order or procedure for combining specific media?	Evaluation Synthesis Analysis Application

Enduring Understandings	Program Components (Learning Activities)
• Creating a mixed media artwork/drawing tends to emphasize the surface quality of the artwork rather than creating the illusion of a 3D space.	• Students will create a mixed media artwork by refining a subject matter image or images that they have taken and composed.

Vocabulary	Resources/Best Practices
See Appendix I	• Demonstration • Graphic organizers • Hand outs • Videos • Web research

Subject(s)	ADVANCED DRAWING
Grade/Course	9-12
Unit of Study	Culminating Project
Pacing	4 weeks

STATE STANDARDS

2 PE, 1PR, 2 PR, 3 PR, 4PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Artists develop their personal voice through choice of subject matter, style and media.	• How does choice of style or aesthetic approach impact how an artwork is interpreted by the viewer?	Evaluation Synthesis Analysis Application

Enduring Understandings	Program Components (Learning Activities)
• An artwork should be equal parts subject (what), form (how/composition) and content (why/meaning).	• Students will compose a drawing from an original image or images in the medium or media of their choice.

Vocabulary	Resources/Best Practices
See Appendix I	• Demonstration • Hand outs • Videos • Graphic organizers • Web Research • Personal Aesthetic

Grade/Course	9-12
Unit of Study	Culminating Project
Pacing	3 weeks

STATE STANDARDS

1 PE, 2 PE, 4 PE 1 PR, 6 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• One of the primary purposes of art is to convey a thought, feeling or idea.	• How can imagery be used to convey meaning?	Knowledge Analysis Application Comprehension

Enduring Understandings	Program Components (Learning Activities)
• Subject, form (composition) and content (meaning) combine to form an effective work of art.	• Students will create an original composition that is either an illustration or narrative.

Vocabulary	Resources/Best Practices
See Appendix I	• Demonstration • Related handouts • Web research • Videos • Graphic organizers

Glossary
Art Vocabulary

1. **Medium:** material used to create art (plural: Media)
2. **Composition:** arrangement of objects and elements in an artwork.
3. **Open composition:** an arrangement where the objects and elements continue beyond the picture plane.
4. **Closed composition:** an arrangement where the objects and elements are completely contained within the picture plane.
5. **Aesthetics:** The philosophy or study of the nature and beauty of art.
6. **Art Criticism:** an organized system for studying a work of art.
   Description: make a list of all the things you see in the work.
   Analysis: how is the work organized? Use the elements of art to explain.
   Interpretation: explain the meaning or mood of the work.
   Judgment: determine if the work is successful.
7. **Elements of Art:** basic visual symbols in the language of art. These include line shape, color, value, texture, space, and form.
8. **Line:** a path of a moving point.
9. **Contour line:** a continuous line that defines the interior and exterior edges of an object.
10. **Modified/semi-blind contour:** a line drawn by looking primarily at the object with occasional glances at the paper.
11. **Blind/Pure contour:** a line drawn by looking at the object only. The artist uses one continuous line.
12. **Outline:** a line that shows only outside edges with no interior details.
13. **Gesture:** a quick drawing that captures the feeling of movement.
14. **Value:** relative degree of lightness or darkness by the amount of light reflected.
15. **Blending:** smooth value with no texture.
16. **Crosshatching:** sets of parallel overlapping lines. The density or number of lines creates value.
17. **Stippling:** small dots. The density of the dots creates the value.
18. **Full range of values:** all the values between black and white.

19. **Highlight:** small area of white used to show the brightest spot on an object. This area is closest to the light source.

20. **Halftone:** the entire area on the form facing the light source, the area between the highlight and the shadow. It gradually darkens as it turns away from the light source.

21. **Shadow:** the darker value on the surface of an object that gives the illusion that a portion of it is turned away from the source of light.

22. **Reflected light:** the light that bounces back into the shadow from surrounding objects. It should always be a darker value than any part of the form facing the light.

23. **Cast shadow:** a dark area that occurs on a surface as a result of something being placed between that surface and a light source. This area is always opposite the light source.

24. **Color:** element of art derived from reflected light.

25. **Primary:** colors that make all other color; cannot be made. Red, yellow, blue.

26. **Secondary:** colors made by mixing 2 primary colors. Green, orange, purple.

27. **Tertiary/intermediate:** colors made by mixing a primary and a secondary color. Yellow- orange, yellow-green blue-green, blue-violet, red-violet, red-orange.

28. **Warm:** colors with yellow base, associated with sunshine, fire, etc. Advance in composition.

29. **Cool:** colors with blue base, associated with ice, water, etc. Recede in composition.

30. **Hue:** pure color with neither black nor white added.

31. **Tint:** add white to a color.

32. **Shade:** add black to a color.

33. **Neutral:** black, white, gray, pure value with no color association.

34. **Color schemes:** a plan for organizing colors.

35. **Monochromatic:** a color scheme that uses only one hue and the values, tints and shades of that hue. Black, white, and one color.

36. **Complementary:** colors directly opposite from each other on the color wheel.

37. **Analogous:** colors next to each other on the color wheel.

38. **Texture:** the way an object feels or appears to feel

39. **Implied texture:** the illusion of texture on a 2-D surface.

40. **Actual texture:** texture that is "real" or can be touched.

41. **2 Dimensional:** having height and width.

42. **3 Dimensional:** having height, width, and depth.

43. **Proportion/scale:** properties of size, quantity, and degree of emphasis; established when relationships of size are created relative to a gauge or specific unit of measure.

44. **Linear Perspective:** scientifically based set of rules for creating the illusion of space on a 2- D surface.

45. **Horizon line**: line drawn where earth and sky appear to meet.

46. **Vanishing point**: point on the horizon where parallel lines appear to converge.

47. **Foreground**: the part of the picture that appears closest to the viewer.

48. **Middleground:** the part of the picture that appears at the midpoint.

49. **Background:** the part of the picture that appears farthest from the viewer.

50. **Positive space:** space that is occupied by an object; the object itself.

51. **Space:** the distance between, around, above, below, and within an object.

52. **Negative space:** the unoccupied or empty space around an object.

53. **Printmaking:** transferring an original image from one prepared surface to another.

54. **Relief print**: ink is applied to the raised surface of a plate or block.

55. **Collograph:** a collage printmaking technique, where the image is composed from a variety of textured materials glued to a plate.

56. **Monotype**: print made from an unaltered surface.

57. **Plate/Block:** prepared surface for printmaking.

58. **Gouge:** tool used to remove material from a printing block or plate.

59. **Brayer:** tool used to spread ink.

60. **Edition:** numbered set of identical prints/images.

61. **Credit Line** (title, edition, artist)

62. **Clay:** fine-grained earth materials formed by the decomposition of rock; when combined with water, it is plastic enough to be shaped; when dry, it is strong; and when subjected heat, it becomes rock-like.

63. **Plastic:** clay that is moist and pliable.

64. **Leather hard:** clay that is slightly flexible and cool to the touch.

65. **Bone dry:** clay with no moisture.

66. **Bisque:** clay that has been fired once. Clay is now ceramic.

67. **Glaze:** glassy coating for ceramics; can be matte or gloss.

68. **Fire:** heating clay to high temperature to cause a chemical change, which will permanently harden the clay.

69. **Kiln:** furnace for firing.

70. **Handbuilding techniques:** slab, coil, and pinch.

71. **Score:** small scratches used for attaching clay to clay.

72. **Slip:** liquid clay.

73. **Sculptural:** purely decorative.

74. **Functional:** useful.

75. **Form:** element of art that is 3 dimensional and encloses space.

76. **Freestanding:** sculpture that is viewable from all sides.

77. **Relief:** sculpture that is raised from a flat surface.

78. **Armature:** structure created to hold sculpting material

79. **Shape:** a 2 dimensional area enclosed by a boundary.

80. **Geometric:** a shape that can be described using mathematical terms.

81. **Organic:** a shape with irregular and uneven edges that is often found in nature.

Principles of Design

82. **Emphasis:** used by artists to create dominance and focus in their work.

83. **Balance:** refers to the distribution of visual weight in a work of art; can be either symmetrical or asymmetrical.

84. **Pattern:** uses the art elements in planned or random repetitions to enhance surfaces of paintings or sculptures; increases visual excitement by enriching surface interest.

85. **Contrast:** refers to differences in values, colors, textures, shapes, and other elements.

86. **Movement:** used by artists to direct viewers through their work, often to focal areas; can be directed along lines, edges, shapes, and colors within the works.

87. **Rhythm:** the repetition of visual movement; works together with movement to create the visual equivalent of a musical beat.

88. **Unity:** provides the cohesive quality that makes an artwork feel complete and finished; when all the elements and principles in a work look as though they belong together.

Theories of Art

89. **Imitationalism:** a theory of art that focuses o literal or realistic qualities; the realistic or lifelike representation of subject matter.

90. **Formalism:** a theory of art that concentrates on design (or visual) qualities; the way the elements and principles of art have been used.

91. **Emotionalism:** a theory of art that focuses on expressive qualities; the way the drawing effectively communicates an idea, feeling, or mood to the viewer.

What Will I Learn in Drawing?

the art of education

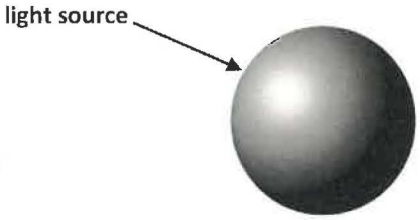
As an artist, I can integrate the characteristics of the tools of a selected media in original artworks to support artistic purposes.

6H 5H 4H 3H 2H H F HB B 2B 3B 4B 5B 6B 7B 8B

Graphite pencil grades

I can use drawing techniques to render objects (with highlights, shadows & a light source) in my artwork.

- Blending
- Hatching
- Stippling
- Crosshatching
- Scumbling



As an artist, I can analyze how the principles are combined to communicate meaning in the creation of, presentation of, or response to visual artworks.

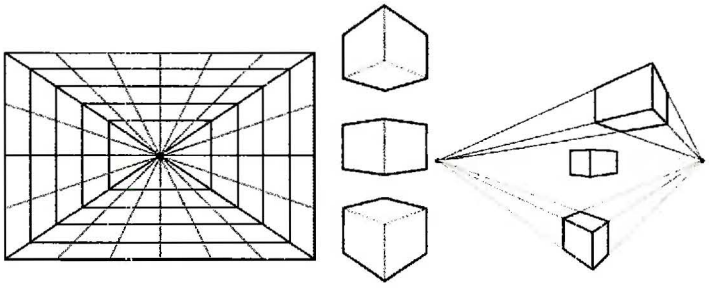
Balance	Pattern
Contrast	Emphasis
Movement	Unity
Rhythm	

As an artist, I can develop my 8 Studio Habits of Mind.

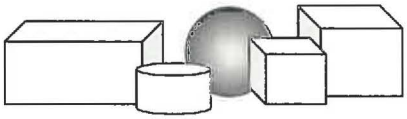
- Develop Craft
- Engage & Persist
- Envision
- Express
- Observe
- Reflect
- Stretch & Explore
- Understand Art World

Value: The lightness or darkness of a color
Tonal range: Various shades of grey between absolute black and absolute white

As an artist, I can use various perspective drawing techniques to suggest depth within in my work.



As an artist, I can use hierarchy, proportion and overlapping to create depth in my artwork.

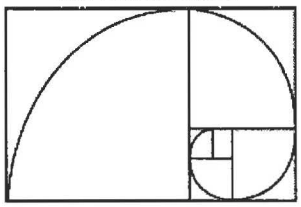


Drawing vocabulary:

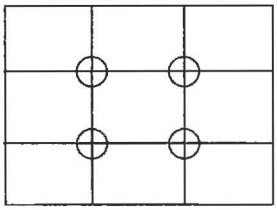
proportion	3/4 view	hatching
placement	profile	cross-hatching
highlights	oblique	stippling
shadow	gesture	scumbling
variety	tonal range	foreshortening
harmony	hierarchy	perspective
value	hatching	dominance
scale	cross-hatching	contour
composition	stipple	blind contour

As an artist, I can emphasize the subject of my artwork and make it aesthetically pleasing to the viewer by how I arrange my composition.

The Golden Ratio



The Rule of Thirds



Ohio | Department of Education

2012 Visual Art Standards
GRADES 9 - 12

ENDURING UNDERSTANDINGS	**Personal Choice and Vision:** Students construct and solve problems of personal relevance and interest when expressing themselves through visual art. **Critical and Creative Thinking:** Students combine and apply artistic and reasoning skills to imagine, create, realize and refine artworks in conventional and innovative ways. **Authentic Application and Collaboration:** Students work individually and in groups to focus ideas and create artworks that address genuine local and global community needs. **Literacy:** As consumers, critics and creators, students evaluate and understand artworks and other texts produced in the media forms of the day.
Students will: **PROGRESS POINTS**	A. Understand and articulate the intrinsic worth and public value of arts and cultural participation. B. Draw on a variety of sources to generate, select and evaluate ideas to create personally meaningful products. C. Address and communicate complex visual and conceptual ideas using a range of technical skill and art media including new technologies. D. Access and evaluate information from a variety of sources for visual reference with attention to ethical and legal issues. E. Apply reasoning skills to communicate key ideas expressed in their artworks and the works of others and use appropriate criteria and language to critique the works. F. Analyze and use digital tools to understand how and why images are created and interpreted and how media influences culture, beliefs and behaviors. G. Demonstrate flexibility and reflective habits when creating visual art forms in a variety of artistic contexts and environments. H. Demonstrate respect for, and effectively work with, socially and culturally diverse teams or content to increase innovation and quality.

COGNITIVE AND CREATIVE LEARNING PROCESSES	PERCEIVING/KNOWING (PE)	PRODUCING/PERFORMING (PR)	RESPONDING/REFLECTING (RE)
ACHIEVEMENT LEVEL CONTENT STATEMENTS **HS Beginning**	1PE Examine and articulate the effects of context on visual imagery. 2PE Identify and describe the sources artists use for visual reference and to generate ideas for artworks. 3PE Identify the relationship between community or cultural values and trends in visual art. 4PE Identify the factors that influence the work of individual artists. 5PE Describe the role of technology as a visual art medium. 6PE Describe the decisions made in the design of everyday objects.	1PR Demonstrate basic technical skill and craftsmanship with various art media when creating images from observation, memory and imagination. 2PR Apply the elements and principles of art and design using a variety of media to solve specific visual art problems. 3PR Explore multiple solutions to visual art problems through preparatory work. 4PR Establish the appropriate levels of craftsmanship when completing artworks. 5PR Investigate how to access available digital tools and innovative technologies to create and manipulate artwork. 6PR Identify and apply visual literacy as a means to create images that are personally expressive.	1RE Explore various methods of art criticism in responding to artworks. 2RE Identify assessment practices to manage, monitor and document their learning. 3RE Use appropriate vocabulary to define and describe techniques and materials used to create works of art. 4RE Investigate the role of innovative technologies in the creation and composition of new media imagery. 5RE Identify and explain one or more theories of aesthetics and visual culture. 6RE Identify various venues for viewing works of art. 7RE Recognize and articulate the importance of lifelong involvement and advocacy in the arts.
HS Intermediate	1PE Examine the context details of visual imagery and explain the social and cultural influences on the images. 2PE Describe sources visual artists use to generate ideas for artworks. 3PE Explore the relationship between community or cultural values and trends in visual art. 4PE Analyze the work of individual artists and explain how they are influenced by cultural factors. 5PE Explore the application of technology to the production of visual artworks. 6PE Connect processes and decisions made in the design of everyday objects, environments, and communications	1PR Demonstrate proficient technical skills and craftsmanship with various art media when creating images from observation, memory, or imagination. 2PR Make informed choices in the selection of materials and techniques as they relate to solving a visual problem. 3PR Generate a variety of solutions to visual arts problems through preparatory work. 4PR Establish and apply appropriate levels of craftsmanship to complete artworks. 5PR Understand and demonstrate how to access available digital tools and innovative technologies to create and manipulate artwork. 6PR Incorporate visual literacy as a means to create images that advance individual expression and communication.	1RE Apply methods of art criticism when discussing selected works of art. 2RE Apply assessment practices to revise and improve their artworks and to document their learning. 3RE Expand the use of arts-specific vocabulary to define and describe techniques and materials used to create works of art. 4RE Explain the role of innovative technologies in the creation and composition of new media imagery. 5RE Compare and contrast various theories of aesthetics and visual culture. 6RE Identify the challenges various venues present to the creation of works of art. 7RE Explore and discuss opportunities for lifelong involvement and advocacy in the arts.
HS Accelerated	1PE Analyze interdisciplinary connections that influence social and cultural contexts of visual imagery. 2PE Analyze and explain the factors that influence artworks. 3PE Compare and contrast the styles in artworks by artists of different cultures and historical trends. 4PE Explain how individual artists impact cultural developments. 5PE Investigate the influence of technology on visual art and its effects on their own works. 6PE Identify, examine and understand the aesthetic, stylistic and functional considerations of designing objects, environments and communications	1PR Demonstrate increased technical skill and craftsmanship with various art media when creating images from observation, memory and imagination. 2PR Make informed choices in the selection of materials and techniques that relate to solving a visual problem. 3PR Solve visual art problems that demonstrate skill, imagination and observation. 4PR Prepare artworks for display that demonstrate high levels of craftsmanship. 5PR Explore and expand on personal art applications through the use of available digital tools, innovative technologies and media arts. 6PR Expand visual literacy as a means to create images that advance individual expression and communication.	1RE Apply art criticism methods and inquiry skills to interpret visual images produced by new media and media arts. 2RE Practice self-assessment to understand their progress and prioritize steps for improvement. 3RE Explain artistic processes from idea conception to completion of a work of art using descriptive and arts-specific terminology. 4RE Respond to critical questions about the meaning and influence of new media imagery in our culture. 5RE Develop and support a personal philosophy of art based on aesthetic theories and understanding of visual culture. 6RE Explain how a response to a work of art is affected by the context in which it is viewed. 7RE Investigate and plan strategies for lifelong involvement and advocacy in the arts.

HS Advanced	1PE Interpret social and cultural contexts to develop personal meaning in visual imagery. 2PE Interpret and evaluate the way a theme or meaning in an artwork expresses the social, political or cultural context. 3PE Compare and contrast universal themes and sociopolitical issues in artworks from different cultures and historical periods. 4PE Demonstrate the ability to form and defend judgments regarding the relationships between artists and culture. 5PE Envision and explain how technology can impact visual art and literacy. 6PE Apply self-direction, independence and a purposed approach when defining and solving a visual design problem.	1PR Demonstrate advanced technical skills and craftsmanship with various art media when creating images from observation, memory and imagination. 2PR Use criteria to revise works-in-progress and describe changes made and what was learned in the process. 3PR Contribute to a portfolio of works that demonstrates technical skill, a range of media and various original solutions to visual art problems. 4PR Select, organize and prepare artworks for exhibition. 5PR Create original artworks that demonstrate the ability to select, use and vary available digital tools and innovative technologies. 6PR Visually express complex concepts and meaning in their artworks.	1RE Apply art criticism methods and inquiry skills as viewer, critic and consumer of visual images produced by new media and media arts. 2RE Apply assessment practices to select, organize and present personal artworks that document their understanding of visual art and literacy concepts. 3RE Apply inquiry and analytic processes when viewing, judging and consuming visual content and images produced by new media and media arts. 4RE Analyze and explain the relationship between the content and ideas in artworks and the use of media and compositional elements. 5RE Defend personal philosophies of art based on a connection to aesthetic theories and visual culture. 6RE Engage in discourse and express a point of view about issues related to the public display of works of art. 7RE Form and demonstrate personal strategies for lifelong involvement and advocacy in the arts.

EXHIBIT D

ADVANCED JEWELRY

Course #347A

Course of Study

Findlay City Schools

2017

TABLE OF CONTENTS

COURSE SUMMARY: This course requires instructor approval. In this course students will expand upon skills acquired in Jewelry in the areas of glass fusing, enameling, fabrication, and flamework beads. Additional techniques covered may include wood carved jewelry and lost wax casting. Techniques will be combined in a culminating project.

ADVANCED JEWELRY

Course #347A

Writing Team

Jon Gaberdiel

Mission Statement

Educating and Empowering for Life

Beliefs

Our beliefs form the ethical foundation of the Findlay City Schools.
We believe....

- *All students and families have worth and are to be valued.*
- *Students need a safe and inclusive environment in order to fully express who they are.*
- *All students can learn.*
- *In order for each student to thrive, students, families, staff and community must be vested in their growth and development.*
- *All students need opportunities in and out of the classroom.*
- *FCS must be a reflection of our growing community and its needs.*
- *The Seven Habits of Highly Effective People supports life skills:*
    - *Habit 1: Be Proactive*
    - *Habit 2: Begin with the End in Mind*
    - *Habit 3: Put First Things First*
    - *Habit 4: Think Win-Win*
    - *Habit 5: Seek First to Understand, Then to Be Understood*
    - *Habit 6: Synergize*
    - *Habit 7: Sharpen the Saw*

Advanced Jewelry
CURRICULUM MAP

WEEK	UNIT	TOPIC	STANDARDS
1	Introduction	Classroom set-up; Class expectations; Safety Procedures	1 PE, 2 PE, 1 PR, 2 PR, 3 PR, 4 PR
2	Glass Fusing	Frit Drawing	1 PE, 2 PE, 1 PR, 2 PR, 3 PR, 4 PR
3			
4			
5	Enamel	Cloisonné	1 PE, 2 PE, 1 PR, 2 PR, 3 PR, 4 PR
6			
7			
8	Fabrication	Stone Setting	1 PE, 2 PE, 1 PR, 2 PR, 3 PR, 4 PR
9			
10			
11	Lost Wax Casting	Cast Ring	1 PE, 2 PE, 1 PR, 2 PR, 3 PR, 4 PR
12			
13			
14	Wood and Stone	Wood and Stone Carved Jewelry	1 PE, 2 PE, 1 PR, 2 PR, 3 PR, 4 PR
15			
16	Culminating Project	Combine techniques (with re-purposed costume jewelry)	1 PE, 2 PE, 1 PR, 2 PR, 3 PR, 4 PR
17			
18			

Findlay City Schools
ADVANCED JEWELRY – Grades 9-12

Subject(s)	ADVANCED JEWELRY
Grade/Course	9-12
Unit of Study	Introduction: classroom set-up, class expectations, safety procedures
Pacing	1 week

STATE STANDARDS

1 PE, 2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• An artist must be familiar with his/her space, equipment and safety procedures.	• How does equipment function within the studio? What safety precautions must be followed?	Evaluation Synthesis Analysis Application

Enduring Understandings	Program Components (Learning Activities)
• Student artists will take ownership of the responsibility for maintaining an efficiently run studio.	• Students will tour the studio space, become acquainted with the tools and equipment and safety procedures.

Vocabulary	Resources/Best Practices
See Jewelry Syllabus	• Handouts • Demonstrations • Graphic organizers • Videos • Web research

Subject(s)	ADVANCED JEWELRY
Grade/Course	9-12
Unit of Study	Glass Fusing: Frit Drawing
Pacing	3 weeks

STATE STANDARDS

1 PE, 2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Glass frit can be manipulated, controlled and drawn with to create imagery on the surface of a sheet of glass.	• How does drawing with glass frit differ from the typical glass fusing process?	Evaluation Synthesis Application Analysis

Enduring Understandings	Program Components (Learning Activities)
• Students can achieve specific detail, texture, pattern, etc. consistent with their aesthetic when drawing with the glass frit.	• Students will design and create a frit drawing on a sheet of glass that will be fused in the glass kiln.

Vocabulary	Resources/Best Practices
See Jewelry Syllabus	• Demonstration • Hand outs • Graphic Organizers • Web research • Videos

Subject(s)	ADVANCED JEWELRY
Grade/Course	9-12
Unit of Study	Enamel: cloisonné
Pacing	3 weeks

STATE STANDARDS

1 PE, 2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Enamel provides jewelry artists with the ability to create a design with powdered glass onto a surface such as copper.	• How does cloisonné differ procedurally from standard enameling?	Evaluation Synthesis Application Analysis

Enduring Understandings	Program Components (Learning Activities)
• Cloisonné is a technique that allows artists to compartmentalize the enamel on the surface of the copper.	• Students will design and create a cloisonné enamel piece of jewelry.

Vocabulary	Resources/Best Practices
See Jewelry Syllabus	• Demonstration • Videos • Graphic organizers • Web research • Graphic organizers

Subject(s)	ADVANCED JEWELRY
Grade/Course	9-12
Unit of Study	Fabrication: Stone Setting
Pacing	3 weeks

STATE STANDARDS

1 PE, 2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Stone setting is a way of adding visual interest and design complexity to a piece of jewelry.	• What additional techniques, materials and tools are required to set a stone when fabricating metals?	Evaluation Synthesis Application Analysis

Enduring Understandings	Program Components (Learning Activities)
• Stone setting in a fabricated jewelry design allows an artist to create a clearly defined focal point.	• Students will design and create a metal fabricated piece of jewelry with a stone set.

Vocabulary	Resources/Best Practices
See Jewelry Syllabus	• Demonstration • Graphic organizers • Hand outs • Videos • Web research

Subject(s)	ADVANCED JEWELRY
Grade/Course	9-12
Unit of Study	Lost Wax Casting
Pacing	3 weeks

STATE STANDARDS

1 PE, 2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Lost wax casting is a process that allows the artist to produce a metal replica of the wax model.	• What are the steps, tools, equipment, etc. required to complete a lost wax cast piece of jewelry?	Evaluation Synthesis Application Analysis

Enduring Understandings	Program Components (Learning Activities)
• Lost wax cast jewelry allows artists to create a variety of details and design options not possible in fabricated jewelry.	• Students will design and produce a lost wax cast piece of jewelry.

Vocabulary	Resources/Best Practices
See Jewelry Syllabus	• Demonstration • Hand outs • Videos • Graphic organizers • Web research

Subject(s)	ADVANCED JEWELRY
Grade/Course	9-12
Unit of Study	Wood and Stone Jewelry
Pacing	2 weeks

STATE STANDARDS

1 PE, 2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Natural and found materials such as wood and stone may be aesthetically re-purposed to create jewelry designs.	• What are the tools and procedures required to create jewelry pieces from wood and stone?	Evaluation Synthesis Analysis Application

Enduring Understandings	Program Components (Learning Activities)
• Wood and stone jewelry components may serve as design focal points or supporting design features.	• Students will design and create a piece of jewelry incorporating wood and/or stone elements.

Vocabulary	Resources/Best Practices
See Jewelry Syllabus	• Demonstration • Graphic organizers • Hand outs • Videos • Web research

Subject(s)	ADVANCED JEWELRY
Grade/Course	9-12
Unit of Study	Culminating Project
Pacing	3 weeks

STATE STANDARDS

1 PE, 2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Artists often combine media to create a product with a look or function not achievable with a single medium.	• Which media combine efficiently, and in what order?	Evaluation Synthesis Analysis Application

Enduring Understandings	Program Components (Learning Activities)
• Combining jewelry media allows artists to create a unique look and function tailored to a specific aesthetic.	• Students will design and create a piece or pieces of jewelry combining at least two media/techniques used throughout the semester.

Vocabulary	Resources/Best Practices
See Jewelry Syllabus	• Demonstration • Hand outs • Videos • Graphic organizers • Web research

Appendix I

JEWELRY VOCABULARY

Glass Fusing Vocabulary	*Copper Enameling Vocabulary*	*Fabrication Vocabulary*
Glass Cutter	Enamel	Fabrication
Running pliers	Pigment	Solder
Wheeled nippers	Kiln	Flux
Kiln	Transparent	Anneal
Fiber paper	Opaque	Pickle
Coefficient of expansion (COE)	Thermo-shock	Tripoli
Annealing	Crazing	Rouge
Full fuse	Frit	Lacquer
Tack fuse		

ENDURING UNDERSTANDINGS	**Personal Choice and Vision:** Students construct and solve problems of personal relevance and interest when expressing themselves through visual art. **Critical and Creative Thinking:** Students combine and apply artistic and reasoning skills to imagine, create, realize and refine artworks in conventional and innovative ways. **Authentic Application and Collaboration:** Students work individually and in groups to focus ideas and create artworks that address genuine local and global community needs. **Literacy:** As consumers, critics and creators, students evaluate and understand artworks and other texts produced in the media forms of the day.		Ohio | Department of Education ***2012 Visual Art Standards*** ***GRADES 9 - 12***
Students will: **PROGRESS POINTS**	A. Understand and articulate the intrinsic worth and public value of arts and cultural participation. B. Draw on a variety of sources to generate, select and evaluate ideas to create personally meaningful products. C. Address and communicate complex visual and conceptual ideas using a range of technical skill and art media including new technologies. D. Access and evaluate information from a variety of sources for visual reference with attention to ethical and legal issues. E. Apply reasoning skills to communicate key ideas expressed in their artworks and the works of others and use appropriate criteria and language to critique the works. F. Analyze and use digital tools to understand how and why images are created and interpreted and how media influences culture, beliefs and behaviors. G. Demonstrate flexibility and reflective habits when creating visual art forms in a variety of artistic contexts and environments. H. Demonstrate respect for, and effectively work with, socially and culturally diverse teams or content to increase innovation and quality.		
COGNITIVE AND CREATIVE LEARNING PROCESSES	**PERCEIVING/KNOWING (PE)**	**PRODUCING/PERFORMING (PR)**	**RESPONDING/REFLECTING (RE)**
ACHIEVEMENT LEVEL CONTENT STATEMENTS **HS Beginning**	1PE Examine and articulate the effects of context on visual imagery. 2PE Identify and describe the sources artists use for visual reference and to generate ideas for artworks. 3PE Identify the relationship between community or cultural values and trends in visual art. 4PE Identify the factors that influence the work of individual artists. 5PE Describe the role of technology as a visual art medium. 6PE Describe the decisions made in the design of everyday objects.	1PR Demonstrate basic technical skill and craftsmanship with various art media when creating images from observation, memory and imagination. 2PR Apply the elements and principles of art and design using a variety of media to solve specific visual art problems. 3PR Explore multiple solutions to visual art problems through preparatory work. 4PR Establish the appropriate levels of craftsmanship when completing artworks. 5PR Investigate how to access available digital tools and innovative technologies to create and manipulate artwork. 6PR Identify and apply visual literacy as a means to create images that are personally expressive.	1RE Explore various methods of art criticism in responding to artworks. 2RE Identify assessment practices to manage, monitor and document their learning. 3RE Use appropriate vocabulary to define and describe techniques and materials used to create works of art. 4RE Investigate the role of innovative technologies in the creation and composition of new media imagery. 5RE Identify and explain one or more theories of aesthetics and visual culture. 6RE Identify various venues for viewing works of art. 7RE Recognize and articulate the importance of lifelong involvement and advocacy in the arts.
HS Intermediate	1PE Examine the context details of visual imagery and explain the social and cultural influences on the images. 2PE Describe sources visual artists use to generate ideas for artworks. 3PE Explore the relationship between community or cultural values and trends in visual art. 4PE Analyze the work of individual artists and explain how they are influenced by cultural factors. 5PE Explore the application of technology to the production of visual artworks. 6PE Connect processes and decisions made in the design of everyday objects, environments, and communications	1PR Demonstrate proficient technical skills and craftsmanship with various art media when creating images from observation, memory, or imagination. 2PR Make informed choices in the selection of materials and techniques as they relate to solving a visual problem. 3PR Generate a variety of solutions to visual arts problems through preparatory work. 4PR Establish and apply appropriate levels of craftsmanship to complete artworks. 5PR Understand and demonstrate how to access available digital tools and innovative technologies to create and manipulate artwork. 6PR Incorporate visual literacy as a means to create images that advance individual expression and communication.	1RE Apply methods of art criticism when discussing selected works of art. 2RE Apply assessment practices to revise and improve their artworks and to document their learning. 3RE Expand the use of arts-specific vocabulary to define and describe techniques and materials used to create works of art. 4RE Explain the role of innovative technologies in the creation and composition of new media imagery. 5RE Compare and contrast various theories of aesthetics and visual culture. 6RE Identify the challenges various venues present to the creation of works of art. 7RE Explore and discuss opportunities for lifelong involvement and advocacy in the arts.
HS Accelerated	1PE Analyze interdisciplinary connections that influence social and cultural contexts of visual imagery. 2PE Analyze and explain the factors that influence artworks. 3PE Compare and contrast the styles in artworks by artists of different cultures and historical trends. 4PE Explain how individual artists impact cultural developments. 5PE Investigate the influence of technology on visual art and its effects on their own works. 6PE Identify, examine and understand the aesthetic, stylistic and functional considerations of designing objects, environments and communications	1PR Demonstrate increased technical skill and craftsmanship with various art media when creating images from observation, memory and imagination. 2PR Make informed choices in the selection of materials and techniques that relate to solving a visual problem. 3PR Solve visual art problems that demonstrate skill, imagination and observation. 4PR Prepare artworks for display that demonstrate high levels of craftsmanship. 5PR Explore and expand on personal art applications through the use of available digital tools, innovative technologies and media arts. 6PR Expand visual literacy as a means to create images that advance individual expression and communication.	1RE Apply art criticism methods and inquiry skills to interpret visual images produced by new media and media arts. 2RE Practice self-assessment to understand their progress and prioritize steps for improvement. 3RE Explain artistic processes from idea conception to completion of a work of art using descriptive and arts-specific terminology. 4RE Respond to critical questions about the meaning and influence of new media imagery in our culture. 5RE Develop and support a personal philosophy of art based on aesthetic theories and understanding of visual culture. 6RE Explain how a response to a work of art is affected by the context in which it is viewed. 7RE Investigate and plan strategies for lifelong involvement and advocacy in the arts.

HS Advanced	1PE Interpret social and cultural contexts to develop personal meaning in visual imagery. 2PE Interpret and evaluate the way a theme or meaning in an artwork expresses the social, political or cultural context. 3PE Compare and contrast universal themes and sociopolitical issues in artworks from different cultures and historical periods. 4PE Demonstrate the ability to form and defend judgments regarding the relationships between artists and culture. 5PE Envision and explain how technology can impact visual art and literacy. 6PE Apply self-direction, independence and a purposed approach when defining and solving a visual design problem.	1PR Demonstrate advanced technical skills and craftsmanship with various art media when creating images from observation, memory and imagination. 2PR Use criteria to revise works-in-progress and describe changes made and what was learned in the process. 3PR Contribute to a portfolio of works that demonstrates technical skill, a range of media and various original solutions to visual art problems. 4PR Select, organize and prepare artworks for exhibition. 5PR Create original artworks that demonstrate the ability to select, use and vary available digital tools and innovative technologies. 6PR Visually express complex concepts and meaning in their artworks.	1RE Apply art criticism methods and inquiry skills as viewer, critic and consumer of visual images produced by new media and media arts. 2RE Apply assessment practices to select, organize and present personal artworks that document their understanding of visual art and literacy concepts. 3RE Apply inquiry and analytic processes when viewing, judging and consuming visual content and images produced by new media and media arts. 4RE Analyze and explain the relationship between the content and ideas in artworks and the use of media and compositional elements. 5RE Defend personal philosophies of art based on a connection to aesthetic theories and visual culture. 6RE Engage in discourse and express a point of view about issues related to the public display of works of art. 7RE Form and demonstrate personal strategies for lifelong involvement and advocacy in the arts.

EXHIBIT D

APPLICATION FOR PILOT COURSE
FINDLAY CITY SCHOOLS

DIRECTIONS: All the following items are part of the application and must be submitted to the Curriculum Director:

- Completed application form with all signatures**
- Draft course of study*
- Draft curriculum map*

Course Title:

AP Microeconomics

Rationale for the course:

Economics is becoming a required course for all FHS students to take. To provide differentiation amongst the course offerings for students, an AP Microeconomics section will be offered. As none of the social studies teachers in the department could be certified to teach a CCP economics course, this alternative will provide the opportunity for students to earn college credit for economics while in high school. The curriculum will be aligned with the college prep economics course of study and the AP standards for microeconomics.

Intended audience:

As seniors will be required to take economics while at Findlay High School, this course will be intended for seniors. They will need teacher approval from a previous social studies teacher.

Number of students interested in the course and the method used to assess student interest:

As with all other social studies courses, there will be an advanced placement course for the required course, allowing for differentiation of abilities and levels. Students were surveyed last year as to whether they would be interested in taking an economics course for college credit and the response was extremely positive.

Enrollment limitations:

The enrollment limitations would be that of how many students sign up for the course. Each course section will allow for a maximum of 30 students.

Prerequisites:

Students will have needed to have passed their government course with an "A" or "B", or have teacher or principal recommendation to enroll into the course.

Materials and equipment needed:

This course will be written with no textbook in mind, as it will allow for the creativity and innovation of both the teacher and the students. Students will benefit from having 1:1 technology into the classroom but the classroom will function well with the technology that is already provided with the school district.

Anticipated course costs and collateral impact:

There will be no costs to the district other than moving forward on the 1:1 technology plan and having a classroom teacher teach the assigned courses.

Availability of funds:

Since there will be limited to no cost required for this cost, there should be very little funds tied to this class and should be of little difficulty for Findlay City Schools to implement.

Availability of qualified staff:

There are several teachers who are qualified to teach economics already. The teacher will be teaching AP microeconomics would undergo AP certification and attend any professional development needed to obtain such certification.

Length of course:

The course will last for a semester, just like the other economic courses, limiting the ability to have class load issues. This course will need to take place in the spring to allow students to prepare for the AP exam in May at the end of the school year.

Does this course fulfill a graduation requirement (specify) or is it an elective?

This course will fulfill several graduation requirements, including the required courses for social studies, electives, financial literacy requirement from the state of Ohio and the minimum of credits needed to graduate.

How does this proposed course help meet the mission and goals of Findlay City Schools?

This course stresses the importance of foundational economic concepts and will allow students to understand how the concepts of economics impact their daily lives. Students will get a look at supply and demand, budgeting, scarcity, and competition, allowing them to understand how these economic decisions can impact them. Students will expand on the 4 Cs, including creativity, communication, collaboration, and creative thinking. Students will also work on refining their reading and writing skills with practice AP multiple choice and free response questions.

REQUIRED SIGNATUARES:

INITIATOR: Jesse Winkers

DEPARTMENT CHAIR: ________________

PRINCIPAL: ________________

4/6/06

MILLSTREAM DIRCTOR (if applicable): _____

CURRICULUM DIRECTOR: _____

SUPPORTING STAFF: _____

FHS & MILLSTREAM

*Draft course of study must include:

- Standard(s)
- Benchmark(s)
- Indicator(s)
- Follow an approved format

*Draft curriculum map must include:

- Time frame
- Indicator
- Topic
- Follow an approved format

MILLSTREAM

Competency
Terminal Objectives
Competency Builders

Action taken by Curriculum Council: Date _____

☐ Recommend to superintendent
☐ Reject
☐ Table

Superintendent Action: ☐ Approve ☐ Disapprove

Signature: _____ Date: _____

****The superintendent will determine if it is economically feasible/desirable to offer the course.**

EXHIBIT D

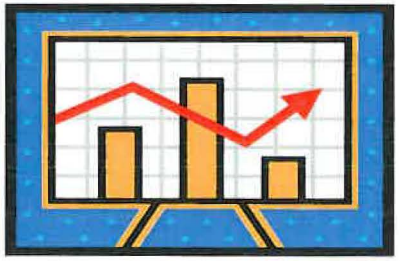
College Prep Economics

Findlay City Schools

2017

TABLE OF CONTENTS

Course description: The study of economics will help students to understand and value the capitalistic system, act more intelligently on questions of public economic policy; and make intelligent personal economic decisions. This course takes both a theoretical and hands-on approach. Some of the specific areas studied are productive resources, the market system, competition, labor unions, business fluctuations, economics growth, the role of money and banking and government in the economy and alternative economic systems.



COLLEGE PREP ECONOMICS
Course of Study

Writing Team
Jessee Hankins

Mission Statement

Educating and Empowering for Life

Beliefs

Our beliefs form the ethical foundation of the Findlay City Schools.
We believe....

- *All students and families have worth and are to be valued.*
- *Students need a safe and inclusive environment in order to fully express who they are.*
- *All students can learn.*
- *In order for each student to thrive, students, families, staff and community must be vested in their growth and development.*
- *All students need opportunities in and out of the classroom.*
- *FCS must be a reflection of our growing community and its needs.*
- *The Seven Habits of Highly Effective People supports life skills:*
    - *Habit 1: Be Proactive*
    - *Habit 2: Begin with the End in Mind*
    - *Habit 3: Put First Things First*
    - *Habit 4: Think Win-Win*
    - *Habit 5: Seek First to Understand, Then to Be Understood*
    - *Habit 6: Synergize*
    - *Habit 7: Sharpen the Saw*

College Prep Economics
CURRICULUM MAP

WEEK	TOPIC	MARZANO'S TAXONOMY LEVELS
Weeks 1-3	Introduction to Economics	Remembering, Understanding, Analyzing, Evaluating, Creating
Weeks 4-8	Microeconomics	Remembering, Understanding, Analyzing, Evaluating, Creating
Weeks 9-13	Macroeconomics	Remembering, Understanding, Analyzing, Evaluating, Creating
Weeks 14-18	Financial Literacy	Remembering, Understanding, Analyzing, Evaluating, Creating

Curriculum Map is tentative, based on a 9-week quarter and an 18-week semester.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ College Prep Economics
Unit of Study	Introduction to Economics
Pacing	Weeks 1-3

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): People cannot have all the goods and services they want and, as a result, must choose some things and give up others.

Supporting Standard(s): Economists analyze multiple sources of data to predict trends, make inferences and arrive at conclusions.

"Unwrapped Skills" (students need to be able to do)	**"Unwrapped Concepts" (students need to know)**	**Bloom's Taxonomy Levels**
1) Analyze real world situations to identify opportunity costs and tradeoffs. 2) Identify examples of the factors of production when given a situation. 3) Analyze production possibilities curves to determine the state of an economy. 4) Evaluate real world situations to determine the comparative advantage of various countries.	1) Economics is the study of scarcity, which means that there are unlimited wants, but limited resources. 2) Making a decision involves an opportunity cost, the value of the next best alternative given up when an economic choice is made. 3) Production possibility curves (PPCs) provide a picture of the maximum production capabilities of an economy.	1) Analyzing 2) Understanding 3) Analyzing 4) Evaluating

Vocabulary	**Resources**
1) Economics 4) Scarcity 5) Tradeoff 6) Opportunity Cost 7) Land 8) Labor	1) Factors of Production and Economic Decision-Making- NC Civic Education Consortium 2) Tradeoffs and Opportunity Costs- Foundation for the Teaching of Economics 3) Decision-Making: Scarcity, Opportunity Cost, and You- Council for Economic Education

Board Adopted Date

9) Capital 10) Entrepreneurship 11) Goods 12) Services 13) Producers 14) Consumers 15) Economic Model 16) Law of Increasing Opportunity Costs 17) Comparative Advantage 18) Positive Analysis 19) Normative Analysis	4) Comparative Advantage and Trade in a Global Economy- IMF Center 5) Should LeBron James Mow His Lawn?- Council for Economic Education
Essential Questions	**Understanding/Corresponding Big Ideas**
1) Why are individuals unable to have everything they want? 2) What impact does scarcity have on the production, distribution, consumption of goods and services? 3) Why do countries trade with each other?	1) Economics is the study of how a society uses its scarce resources to meet its unlimited demands. 2) Because of scarce number of resources and factors of productions, individuals have to make decisions, resulting in tradeoffs and opportunity costs. 3) Economists use data and models to help societies make the best decisions possible.

Board Adopted Date

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ College Prep Economics
Unit of Study	Introduction to Economics
Pacing	Weeks 1-3

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): Different economic systems (traditional, market, command, and mixed) utilize different methods to allocate limited resources

Supporting Standard(s): Economists analyze multiple sources of data to predict trends, make inferences and arrive at conclusions.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
1) Compare economies of various countries. 2) Evaluate the benefits of different economic systems. 3) Identify the basic questions answered by all economies. 4) Evaluate the characteristics of capitalism, socialism, and communism.	1) Different economic systems allocate the scarce resources in different ways. 2) The three basic questions answered by all economies are "What is produced?", "How is it produced?", and "For whom is it produced?" 3) Most economies today are mixed economies, borrowing components from each type of economic systems and economic philosophies. 4) Different countries have economic systems of various degrees that impact how they allocate their scarce economic resources.	1) Analyzing 2) Evaluating 3) Remembering 4) Evaluating

Vocabulary	Resources
1) Economic system 2) Traditional economy 3) Command economy	1) Comparing Economic Systems- University of North Carolina 2) Comparative Economic Systems- Council for

Board Adopted Date

4) Market economy 5) Socialism 6) Communism 7) Capitalism 8) Laissez-faire policy 9) Circular flow model 10) Factor market 11) Product market 12) Mixed economy	Economic Education 3) The Island Game- University of Minnesota 4) Candies or Pencils?- Fraser Institute of Canada 5) Rock, Paper, Scissors with a Twist- Capitalism, Socialism, Communism
Essential Questions	**Understanding/Corresponding Big Ideas**
1) How do various economic systems allocate scarce resources? 2) How have economic philosophies impacted the development of various societies? 3) Why are there no pure market or pure command economies within the world?	1) Different economic systems allocate the scarce resources in different ways. 2) The three basic questions answered by all economies are "What is produced?", "How is it produced?", and "For whom is it produced?" 3) Most economies today are mixed economies, borrowing components from each type of economic systems and economic philosophies. 4) Different countries have economic systems of various degrees that impact how they allocate their scarce economic resources.

Board Adopted Date

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ College Prep Economics
Unit of Study	Microeconomics
Pacing	Weeks 4-8

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): Markets exist when consumers and producers interact. When supply or demand changes, market prices adjust. Those adjustments send signals and provide incentives to consumers and producers to change their own decisions.

Supporting Standard(s): Economists analyze multiple sources of data to predict trends, make inferences and arrive at conclusions.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
1) Create accurate market schedules and market graphs. 2) Apply market principles in a real world situation. 3) Analyze how markets adjust to changes in supply and demand. 4) Evaluate markets graphs and schedules to determine reactions from market actors. 5) Summarize the various market principles that impact an economic system.	1) Producers and consumers act in a marketplace, creating an equilibrium in the market. 2) When supply or demand change, it creates a response from producers or consumers. 3) Markets always work toward equilibrium, but markets can fail, leading to government intervention. 4) Determinants of supply and demand signal how markets will react to a change. 5) Government intervenes to correct market failures and to benefit society as a whole.	1) Creating 2) Evaluating 3) Analyzing 4) Evaluating 5) Understanding

Vocabulary	Resources
1) Demand	1) Market of Wheat- Council for Economic Education

Board Adopted Date

2) Law of Demand 3) Demand schedule 4) Demand Curve 5) Substitution Effect 6) Income Effect 7) Law of Diminishing Marginal Utility 8) Normal good 9) Inferior good 10) Substitute 11) Complement 12) Elasticity of Demand 13) Elastic 14) Inelastic 15) Unitary Elastic 16) Supply 17) Law of Supply 18) Supply Schedule 19) Supply Curve 20) Elasticity of Supply 21) Equilibrium 22) Surplus 23) Shortage 24) Price Floor 25) Price Ceiling	2) Demand, Supply, and the Market- Foundation for Teaching Economics 3) The Market Economy- iCivics 4) Playdough Economics- Indiana Department of Education 5) Demand and Supply--It's What Economics Is About!- St. Louis Federal Reserve
Essential Questions	**Understanding/Corresponding Big Ideas**
1) How do markets determine the value of goods and services? 2) How can market actors influence the market? 3) Why do markets fail? 4) Why do societies rely on markets to exchange goods and services?	1) A market exists whenever buyers and sellers exchange goods and services. Exchanges occur almost anywhere, through face-to-face transactions, the Internet, by phone or via mail order. 2) The market price, also referred to as the equilibrium price, is reached (and illustrated) when the demand and supply curves intersect. 3) When markets fail, government intervenes through price interventions to benefit society as a whole.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ College Prep Economics
Unit of Study	Microeconomics
Pacing	Weeks 4-8

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): Competition among sellers lowers costs and prices, and encourages producers to produce more of what consumers are willing and able to buy. Competition among buyers increases prices and allocates goods and services to those people who are willing and able to pay the most for them.

Supporting Standard(s): Economists analyze multiple sources of data to predict trends, make inferences and arrive at conclusions.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
1) Differentiate between the different market structures. 2) Evaluate markets to determine market structure in place. 3) Analyze markets to determine how much competition exists. 4) Evaluate how market structure impacts the competition. 5) Compare how types of businesses influence the prevalence of competition in a market.	1) Various market structures impact how much competition exists in a market. 2) The type of business organization utilized can impact the market structure and overall amount of competition within the market. 3) Competition in a market can lead to a more efficient use of economic resources and lower prices for consumers.	1) Understanding 2) Evaluating 3) Analyzing 4) Evaluating 5) Understanding

Vocabulary	Resources
1) Market structure 2) Perfect competition 3) Imperfect competition 4) Monopoly 5) Natural monopoly	1) Choosing the Right Type of Business Organization- Council for Economic Education 2) Three Types of Business Organizations- Council for Economic Education 3) Competition: Pizza!- Council for Economic Education

Board Adopted Date

6) Government monopoly 7) Technological monopoly 8) Geographic monopoly 9) Monpolistic competition 10) Oligopoly 11) Antitrust legislation 12) Trust 13) Merger 14) Business organization 15) Sole proprietorships 16) Unlimited liability 17) General partnership 18) Limited partnership 19) Limited liability partnership 20) Corporation 21) Public company 22) Private company 23) Horizontal merger 24) Vertical merger 25) Conglomerate 26) Multinational corporation 27) Franchise 28) Franchisee 29) Cooperative 30) Nonprofit organization	4) Cartels and Competition- Foundation for Teaching Economics 5) In the Chips--A Market for Computer Chips- Foundation for Teaching Economics
Essential Questions	**Understanding/Corresponding Big Ideas**
1) Why does competition exist? 2) How has the development of corporations impacted economic competition and market structures? 3) Why is competition important for markets?	1) Producers compete with each other to meet consumer demand through advertising, offering promotions and making production more efficient by integrating technological innovations into production and developing labor-saving devices. 2) Competition in a market can lead to a more efficient use of economic resources and lower prices for consumers. 3) Various market structures impact how much

	competition exists in a market. 4) The type of business organization utilized can impact the market structure and overall amount of competition within the market.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ College Prep Economics
Unit of Study	Macroeconomics
Pacing	Weeks 9-13

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): A nation's overall level of economic well-being is determined by the interaction of spending and production decisions made by all households, firms, government agencies and others in the economy. Economic well-being can be assessed by analyzing economic indicators gathered by the government.

Supporting Standard(s): Economists analyze multiple sources of data to predict trends, make inferences and arrive at conclusions.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
1) Compute the GDP, GNP, and the various components in these formulas. 2) Interpret and analyze economic indicators (e.g., GDP, unemployment rates, CPI) to assess a nation's economic well-being. 3) Interpret economic indicators to determine which stage in the business cycle a nation is experiencing.	1) Different economic indicators can determine how well a nation is performing. 2) Business cycles can indicate how a nation's economy is doing and what the future performance may be. 3) The various types of unemployment can indicate how the labor market is within a nation. 4) Inflation and the indicators of it can also help to determine the value of money within an economy.	1) Understanding 2) Analyzing 3) Analyzing

Vocabulary	Resources
1) National income accounting 2) Gross domestic product (GDP) 3) Nominal GDP 4) Real GDP	1) Which Came First?--Democracy or Growth?--Federal Reserve Bank of St. Louis 2) The Business Cycle and Important Economic Measures--NC Civic Education Consortium

Board Adopted Date

5) Gross national product (GNP) 6) Business cycle 7) Recession 8) Depression 9) Stagflation 10) Real GDP per capita 11) Unemployed rate 12) Underemployed 13) Full employment 14) Frictional unemployment 15) Seasonal unemployment 16) Structural unemployment 17) Cyclical unemployment 18) Inflation 19) Consumer price index (CPI) 20) Produce price index (PPI) 21) Inflation rate 22) Hyperinflation 23) Deflation	3) Understanding Unemployment--Science Education Resource Center, Carleton College 4) Gross Domestic Product Resources--Federal Reserve Bank of Atlanta
Essential Questions	**Understanding/Corresponding Big Ideas**
1) Why is instability in an economy a benefit and troublesome? 2) How do consumers impact a nation's economy collectively? 3) Why do we measure an economy's performance?	1) One of the indicators on a nation's economic health is its Gross Domestic Product (GDP). This is a basic measure of economic output of the total market value of all final goods and services produced in a country in a given year. 2) Other economic indicators include the Consumer Price Index (CPI), unemployment rates, new residential sales, new residential construction, personal income and outlays, consumer confidence index and U.S. international transactions. 3) Business cycles can indicate how a nation's economy is doing and what the future performance may be. 4) The various types of unemployment can indicate how the labor market is within a nation.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ College Prep Economics
Unit of Study	Macroeconomics
Pacing	Weeks 9-13

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): Economic policy decisions made by governments result in both intended and unintended consequences.

Supporting Standard(s): Economists analyze multiple sources of data to predict trends, make inferences and arrive at conclusions.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
1) Evaluate the historical impact of a government economic decision. 2) Differentiate between the different types of taxes the government collects. 3) Evaluate the impact of different fiscal policies on a nation's economy. 4) Analyze the different functions of the Federal Reserve and how these functions impact the American economy.	1) Understand the different types of taxes the government collects to finance its spending. 2) Government actions during and following the Great Depression influenced the purpose of government economic policy. 3) Fiscal policies are decisions to change spending and tax levels by the federal government to influence national levels of output, employment and prices. 4) The Federal Reserve System uses monetary policies to influence the supply of money and the availability of credit.	1) Evaluating 2) Understanding 3) Evaluating 4) Analyzing

Vocabulary	Resources
1) Tax 2) Revenue	1) Understanding Taxes- Internal Revenue Service 2) How Should Governments Structure the Tax

Board Adopted Date

3) Individual income tax 4) Corporate income tax 5) Sales tax 6) Property tax 7) Proportional tax 8) Regressive tax 9) Tax incentive 10) Taxable income 11) FICA 12) Social Security 13) Medicare 14) Estate tax 15) Gift tax 16) Excise tax 17) Mandatory spending 18) Discretionary spending 19) Entitlements 20) Medicaid 21) Federal budget 22) Fiscal year 23) Appropriations 24) Balanced budget 25) Expansionary fiscal policy 26) Contractionary fiscal policy 27) Discretionary fiscal policy 28) Keynesian economics 29) Demand-side fiscal policy 30) Supply-side fiscal policy 31) Budget surplus 32) Budget deficit 33) Deficit spending 34) National debt 35) Central bank 36) Federal Reserve System 37) Currency 38) Board of Governors	System?- Council for Economic Education 3) Tic Tic Taxes- Council for Economic Education 4) Resource Center- U.S. Department of Treasury 5) Federal Budget Simulation Lesson Plan- JFK Presidential Library and Museum 6) Fiscal Policy- Foundations for the Teaching of Economics 7) Fiscal and Monetary Policy Infographic Classroom Activity- Federal Reserve Bank of Atlanta 8) The Federal Reserve System- Council for Economic Education 9) Monetary Policy Resources- Federal Reserve Bank of Atlanta 10) Money and Monetary Policy- Foundation for Teaching Economics 11) The Fed's Toolbox- Federal Reserve Bank of St. Louis

Board Adopted Date

39) Required Reserve ratio 40) Monetary Policy 41) Open market operations 42) Federal funds rate 43) Discount rate 44) Prime rate 45) Expansionary monetary policy 46) Contractionary monetary policy 47) Easy-money policy 48) Tight-money policy	
Essential Questions	**Understanding/Corresponding Big Ideas**
1) Is government necessary in handling the economy of a nation? 2) Are taxes necessary in an economy? 3) Why do we have money? 4) Should government regulate businesses or be their partner? 5) How can government fix and disrupt the nation's economy?	1) Economic policy decisions are generally intended to maintain a healthy economy. Examples include social security, deep ocean drilling, tax cuts and deficit spending. Sometimes there are unintended consequences. 2) Fiscal policies are decisions to change spending and tax levels by the federal government to influence national levels of output, employment and prices. 3) The Federal Reserve System uses monetary policies to influence the supply of money and the availability of credit. The Fed induces changes in interest rates to influence prices, employment and spending. 4) The variety of taxes that the government collects allow for government spending to benefit a society as a whole.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ College Prep Economics
Unit of Study	Macroeconomics
Pacing	Weeks 9-13

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): Government actions, such as tariffs, quotas, subsidies, trade agreements and membership in multinational economic organizations, significantly impact international trade.

Supporting Standard(s): When regions and nations use comparative advantage to produce at the lowest cost and then trade with others, production, consumption and interdependence increase.

Economists analyze multiple sources of data to predict trends, make inferences and arrive at conclusions.

"Unwrapped Skills" (students need to be able to do)	**"Unwrapped" Concepts (students need to <u>know</u>)**	**Bloom's Taxonomy Levels**
1) Explain how production, consumption and interdependence increase when regions and nations trade with each other as a result of using comparative advantage. 2) Analyze how a nation's economic policies, trade agreements and/or memberships in multinational organizations impact international trade. 3) Evaluate the impact of a nation's participation in international organizations or trade agreements on the nation's economy. 4) Analyze the production of different products in different nations and	1) Comparative advantage of regions and nations exists when they can produce goods or services at a lower opportunity cost than other individuals or nations. 2) Specializing in the production of the good or service at a lower cost increases trade with others. 3) The growth in globalization increased the development of international trade following World War II. 4) Various international organizations have allowed for increased interdependence among countries.	1) Understanding 2) Analyzing 3) Evaluating 4) Analyzing

examine how specialization and comparative advantage play a role.		

Vocabulary	Resources
1) Specialization 2) Economic interdependence 3) Absolute advantage 4) Comparative advantage 5) Law of comparative advantage 6) Exports 7) Imports 8) Trade barrier 9) Quota 10) Tariff 11) Embargo 12) Trade war 13) Protectionism 14) Foreign exchange rate 15) Balance of trade 16) Trade surplus 17) Trade deficit 18) European Union 19) NAFTA 20) OPEC 21) cartel 22) WTO 23) Developed nations 24) Less developed countries (LDC) 25) Human development index (HDI) 26) World Bank 27) International Monetary Fund (IMF)	1) Why Nations Trade- Council for Economic Education 2) Comparative Advantage and Trade in a Global Economy- Council for Economic Education 3) Issues of International Trade- Foundation for Teaching Economics 4) Hey, Hey! Ho, Ho! Why Do We Need the WTO?- Council for Economic Education 5) International Organizations- iCivics
Essential Questions	**Understanding/Corresponding Big Ideas**
1) Why do we trade? 2) What benefits or costs does trade bring to an economy? 3) How have international organizations affected the	1) Comparative advantage of regions and nations exists when they can produce goods or services at a lower opportunity cost than other individuals or nations. 2) Specializing in the production of the good or service

global economy? 4) How have international organizations affected various nations?	at a lower cost increases trade with others. 3) The growth in globalization increased the development of international trade following World War II. 4) Various international organizations have allowed for increased interdependence among countries.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ College Prep Economics
Unit of Study	Financial Literacy
Pacing	Weeks 14-18

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): Income is determined by many factors including individual skills and abilities, work ethic, and market conditions.

Supporting Standard(s): Employee-earning statements include information about gross wages, benefits, taxes, and other deductions.

"Unwrapped Skills" (students need to be able to do)	**"Unwrapped" Concepts (students need to know)**	**Bloom's Taxonomy Levels**
1) Analyze pay statements to determine how an individual's income was calculated. 2) Research job postings to evaluate what characteristics employers are looking for. 3) Calculate an individual's income given a real-world situation. 4) Analyze tax forms that relate to income and taxation. 5) Complete tax forms from the IRS.	1) Income is determined by many factors including individual skills and abilities, work ethic, and market conditions. 2) Employee-earning statements include information about gross wages, benefits, taxes, and other deductions. 3) After earning income, individuals complete forms to pay taxes to different governments or for federal programs. 4) Different careers brings different salaries, benefits, and responsibilities.	1) Analyzing 2) Evaluating 3) Understanding 4) Analyzing 5) Understanding

Vocabulary	**Resources**
1) Income 2) Salary 3) Benefits 4) Internal Revenue Service (IRS) 5) Social Security 6) Exemption	1) It's Your Paycheck! Curriculum Unit- Federal Reserve Bank of St. Louis 2) Making Money Lesson Plan- InCharge Institute of America 3) Analyze a Pay Stub- Finance in the Classroom 4) What Factors Affect Your Income?- Finance in the

Board Adopted Date

7) Retirement 8) Pension Plan 9) W2 Form 10) W4 Form 11) Gross Pay 12) Net Pay 13) Deduction	Classroom 5) Form W4- Internal Revenue Service 6) Paystub Puzzles: Putting the Pieces Together- Practical Money Skills 7) Income Taxes- Essex High School 8) Income Taxes- Federal Reserve Bank of Atlanta
Essential Questions	**Understanding/Corresponding Big Ideas**
1) What is the "best" job? Why? 2) How is individual income connected to the national economy?	1) Income may be determined by the skills and abilities an individual has. 2) Market conditions can influence an individual's income. Economic, social, cultural and political conditions can all affect incomes. 3) Employees are able to monitor their salaries through the information provided in their earning statements.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ College Prep Economics
Unit of Study	Financial Literacy
Pacing	Weeks 14-18

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): A personal financial plan includes financial goals and a budget, including spending on goods and services, savings and investments, insurance and philanthropy.

Supporting Standard(s): Financial decision-making involves considering alternatives by examining costs and benefits.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
1) Analyze financial goals to produce a budget. 2) Evaluate a financial budget. 3) Evaluate real-word situations to determine costs and benefits of a decision. 4) Develop a personal financial plan.	1) Personal financial plans are developed based on individual philosophies and saving and spending trends. 2) There are costs and benefits with every financial decision. 3) Different strategies can be utilized to help individuals develop and execute a personal financial plan.	1) Analyzing 2) Evaluating 3) Evaluating 4) Creating

Vocabulary	Resources
1) Consumption 2) Rational choice 3) Disposable income 4) Discretionary income 5) Trade-off 6) Opportunity cost 7) Budget 8) Economic efficiency 9) Long-term goal 10) Short-term goal	1) Show Me the Money!- Practical Money Skills 2) A Plan for the Future- Making a Budget 3) Your Budget Plan- St. Louis Federal Reserve 4) The Art of Budgeting- InCharge Institute of America 5) In Trouble- InCharge Institute of America 6) Todd and His REAL Job- Federal Reserve Bank of Philadelphia 7) Personal Finance Lesson Plan- Federal Reserve Bank of San Francisco

Board Adopted Date

11) Fixed expenses 12) Variable expenses	
Essential Questions	**Understanding/Corresponding Big Ideas**
1) Why are budgets important for the economy? 2) How can budgets impact an individual's financial health? 3) Why are there costs and benefits to creating a budget?	1) Establishing personal goals often involves evaluating alternative choices. 2) Most financial decisions involve tradeoffs because resources are limited. Those decisions result in an opportunity cost. 3) A personal financial plan is designed to enable an individual to reach a goal. 4) A personal financial plan includes a budget that estimates the income and expenses over a specific period of time. A budget can be used to manage spending and achieve financial goals.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ College Prep Economics
Unit of Study	Personal Finance
Pacing	Weeks 14-18

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): Credit and debt can be managed to maintain credit worthiness.

There are costs and benefits associated with various sources of credit available from different types of financial institutions.

Supporting Standard(s): Different payment methods have advantages and disadvantages.

Consumer protection laws provide financial safeguards.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to <u>know</u>)	Bloom's Taxonomy Levels
1) Evaluate the advantages and disadvantages of different payment methods. 2) Evaluate the costs and benefits of using credit from different financial institutions. 3) Explain how consumer protection laws provide financial safeguards. 4) Analyze different credit options given a real world situation. 5) Explain the positives and negatives of using credit.	1) There are different ways in which individuals can complete a transaction, with differing advantages and disadvantages. 2) There are various costs and benefits to utilizing credit from different financial institutions. 3) Various laws and agencies were created to protect consumer credit from misuse, discrimination, or theft. 4) Credit can help individuals acquire durable goods and pay for them over time. 5) The amount of credit used and the interest charged for the use can impact	1) Evaluating 2) Evaluating 3) Understanding 4) Analyzing 5) Understanding

Board Adopted Date

	the overall costs of goods or services purchased on credit.	

Vocabulary	Resources
1) Debit 2) Credit 3) Interest 4) Principal 5) Installment debt 6) Durable goods 7) Commercial bank 8) Credit union 9) Savings and loan association 10) Savings bank 11) Annual percentage rate (APR) 12) Credit bureau 13) Credit check 14) Credit score 15) Collateral 16) Secured loan 17) Unsecured loan 18) Bankruptcy 19) Usury law 20) Truth in Lending Act 21) Equal Credit Opportunity Act 22) Credit CARD Act of 2009 23) Grace period 24) Mortgage 25) Credit limit	1) Credit- InCharge Institute of America 2) Credit Cards- InCharge Institute of America 3) Cars and Loans- InCharge Institute of America 4) Why Credit Matters- Practical Money Skills 5) Using Credit Wisely- Practical Money Skills 6) Understanding Credit Scores- VantageScore 7) Credit and Credit Cards- Money Instructor 8) The Secret History of the Credit Card- PBS 9) Citi Sample Credit Card Agreements 10) Bank of America Sample Credit Card Agreements 11) Discover Sample Credit Card Agreements 12) Consumer Financial Protection Bureau
Essential Questions	**Understanding/Corresponding Big Ideas**
1) How has the role of consumer credit affected the American economic system? 2) What role does credit play in the American economy? 3) What are the consequences of using credit poorly? 4) How can one use credit to their benefit?	1) Effective purchasing requires an understanding of the advantages and disadvantages of payment options. 2) Different types of loans are offered by financial institutions. There are advantages and disadvantages for these. 3) There is a direct relationship between the cost of

	personal credit, the amount of financial liability a person carries and one's payment history. 4) The length of the payment term of a loan directly affects the interest rate. Making the minimum payment on a credit liability increases the costs of the loan over its term. 5) Credit is a valuable tool for making large purchases such as a house or automobile. Maintaining creditworthiness is important. An individual does this by carefully managing his or her credit and debt. 6) Consumer protection laws at the federal, state and local levels are designed to provide safeguards for personal finances.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ College Prep Economics
Unit of Study	Personal Finance
Pacing	Weeks 14-18

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): Saving and investing help to build wealth.

Savings can serve as a buffer against economic hardship

Supporting Standard(s): Different costs and benefits are associated with saving and investing alternatives.

Banks, brokerages and insurance companies provide access to investments such as certificates of deposit, stocks, bonds and mutual funds.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
1) Analyze the different types of checking and savings accounts. 2) Evaluate the costs and benefits associated with saving and investing. 3) Analyze the different types of investments. 4) Explain the parts and purpose of a checking account. 5) Create an investment plan given a real-world situation.	1) Savings can serve as a buffer against economic hardship. 2) There are a variety of saving and investment choices an individual could utilize. 3) There are costs and benefits associated with the different saving and investment choices available.	1) Analyzing 2) Evaluating 3) Analyzing 4) Understanding 5) Creating

Vocabulary	Resources
1) Saving 2) Interest 3) Savings account 4) Checking account	1) Investopedia Stock Simulator- Investopedia.com 2) Saving for a Rainy Day- Practical Money Skills 3) Understanding Interest and Investments- Practical Money Skills

Board Adopted Date

5) Money market deposit account 6) Certificate of Deposit 7) Federal Deposit Insurance Corporation (FDIC) 8) National Credit Union Administration (NCUA) 9) Stock 10) Savings bonds 11) Capital gain 12) Mutual fund 13) 401k plan 14) Keogh plan 15) Individual retirement account (IRA) 16) Diversification 17) NASDAQ 18) Dow Jones Industrial Average 19) Time deposit 20) Maturity 21) Liquidity 22) Annual percentage yield (APY) 23) Bull market 24) Bear market 25) Annuities 26) Overdraft protection	4) An Overview of Investing- Practical Money Skills 5) Banking Services- InCharge Institute of America 6) Saving and Investing- InCharge Institute of America 7) Managing a Checking Account- Finance in the Classroom 8) Parts of a Check- Finance in the Classroom 9) How a Stock is Bought and Sold- Finance in the Classroom 10) Saving and Investing Venn diagram- Finance in the Classroom 11) The Stock Market and You- Finance in the Classroom 12) Hands on Banking- Wells Fargo 13) The Basics of Saving and Investing- Investor Education 2020 14) Financial Football- Practical Money Skills 15) The Basics of Saving & Budgeting- Council for Economic Education
Essential Questions	**Understanding/Corresponding Big Ideas**
1) How can saving and investing impact the national economy? 2) What are the best strategies for managing our finances short-term and long-term? 3) How does risk/reward impact investment choices? 4) Is saving and investing necessary in an individual's life?	1) Building wealth is the means for preparing for planned and/or unexpected expenses and for obtaining financial security. Savings is one way to build wealth. 2) Setting money aside for emergencies such as loss of job, accidents, health issues or automobile and home repairs, can ease the stress of uncertainty until additional income is available. 3) The alternatives for saving and investing, such as savings accounts, stocks, bonds, and mutual funds, offer different costs and benefits. 4) Banks and credit unions provide basic financial

	services to individuals including savings, investments, loans and other fundamental forms of money management.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ College Prep Economics
Unit of Study	Personal Finance
Pacing	Weeks 14-18

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): Steps can be taken to safeguard one's personal financial information and reduce the risk of loss.

Supporting Standard(s): Property and liability insurance protect against risks associated with use of property.

Health, disability and life insurance protect against risks associated with increased expenses and loss of income

"Unwrapped Skills" (students need to be able to do)	**"Unwrapped" Concepts (students need to know)**	**Bloom's Taxonomy Levels**
1) Explain the differences between property and liability insurance and how each protects the owner against potential loss. 2) Identify the different kinds of insurance. 3) Explain how the different kinds of insurance protect consumers. 4) Evaluate insurance policies from different providers given a real-world situation. 5) Create strategies for protecting one's personal financial information.	1) Insurance protects consumers' investments and information from theft or loss. 2) There are a variety of policies that individuals can choose from different providers. 3) There are costs and benefits of using insurances from different providers. 4) There are laws and requirements for insurance for individuals in different states. 5) There are several ways individuals can work to protect their investments and information.	1) Understanding 2) Remembering 3) Understanding 4) Evaluating 5) Creating

Vocabulary	**Resources**
1) Insurance 2) Deductible 3) Co-pay	1) In Case of Emergency- Griffith Foundation 2) Next Generation- Scholastic 3) Insurance- Money Instructor

Board Adopted Date

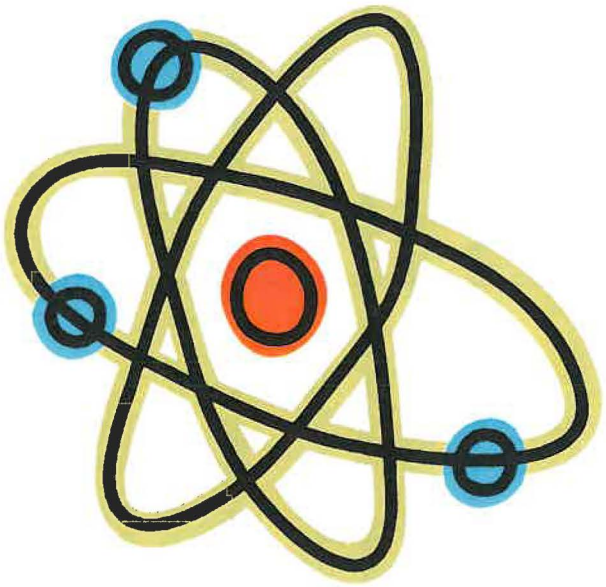
4) Claim 5) Home insurance 6) Health insurance 7) Dental insurance 8) Life insurance 9) Insurance provider 10) Coverage 11) Beneficiary 12) Broker 13) Cash value 14) Auto insurance 15) Renters insurance 16) Eligibility period 17) Flexible spending account 18) Comprehensive coverage 19) Health savings account (HSA) 20) Medicare 21) Medicaid 22) Open enrollment 23) Policyholder 24) Premium 25) Disability insurance	4) Insurance: Mayhem Project- Family Consumer Sciences 5) Take Charge Today- The University of Arizona 6) Teacher Resources- Ohio Insurance Institute 7) Insurance Lesson Plans- Finance in the Classroom 8) Homeowners Insurance- Griffith Foundation 9) Understanding Health Insurance- Cornell University 10) Insure My Life?- Alabama Department of Education
Essential Questions	**Understanding/Corresponding Big Ideas**
1) How can individuals secure their financial future? 2) How can individuals protect their investments? 3) Why have some governments in the U.S. required individuals to purchase certain types of insurance? 4) Is insurance needed?	1) Insurance protects consumers' investments and information from theft or loss. 2) There are a variety of policies that individuals can choose from different providers. 3) There are costs and benefits of using insurances from different providers. 4) There are laws and requirements for insurance for individuals in different states. 5) There are several ways individuals can work to protect their investments and information.

EXHIBIT D

COLLEGE- PREP PHYSICAL SCIENCE

(COURSE #982)

COURSE OF STUDY



FINDLAY CITY SCHOOLS

2017

TABLE OF CONTENTS

Course Description: This course will stress the physics of forces and motion, electricity, light and waves, thermal and nuclear energy, and principles of chemistry including atomic structure, periodic table, chemical bonds, and solutions. Students will engage in much inquiry, investigation, and will be required to write lab reports.

PHYSICAL SCIENCE (COLLEGE PREP)

Writing Team

Tyler Smith
Rebecca Wolfe

TEXTBOOK: *Physical Science with Earth & Space Science*; Holt Science Spectrum (publishers); 2013 edition; ISBN: 9780030672132; cost: $78.75

Mission Statement

Educating and Empowering for Life

Beliefs

Our beliefs form the ethical foundation of the Findlay City Schools.
We believe….

- *All students and families have worth and are to be valued.*
- *Students need a safe and inclusive environment in order to fully express who they are.*
- *All students can learn.*
- *In order for each student to thrive, students, families, staff and community must be vested in their growth and development.*
- *All students need opportunities in and out of the classroom.*
- *FCS must be a reflection of our growing community and its needs.*
- *The Seven Habits of Highly Effective People supports life skills:*
    - *Habit 1: Be Proactive*
    - *Habit 2: Begin with the End in Mind*
    - *Habit 3: Put First Things First*
    - *Habit 4: Think Win-Win*
    - *Habit 5: Seek First to Understand, Then to Be Understood*
    - *Habit 6: Synergize*
    - *Habit 7: Sharpen the Saw*

CP PHYSICAL SCIENCE
CURRICULUM MAP

Week	Course Content	Topic	An Introduction to Physical Science Cengage
Week 1	Scientific Inquiry	Introduction to Class, Safety,	Chapter 1
Week 2	Scientific Inquiry	Density, Dimensional Analysis, Significant Digits	Chapter 1
Week 3	Study of matter	Atomic Structure	Chapter 4
Week 4	Study of matter	Atomic Structure	Chapter 4
Week 5	Study of matter	Periodic Table	Chapter 5
Week 6	Study of matter	Periodic Table	Chapter 5
Week 7	Study of matter	Chemical Bonds & Ions	Chapter 6
Week 8	Study of matter	Chemical Bonds & Ions	Chapter 6
Week 9	Study of matter	Chemical Changes/ Chemical Reactions	Chapter 7
Week 10	Study of matter	Chemical Changes/Chemical Reactions	Chapter 7
Week 11	Study of matter	Chemical Changes/Chemical Reactions	Chapter 7
Week 12	Study of matter	Chemical Changes/Chemical Reactions	Chapter 7
Week 13	Study of matter	States of Matter	Chapters 2 and 3
Week 14	Study of matter	Mixtures and Solutions	Chapter 8
Week 15	Study of matter	Mixtures and Solutions	Chapter 8
Week 16	Energy and Waves	Thermal Energy and Nutrition	Chapter 14
Week 17	Energy and Waves	Thermal Energy and Nutrition	Chapter 14
Week 18		Exam Review, Semester Exam	
Week 19	Energy and Waves	Kinetic and Potential Energy	Chapter 13
Week 20	Forces and motion	Kinetic and Potential Energy	Chapter 13
Week 21	Forces and motion	Motion	Chapter 11
Week 22	Forces and motion	Motion	Chapter 11
Week 23	Forces and motion	Forces and Motion	Chapter 12
Week 24	Forces and motion	Forces and Motion	Chapter 12
Week 25	Forces and motion	Light and Waves	Chapter 15
Week 26	Forces and motion	Light and Waves	Chapters 15 and 16
Week 27	Energy and Waves	Light and Waves	Chapter 16
Week 28	Energy and Waves	Electricity	Chapter 17
Week 29	Energy and Waves	Electricity	Chapter 17
Week 30	Energy and Waves	Electricity	Chapter 17

Revised 2017

CP PHYSICAL SCIENCE
CURRICULUM MAP

Week 31	Study of matter	Nuclear Energy	Chapter 10
Week 32	Study of matter	Nuclear Energy	Chapter 10
Week 33	The Universe	The Universe	Chapter 20
Week 34	The Universe	The Universe	Chapter 20
Week 35	The Universe	The Universe	Chapter 20
Week 36		Exam Review, Semester Exam	

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/CP Physical Science
Unit of Study	Scientific Inquiry/ Basic Skills (Measurement, Equipment and Safety)
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Scientific and engineering practices and crosscutting concepts to support students in developing useable knowledge to explain ideas across the science disciplines. In the physical science performance expectations at the high school level, there is a focus on several scientific practices. These include developing and using models, planning and conducting investigations, analyzing and interpreting data, using mathematical and computational thinking, and constructing explanations; and to use these practices to demonstrate understanding of the core ideas. Students are also expected to demonstrate understanding of several engineering practices, including design and evaluation.

"Unwrapped Skills" (students need to be able to do)	**"Unwrapped" Concepts (students need to <u>know</u>)**	**Bloom's Taxonomy Levels**
• Name all Equipment and its use in a science laboratory setting. • Identify safe and unsafe lab situations. • Calculate Density and explain if objects will sink, suspend or float on liquids of different densities. $density = \frac{mass}{volume}$ $\rho = \frac{m}{v}$ • Calculate answers to word problems using Dimensional Analysis.	• Safety is a top priority in all workplaces and science fields. • Converting from one unit to another is crucial to communicate between nations. • The metric system is part of the international system of units. • All measurements have a degree of error (uncertainty) inherent in the precision of the tool being used to take the measurements. • Density is an intrinsic property of all materials regardless of their state of matter.	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate

- Convert between Metric system(SI) and English systems.
- Calculate percent error (relative error).

$$\%\ Error = \frac{|accepted - experimental|}{accepted} x\ 100\%$$

- Explain how precision is different from accuracy.

Vocabulary	Resources
• Dimensional Analysis • Metric System (SI) • Percent Error (relative error) • Uncertainty • Precision • Accuracy • laboratory equipment • density • intrinsic	"Teaching High School Science" by Annenberg
Essential Questions	**Understanding/Corresponding Big Ideas**
1. How are measurements made? 2. What system of measurement is used in our country compared with other countries? 3. Why is safety critical in every workplace? 4. What is density?	

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/CP Physical Science
Unit of Study	Atomic Structure
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Describe that matter is made of minute particles called atoms and atoms are comprised of even smaller components. Explain the structure and properties of atoms.

Supporting Standard(s):
1. Recognize that all atoms of the same element contain the same number of protons and may or may not have the same mass. Those with different masses (different number of neutrons) are called isotopes.
2. Illustrate that atoms with the same number of positively charged protons and negatively charged electrons are electrically neutral.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to <u>know</u>)	Bloom's Taxonomy Levels
• Identify an element given its chemical symbol. • Identify an element from the periodic table given the number of protons. • Using the periodic table, determine the number of protons, neutrons, or electrons in a neutral atom given the atomic number and mass number. • Draw the basic structure of an atom using an appropriate model or concept map. • Determine the difference in the number of neutrons that different isotopes of the same element contain when given their mass numbers.	• The structure of an atom (protons, neutrons, electrons, electron cloud.) • The meaning and importance of atomic number, atomic mass and mass number. • The definition and relationship of atom, element and isotope. • Understand the chemical symbols used to represent elements. • Understand that for an atom to be electrically neutral it must contain an equal number of electrons and protons.	Demonstrate Design Differentiate

• Draw the electron dot notation of an element. • Distinguish between an ion and a neutral atom. • Explain the relationship between the number of protons and electrons in a neutral atom and an ion. • Describe the relationship between the nucleus and electrons. • Explain the demonstration that shows the attraction/repulsion between the positively charged nucleus and negatively charged electrons within the atom.	• The atomic number of an element is the number of protons in one of its atoms. No two elements have the same atomic number. • The mass number of an atom is the sum of the number of neutrons and the number of protons. Two different isotopes of the same element have the same atomic number. • The nucleus is the small, dense and positively charged center of an atom. • Isotopes are atoms of the same element that differ in the number of neutrons they contain.	

Vocabulary		Resources
Demonstrate	Atomic number	The Rutherford Experiment Cengage **An Introduction to Physical Science**
Design	Atomic mass	
Differentiate	Mass number	
Atom	Isotope	
Proton	Neutral atom	
Neutron	Element	
Electron	Periodic table	
Nucleus		
Electron cloud		

Essential Questions	Understanding/Corresponding Big Ideas
1. What subatomic particles make up atoms? 2. What are elements? 3. What are isotopes?	1. Models are conceptual representations that help scientist understand that matter is made of atoms. 2. Atoms are made up of protons, neutrons, and electrons. 3. The protons and neutrons give the atom its mass while electrons give the atom its volume. 4. Atoms of the same element with different number of neutrons are isotopes.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/CP Physical Science
Unit of Study	Periodic Table
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Describe that matter is made of minute particles called atoms and atoms are comprised of even smaller components. Explain the structure and properties of atoms.

Supporting Standard(s):
4. Show that when elements are listed in order according to the number of protons (called the atomic number), the repeating patterns of physical and chemical properties identify families of elements. Recognize that the periodic table was formed as a result of the repeating pattern of electron configurations.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
• Explain how the Periodic Table is arranged. • Determine the family and period of a given element in the Periodic Table. • Given a main group element, identify the number of valence electrons using the Periodic Table. • Given an element, determine what other elements would have similar properties using the Periodic Table. • Draw the electron dot configuration for a given element using the Periodic Table as a source of information.	• The structure of the Periodic Table and terms associated with the table (groups, families, periods, columns, energy levels, regions, etc.) • Elements are placed on the Periodic Table by their common properties and their atomic number. • Electron clouds and energy levels explain electron location. • All elements in the same period have the same number of energy levels. • Electron dot configurations consist of the symbol and valence electrons.	Demonstrate Design Differentiate Compare Contrast Summarize

• Demonstrate an understanding of all the components of the Periodic Table (color of symbol, color of background, numbers, numbers in parentheses, meanings of rows and columns, periods, families, groups, etc.)	• Elements in the same group have common chemical and physical properties. • Dimitrii Mendeleev created the modern Periodic Table. • Henry Moseley discovered each element has its own unique atomic number. • The atom is the smallest unit of an element. • An element is a substance that cannot be broken into simpler substances by chemical means.	

Vocabulary		Resources
Protons	Physical property	Periodic Table
Neutrons	Chemical property	The Rutherford Experiment
Electrons	Atomic number	Interactive Periodic Table
Energy Levels	Atomic mass	Cengage **An Introduction to Physical Science**
Valance	Rows	
Family	Columns	
Group		
Trends		
Atomic Radii		
Metals/nonmetals/metalloids		
Alkali metals		
Alkaline earth metal		
Halogens		
Noble gases		
Period		

Essential Questions	Understanding/Corresponding Big Ideas
1. How is the Modern Periodic Table arranged? 2. What are the trends in the Periodic Table and how do these relate to chemical properties?	1. Information about how elements react with one another are related to their placement on the periodic table.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/CP Physical Science
Unit of Study	Chemical Bonds & Ions
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Explain how atoms react with each other to form other substances and how molecules react with each other or other atoms to form even different substances.

Supporting Standard(s):
1. Describe how ions are formed when an atom or a group of atoms acquire an unbalanced charge by gaining or losing one or more electrons.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to <u>know</u>)	Bloom's Taxonomy Levels
• Describe how an ion is formed. • Determine the charge of an ion given the number of electrons lost or gained by an atom. • Define a polyatomic ion. • Determine the number of electrons and protons in a polyatomic ion when given the formula and charge. • Draw the electron dot configuration for a given ion. • Explain how ions combine to form a salt. • Be able to use dot diagrams to demonstrate ionic bonds.	• When an atom loses electrons it becomes a cation. • When an atom gains electrons it becomes an anion. • The charge of an ion is placed to the upper right of the symbol of the element. • Polyatomic ions consist of a group of covalently bonded atoms that have an overall charge. • The Octet Rule states that an atom will tend to lose, gain or share electrons so that at least part of the time it has a filled outermost energy level of 8 valence electrons in that level. • An electron dot formula consists of the element symbol plus a dot for each valence electron.	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict

• Develop a chart representing ionic, covalent bonds. • Given a set of data predict whether a bond is ionic or covalent.	• Atoms obtain stability by forming chemical bonds by gaining, losing or sharing electrons. • A molecule is the smallest unit you can have of a compound that has a covalent bond. • An atom is more stable when the outermost energy level contains a maximum number of electrons. • The transfer of electrons between atoms forms an ionic bond. • The sharing of electrons between atoms forms a covalent bond. • Water is a polar molecule. • A subscript is a number to the lower left of a symbol that indicates the number of atoms of that element in the formula. • The name of the binary compounds end in "ide." The metallic element is named first.	

Vocabulary		
Octet Rule	Apply	Binary Compound
Ion	Predict	Patterns
Polyatomic ion	Trends	Competition

Resources

1. Periodic Table
2. Cengage **An Introduction to Physical Science**

Essential Questions

1. What ways can atoms combine and why do they combine at all?
2. What are electron dot diagrams?
3. What is a polyatomic ion? How is it different from a monoatomic ion?
4. How are compounds named?

Understanding/Corresponding Big Ideas

1. Atoms combine to become more stable like the noble gases. They do so by gaining, losing, or sharing electrons. This is known as the Octet Rule.
2. Binary compounds are named with the metallic element named first and the nonmetal ending in "ide."
3. Binary compounds contain a metal and an nonmetal element.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/CP Physical Science
Unit of Study	Chemical Changes/ Chemical Reactions
Pacing	4 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Describe that matter is made of minute particles called atoms and atoms are comprised of even smaller components.
Explain the structure and properties of atoms.
Explain how atoms react with each other to form other substances and how molecules react with each other or other atoms to form even different substances.

Supporting Standard(s):
1. Explain that the electric force between the nucleus and the electrons hold an atom together. Relate that on a larger scale, electric forces hold solid and liquid materials together (e.g. salt crystals, water).
2. Show how atoms may be bonded together by losing, gaining or sharing electrons and that in a chemical reaction, the number, type of atoms and total mass must be the same before and after the reaction (e.g. writing correct chemical formulas and writing balanced chemical equations).
3. Illustrate that chemical reactions are either endothermic or exothermic (e.g. cold packs, hot packs and the burning of fossil fuels).

"Unwrapped Skills" (students need to be able to do)	**"Unwrapped" Concepts (students need to <u>know</u>)**	**Bloom's Taxonomy Levels**
• Identify chemical and physical properties. • Identify substances such as elements, compounds or mixtures. • Identify mixtures as solution or suspension (homogeneous or heterogeneous).	• A chemical change changes the physical and chemical properties of a substance. • A physical change doesn't change the identity of a substance. • To balance an equation the coefficients are changed so that the number of each element's atoms is the same on both sides of the equation.	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict

Revised 2017

• Given a set of equations be able to determine if they are balanced and be able to balance those, which are not balanced. • Write a balanced equation and use it to explain the law of conservation of mass. • Given a set of equations, be able to label whether the equation is an example of a direct reaction, decomposition, single-replacement, double replacement, or combustion. • Identify common acids and bases based on pH values. • Identify neutralization reactions. • Identify common reactions as endothermic or exothermic reactions. • Distinguish between endothermic and exothermic reactions. • Correctly place the energy in the chemical equation.	• The Law of Conservation of Mass states that mass cannot be created or destroyed, but it can change form. • The five general types of chemical reactions (direct combination {synthesis}, decomposition, single-replacement {displacement}, double replacement {displacement}, and combustion). • An endothermic reaction is a reaction that releases energy. • An exothermic reaction is a reaction that absorbs energy.	Create Explain Generate

Vocabulary		Resources
Chemical bond	Hydrogen bond	Cengage **An Introduction to Physical Science**
Covalent bond	Ionic bond	
Polar bond	Nonpolar bond	
Chemical equation	Chemical formula	
Create	Describe	
Explain	Generate	
Energy levels	Stability	
Hydrates	Binary	
Law of Conservation of Mass		
Symbol		
Superscript		

Synthesis reaction Single replacement reaction Double replacement reaction acid Product Endothermic Catalyst Precipitate pH Coefficient Subscript Decomposition reaction base Reactant Exothermic Inhibitor neutralization	
Essential Questions	**Understanding/Corresponding Big Ideas**
1. What is the difference between chemical and physical properties? 2. What are the various types of reactions chemicals can undergo? Why do they do this? 3. What is the difference between an endothermic and exothermic reaction? 4. What is a balanced chemical reaction and why do all chemical equations need to be balanced?	1. Physical properties do not change the identity of a substance while chemical properties do change their identities. 2. There are 5 main chemical reactions: synthesis, combustion, decomposition, single displacement, and double displacement. 3. Endothermic reactions require energy while exothermic release energy. 4. All equations need to be balanced because of the Law of Conservation of Mass and Energy.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/CP Physical Science
Unit of Study	States of Matter
Pacing	1 week

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Describe the identifiable physical properties of substances (e.g. color, hardness, conductivity, density, concentration, ductility). Explain how changes in these properties can occur without changing the chemical nature of the substance.

Supporting Standard(s):
1. Investigate the properties of pure substances and mixtures (e.g. density, conductivity, hardness, properties of alloys, superconductors and semiconductors).

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
• List the properties of a solid, liquid and a gas. • Describe the differences in the molecular motion of solid, liquid and gas. • Explain the energy changes that take place during changes of phase. • Measure the specific heat of a substance using a calorimeter.	• Solids have a definite shape and volume. • Liquids have a definite volume, but not a definite shape. • Gases have neither a definite shape nor volume. • Phases/States of matter include solid, liquid and gas. If pressure is constant the state of matter present is dependent on temperature. • During a change in phase/state of matter the temperature will not change until the change of state is complete.	Demonstrate Design Differentiate Compare Contrast Summarize

	• The kinetic theory of matter states that all molecules are in motion and the temperature is dependent on the average kinetic energy of a substance. Molecules with zero kinetic energy would be at absolute zero. • The amount of thermal expansion is dependent on the change in temperature, the identity of the substance and the original length. • Heat of fusion is the amount of heat required to melt 1 gram of a substance at its melting point. • Heat of vaporization is the amount of heat required to change 1 gram of a liquid to a gas at its boiling point.	

Vocabulary		Resources
Density	Alloys	1. Cengage **An Introduction to Physical Science**
Mass	Volume	
Hardness	Changes of State	
Heat of Fusion	Heat of Vaporization	
Gas	Liquid	
Solid	Deposition	
Melting	Boiling	
Condensation	Freezing	
Sublimation	Vaporization	

Essential Questions	Understanding/Corresponding Big Ideas
1. What are the Phases of Matter? 2. What is Heat of Vaporization and Heat of Fusion? 3. How is temperature related to kinetic energy? 4. What energy changes occur during phase changes?	1. The phases of matter include solids, liquids, gases, and plasma. 2. Heat of Vaporization is the amount of heat required to change 1 gram of liquid to a gas at its boiling point whereas Heat of Fusion is the amount of heat required to melt 1 gram of a substance at its melting point. 3. The higher the temperature of a substance, the higher its kinetic energy and vice-versa. 4. Energy changes occur during phase changes and these changes can be determined by analyzing data on a phase change graph.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/Honors Physical Science
Unit of Study	Mixtures & Solutions
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Describe the identifiable physical properties of substances (e.g. color, hardness, conductivity, density, concentration, ductility). Explain how changes in these properties can occur without changing the chemical nature of the substance.

Supporting Standard(s):
1. Investigate the properties of pure substances and mixtures (e.g. density, conductivity, hardness, properties of alloys, superconductors and semiconductors).

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
• Create a supersaturated solution. • Test the effect of temperature, agitation, and surface area of the particles on the dissolution of a solid. • Create a metal alloy.	• Solute is the substance dissolved in the solution. • Solvent is the substance in which a solute is dissolved. • The solubility of most solids increases as the temperature increases. • The solubility of gases in liquids increases as temperature decreases and pressure increases. • Saturated solution contains as much solute possible under prevailing conditions. • Supersaturated solution contains more solute than what is normally possible under prevailing conditions.	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate

Vocabulary	Resources
Properties-physical and chemical Pure substance Mixture, solution, suspension Alloys Homogeneous Heterogeneous Elements Compounds	Cengage **An Introduction to Physical Science** "Teaching High School Science" by Annenberg
Essential Questions	**Understanding/Corresponding Big Ideas**
1. What conditions affect the rate of dissolution of a substance in water? 2. What is the difference between a pure substance and a mixture, an element and a compound? 3. What is the difference between different types of homogeneous and heterogeneous mixtures?	1. Compare and contrast saturated, unsaturated and supersaturated solutions using the definitions of the parts of a solution. 2. Design a procedure to separate various mixtures (e.g. sugar, rice and iron filings). 3. Compare and contrast the different types of homogeneous and heterogeneous mixtures.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/CP Physical Science
Unit of Study	Thermal Energy & Nutrition
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Explain how thermal energy exists in the random motion and vibrations of atoms and molecules (kinetic energy).

Supporting Standard(s):
1. Recognize that the higher the temperature, the greater the average atomic or molecular motion (kinetic energy), and during changes of state the temperature remains constant.
2. Demonstrate that thermal energy can be transferred by conduction, convection, or radiation (e.g. through materials by the collision of particles, moving air masses or across empty space by forms of electromagnetic radiation).

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
• Measure specific heat of various alloys. • Define thermal energy. • Measure temperature using a digital thermometer as well as a liquid filled thermometer. • Measure heat flow using a calorimeter made from a styrofoam cup. • Measure the specific heat of a substance by using a calorimeter. • Calculate the amount of heat exchanged between two substances.	• Temperature is determined by the average kinetic energy of the molecules. • Temperature in °C = ({temperature in °F} –32) °5/9 • Absolute Zero = O Kelvin = -273 °C • Heat is the amount of thermal energy that is transferred between two substances having different temperatures. • Specific heat is the amount of heat required to raise the temperature of 1 gram of a substance by one degree Centigrade.	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate

• Explain how differences in surface area, mass and specific heat affect heat exchange. • Be able to use proper units for calculating specific heat. • Compare and contrast the transfer of thermal energy by conduction, convection and radiation. • Differentiate between conductors and insulators. • Compare and contrast the qualities of a good conductor versus a good insulator. • Explain how insulation affects the transfer of energy. • Describe how the Earth absorbs and reflects radiant energy from the sun. • Analyze how the reflected radiation from the Earth's surface is absorbed by the atmosphere, which leads to the greenhouse effect/global warming.	• Calorimetry is the measurement of the heat exchanged between two substances. • Conduction is the transfer of heat by the collisions between molecules. • Convection is the transfer of heat by currents in a fluid. • Radiation is the only method of heat transfer that can cross a vacuum. It travels as infrared radiation. • Insulators are poor conductors. • Solar energy can be used to heat a house or water. • Solar energy can be used to generate electricity. • A black surface is the best absorber of radiant heat and it is also the best emitter of radiant heat. • Global warming may be a result of the change in the wavelength of infrared radiation by certain gases in the atmosphere (Greenhouse Effect). • Trapped gases in a substance make it a better insulator.	

Vocabulary		Resources
Temperature Thermal Energy Thermal conductivity Electrical conductivity Absolute zero Semiconductor Calorimetry Heat of reaction Joule Calorie Greenhouse Effect Global Warming Heat Specific Heat	Insulator Superconductor Calorimeter Heat of solution Kilojoule Conductor Solar energy	Cengage **An Introduction to Physical Science** "Teaching High School Science" by Annenberg
Essential Questions		**Understanding/Corresponding Big Ideas**
1. How much energy is released when a reaction causes 150g of water to rise from 22 degrees Celsius to 34 degrees Celsius? 2. How is heat transferred between particles within a single substance and between different substances? 3. What happens to the temperature of a substance as it undergoes a phase change?		1. Calculate the specific heat of a metal based on laboratory measurements. 2. Calculate the heat exchanged between two substances using a simple calorimeter. 3. Determine the effect of color on the transfer of radiant heat. 4. Create a chart that compares and contrasts conduction, convection and radiation.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/CP Physical Science
Unit of Study	Kinetic & Potential Energy
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Demonstrate that energy can be considered to be either kinetic (motion) or potential (stored).
Explain how energy may change form or be redistributed but the total quantity of energy is conserved.

Supporting Standard(s):
1. Explain how an object's kinetic energy depends on its mass and its speed.
2. Demonstrate that near Earth's surface an object's gravitational potential energy depends upon its weight (mg where m is the object's mass and g is the acceleration due to gravity) and height (h). (PE=mgh)
3. Trace the transformation of energy within a system (e.g. chemical to electrical to mechanical) and recognize that energy is conserved. Show that these transformations involve the release of some thermal energy.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
• Define kinetic and potential energy. • Measure the work done on an object or a person (w= force x distance). • Calculate an object's kinetic energy ($KE=^1/_2mv^2$). • Explain the relationship between kinetic energy, mass and velocity. • Verify the law of conservation of energy by measuring the transfer between PE and KE in a system (i.e. pendulum).	• Kinetic Energy = $1/2\ mv^2$ • Potential Energy is energy of position (stored energy). • Energy is the capacity or ability to do work. • Kinetic energy is energy of motion. Kinetic energy = $1/2\ mv^2$. • Mass is the quantity of matter an object contains. • Work = distance x force.	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate Analyze

Revised 2017

• Calculate the potential energy of an object (PE=mgh). • State the law of conservation of energy. • Apply the law of conservation of energy by tracing the path of energy through a closed system. • Compare and contrast the three main types of energy – chemical, mechanical and electrical.	• Joule is the metric unit of energy and work. 1 joule = 1 Newton meter. • Law of Conservation of Energy states that energy cannot be created or destroyed but it can change form. • Gravitational potential energy = mgh • A reference point/surface must be used to determine the gravitational potential energy a mass has. • Types of energy include chemical energy, electrical energy, mechanical energy, thermal energy, and nuclear energy.	

Vocabulary	Resources
Kinetic Energy Work Energy Mass Law of Conservation of Energy Gravitational Potential Energy Analyze Demonstrate Potential Energy Joule Velocity Gravity Compare and Contrast	"Energy: Misconceptions and Models" document from U.K. Department for Education. "Waves, Light, and Sound" from the Physics Zone www.cast.org "Teaching High School Science" – a series of videos-on-demand produced by Annenberg Cengage **An Introduction to Physical Science**
Essential Questions	**Understanding/Corresponding Big Ideas**
1. What is the difference between kinetic and potential energy? 2. When is scientific work done? 3. What ways can energy be transformed to illustrate the Law of Conservation of Energy?	1. Kinetic energy is moving energy while potential energy is due to an object's position. KE= ½ mv^2 and PE = mgh 2. Work is done when an object moves in the direction of the applied force. 3. Energy cannot be created nor destroyed, only transformed. There are various types of energy that can be changed from one type to another. These types include chemical, electrical, mechanical, thermal, and nuclear.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/CP Physical Science
Unit of Study	Motion
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Explain the movement of objects regarding their position, velocity, and acceleration.

Supporting Standard(s):
1. Demonstrate that motion is a measurable quantity that depends on the observer's frame of reference and describe the object's motion in terms of position, velocity, acceleration and time.
2. Demonstrate that any object does not accelerate (remains at rest or maintains a constant speed and direction of motion) unless an unbalanced (net) force acts on it.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to <u>know</u>)	Bloom's Taxonomy Levels
• Describe motion as a change in position relative to its frame of reference. • Describe speed as a change in motion. • Calculate speed, distance and time using the proper formula and its derivatives. (v = d/t). • Describe velocity as it relates to motion. • Distinguish between speed and velocity. • Analyze motion as a change in velocity, which can result in positive or negative acceleration.	• Velocity is both speed and direction. • Acceleration due to gravity has the symbol, g. The value for g at sea level is 9.8 m/s^2. • Frame of reference must be used when discussing motion. • Formula for Speed (v = d/t), including proper units (m/s). • Formula for acceleration ($a = V_f - V_i / t$), including proper units, (m/s^2).	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate Analyze

• Calculate the rate of acceleration using final and initial velocity over units of time. • Calculate the rate of acceleration of a falling object due to gravity. • Describe constant speed as speed that does not change unless acted upon by an unbalancing force. • Describe instantaneous speed as speed at a given point in time.	• When an object is at a constant velocity the forces acting on it are balanced. Unbalanced forces acting on an object will cause it to accelerate. • Most calculations involve average speed, not instantaneous speed. • Inertia is the tendency of an object to resist any change in its state of motion. Inertia is proportional to the mass. • Changing speed and changing direction are both types of acceleration.	

Vocabulary		Resources
Gravity	Final	"Forces in 1 Dimension" – computer interactive simulation "Motion Diagrams" – tutorial from Western Kentucky University "The Physics Classroom" –computer tutorial on one-dimensional motion www.cast.org. Cengage **An Introduction to Physical Science**
Acceleration	Speed	
Net (force)	Reference point	
Free Fall	Constant	
Mass	Velocity	
Initial	Vectors	
Weight	Instantaneous	

Essential Questions	Understanding/Corresponding Big Ideas
1. When does an object accelerate? 2. What is a vector quantity? 3. What is the difference between speed and velocity? 4. What is the formula for acceleration? 5. How do you know an object is in motion? 6. When is an object in freefall? 7. What is inertia? How is it related to mass?	1. An object accelerates when a net force acts upon it. It accelerates in the direction of the applied force. F=ma 2. Speed is distance over time. It does not have a direction associated with it. Velocity is a vector quantity. A vector has both direction and speed. v = d/t is the equation for both velocity and speed. 3. Acceleration is the change in velocity over time. An object can accelerate. 4. A frame of reference is used to determine if an object is in motion. 5. An object is in freefall when the only force acting upon it is gravity. 6. Inertia is the tendency of an object to resist any change in its state of motion. It is proportional to the mass.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/CP Physical Science
Unit of Study	Motion Vectors
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Explain the movement of objects based on the forces applied to them.

Supporting Standard(s):
1. Demonstrate that motion is a measurable quantity that depends on the observer's frame of reference and describe the object's motion in terms of position, velocity, acceleration and time.
2. Demonstrate that any object does not accelerate (remains at rest or maintains a constant speed and direction of motion) unless an unbalanced (net) force acts on it.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
• Construct a concept map that shows the relationship of mass, gravity, weight, gravitation potential energy, acceleration, et cetera. • Describe speed as a change in motion. • Describe velocity as it relates to motion. • Distinguish between speed and velocity. • Analyze motion as a change in velocity, which can result in positive or negative acceleration. • Describe constant speed as speed that does not change unless acted upon by an unbalancing force.	• Velocity is both speed and direction. • Acceleration due to gravity has the symbol, g. The value for g at sea level is 9.8 m/s^2. • How gravitational forces govern the characteristics and movement patterns of the planet, comets and asteroids in the Solar System. • Formula for Speed (v = d/t), including proper units (m/s). • Formula for acceleration (a = vf-vi / t), including proper units, (m/s^2).	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate Analyze

• Describe instantaneous speed as speed at a given point in time. • Distinguish between balanced and unbalanced forces and their effect on the movement of objects. • Explain how net forces are responsible for movement. • List all the forces acting on a horse and cart system(s). • Explain how a horse and cart can move and based on forces present.	• When an object is at a constant velocity the forces acting on it are balanced. Unbalanced forces acting on an object will cause it to accelerate. • Force is a push or pull exerted on an object. The metric unit of force is the Newton. • If an airplane is flying at a constant velocity the drag is equal and opposite to the thrust.	

Vocabulary

Analyze	Describe	Instantaneous
Friction	Gravity	Constant
Acceleration	Drag	Gravitational force
Net (force)	Velocity	g
Free Fall	Vectors	Weight
Mass	Final	Reference point
Newton	Initial	Speed
Newton's Law of Gravitational Attraction		

Resources

"Forces in 1 Dimension" – computer interactive simulation
"Motion Diagrams" – tutorial from Western Kentucky University
"The Physics Classroom" –computer tutorial on one-dimensional motion
Cengage **An Introduction to Physical Science**
"Teaching High School Science"- video series

Essential Questions

1. What is a vector quantity?
2. What is the difference between speed and velocity?
3. What is a force? What is a net force?
4. How do you know an object is in motion?
5. When is an object in freefall?

Understanding/Corresponding Big Ideas

1. An object accelerates when a net force acts upon it. It accelerates in the direction of the applied force. F=ma.
2. Speed is distance over time. It does not have a direction associated with it. Velocity is a vector quantity. A vector has both direction and speed. v = d/t is the equation for both velocity and speed.
3. A force is a push or pull. A net force is the sum of all the forces acting on an object.
4. A frame of reference is used to determine if an object is in motion.
5. An object is in freefall when the only force acting upon it is gravity.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/CP Physical Science
Unit of Study	Forces
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Explain the movement of objects based on the forces applied to them.

Supporting Standard(s):
1. Demonstrate that any object does not accelerate (remains at rest or maintains a constant speed and direction of motion) unless an unbalanced (net) force acts on it.
2. Explain the change in motion (acceleration) of an object. Demonstrate that the acceleration is proportional to the net force acting on the object and inversely proportional to the mass of the object. (F=ma Note that weight is the gravitational force on a mass).
3. Demonstrate the ways in which frictional forces constrain the motion of objects (e.g. a car traveling around a curve, a block on an inclined plane, a person running, an airplane in flight).

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
• Construct a concept map that shows the relationship of mass, gravity, weight, gravitation potential energy, acceleration, et cetera. • Describe gravity as it relates to the mass of the objects and the distance between the objects. • Compare and contrast weight and mass. • Describe friction as it relates to changes in speed, velocity, and acceleration.	• Velocity is both speed and direction. • Weight = mg • Acceleration due to gravity has the symbol, g. The value for g at sea level is 9.8 m/s^2. • Mass is the quantity of matter an object contains and weight is a measure of gravitational force. Weight is proportional to mass.	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate

• Describe constant speed as speed that does not change unless acted upon by a net force. • Describe instantaneous speed as speed at a given point in time. • Distinguish between balanced and unbalanced forces and how they affect the movement of objects. • Explain how net forces are responsible for movement. • Distinguish among the three types of friction: sliding, rolling, fluid. • Explain the effect of mass and surface area on friction. • Measure the friction in a closed system.	• Gravitational Force is a force of attraction between 2 masses. • How gravitational forces govern the characteristics and movement patterns of the planet, comets and asteroids in the Solar System. • Friction is a force opposite the motion. • When an object is at a constant velocity the forces acting on it are balanced. Unbalanced forces acting on an object will cause it to accelerate. (Static and Nonstatic Systems) • Force is a push or pull exerted on an object. The metric unit of force is the Newton. • Inertia is the tendency of an object to resist any change in its state of motion. Inertia is proportional to the mass. • Changing speed and changing direction are both types of acceleration. • Explain how heat is lost due to friction as energy travels through a closed system. • The force of friction acts directly opposite the motion of the object. • Friction can produce an unbalanced force that will cause the object to accelerate. • If an airplane is flying at a constant velocity the drag is equal and opposite to the thrust.	Analyze

Vocabulary	Resources
Analyze Friction Acceleration Net (force) Free Fall Mass Initial Weight Gravitational force Instantaneous Newton Newton's Law of Gravitational Attraction Describe Gravity Drag Velocity Vectors Final Speed Reference point g Constant	"Forces in 1 Dimension" – computer interactive simulation "Motion Diagrams" – tutorial from Western Kentucky University "The Physics Classroom" –computer tutorial on one-dimensional motion Cengage **An Introduction to Physical Science** "Teaching High School Science"- video series
Essential Questions	**Understanding/Corresponding Big Ideas**
1. What is a vector quantity? 2. What is a force? What is a net force? 3. What is gravity and what determines how much gravity exists between two objects? 4. What is inertia? How is it related to mass? 5. What is the difference between mass and weight? 6. How is mass measured compared to weight? 7. What force opposes motion?	1. An object accelerates when a net force acts upon it. It accelerates in the direction of the net force. 2. A force is a push or pull. A net force is the sum of all the forces acting on an object. 3. A frame of reference is used to determine if an object is in motion. 4. An object is in freefall when the only force acting upon it is gravity. 5. Gravity is the attractive force between two masses. The distance between the two objects and their masses determines the amount of attractive force between them. The value of g on earth is 9.8 m/s^2. 6. Inertia is the tendency of an object to resist any change in its state of motion. It is proportional to the mass. 7. Mass is the amount of matter in an object. It is measured with a balance. Weight is a measure of the gravitational force. It is measured with a scale and is proportional to mass. The formula for weight is $w = mg$. 8. Friction is a force that opposes motion.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/Physical Science
Unit of Study	Light and Waves
Pacing	3 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Demonstrate that waves (e.g. sound, seismic, water, light) have energy and waves can transfer energy when they interact with matter.
Demonstrate that electromagnetic radiation is a form of energy. Recognize that light acts as a wave. Show that visible light is a part of the electromagnetic spectrum (e.g. radio waves, microwaves, infrared, visible light, ultraviolet, x-rays, and gamma rays).

Supporting Standard(s):
1. Show how the properties of a wave depend on the properties of the medium through which it travels. Recognize that an electromagnetic wave can be propagated without a medium.
2. Describe how waves can superimpose on one another when propagated in the same medium. Analyze conditions in which waves can bend around corners, reflect off surfaces, are absorbed by materials they enter, and change direction and speed when entering a different material.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
• The student will use the flame test to identify metallic ions and will be able explain that the colors produced are the result of exciting the atoms. • The student will calculate the frequency of a wave when given the wavelength and speed of the wave. • The student will verify the Law of Reflection by experimentation. • Describe the properties of a wave (frequency, wave length, velocity).	• All forms of electromagnetic radiation travel at the speed of light. This is 300,000 km/s in a vacuum. • The different components of the electromagnetic spectrum have the same speed in a vacuum but different wavelengths and frequencies. The components listed from lowest frequency to highest are radio, microwaves, infrared, visible light (red, orange, yellow, green, blue and violet), ultraviolet, x-rays and gamma.	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate Analyze

• Describe the properties of a medium (transparency, opaque, translucent). • Discuss the effect of the properties medium on the properties of a wave. • Explain the difference between a mechanical wave and an electromagnetic wave. • Measure a sound wave's frequency and wavelength. • Demonstrate refraction with a piece of plate glass. • Examine The Doppler Effect. (No calculations) • Demonstrate absorption of the colors of light using colored film.	• The ozone layer protects life on Earth from ultraviolet radiation. • Wavelength is the distance from a point on a wave to the next point like it. • Frequency is the number of cycles per second. The unit of frequency is the hertz. 1 hz = 1 cycle/second= 1/second= s^{-1}. • A cycle is a portion of a wave that is 1 wavelength long. • When an atom absorbs photons electrons jump to higher energy levels. When the electrons jump down to lower energy levels photons are released. The energy involved in a specific jump is unique for that jump. • A lens works because the speed of light in glass is different than the speed of light in air. This difference causes refraction. • Reflection and refraction are wave-like properties. • A wave transports energy. Place waves into mechanical and electromagnetic categories. • Both prisms and lenses work because of refraction. Each wavelength of light has a different speed in the glass. • The medium in the substance through which a wave travels. Example: Water is the medium in a ripple tank. • A substance can be either transparent, translucent or opaque to a wave. • Mechanical waves are either longitudinal or transverse waves. Mechanical waves produce a temporary displacement of the particles of the	

	medium. Amplitude measures the amount of temporary displacement. • Transverse waves contain crests and troughs. • Reflection is a particle like property. The angle of incident is congruent to the angle of reflection. • Refraction is the bending of a wave as it travels from one medium into another in which the wave has a different speed. • Superimposed waves appear to combine, but they can separate later. • Diffusion is the spreading of wave beyond a barrier.	

Vocabulary	Resources
Electromagnetic radiation Refraction Photon Reflection Radio wave Laser Microwave Energy Levels Infrared radiation Wavelength Visible radiation Frequency Ultraviolet radiation Speed of Light X-ray Propagation Gamma ray Ripple Tank Lens Diffraction Superimposition Prism Trough Crest	"Energy: Misconceptions and Models" from U.K. Department of Education "Waves, Light, and Sound" from the Physics Zone The Physics Classroom Cengage **An Introduction to Physical Science**

Amplitude Absorption Translucent Transparent Opaque Law of reflection	
Essential Questions	**Understanding/Corresponding Big Ideas**
1. How is the electromagnetic spectrum arranged? 2. How is the velocity of a wave determined? 3. What is a transverse wave? What is a longitudinal wave? 4. What are the parts of a transverse wave? 5. What is the difference between reflection and refraction? 6. What is the Law of reflection?	1. The EM spectrum is arranged from longest wavelength and lowest frequency to shortest wavelength and highest frequency. 2. The velocity of a wave is determined by its frequency and wavelength. 3. All EM waves travel at the speed of light, which is 3.01×10^8 m/s. 4. All waves carry energy. In a transverse wave, the object vibrates perpendicular to the energy. In a longitudinal wave, the object and the energy travel parallel to one another. 5. The parts of a transverse wave include the resting position, amplitude, wavelength, crest, and trough. 6. Reflection is the bouncing of a wave. Refraction is the bending of a wave as it travels from one medium into another. 7. The Law of Reflection states that the angle of incidence equals the angle of reflection.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/CP Physical Science
Unit of Study	Electricity
Pacing	3 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Describe the identifiable physical properties of substance (e.g. color, hardness, conductivity, density, concentration, ductility). Explain how changes in these properties can occur without changing the chemical nature of the substance.

Supporting Standard(s):
1. Compare the conductivity of different materials and explain the role of electrons in the ability to conduct electricity.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
• Understand that electrons are the particles that flow in an electrical circuit. • Explain how an object becomes electrically charged. • Construct an electrical circuit and use it to determine conductivity. • Identify the properties of a conductor and an insulator. • Determine whether an object is a conductor, semiconductor, or an insulator. • Use a multimeter to measure the conductivity, current, voltage, and resistance of a circuit.	• An object accumulates a static charge when the number of protons is not the same as the number of electrons. • A conductor is a substance through which electricity easily moves. • Insulators are poor conductors. • Current electricity is the flow of electron. • A. C. is alternating current. • D.C. is direct current. • Ohm's Law $I = V/R$	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate Analyze

• Given data, be able to compute Ohm's law problems. • Given a set of equipment, be able to set up both series and parallel circuits.	• A series circuit is a circuit in which there is only one pathway for electrons to take. • A parallel circuit has more than one pathway for electrons to take. • Know how lightning forms based on static electricity.	

Vocabulary		Resources
Electrons Electrical current Conductor Insulator Semiconductor Resistance Ohm's Law Ampere Volt Electrical conductivity Charge Attraction Repulsion	Series circuit Parallel circuit Static electricity Electroscope Dry cell	"Energy: Misconceptions and Models" from the U.K. Department of Education "Waves, Light, and Sound" from the Physics Zone The Physics Classroom Cengage **An Introduction to Physical Science**

Essential Questions	Understanding/Corresponding Big Ideas
1. What is the difference between an insulator and a conductor? 2. How is a house wired? What is the difference between a series and a parallel circuit? 3. What is lightning? 4. What is the difference between A.C. and D.C.? 5. What is Ohm's Law?	1. An insulator does not allow electricity to flow through it easily while a conductor does. 2. Houses are wired in parallel. A parallel circuit has 2 or more pathways for the electrons to travel while a series only has 1 path for the current to flow. 3. A buildup of static electricity in the atmosphere is lightning. A static charge occurs when the number of protons is not the same as the number of electrons. 4. A.C. is alternating current while D.C. is direct current. 5. Ohm's Law is used to determine how much resistance is in a circuit. The equation is $I = V/R$ where I is the current in Amps, V is the potential difference in Volts, and R is the resistance measured in Ohm's.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/CP Physical Science
Unit of Study	Nuclear Energy
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Describe radioactive substances as unstable nuclei that undergo random spontaneous nuclear decay emitting particles and/or high-energy wavelike radiation.

Supporting Standard(s):
1. Summarize how nuclear reactions convert a small amount of matter into a large amount of energy. (Fission involves the splitting of a large nucleus into smaller nuclei; fusion is the joining of two small nuclei into a large nucleus).

"Unwrapped Skills" (students need to be able to do)	**"Unwrapped" Concepts (students need to <u>know</u>)**	**Bloom's Taxonomy Levels**
• Create models representing the reactants and products in fusion and fission reactions. • Show potential environmental impact if a nuclear reactor were to be build in your community. • Compare and contrast fission and fusion.	• Fission is the splitting of a large nucleus into smaller nuclei. • Fusion is the joining of two small nuclei into one larger nucleus. • In the equation, $E=mc^2$, E represents energy produced, m represents mass and c represents the speed of light. • A nuclear reactor is a device that produces useful energy from a fission reaction. Presently, there are no practical fusion reactors in operation. • In a fission reaction, the free neutrons can cause a chain reaction by splitting other nuclei producing	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate Analyze Evaluate

	even more neutrons resulting in even more splitting of nuclei. • A thermonuclear reaction is used for fusion reactions since they take place at high temperatures. • An important consideration that must be made before a nuclear reactor is built is the environmental impact.	

Vocabulary		Resources
Radioactive Isotopes	Evaluate	Cengage **An Introduction to Physical Science** "Teaching High School Science" by Annenberg http://education-portal.com/academy/lesson/types-of-radioactive-decay-and-their-effect-on-the-nucleus.html http://education-portal.com/academy/lesson/half-life-calculating-radioactive-decay-and-interpreting-decay-graphs.html http://www.colorado.edu/physics/2000/isotopes/radioactive_decay3.html
Radiation	Analyze	
Nuclear Decay	Rotate	
Unstable nuclei	Radioactive dating	
Stable nuclei	Radioactivity	
Alpha particles	Mass number	
Beta particles	Atomic number	
Gamma rays	Fusion	
Half-life	Fission	
Nuclear reactor	Nucleus	
$E=mc^2$		

Essential Questions	Understanding/Corresponding Big Ideas
1. Why do only certain nuclei emit radiation? 2. What is the difference between the different types of nuclear radioactivity? 3. What are the pros and cons of nuclear fission and fusion? 4. What is the historical significance of nuclear energy as a source of energy?	1. Radioactivity is determined by the stability of a nucleus. 2. Alpha, beta and gamma radiation have many differences including size, speed, mass and penetrating power. 3. Nuclear fission and fusion both produce large amounts of energy, however, fission produces radioactive waste and fusion is not controllable. 4. Nuclear power is a very polarizing subject in that it provides an alternative to fossil fuels, but has many negatives in its production.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/CP Physical Science
Unit of Study	The Universe
Pacing	3 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Explore the history and formation of the universe.

Supporting Standard(s):

"Unwrapped Skills" (students need to be able to do)	**"Unwrapped" Concepts (students need to <u>know</u>)**	**Bloom's Taxonomy Levels**
• Explain the "big bang" theory and list facts for its validity. • Evaluate data analyzing the ability of various types of electromagnetic radiation entering earth's atmosphere. • Develop an understanding of the history of space exploration. • Analyze an H-R diagram and explain the life cycle of a star. • Summarize how stars undergo fusion and how elements change from light to heavy.	• According to the "big bang" theory, the universe came into existence from a large explosion which is in a constant expansion (doppler effect). • Technology provides the basis for many new discoveries related to space and the universe through use of computers to decipher a multitude of complex data. • The universe contains billions of galaxies. • Galaxies contain billions of stars. • Gravitational attraction between hydrogen and helium clouds created stars through high gravitational forces generating nuclear reactions. • The attraction between stars create galaxies.	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate Analyze

Vocabulary		Resources
The "big bang" Theory	radio telescope	Cengage **An Introduction to Physical Science**
Nuclear fusion	X-Ray telescope	
stars	The Milky Way	
galaxy	luminosity	
HR diagram	red giant	
Doppler Effect	white dwarf	
Universe	supernova	
gravity	super giant	
main sequence	nebula	
black hole	neutron star	

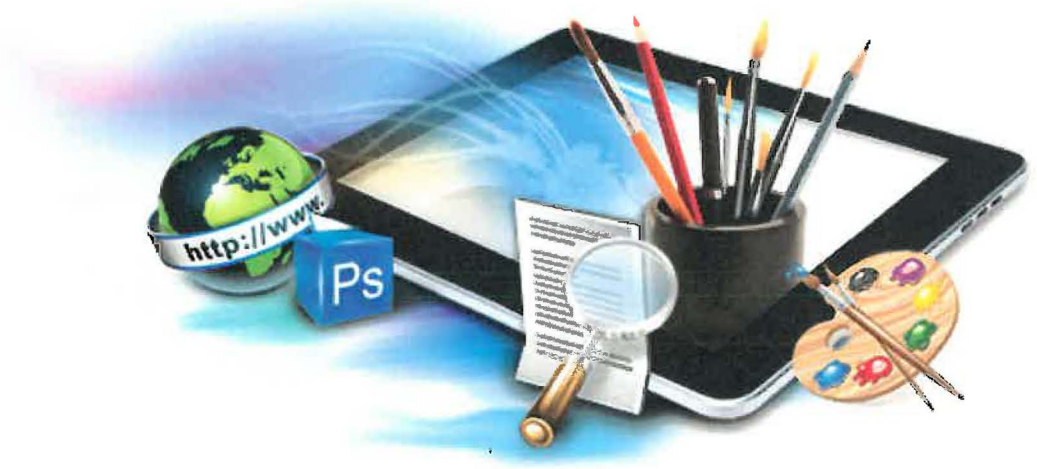
Essential Questions	Understanding/Corresponding Big Ideas
1. How did the universe form? 2. How do objects in the universe move? 3. How do we know what stars are made of?	1. The universe is expanding. 2. Stars have a life cycle.

EXHIBIT D

DIGITAL MEDIA

Course #291

Course of Study



Findlay City Schools

2017

TABLE OF CONTENTS

COURSE SUMMARY: This course is intended to engage student learning in the field of Digital Media with career based projects. Five specific competencies or skill sets will be covered: Graphic Design, Digital Photography, Video Game Design, Architecture/Interior Design and Web Design.

DIGITAL MEDIA
Course #291

Writing Team
Jason Wagner

Mission Statement

Educating and Empowering for Life

Beliefs

Our beliefs form the ethical foundation of the Findlay City Schools.
We believe....

- *All students and families have worth and are to be valued.*
- *Students need a safe and inclusive environment in order to fully express who they are.*
- *All students can learn.*
- *In order for each student to thrive, students, families, staff and community must be vested in their growth and development.*
- *All students need opportunities in and out of the classroom.*
- *FCS must be a reflection of our growing community and its needs.*
- *The Seven Habits of Highly Effective People supports life skills:*
    - *Habit 1: Be Proactive*
    - *Habit 2: Begin with the End in Mind*
    - *Habit 3: Put First Things First*
    - *Habit 4: Think Win-Win*
    - *Habit 5: Seek First to Understand, Then to Be Understood*
    - *Habit 6: Synergize*
    - *Habit 7: Sharpen the Saw*

DIGITAL MEDIA
CURRICULUM MAP

WEEK	UNIT	TOPIC	STANDARDS
1	INTRO TO DESIGN	Develop awareness with the digital design field. Introducing students to design practice and application.	HS BEGINNER 6PE, 2PR, 5PR, 4RE
2			
3	GRAPHIC DESIGN	Introducing students to graphic production methods, using both traditional and digital methods.	HS BEGINNER 6PE, 2PR, 5PR, 4RE
4			
5			
6			
7	DIGITAL PHOTOGRAPHY	Introduce the concepts of basic photography, create digital photographs and manipulate digitally.	HS BEGINNER 6PE, 2PR, 5PR, 4RE
8			
9			
10			
11	ANIMATION	Introduce digital animation using a variety of digital platforms and techniques.	HS BEGINNER 6PE, 2PR, 5PR, 4RE
12			
13			
14			
15	WEB DESIGN	Students will be introduced to basic web site construction using Google Sites, Wix, etc. Students will create a portfolio of their work in class.	HS BEGINNER 6PE, 2PR, 5PR, 4RE
16			
17			
18		Presentation of web-based portfolios	

FINDLAY CITY SCHOOLS

Subject(s)	Art
Grade/Course	9-12 • Digital Media
Unit of Study	Intro to Design
Duration of Unit	Two Weeks

STATE STANDARDS

HS Beginning 6PE, 2PR, 5PR, 4RE

Big Ideas	**Essential Questions**	**Bloom's Taxonomy Levels**
Skills, methods, media, process, and technologies are appropriate to designing and presenting digital artwork.	What media will best represent a student's strength as a student designer? How will the student creatively solve problems using the design thinking process?	Knowledge Comprehension Application

Enduring Understandings	**Program Components (Learning Activities)**
Students will recognize how and why designers make specific decisions when designing work.	Students will rely on previous knowledge and experience to design a composition consistent with their personal aesthetic.
Vocabulary	**Resources/ Best Practices**
see Appendix I – Digital Media Vocabulary	Personal Aesthetic Homework Design Renderings YouTube Instructional Video Students will complete design exercises

Board Adopted Date

FINDLAY CITY SCHOOLS

Subject(s)	Art
Grade/Course	9-12 • Digital Media
Unit of Study	Graphic Design
Duration of Unit	4 Weeks

STATE STANDARDS

HS Beginning 6PE, 2PR, 5PR, 4RE

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
Skills, methods, media, process, and technologies are appropriate to graphic design and digital media.	How does graphic design engage the viewer? How will the student creatively solve problems using the design thinking process?	Knowledge Comprehension Application

Enduring Understandings	Program Components (Learning Activities)
Students will recognize how and why graphic designers make specific decisions when designing work.	Students will utilize knowledge and experience of Adobe software to create original design works.

Vocabulary	Resources/ Best Practices
see Appendix I – Digital Media Vocabulary	Personal Aesthetic Homework Design Renderings YouTube Instructional Video Students will complete design exercises

Board Adopted Date

FINDLAY CITY SCHOOLS

Subject(s)	Art
Grade/Course	9-12 • Digital Media
Unit of Study	Digital Photography
Duration of Unit	4 Weeks

STATE STANDARDS

HS Beginning 6PE, 2PR, 5PR, 4RE

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
Digital photography, digital cameras and software are used for creating, and presenting works of art.	How can students use digital photography and Adobe Photoshop to best create works of art?	Knowledge Comprehension Application

Enduring Understandings	Program Components (Learning Activities)
Students will recognize how artists use digital photography to create a given work of art.	Students will understand concepts and apply production methods to create digital photographs and digital graphics. Students will learn how to manage and creatively alter digital images as well as critically analyze the use of visual media as a means of communication in our society today.
Vocabulary	**Resources/ Best Practices**
see Appendix I – Digital Media Vocabulary	Digital camera Desktop computer Photoshop IPad Handouts PowerPoint Presentation

Board Adopted Date

FINDLAY CITY SCHOOLS

Subject(s)	Art
Grade/Course	9-12 • Digital Media
Unit of Study	Animation
Duration of Unit	4 Weeks

STATE STANDARDS

HS Beginning 6PE, 2PR, 5PR, 4RE

Big Ideas	**Essential Questions**	**Bloom's Taxonomy Levels**
Skills, methods, media, process, and technologies which apply to the animation process.	What process will best facilitate a student's animation concept? How will the student animate and creatively solve problems using the design thinking process?	Knowledge Comprehension Application

Enduring Understandings	**Program Components (Learning Activities)**
Students will recognize how and why animators make specific decisions when creating animations.	Students will storyboard a concept and see it through the final design stages, developing a short animation.
Vocabulary	**Resources/ Best Practices**
see Appendix I - Digital Media Vocabulary	Personal Aesthetic Homework Storyboard Renderings YouTube Instructional Video Students will complete animate digitally

Board Adopted Date

FINDLAY CITY SCHOOLS

Subject(s)	Art
Grade/Course	9-12 • Digital Media
Unit of Study	Web Design
Duration of Unit	4 Weeks

STATE STANDARDS

HS Beginning 6PE, 2PR, 5PR, 4RE

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
Web design is used for creating, and presenting works of art.	How can students use web design to best create works of art?	Knowledge Comprehension Application

Enduring Understandings	Program Components (Learning Activities)
Students will recognize how artists use web design to create a web-based digital media portfolio.	Students will understand and apply production methods concepts used to create web-based digital media. Students will produce an accomplished portfolio of work.
Vocabulary	**Resources/ Best Practices**
see Appendix I - Digital Media Vocabulary	Desktop computer Wix or Weebly account IPad Handouts PowerPoint Presentation

Board Adopted Date

Appendix I

Digital Media Vocabulary

Design Elements
Line
Color
Texture
Hue
Primary Colors
Secondary Colors
Complementary Colors
Cool Colors
Warm Colors
RGB
CMYK
Asymmetrical Balance
Symmetrical Balance
Radial Balance
Emphasis
Proportion
Movement
Contrast
Repetition
Alignment
Unity
Layout

Ohio Department of Education

2012 Visual Art Standards
GRADES 9 - 12

ENDURING UNDERSTANDINGS	**Personal Choice and Vision:** Students construct and solve problems of personal relevance and interest when expressing themselves through visual art. **Critical and Creative Thinking:** Students combine and apply artistic and reasoning skills to imagine, create, realize and refine artworks in conventional and innovative ways. **Authentic Application and Collaboration:** Students work individually and in groups to focus ideas and create artworks that address genuine local and global community needs. **Literacy:** As consumers, critics and creators, students evaluate and understand artworks and other texts produced in the media forms of the day.
Students will: **PROGRESS POINTS**	A. Understand and articulate the intrinsic worth and public value of arts and cultural participation. B. Draw on a variety of sources to generate, select and evaluate ideas to create personally meaningful products. C. Address and communicate complex visual and conceptual ideas using a range of technical skill and art media including new technologies. D. Access and evaluate information from a variety of sources for visual reference with attention to ethical and legal issues. E. Apply reasoning skills to communicate key ideas expressed in their artworks and the works of others and use appropriate criteria and language to critique the works. F. Analyze and use digital tools to understand how and why images are created and interpreted and how media influences culture, beliefs and behaviors. G. Demonstrate flexibility and reflective habits when creating visual art forms in a variety of artistic contexts and environments. H. Demonstrate respect for, and effectively work with, socially and culturally diverse teams or content to increase innovation and quality.

COGNITIVE AND CREATIVE LEARNING PROCESSES	PERCEIVING/KNOWING (PE)	PRODUCING/PERFORMING (PR)	RESPONDING/REFLECTING (RE)
ACHIEVEMENT LEVEL CONTENT STATEMENTS **HS Beginning**	1PE Examine and articulate the effects of context on visual imagery. 2PE Identify and describe the sources artists use for visual reference and to generate ideas for artworks. 3PE Identify the relationship between community or cultural values and trends in visual art. 4PE Identify the factors that influence the work of individual artists. 5PE Describe the role of technology as a visual art medium. 6PE Describe the decisions made in the design of everyday objects.	1PR Demonstrate basic technical skill and craftsmanship with various art media when creating images from observation, memory and imagination. 2PR Apply the elements and principles of art and design using a variety of media to solve specific visual art problems. 3PR Explore multiple solutions to visual art problems through preparatory work. 4PR Establish the appropriate levels of craftsmanship when completing artworks. 5PR Investigate how to access available digital tools and innovative technologies to create and manipulate artwork. 6PR Identify and apply visual literacy as a means to create images that are personally expressive.	1RE Explore various methods of art criticism in responding to artworks. 2RE Identify assessment practices to manage, monitor and document their learning. 3RE Use appropriate vocabulary to define and describe techniques and materials used to create works of art. 4RE Investigate the role of innovative technologies in the creation and composition of new media imagery. 5RE Identify and explain one or more theories of aesthetics and visual culture. 6RE Identify various venues for viewing works of art. 7RE Recognize and articulate the importance of lifelong involvement and advocacy in the arts.
HS Intermediate	1PE Examine the context details of visual imagery and explain the social and cultural influences on the images. 2PE Describe sources visual artists use to generate ideas for artworks. 3PE Explore the relationship between community or cultural values and trends in visual art. 4PE Analyze the work of individual artists and explain how they are influenced by cultural factors. 5PE Explore the application of technology to the production of visual artworks. 6PE Connect processes and decisions made in the design of everyday objects, environments, and communications	1PR Demonstrate proficient technical skills and craftsmanship with various art media when creating images from observation, memory, or imagination. 2PR Make informed choices in the selection of materials and techniques as they relate to solving a visual problem. 3PR Generate a variety of solutions to visual arts problems through preparatory work. 4PR Establish and apply appropriate levels of craftsmanship to complete artworks. 5PR Understand and demonstrate how to access available digital tools and innovative technologies to create and manipulate artwork. 6PR Incorporate visual literacy as a means to create images that advance individual expression and communication.	1RE Apply methods of art criticism when discussing selected works of art. 2RE Apply assessment practices to revise and improve their artworks and to document their learning. 3RE Expand the use of arts-specific vocabulary to define and describe techniques and materials used to create works of art. 4RE Explain the role of innovative technologies in the creation and composition of new media imagery. 5RE Compare and contrast various theories of aesthetics and visual culture. 6RE Identify the challenges various venues present to the creation of works of art. 7RE Explore and discuss opportunities for lifelong involvement and advocacy in the arts.
HS Accelerated	1PE Analyze interdisciplinary connections that influence social and cultural contexts of visual imagery. 2PE Analyze and explain the factors that influence artworks. 3PE Compare and contrast the styles in artworks by artists of different cultures and historical trends. 4PE Explain how individual artists impact cultural developments. 5PE Investigate the influence of technology on visual art and its effects on their own works. 6PE Identify, examine and understand the aesthetic, stylistic and functional considerations of designing objects, environments and communications	1PR Demonstrate increased technical skill and craftsmanship with various art media when creating images from observation, memory and imagination. 2PR Make informed choices in the selection of materials and techniques that relate to solving a visual problem. 3PR Solve visual art problems that demonstrate skill, imagination and observation. 4PR Prepare artworks for display that demonstrate high levels of craftsmanship. 5PR Explore and expand on personal art applications through the use of available digital tools, innovative technologies and media arts. 6PR Expand visual literacy as a means to create images that advance individual expression and communication.	1RE Apply art criticism methods and inquiry skills to interpret visual images produced by new media and media arts. 2RE Practice self-assessment to understand their progress and prioritize steps for improvement. 3RE Explain artistic processes from idea conception to completion of a work of art using descriptive and arts-specific terminology. 4RE Respond to critical questions about the meaning and influence of new media imagery in our culture. 5RE Develop and support a personal philosophy of art based on aesthetic theories and understanding of visual culture. 6RE Explain how a response to a work of art is affected by the context in which it is viewed. 7RE Investigate and plan strategies for lifelong involvement and advocacy in the arts.

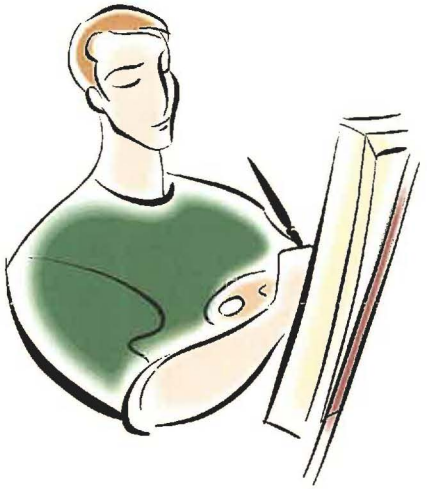
HS Advanced	1PE Interpret social and cultural contexts to develop personal meaning in visual imagery. 2PE Interpret and evaluate the way a theme or meaning in an artwork expresses the social, political or cultural context. 3PE Compare and contrast universal themes and sociopolitical issues in artworks from different cultures and historical periods. 4PE Demonstrate the ability to form and defend judgments regarding the relationships between artists and culture. 5PE Envision and explain how technology can impact visual art and literacy. 6PE Apply self-direction, independence and a purposed approach when defining and solving a visual design problem.	1PR Demonstrate advanced technical skills and craftsmanship with various art media when creating images from observation, memory and imagination. 2PR Use criteria to revise works-in-progress and describe changes made and what was learned in the process. 3PR Contribute to a portfolio of works that demonstrates technical skill, a range of media and various original solutions to visual art problems. 4PR Select, organize and prepare artworks for exhibition. 5PR Create original artworks that demonstrate the ability to select, use and vary available digital tools and innovative technologies. 6PR Visually express complex concepts and meaning in their artworks.	1RE Apply art criticism methods and inquiry skills as viewer, critic and consumer of visual images produced by new media and media arts. 2RE Apply assessment practices to select, organize and present personal artworks that document their understanding of visual art and literacy concepts. 3RE Apply inquiry and analytic processes when viewing, judging and consuming visual content and images produced by new media and media arts. 4RE Analyze and explain the relationship between the content and ideas in artworks and the use of media and compositional elements. 5RE Defend personal philosophies of art based on a connection to aesthetic theories and visual culture. 6RE Engage in discourse and express a point of view about issues related to the public display of works of art. 7RE Form and demonstrate personal strategies for lifelong involvement and advocacy in the arts.

EXHIBIT D

DRAWING

Course #273

Course of Study

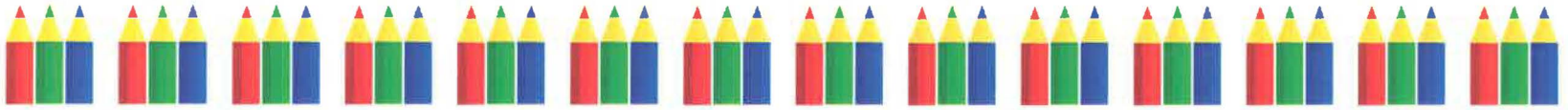


Findlay City Schools

2017

TABLE OF CONTENTS

Course Description: Emphasis is on drawing with traditional media. In this course, students will use a variety of media, such as pencil, ink, charcoal and pastel. Through studio projects, students will develop fundamental skills drawing from observation.



DRAWING
Course #273

Writing Team
Jon Gaberdiel

Mission Statement

Educating and Empowering for Life

Beliefs

Our beliefs form the ethical foundation of the Findlay City Schools.
We believe....

- *All students and families have worth and are to be valued.*
- *Students need a safe and inclusive environment in order to fully express who they are.*
- *All students can learn.*
- *In order for each student to thrive, students, families, staff and community must be vested in their growth and development.*
- *All students need opportunities in and out of the classroom.*
- *FCS must be a reflection of our growing community and its needs.*
- *The Seven Habits of Highly Effective People supports life skills:*
    - *Habit 1: Be Proactive*
    - *Habit 2: Begin with the End in Mind*
    - *Habit 3: Put First Things First*
    - *Habit 4: Think Win-Win*
    - *Habit 5: Seek First to Understand, Then to Be Understood*
    - *Habit 6: Synergize*
    - *Habit 7: Sharpen the Saw*

DRAWING
CURRICULUM MAP

WEEK	UNIT	TOPIC	STANDARDS
1	Introduction	Studio Responsibilities, Technology, Personal Aesthetic, General Overview of Drawing	1 PE, 2 PE, 4 PE
2	Observational Drawing	Sketchbook, Value: B vs. H pencils, Line Quality	1 PR, 3 PR, 4 PR
3		Contour: Blind vs. Semi Blind	1 PR, 3 PR, 4 PR
4		Still Life	1 PR, 3 PR, 4 PR, 6 PR
5			
6			
7		Gesture/Figure Drawing	1 PR, 3 PR, 4 PR, 6 PR
8			
9		Portrait (grid)	1 PE, 2 PE, 4 PE, 6 PE
10			
11			
12	Perspective	Linear	1 PE, 2 PE, 4 PE, 1 PR
13		• Architectural/interior, exterior/industrial	
14		Non-Linear	1 PE, 2 PE, 4 PE, 1 PR
15		• Landscape, seascape, etc.	
16	Culminating Project	Illustration/Narrative	1 PE, 2 PE, 4 PE, 1 PR, 6 PR
17			
18			

Findlay City Schools
DRAWING – Grades 9-12

Subject(s)	DRAWING
Grade/Course	9-12
Unit of Study	Introduction
Pacing	1 week

STATE STANDARDS

1 PE, 2 PE, 4 PE (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Studio responsibilities • Technology/social media • Personal aesthetic • General overview of Drawing	• What is the importance of a clean, organized studio? • How will social media improve class experiences?	Knowledge Analysis

Enduring Understandings	Program Components (Learning Activities)
• Differentiate between a variety of techniques, media and processes.	• Students will be guided through proper studio and technological procedures.

Vocabulary	Resources/Best Practices
See Appendix I	• Syllabus • Related handouts

Subject(s)	DRAWING
Grade/Course	9-12
Unit of Study	Observational Drawing: Sketchbook, Value, Line Quality, B vs. H Pencils
Pacing	1 week

STATE STANDARDS

1 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Demonstrate ability to accurately render objects, arrange a composition and display a full range of value. • Describe the relevance of keeping a sketchbook. • Define how to use a sketchbook to organize thoughts, ideas and imagery.	• How can three-dimensional forms be created on a two-dimensional surface?	Application Analysis

Enduring Understandings	Program Components (Learning Activities)
• Develop technique for handling media to create specific value variations.	• Value scale using H-B pencils • Line quality exercises • Value study from still life object(s)

Vocabulary	Resources/Best Practices
See Appendix I	• Syllabus • Hand outs • Graphic Organizers

Subject(s)	DRAWING
Grade/Course	9-12
Unit of Study	Contour: Blind vs. Semi Blind
Pacing	1 week

STATE STANDARDS

1 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Demonstrate how contour line drawing contributes to the broader drawing process.	• What is the function of contour lines? • How does blind contour differ from semi-blind contour?	Application Analysis

Enduring Understandings	Program Components (Learning Activities)
• Demonstrate ability to use contour line to depict form.	• Draw a variety of subjects/forms utilizing both blind and semi-blind contour lines.

Vocabulary	Resources/Best Practices
See Appendix I	• Demonstration • Videos • Graphic organizers

Subject(s)	DRAWING
Grade/Course	9-12
Unit of Study	Still Life
Pacing	3 weeks

STATE STANDARDS

1 PR, 3 PR, 4 PR, 6PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Still lifes may be used to refine technique and accuracy, as well as conveying meaning.	• What is the relevance of still life as a drawing subject matter?	Application Analysis

Enduring Understandings	Program Components (Learning Activities)
• Demonstrate ability to select objects, arrange, compose an interesting composition and depict objects accurately and dimensionally.	• Create a still life drawing depicting accurate form and full range of value.

Vocabulary	Resources/Best Practices
See Appendix I	• Personal aesthetic • Graphic organizers • Hand outs • Videos

Subject(s)	DRAWING
Grade/Course	9-12
Unit of Study	Gesture/Figure Drawing
Pacing	2 weeks

STATE STANDARDS

1 PR, 3 PR, 4 PR, 6PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Gesture is used to quickly capture movement, posture or positioning of a form(s).	• How does gesture differ from contour lines?	Knowledge Analysis

Enduring Understandings	Program Components (Learning Activities)
• Determine how to use gesture line to develop a refined drawing in regard to accurate form and full range of value.	• Students will practice gesture drawing from models or macquettes to create accurate proportion and form.

Vocabulary	Resources/Best Practices
See Appendix I	• Demonstration • Hand outs • Videos • Graphic organizers

Subject(s)	DRAWING
Grade/Course	9-12
Unit of Study	Portrait
Pacing	3 weeks

STATE STANDARDS

1 PE, 2 PE, 4 PE, 6PE (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Portrait has specific proportions that must be used to depict accurate features.	• How do we determine proper placement of facial features? • How are grids beneficial to the drawing process?	Knowledge Analysis Application

Enduring Understandings	Program Components (Learning Activities)
• There is a formula for correctly placing portrait features. • Gridding is a method of improving accuracy.	• Students will refine an image or model to create a proportionally correct portrait.

Vocabulary	Resources/Best Practices
See Appendix I	• Demonstration • Graphic organizers • Hand outs • Videos

Subject(s)	DRAWING
Grade/Course	9-12
Unit of Study	Perspective: Linear
Pacing	2 weeks

STATE STANDARDS

1 PE, 2 PE, 4 PE, 1PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Linear Perspective is a calculated technique used to create the illusion of 3D space on a 2D surface.	• What is the difference between 1 point and 2 point perspective? • How does a vanishing point function?	Knowledge Analysis Application

Enduring Understandings	Program Components (Learning Activities)
• Understanding and applying perspective is a necessary element to create believable dimensional space.	• Students will create perspective drawings that are architectural (interior or exterior) and industrial in nature.

Vocabulary	Resources/Best Practices
See Appendix I	• Demonstration • Hand outs • Videos • Graphic organizers

Subject(s)	DRAWING
Grade/Course	9-12
Unit of Study	Perspective: Non-Linear
Pacing	2 weeks

STATE STANDARDS

1 PE, 2 PE, 4 PE, 1PR (HS Intermediate)

Big Ideas	Essential Questions	Blooms's Taxonomy Levels
• Non-linear perspective is the way of showing depth that involves lessening detail and softened edges of forms as they recede in space.	• How does non-linear perspective function differently from linear perspective?	Knowledge Analysis Application

Enduring Understandings	Program Components (Learning Activities)
• Artists use a combination of linear and non-linear perspective to create believable 3D spaces.	• Students will create a non-linear perspective drawing of a landscape, seascape or other natural setting.

Vocabulary	Resources/Best Practices
See Appendix I	• Demonstration • Hand outs • Videos • Graphic organizers

Subject(s)	DRAWING
Grade/Course	9-12
Unit of Study	Culminating Project
Pacing	3 weeks

STATE STANDARDS

1 PE, 2 PE, 4 PE 1 PR, 6 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• One of the primary purposes of art is to convey a thought, feeling or idea.	• How can imagery be used to convey meaning?	Knowledge Analysis Application Comprehension

Enduring Understandings	Program Components (Learning Activities)
• Subject, form (composition) and content (meaning) combine to form an effective work of art.	• Students will create an original composition that is either an illustration or narrative.

Vocabulary	Resources/Best Practices
See Appendix I	• Demonstration • Related handouts • Web research • Videos • Graphic organizers

Glossary
Art Vocabulary

1. **Medium:** material used to create art (plural: Media)
2. **Composition:** arrangement of objects and elements in an artwork.
3. **Open composition:** an arrangement where the objects and elements continue beyond the picture plane.
4. **Closed composition:** an arrangement where the objects and elements are completely contained within the picture plane.
5. **Aesthetics:** The philosophy or study of the nature and beauty of art.
6. **Art Criticism:** an organized system for studying a work of art.
   Description: make a list of all the things you see in the work.
   Analysis: how is the work organized? Use the elements of art to explain.
   Interpretation: explain the meaning or mood of the work.
   Judgment: determine if the work is successful.
7. **Elements of Art:** basic visual symbols in the language of art. These include line shape, color, value, texture, space, and form.
8. **Line:** a path of a moving point.
9. **Contour line:** a continuous line that defines the interior and exterior edges of an object.
10. **Modified/semi-blind contour:** a line drawn by looking primarily at the object with occasional glances at the paper.
11. **Blind/Pure contour:** a line drawn by looking at the object only. The artist uses one continuous line.
12. **Outline:** a line that shows only outside edges with no interior details.
13. **Gesture:** a quick drawing that captures the feeling of movement.
14. **Value:** relative degree of lightness or darkness by the amount of light reflected.
15. **Blending:** smooth value with no texture.
16. **Crosshatching:** sets of parallel overlapping lines. The density or number of lines creates value.
17. **Stippling:** small dots. The density of the dots creates the value.
18. **Full range of values:** all the values between black and white.

19. **Highlight:** small area of white used to show the brightest spot on an object. This area is closest to the light source.

20. **Halftone:** the entire area on the form facing the light source, the area between the highlight and the shadow. It gradually darkens as it turns away from the light source.

21. **Shadow:** the darker value on the surface of an object that gives the illusion that a portion of it is turned away from the source of light.

22. **Reflected light:** the light that bounces back into the shadow from surrounding objects. It should always be a darker value than any part of the form facing the light.

23. **Cast shadow:** a dark area that occurs on a surface as a result of something being placed between that surface and a light source. This area is always opposite the light source.

24. **Color:** element of art derived from reflected light.

25. **Primary:** colors that make all other color; cannot be made. Red, yellow, blue.

26. **Secondary:** colors made by mixing 2 primary colors. Green, orange, purple.

27. **Tertiary/intermediate:** colors made by mixing a primary and a secondary color. Yellow- orange, yellow-green blue-green, blue-violet, red-violet, red-orange.

28. **Warm:** colors with yellow base, associated with sunshine, fire, etc. Advance in composition.

29. **Cool:** colors with blue base, associated with ice, water, etc. Recede in composition.

30. **Hue:** pure color with neither black nor white added.

31. **Tint:** add white to a color.

32. **Shade:** add black to a color.

33. **Neutral:** black, white, gray, pure value with no color association.

34. **Color schemes:** a plan for organizing colors.

35. **Monochromatic:** a color scheme that uses only one hue and the values, tints and shades of that hue. Black, white, and one color.

36. **Complementary:** colors directly opposite from each other on the color wheel.

37. **Analogous:** colors next to each other on the color wheel.

38. **Texture:** the way an object feels or appears to feel

39. **Implied texture:** the illusion of texture on a 2-D surface.

40. **Actual texture:** texture that is "real" or can be touched.

41. **2 Dimensional:** having height and width.

42. **3 Dimensional:** having height, width, and depth.

43. **Proportion/scale:** properties of size, quantity, and degree of emphasis; established when relationships of size are created relative to a gauge or specific unit of measure.

44. **Linear Perspective:** scientifically based set of rules for creating the illusion of space on a 2- D surface.

45. **Horizon line**: line drawn where earth and sky appear to meet.

46. **Vanishing point**: point on the horizon where parallel lines appear to converge.

47. **Foreground**: the part of the picture that appears closest to the viewer.

48. **Middleground:** the part of the picture that appears at the midpoint.

49. **Background:** the part of the picture that appears farthest from the viewer.

50. **Positive space:** space that is occupied by an object; the object itself.

51. **Space:** the distance between, around, above, below, and within an object.

52. **Negative space:** the unoccupied or empty space around an object.

53. **Printmaking**: transferring an original image from one prepared surface to another.

54. **Relief print**: ink is applied to the raised surface of a plate or block.

55. **Collograph:** a collage printmaking technique, where the image is composed from a variety of textured materials glued to a plate.

56. **Monotype**: print made from an unaltered surface.

57. **Plate/Block:** prepared surface for printmaking.

58. **Gouge:** tool used to remove material from a printing block or plate.

59. **Brayer:** tool used to spread ink.

60. **Edition:** numbered set of identical prints/images.

61. **Credit Line** (title, edition, artist)

62. **Clay:** fine-grained earth materials formed by the decomposition of rock; when combined with water, it is plastic enough to be shaped; when dry, it is strong; and when subjected heat, it becomes rock-like.

63. **Plastic:** clay that is moist and pliable.

64. **Leather hard:** clay that is slightly flexible and cool to the touch.

65. **Bone dry:** clay with no moisture.

66. **Bisque:** clay that has been fired once. Clay is now ceramic.

67. **Glaze:** glassy coating for ceramics; can be matte or gloss.

68. **Fire:** heating clay to high temperature to cause a chemical change, which will permanently harden the clay.

69. **Kiln:** furnace for firing.

70. **Handbuilding techniques:** slab, coil, and pinch.

71. **Score:** small scratches used for attaching clay to clay.

72. **Slip:** liquid clay.

73. **Sculptural:** purely decorative.

74. **Functional:** useful.

75. **Form:** element of art that is 3 dimensional and encloses space.

76. **Freestanding:** sculpture that is viewable from all sides.

77. **Relief:** sculpture that is raised from a flat surface.

78. **Armature:** structure created to hold sculpting material

79. **Shape:** a 2 dimensional area enclosed by a boundary.

80. **Geometric:** a shape that can be described using mathematical terms.

81. **Organic:** a shape with irregular and uneven edges that is often found in nature.

Principles of Design

82. **Emphasis:** used by artists to create dominance and focus in their work.

83. **Balance:** refers to the distribution of visual weight in a work of art; can be either symmetrical or asymmetrical.

84. **Pattern:** uses the art elements in planned or random repetitions to enhance surfaces of paintings or sculptures; increases visual excitement by enriching surface interest.

85. **Contrast:** refers to differences in values, colors, textures, shapes, and other elements.

86. **Movement:** used by artists to direct viewers through their work, often to focal areas; can be directed along lines, edges, shapes, and colors within the works.

87. **Rhythm:** the repetition of visual movement; works together with movement to create the visual equivalent of a musical beat.

88. **Unity:** provides the cohesive quality that makes an artwork feel complete and finished; when all the elements and principles in a work look as though they belong together.

Theories of Art

89. **Imitationalism:** a theory of art that focuses o literal or realistic qualities; the realistic or lifelike representation of subject matter.

90. **Formalism:** a theory of art that concentrates on design (or visual) qualities; the way the elements and principles of art have been used.

91. **Emotionalism:** a theory of art that focuses on expressive qualities; the way the drawing effectively communicates an idea, feeling, or mood to the viewer.

What Will I Learn in Drawing?

the art of education

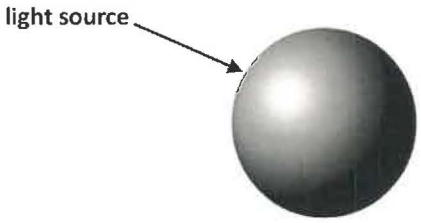
As an artist, I can integrate the characteristics of the tools of a selected media in original artworks to support artistic purposes.

6H 5H 4H 3H 2H H F HB B 2B 3B 4B 5B 6B 7B 8B

Graphite pencil grades

I can use drawing techniques to render objects (with highlights, shadows & a light source) in my artwork.

- Blending
- Hatching
- Stippling
- Crosshatching
- Scumbling



As an artist, I can analyze how the principles are combined to communicate meaning in the creation of, presentation of, or response to visual artworks.

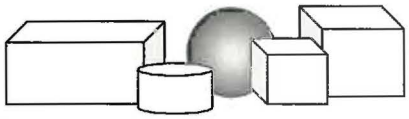
Balance	Pattern
Contrast	Emphasis
Movement	Unity
Rhythm	

As an artist, I can develop my 8 Studio Habits of Mind.

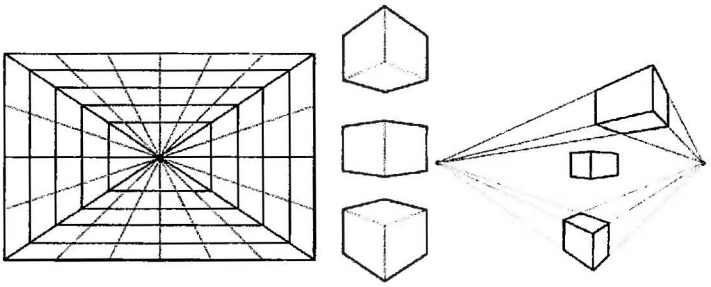
- Develop Craft
- Engage & Persist
- Envision
- Express
- Observe
- Reflect
- Stretch & Explore
- Understand Art World

Value: The lightness or darkness of a color
Tonal range: Various shades of grey between absolute black and absolute white

As an artist, I can use hierarchy, proportion and overlapping to create depth in my artwork.



As an artist, I can use various perspective drawing techniques to suggest depth within in my work.

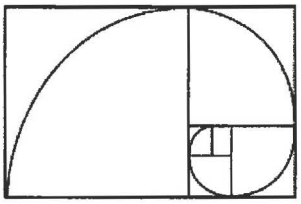


Drawing vocabulary:

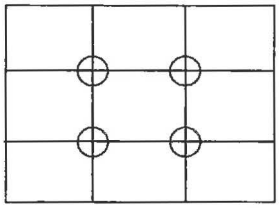
proportion	3/4 view	hatching
placement	profile	cross-hatching
highlights	oblique	stippling
shadow	gesture	scumbling
variety	tonal range	foreshortening
harmony	hierarchy	perspective
value	hatching	dominance
scale	cross-hatching	contour
composition	stipple	blind contour

As an artist, I can emphasize the subject of my artwork and make it aesthetically pleasing to the viewer by how I arrange my composition.

The Golden Ratio



The Rule of Thirds



ENDURING UNDERSTANDINGS	**Personal Choice and Vision:** Students construct and solve problems of personal relevance and interest when expressing themselves through visual art. **Critical and Creative Thinking:** Students combine and apply artistic and reasoning skills to imagine, create, realize and refine artworks in conventional and innovative ways. **Authentic Application and Collaboration:** Students work individually and in groups to focus ideas and create artworks that address genuine local and global community needs. **Literacy:** As consumers, critics and creators, students evaluate and understand artworks and other texts produced in the media forms of the day.		Ohio Department of Education ***2012 Visual Art Standards*** ***GRADES 9 - 12***
Students will: **PROGRESS POINTS**	A. Understand and articulate the intrinsic worth and public value of arts and cultural participation. B. Draw on a variety of sources to generate, select and evaluate ideas to create personally meaningful products. C. Address and communicate complex visual and conceptual ideas using a range of technical skill and art media including new technologies. D. Access and evaluate information from a variety of sources for visual reference with attention to ethical and legal issues. E. Apply reasoning skills to communicate key ideas expressed in their artworks and the works of others and use appropriate criteria and language to critique the works. F. Analyze and use digital tools to understand how and why images are created and interpreted and how media influences culture, beliefs and behaviors. G. Demonstrate flexibility and reflective habits when creating visual art forms in a variety of artistic contexts and environments. H. Demonstrate respect for, and effectively work with, socially and culturally diverse teams or content to increase innovation and quality.		
COGNITIVE AND CREATIVE LEARNING PROCESSES	**PERCEIVING/KNOWING (PE)**	**PRODUCING/PERFORMING (PR)**	**RESPONDING/REFLECTING (RE)**
ACHIEVEMENT LEVEL CONTENT STATEMENTS **HS Beginning**	1PE Examine and articulate the effects of context on visual imagery. 2PE Identify and describe the sources artists use for visual reference and to generate ideas for artworks. 3PE Identify the relationship between community or cultural values and trends in visual art. 4PE Identify the factors that influence the work of individual artists. 5PE Describe the role of technology as a visual art medium. 6PE Describe the decisions made in the design of everyday objects.	1PR Demonstrate basic technical skill and craftsmanship with various art media when creating images from observation, memory and imagination. 2PR Apply the elements and principles of art and design using a variety of media to solve specific visual art problems. 3PR Explore multiple solutions to visual art problems through preparatory work. 4PR Establish the appropriate levels of craftsmanship when completing artworks. 5PR Investigate how to access available digital tools and innovative technologies to create and manipulate artwork. 6PR Identify and apply visual literacy as a means to create images that are personally expressive.	1RE Explore various methods of art criticism in responding to artworks. 2RE Identify assessment practices to manage, monitor and document their learning. 3RE Use appropriate vocabulary to define and describe techniques and materials used to create works of art. 4RE Investigate the role of innovative technologies in the creation and composition of new media imagery. 5RE Identify and explain one or more theories of aesthetics and visual culture. 6RE Identify various venues for viewing works of art. 7RE Recognize and articulate the importance of lifelong involvement and advocacy in the arts.
HS Intermediate	1PE Examine the context details of visual imagery and explain the social and cultural influences on the images. 2PE Describe sources visual artists use to generate ideas for artworks. 3PE Explore the relationship between community or cultural values and trends in visual art. 4PE Analyze the work of individual artists and explain how they are influenced by cultural factors. 5PE Explore the application of technology to the production of visual artworks. 6PE Connect processes and decisions made in the design of everyday objects, environments, and communications	1PR Demonstrate proficient technical skills and craftsmanship with various art media when creating images from observation, memory, or imagination. 2PR Make informed choices in the selection of materials and techniques as they relate to solving a visual problem. 3PR Generate a variety of solutions to visual arts problems through preparatory work. 4PR Establish and apply appropriate levels of craftsmanship to complete artworks. 5PR Understand and demonstrate how to access available digital tools and innovative technologies to create and manipulate artwork. 6PR Incorporate visual literacy as a means to create images that advance individual expression and communication.	1RE Apply methods of art criticism when discussing selected works of art. 2RE Apply assessment practices to revise and improve their artworks and to document their learning. 3RE Expand the use of arts-specific vocabulary to define and describe techniques and materials used to create works of art. 4RE Explain the role of innovative technologies in the creation and composition of new media imagery. 5RE Compare and contrast various theories of aesthetics and visual culture. 6RE Identify the challenges various venues present to the creation of works of art. 7RE Explore and discuss opportunities for lifelong involvement and advocacy in the arts.
HS Accelerated	1PE Analyze interdisciplinary connections that influence social and cultural contexts of visual imagery. 2PE Analyze and explain the factors that influence artworks. 3PE Compare and contrast the styles in artworks by artists of different cultures and historical trends. 4PE Explain how individual artists impact cultural developments. 5PE Investigate the influence of technology on visual art and its effects on their own works. 6PE Identify, examine and understand the aesthetic, stylistic and functional considerations of designing objects, environments and communications	1PR Demonstrate increased technical skill and craftsmanship with various art media when creating images from observation, memory and imagination. 2PR Make informed choices in the selection of materials and techniques that relate to solving a visual problem. 3PR Solve visual art problems that demonstrate skill, imagination and observation. 4PR Prepare artworks for display that demonstrate high levels of craftsmanship. 5PR Explore and expand on personal art applications through the use of available digital tools, innovative technologies and media arts. 6PR Expand visual literacy as a means to create images that advance individual expression and communication.	1RE Apply art criticism methods and inquiry skills to interpret visual images produced by new media and media arts. 2RE Practice self-assessment to understand their progress and prioritize steps for improvement. 3RE Explain artistic processes from idea conception to completion of a work of art using descriptive and arts-specific terminology. 4RE Respond to critical questions about the meaning and influence of new media imagery in our culture. 5RE Develop and support a personal philosophy of art based on aesthetic theories and understanding of visual culture. 6RE Explain how a response to a work of art is affected by the context in which it is viewed. 7RE Investigate and plan strategies for lifelong involvement and advocacy in the arts.

HS Advanced	1PE Interpret social and cultural contexts to develop personal meaning in visual imagery. 2PE Interpret and evaluate the way a theme or meaning in an artwork expresses the social, political or cultural context. 3PE Compare and contrast universal themes and sociopolitical issues in artworks from different cultures and historical periods. 4PE Demonstrate the ability to form and defend judgments regarding the relationships between artists and culture. 5PE Envision and explain how technology can impact visual art and literacy. 6PE Apply self-direction, independence and a purposed approach when defining and solving a visual design problem.	1PR Demonstrate advanced technical skills and craftsmanship with various art media when creating images from observation, memory and imagination. 2PR Use criteria to revise works-in-progress and describe changes made and what was learned in the process. 3PR Contribute to a portfolio of works that demonstrates technical skill, a range of media and various original solutions to visual art problems. 4PR Select, organize and prepare artworks for exhibition. 5PR Create original artworks that demonstrate the ability to select, use and vary available digital tools and innovative technologies. 6PR Visually express complex concepts and meaning in their artworks.	1RE Apply art criticism methods and inquiry skills as viewer, critic and consumer of visual images produced by new media and media arts. 2RE Apply assessment practices to select, organize and present personal artworks that document their understanding of visual art and literacy concepts. 3RE Apply inquiry and analytic processes when viewing, judging and consuming visual content and images produced by new media and media arts. 4RE Analyze and explain the relationship between the content and ideas in artworks and the use of media and compositional elements. 5RE Defend personal philosophies of art based on a connection to aesthetic theories and visual culture. 6RE Engage in discourse and express a point of view about issues related to the public display of works of art. 7RE Form and demonstrate personal strategies for lifelong involvement and advocacy in the arts.

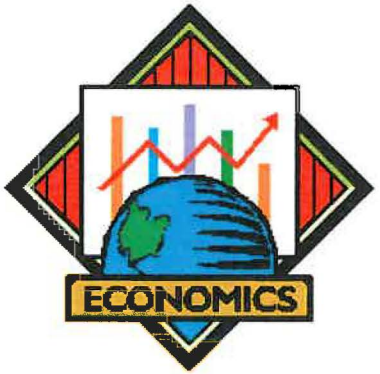
EXHIBIT D

Economics

Findlay City Schools

2017

TABLE OF CONTENTS



ECONOMICS
Course of Study

Writing Team
Jessee Hankins

Mission Statement

Educating and Empowering for Life

Beliefs

Our beliefs form the ethical foundation of the Findlay City Schools.
We believe....

- *All students and families have worth and are to be valued.*
- *Students need a safe and inclusive environment in order to fully express who they are.*
- *All students can learn.*
- *In order for each student to thrive, students, families, staff and community must be vested in their growth and development.*
- *All students need opportunities in and out of the classroom.*
- *FCS must be a reflection of our growing community and its needs.*
- *The Seven Habits of Highly Effective People supports life skills:*
    - *Habit 1: Be Proactive*
    - *Habit 2: Begin with the End in Mind*
    - *Habit 3: Put First Things First*
    - *Habit 4: Think Win-Win*
    - *Habit 5: Seek First to Understand, Then to Be Understood*
    - *Habit 6: Synergize*
    - *Habit 7: Sharpen the Saw*

Economics
CURRICULUM MAP

WEEK	TOPIC	MARZANO'S TAXONOMY LEVELS
Weeks 1-3	Introduction to Economics	Remembering, Understanding, Analyzing, Evaluating, Creating
Weeks 4-6	Microeconomics	Remembering, Understanding, Analyzing, Evaluating, Creating
Weeks 7-9	Macroeconomics	Remembering, Understanding, Analyzing, Evaluating, Creating
Weeks 10-18	Financial Literacy	Remembering, Understanding, Analyzing, Evaluating, Creating

Curriculum Map is tentative, based on a 9-week quarter and an 18-week semester.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ Economics
Unit of Study	Introduction to Economics
Pacing	Weeks 1-3

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): People cannot have all the goods and services they want and, as a result, must choose some things and give up others.

Supporting Standard(s): Economists analyze multiple sources of data to predict trends, make inferences and arrive at conclusions.

"Unwrapped Skills" (students need to be able to do)	**"Unwrapped Concepts" (students need to <u>know</u>)**	**Bloom's Taxonomy Levels**
1) Analyze real world situations to identify opportunity costs and tradeoffs. 2) Identify examples of the factors of production when given a situation. 3) Analyze production possibilities curves to determine the state of an economy.	1) Economics is the study of scarcity, which means that there are unlimited wants, but limited resources. 2) Making a decision involves an opportunity cost, the value of the next best alternative given up when an economic choice is made. 3) Production possibility curves (PPCs) provide a picture of the maximum production capabilities of an economy.	1) Analyzing 2) Understanding 3) Analyzing

Vocabulary	**Resources**
1) Economics 4) Scarcity 5) Tradeoff 6) Opportunity Cost 7) Land 8) Labor 9) Capital	1) Factors of Production and Economic Decision-Making- NC Civic Education Consortium 2) Tradeoffs and Opportunity Costs- Foundation for the Teaching of Economics 3) Decision-Making: Scarcity, Opportunity Cost, and You- Council for Economic Education

Board Adopted Date

10) Entrepreneurship 11) Goods 12) Services 13) Producers 14) Consumers 15) Economic Model	
Essential Questions	**Understanding/Corresponding Big Ideas**
1) Why are individuals unable to have everything they want? 2) What impact does scarcity have on the production, distribution, consumption of goods and services?	1) Economics is the study of how a society uses its scarce resources to meet its unlimited demands. 2) Because of scarce number of resources and factors of productions, individuals have to make decisions, resulting in tradeoffs and opportunity costs. 3) Economists use data and models to help societies make the best decisions possible.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/Economics
Unit of Study	Introduction to Economics
Pacing	Weeks 1-3

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): Different economic systems (traditional, market, command, and mixed) utilize different methods to allocate limited resources

Supporting Standard(s): Economists analyze multiple sources of data to predict trends, make inferences and arrive at conclusions.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
1) Compare economies of various countries. 2) Evaluate the benefits of different economic systems. 3) Identify the basic questions answered by all economies. 4) Evaluate the characteristics of capitalism, socialism, and communism.	1) Different economic systems allocate the scarce resources in different ways. 2) The three basic questions answered by all economies are "What is produced?", "How is it produced?", and "For whom is it produced?" 3) Most economies today are mixed economies, borrowing components from each type of economic systems and economic philosophies. 4) Different countries have economic systems of various degrees that impact how they allocate their scarce economic resources.	1) Analyzing 2) Evaluating 3) Remembering 4) Evaluating

Vocabulary	Resources
1) Economic system 2) Traditional economy 3) Command economy	1) Comparing Economic Systems- University of North Carolina 2) Comparative Economic Systems- Council for

Board Adopted Date

4) Market economy 5) Socialism 6) Communism 7) Capitalism 8) Laissez-faire policy 9) Circular flow model 10) Factor market 11) Product market 12) Mixed economy	Economic Education 3) The Island Game- University of Minnesota 4) Candies or Pencils?- Fraser Institute of Canada 5) Rock, Paper, Scissors with a Twist- Capitalism, Socialism, Communism
Essential Questions	**Understanding/Corresponding Big Ideas**
1) How do various economic systems allocate scarce resources? 2) How have economic philosophies impacted the development of various societies? 3) Why are there no pure market or pure command economies within the world?	1) Different economic systems allocate the scarce resources in different ways. 2) The three basic questions answered by all economies are "What is produced?", "How is it produced?", and "For whom is it produced?" 3) Most economies today are mixed economies, borrowing components from each type of economic systems and economic philosophies. 4) Different countries have economic systems of various degrees that impact how they allocate their scarce economic resources.

Board Adopted Date

Subject(s)	Economics
Grade/Course	12th Grade/ Economics
Unit of Study	Microeconomics
Pacing	Weeks 4-6

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): Markets exist when consumers and producers interact. When supply or demand changes, market prices adjust. Those adjustments send signals and provide incentives to consumers and producers to change their own decisions.

Supporting Standard(s): Economists analyze multiple sources of data to predict trends, make inferences and arrive at conclusions.

"Unwrapped Skills" (students need to be able to do)	**"Unwrapped" Concepts (students need to know)**	**Bloom's Taxonomy Levels**
1) Create accurate market schedules and market graphs. 2) Apply market principles in a real world situation. 3) Analyze how markets adjust to changes in supply and demand. 4) Evaluate markets graphs and schedules to determine reactions from market actors. 5) Summarize the various market principles that impact an economic system.	1) Producers and consumers act in a marketplace, creating an equilibrium in the market. 2) When supply or demand change, it creates a response from producers or consumers. 3) Markets always work toward equilibrium, but markets can fail, leading to government intervention. 4) Determinants of supply and demand signal how markets will react to a change.	1) Creating 2) Evaluating 3) Analyzing 4) Evaluating 5) Understanding

Vocabulary	**Resources**
1) Demand 2) Law of Demand 3) Demand Schedule 4) Demand Curve	1) Market of Wheat- Council for Economic Education 2) Demand, Supply, and the Market- Foundation for Teaching Economics 3) The Market Economy- iCivics

Board Adopted Date

5) Normal good 6) Inferior good 7) Substitute 8) Complement 9) Supply 10) Law of Supply 11) Supply Schedule 12) Supply Curve 13) Equilibrium 14) Surplus 15) Shortage	4) Playdough Economics- Indiana Department of Education 5) Demand and Supply--It's What Economics Is About!- St. Louis Federal Reserve
Essential Questions	**Understanding/Corresponding Big Ideas**
1) How do markets determine the value of goods and services? 2) How can market actors influence the market? 3) Why do markets fail? 4) Why do societies rely on markets to exchange goods and services?	1) A market exists whenever buyers and sellers exchange goods and services. Exchanges occur almost anywhere, through face-to-face transactions, the Internet, by phone or via mail order. 2) The market price, also referred to as the equilibrium price, is reached (and illustrated) when the demand and supply curves intersect. 3) When markets fail, government intervenes through price interventions to benefit society as a whole.

Subject(s)	Economics
Grade/Course	12th Grade/ Economics
Unit of Study	Microeconomics
Pacing	Weeks 4-6

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): Competition among sellers lowers costs and prices, and encourages producers to produce more of what consumers are willing and able to buy. Competition among buyers increases prices and allocates goods and services to those people who are willing and able to pay the most for them.

Supporting Standard(s): Economists analyze multiple sources of data to predict trends, make inferences and arrive at conclusions.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
1) Differentiate between the different market structures. 2) Evaluate markets to determine market structure in place. 3) Analyze markets to determine how much competition exists. 4) Evaluate how market structure impacts the competition. 5) Compare how types of businesses influence the prevalence of competition in a market.	1) Various market structures impact how much competition exists in a market. 2) The type of business organization utilized can impact the market structure and overall amount of competition within the market. 3) Competition in a market can lead to a more efficient use of economic resources and lower prices for consumers.	1) Understanding 2) Evaluating 3) Analyzing 4) Evaluating 5) Understanding

Vocabulary	Resources
1) Market structure 2) Perfect competition 3) Imperfect competition 4) Monopoly 5) Monopolistic competition	1) Choosing the Right Type of Business Organization- Council for Economic Education 2) Three Types of Business Organizations- Council for Economic Education 3) Competition: Pizza!- Council for Economic Education

Board Adopted Date

6) Oligopoly 7) Antitrust legislation 8) Trust 9) Merger 10) Business organization 11) Sole proprietorships 12) Unlimited liability 13) Partnership 14) Corporation 15) Public company 16) Private company 17) Franchise 18) Franchisee 19) Cooperative 20) Nonprofit organization	4) Cartels and Competition- Foundation for Teaching Economics 5) In the Chips--A Market for Computer Chips- Foundation for Teaching Economics
Essential Questions	**Understanding/Corresponding Big Ideas**
1) Why does competition exist? 2) How has the development of corporations impacted economic competition and market structures? 3) Why is competition important for markets?	1) Producers compete with each other to meet consumer demand through advertising, offering promotions and making production more efficient by integrating technological innovations into production and developing labor-saving devices. 2) Competition in a market can lead to a more efficient use of economic resources and lower prices for consumers. 3) Various market structures impact how much competition exists in a market. 4) The type of business organization utilized can impact the market structure and overall amount of competition within the market.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ College Prep Economics
Unit of Study	Macroeconomics
Pacing	Weeks 9-13

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): A nation's overall level of economic well-being is determined by the interaction of spending and production decisions made by all households, firms, government agencies and others in the economy. Economic well-being can be assessed by analyzing economic indicators gathered by the government.

Supporting Standard(s): Economists analyze multiple sources of data to predict trends, make inferences and arrive at conclusions.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
1) Understand the purpose of the GDP, GNP, and the various components in these formulas. 2) Interpret and evaluate economic indicators (e.g., GDP, unemployment rates, CPI) to assess a nation's economic well-being.	1) Different economic indicators can determine how well a nation is performing. 2) Business cycles can indicate how a nation's economy is doing and what the future performance may be. 3) The various types of unemployment can indicate how the labor market is within a nation. 4) Inflation and the indicators of it can also help to determine the value of money within an economy.	1) Understanding 2) Analyzing

Vocabulary	Resources
1) National income accounting 2) Gross domestic product (GDP) 3) Nominal GDP 4) Real GDP	1) Which Came First?--Democracy or Growth?--Federal Reserve Bank of St. Louis 2) The Business Cycle and Important Economic Measures--NC Civic Education Consortium

Board Adopted Date

5) Gross national product (GNP) 6) Business cycle 7) Recession 8) Depression 9) Stagflation 10) Real GDP per capita 11) Unemployed rate 12) Underemployed 13) Full employment 14) Frictional unemployment 15) Seasonal unemployment 16) Structural unemployment 17) Cyclical unemployment 18) Inflation 19) Inflation rate 20) Hyperinflation 21) Deflation	3) Understanding Unemployment--Science Education Resource Center, Carleton College 4) Gross Domestic Product Resources--Federal Reserve Bank of Atlanta
Essential Questions	**Understanding/Corresponding Big Ideas**
1) Why is instability in an economy a benefit and troublesome? 2) How do consumers impact a nation's economy collectively? 3) Why do we measure an economy's performance?	1) One of the indicators on a nation's economic health is its Gross Domestic Product (GDP). This is a basic measure of economic output of the total market value of all final goods and services produced in a country in a given year. 2) Other economic indicators include the Consumer Price Index (CPI), unemployment rates, new residential sales, new residential construction, personal income and outlays, consumer confidence index and U.S. international transactions. 3) Business cycles can indicate how a nation's economy is doing and what the future performance may be. 4) The various types of unemployment can indicate how the labor market is within a nation.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ Economics
Unit of Study	Macroeconomics
Pacing	Weeks 7-9

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): Economic policy decisions made by governments result in both intended and unintended consequences.

Supporting Standard(s): Economists analyze multiple sources of data to predict trends, make inferences and arrive at conclusions.

"Unwrapped Skills" (students need to be able to do)	**"Unwrapped" Concepts (students need to know)**	**Bloom's Taxonomy Levels**
1) Explain the cause and effects of the Great Depression on the American economic system. 2) Differentiate between the different types of taxes the government collects. 3) Analyze the different functions of the Federal Reserve and how these functions impact the American economy.	1) Understand the different types of taxes the government collects to finance its spending. 2) Government actions during and following the Great Depression influenced the purpose of government economic policy. 3) Fiscal policies are decisions to change spending and tax levels by the federal government to influence national levels of output, employment and prices. 4) The Federal Reserve System uses monetary policies to influence the supply of money and the availability of credit.	1) Understanding 2) Understanding 3) Analyzing

Vocabulary	**Resources**
1) Tax 2) Revenue	1) Understanding Taxes- Internal Revenue Service 2) How Should Governments Structure the Tax

Board Adopted Date

3) Individual income tax 4) Corporate income tax 5) Sales tax 6) Property tax 7) Proportional tax 8) Regressive tax 9) Tax incentive 10) Taxable income 11) FICA 12) Social Security 13) Medicare 14) Mandatory spending 15) Discretionary spending 16) Entitlements 17) Medicaid 18) Federal budget 19) Fiscal year 20) Appropriations 21) Balanced budget 22) Expansionary fiscal policy 23) Contractionary fiscal policy 24) Discretionary fiscal policy 25) Budget surplus 26) Budget deficit 27) Deficit spending 28) National debt 29) Central bank 30) Federal Reserve System 31) Currency 32) Board of Governors 33) Required Reserve ratio 34) Monetary Policy 35) Expansionary monetary policy 36) Contractionary monetary policy 37) Easy-money policy 38) Tight-money policy	System?- Council for Economic Education 3) Tic Tic Taxes- Council for Economic Education 4) Resource Center- U.S. Department of Treasury 5) Federal Budget Simulation Lesson Plan- JFK Presidential Library and Museum 6) Fiscal Policy- Foundations for the Teaching of Economics 7) Fiscal and Monetary Policy Infographic Classroom Activity- Federal Reserve Bank of Atlanta 8) The Federal Reserve System- Council for Economic Education 9) Monetary Policy Resources- Federal Reserve Bank of Atlanta 10) Money and Monetary Policy- Foundation for Teaching Economics 11) The Fed's Toolbox- Federal Reserve Bank of St. Louis

Board Adopted Date

Essential Questions	Understanding/Corresponding Big Ideas
1) Is government necessary in handling the economy of a nation? 2) Are taxes necessary in an economy? 3) Why do we have money? 4) Should government regulate businesses or be their partner? 5) How can government fix and disrupt the nation's economy?	1) Economic policy decisions are generally intended to maintain a healthy economy. Examples include social security, deep ocean drilling, tax cuts and deficit spending. Sometimes there are unintended consequences. 2) Fiscal policies are decisions to change spending and tax levels by the federal government to influence national levels of output, employment and prices. 3) The Federal Reserve System uses monetary policies to influence the supply of money and the availability of credit. The Fed induces changes in interest rates to influence prices, employment and spending. 4) The variety of taxes that the government collects allow for government spending to benefit a society as a whole.

Board Adopted Date

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ Economics
Unit of Study	Macroeconomics
Pacing	Weeks 7-9

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): Government actions, such as tariffs, quotas, subsidies, trade agreements and membership in multinational economic organizations, significantly impact international trade.

Supporting Standard(s): When regions and nations use comparative advantage to produce at the lowest cost and then trade with others, production, consumption and interdependence increase.

Economists analyze multiple sources of data to predict trends, make inferences and arrive at conclusions.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
1) Explain how production, consumption and interdependence increase when regions and nations trade with each other as a result of using comparative advantage. 2) Analyze how a nation's economic policies, trade agreements and/or memberships in multinational organizations impact international trade.	1) Comparative advantage of regions and nations exists when they can produce goods or services at a lower opportunity cost than other individuals or nations. 2) Specializing in the production of the good or service at a lower cost increases trade with others. 3) The growth in globalization increased the development of international trade following World War II. 4) Various international organizations have allowed for increased interdependence among countries.	1) Understanding 2) Analyzing

Vocabulary	Resources
1) Specialization 2) Absolute advantage	1) Why Nations Trade- Council for Economic Education 2) Comparative Advantage and Trade in a Global

Board Adopted Date

3) Comparative advantage 4) Law of comparative advantage 5) Exports 6) Imports 7) Trade barrier 8) Quota 9) Tariff 10) Embargo 11) Trade war 12) Protectionism 13) Foreign exchange rate 14) Balance of trade 15) Trade surplus 16) Trade deficit 17) European Union 18) NAFTA 19) OPEC 20) WTO 21) World Bank 22) International Monetary Fund (IMF)	Economy- Council for Economic Education 3) Issues of International Trade- Foundation for Teaching Economics 4) Hey, Hey! Ho, Ho! Why Do We Need the WTO?- Council for Economic Education 5) International Organizations- iCivics
Essential Questions	**Understanding/Corresponding Big Ideas**
1) Why do we trade? 2) What benefits or costs does trade bring to an economy? 3) How have international organizations affected the global economy? 4) How have international organizations affected various nations?	1) Comparative advantage of regions and nations exists when they can produce goods or services at a lower opportunity cost than other individuals or nations. 2) Specializing in the production of the good or service at a lower cost increases trade with others. 3) The growth in globalization increased the development of international trade following World War II. 4) Various international organizations have allowed for increased interdependence among countries.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ Economics
Unit of Study	Financial Literacy
Pacing	Weeks 10-18

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): Income is determined by many factors including individual skills and abilities, work ethic, and market conditions.

Supporting Standard(s): Employee-earning statements include information about gross wages, benefits, taxes, and other deductions.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
1) Analyze pay statements to determine how an individual's income was calculated. 2) Research job postings to evaluate what characteristics employers are looking for. 3) Analyze tax forms that relate to income and taxation. 4) Complete tax forms from the IRS.	1) Income is determined by many factors including individual skills and abilities, work ethic, and market conditions. 2) Employee-earning statements include information about gross wages, benefits, taxes, and other deductions. 3) After earning income, individuals complete forms to pay taxes to different governments or for federal programs. 4) Different careers brings different salaries, benefits, and responsibilities.	1) Analyzing 2) Evaluating 3) Analyzing 4) Understanding

Vocabulary	Resources
1) Income 2) Salary 3) Benefits 4) Internal Revenue Service (IRS) 5) Social Security 6) Exemption	1) It's Your Paycheck! Curriculum Unit- Federal Reserve Bank of St. Louis 2) Making Money Lesson Plan- InCharge Institute of America 3) Analyze a Pay Stub- Finance in the Classroom 4) What Factors Affect Your Income?- Finance in the

Board Adopted Date

7) Retirement 8) Pension Plan 9) W2 Form 10) W4 Form 11) Gross Pay 12) Net Pay 13) Deduction	Classroom 5) Form W4- Internal Revenue Service 6) Paystub Puzzles: Putting the Pieces Together- Practical Money Skills 7) Income Taxes- Essex High School 8) Income Taxes- Federal Reserve Bank of Atlanta
Essential Questions	**Understanding/Corresponding Big Ideas**
1) What is the "best" job? Why? 2) How is individual income connected to the national economy?	1) Income may be determined by the skills and abilities an individual has. 2) Market conditions can influence an individual's income. Economic, social, cultural and political conditions can all affect incomes. 3) Employees are able to monitor their salaries through the information provided in their earning statements.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ Economics
Unit of Study	Financial Literacy
Pacing	Weeks 10-18

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): A personal financial plan includes financial goals and a budget, including spending on goods and services, savings and investments, insurance and philanthropy.

Supporting Standard(s): Financial decision-making involves considering alternatives by examining costs and benefits.

"Unwrapped Skills" (students need to be able to do)	**"Unwrapped" Concepts (students need to know)**	**Bloom's Taxonomy Levels**
1) Analyze financial goals to produce a budget. 2) Evaluate a financial budget. 3) Evaluate real-word situations to determine costs and benefits of a decision. 4) Develop a personal financial plan.	1) Personal financial plans are developed based on individual philosophies and saving and spending trends. 2) There are costs and benefits with every financial decision. 3) Different strategies can be utilized to help individuals develop and execute a personal financial plan.	1) Analyzing 2) Evaluating 3) Evaluating 4) Creating

Vocabulary	**Resources**
1) Consumption 2) Rational choice 3) Disposable income 4) Discretionary income 5) Trade-off 6) Opportunity cost 7) Budget 8) Economic efficiency 9) Long-term goal 10) Short-term goal	1) Show Me the Money!- Practical Money Skills 2) A Plan for the Future- Making a Budget 3) Your Budget Plan- St. Louis Federal Reserve 4) The Art of Budgeting- InCharge Institute of America 5) In Trouble- InCharge Institute of America 6) Todd and His REAL Job- Federal Reserve Bank of Philadelphia 7) Personal Finance Lesson Plan- Federal Reserve Bank of San Francisco

Board Adopted Date

11) Fixed expenses 12) Variable expenses	
Essential Questions	**Understanding/Corresponding Big Ideas**
1) Why are budgets important for the economy? 2) How can budgets impact an individual's financial health? 3) Why are there costs and benefits to creating a budget?	1) Establishing personal goals often involves evaluating alternative choices. 2) Most financial decisions involve tradeoffs because resources are limited. Those decisions result in an opportunity cost. 3) A personal financial plan is designed to enable an individual to reach a goal. 4) A personal financial plan includes a budget that estimates the income and expenses over a specific period of time. A budget can be used to manage spending and achieve financial goals.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ Economics
Unit of Study	Personal Finance
Pacing	Weeks 10-18

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): Credit and debt can be managed to maintain credit worthiness.

There are costs and benefits associated with various sources of credit available from different types of financial institutions.

Supporting Standard(s): Different payment methods have advantages and disadvantages.

Consumer protection laws provide financial safeguards.

"Unwrapped Skills" (students need to be able to do)	**"Unwrapped" Concepts (students need to <u>know</u>)**	**Bloom's Taxonomy Levels**
1) Evaluate the advantages and disadvantages of different payment methods. 2) Evaluate the costs and benefits of using credit from different financial institutions. 3) Explain how consumer protection laws provide financial safeguards. 4) Analyze different credit options given a real world situation. 5) Explain the positives and negatives of using credit.	1) There are different ways in which individuals can complete a transaction, with differing advantages and disadvantages. 2) There are various costs and benefits to utilizing credit from different financial institutions. 3) Various laws and agencies were created to protect consumer credit from misuse, discrimination, or theft. 4) Credit can help individuals acquire durable goods and pay for them over time. 5) The amount of credit used and the interest charged for the use can impact	1) Evaluating 2) Evaluating 3) Understanding 4) Analyzing 5) Understanding

Board Adopted Date

	the overall costs of goods or services purchased on credit.	

Vocabulary	Resources
1) Debit 2) Credit 3) Interest 4) Principal 5) Installment debt 6) Durable goods 7) Commercial bank 8) Credit union 9) Savings and loan association 10) Savings bank 11) Annual percentage rate (APR) 12) Credit bureau 13) Credit check 14) Credit score 15) Collateral 16) Secured loan 17) Unsecured loan 18) Bankruptcy 19) Usury law 20) Truth in Lending Act 21) Equal Credit Opportunity Act 22) Credit CARD Act of 2009 23) Grace period 24) Mortgage 25) Credit limit	1) Credit- InCharge Institute of America 2) Credit Cards- InCharge Institute of America 3) Cars and Loans- InCharge Institute of America 4) Why Credit Matters- Practical Money Skills 5) Using Credit Wisely- Practical Money Skills 6) Understanding Credit Scores- VantageScore 7) Credit and Credit Cards- Money Instructor 8) The Secret History of the Credit Card- PBS 9) Citi Sample Credit Card Agreements 10) Bank of America Sample Credit Card Agreements 11) Discover Sample Credit Card Agreements 12) Consumer Financial Protection Bureau
Essential Questions	**Understanding/Corresponding Big Ideas**
1) How has the role of consumer credit affected the American economic system? 2) What role does credit play in the American economy? 3) What are the consequences of using credit poorly? 4) How can one use credit to their benefit?	1) Effective purchasing requires an understanding of the advantages and disadvantages of payment options. 2) Different types of loans are offered by financial institutions. There are advantages and disadvantages for these. 3) There is a direct relationship between the cost of

	personal credit, the amount of financial liability a person carries and one's payment history. 4) The length of the payment term of a loan directly affects the interest rate. Making the minimum payment on a credit liability increases the costs of the loan over its term. 5) Credit is a valuable tool for making large purchases such as a house or automobile. Maintaining creditworthiness is important. An individual does this by carefully managing his or her credit and debt. 6) Consumer protection laws at the federal, state and local levels are designed to provide safeguards for personal finances.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/ Economics
Unit of Study	Personal Finance
Pacing	Weeks 10-18

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): Saving and investing help to build wealth.

Savings can serve as a buffer against economic hardship.

Supporting Standard(s): Different costs and benefits are associated with saving and investing alternatives.

Banks, brokerages and insurance companies provide access to investments such as certificates of deposit, stocks, bonds and mutual funds.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
1) Analyze the different types of checking and savings accounts. 2) Evaluate the costs and benefits associated with saving and investing. 3) Analyze the different types of investments. 4) Explain the parts and purpose of a checking account. 5) Create an investment plan given a real-world situation.	1) Savings can serve as a buffer against economic hardship. 2) There are a variety of saving and investment choices an individual could utilize. 3) There are costs and benefits associated with the different saving and investment choices available.	1) Analyzing 2) Evaluating 3) Analyzing 4) Understanding 5) Creating

Vocabulary	Resources
1) Saving 2) Interest 3) Savings account 4) Checking account	1) Investopedia Stock Simulator- Investopedia.com 2) Saving for a Rainy Day- Practical Money Skills 3) Understanding Interest and Investments- Practical Money Skills

Board Adopted Date

5) Money market deposit account 6) Certificate of Deposit 7) Federal Deposit Insurance Corporation (FDIC) 8) National Credit Union Administration (NCUA) 9) Stock 10) Savings bonds 11) Capital gain 12) Mutual fund 13) 401k plan 14) Keogh plan 15) Individual retirement account (IRA) 16) Diversification 17) NASDAQ 18) Dow Jones Industrial Average 19) Time deposit 20) Maturity 21) Annuities 22) Overdraft protection	4) An Overview of Investing- Practical Money Skills 5) Banking Services- InCharge Institute of America 6) Saving and Investing- InCharge Institute of America 7) Managing a Checking Account- Finance in the Classroom 8) Parts of a Check- Finance in the Classroom 9) How a Stock is Bought and Sold- Finance in the Classroom 10) Saving and Investing Venn diagram- Finance in the Classroom 11) The Stock Market and You- Finance in the Classroom 12) Hands on Banking- Wells Fargo 13) The Basics of Saving and Investing- Investor Education 2020 14) Financial Football- Practical Money Skills 15) The Basics of Saving & Budgeting- Council for Economic Education
Essential Questions	**Understanding/Corresponding Big Ideas**
1) How can saving and investing impact the national economy? 2) What are the best strategies for managing our finances short-term and long-term? 3) How does risk/reward impact investment choices? 4) Is saving and investing necessary in an individual's life?	1) Building wealth is the means for preparing for planned and/or unexpected expenses and for obtaining financial security. Savings is one way to build wealth. 2) Setting money aside for emergencies such as loss of job, accidents, health issues or automobile and home repairs, can ease the stress of uncertainty until additional income is available. 3) The alternatives for saving and investing, such as savings accounts, stocks, bonds, and mutual funds, offer different costs and benefits. 4) Banks and credit unions provide basic financial services to individuals including savings, investments, loans and other fundamental forms of money management.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Economics
Grade/Course	12th Grade/Economics
Unit of Study	Personal Finance
Pacing	Weeks 10-18

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s): Steps can be taken to safeguard one's personal financial information and reduce the risk of loss.

Supporting Standard(s): Property and liability insurance protect against risks associated with use of property.

Health, disability and life insurance protect against risks associated with increased expenses and loss of income.

"Unwrapped Skills" (students need to be able to do)	**"Unwrapped" Concepts (students need to know)**	**Bloom's Taxonomy Levels**
1) Explain the differences between property and liability insurance and how each protects the owner against potential loss. 2) Identify the different kinds of insurance. 3) Explain how the different kinds of insurance protect consumers. 4) Evaluate insurance policies from different providers given a real-world situation. 5) Create strategies for protecting one's personal financial information.	1) Insurance protects consumers' investments and information from theft or loss. 2) There are a variety of policies that individuals can choose from different providers. 3) There are costs and benefits of using insurances from different providers. 4) There are laws and requirements for insurance for individuals in different states. 5) There are several ways individuals can work to protect their investments and information.	1) Understanding 2) Remembering 3) Understanding 4) Evaluating 5) Creating

Vocabulary	**Resources**
1) Insurance 2) Deductible 3) Co-pay	1) In Case of Emergency- Griffith Foundation 2) Next Generation- Scholastic 3) Insurance- Money Instructor

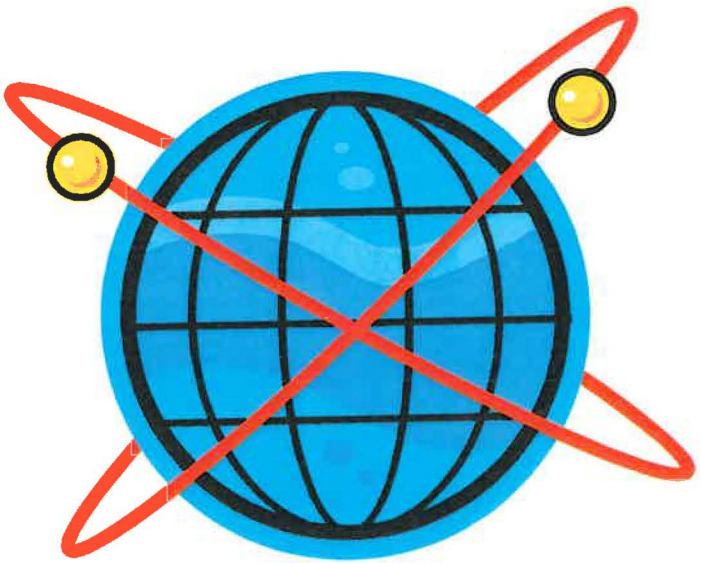
Board Adopted Date

4) Claim 5) Home insurance 6) Health insurance 7) Dental insurance 8) Life insurance 9) Insurance provider 10) Coverage 11) Beneficiary 12) Broker 13) Cash value 14) Auto insurance 15) Renters insurance 16) Eligibility period 17) Flexible spending account 18) Comprehensive coverage 19) Health savings account (HSA) 20) Medicare 21) Medicaid 22) Open enrollment 23) Policyholder 24) Premium 25) Disability insurance	4) Insurance: Mayhem Project- Family Consumer Sciences 5) Take Charge Today- The University of Arizona 6) Teacher Resources- Ohio Insurance Institute 7) Insurance Lesson Plans- Finance in the Classroom 8) Homeowners Insurance- Griffith Foundation 9) Understanding Health Insurance- Cornell University 10) Insure My Life?- Alabama Department of Education
Essential Questions	**Understanding/Corresponding Big Ideas**
1) How can individuals secure their financial future? 2) How can individuals protect their investments? 3) Why have some governments in the U.S. required individuals to purchase certain types of insurance? 4) Is insurance needed?	1) Insurance protects consumers' investments and information from theft or loss. 2) There are a variety of policies that individuals can choose from different providers. 3) There are costs and benefits of using insurances from different providers. 4) There are laws and requirements for insurance for individuals in different states. 5) There are several ways individuals can work to protect their investments and information.

EXHIBIT D

HONORS PHYSICAL SCIENCE
(COURSE #983)

COURSE OF STUDY



FINDLAY CITY SCHOOLS
2017

TABLE OF CONTENTS

Course Description: Students in this course should have a strong interest in science and its mathematical interplay. This course stresses application and interrelationships in the realms of physics and chemistry through inquiry and investigation. This course will cover the physics of forces and motion, electricity, light and waves, thermal and nuclear energy, and principles of chemistry including atomic structure, periodic table, chemical bonds, and solutions. Students will engage in much inquiry, investigation, and will be required to write lab reports.

PHYSICAL SCIENCE (HONORS)

Writing Team

Tyler Smith
Rebecca Wolfe

TEXTBOOK: *An Introduction to Physical Science;* Cengage (publishers); 2016 edition; ISBN: 9781305079137; Cost-$142.50;

Mission Statement

Educating and Empowering for Life

Beliefs

Our beliefs form the ethical foundation of the Findlay City Schools.
We believe....

- *All students and families have worth and are to be valued.*
- *Students need a safe and inclusive environment in order to fully express who they are.*
- *All students can learn.*
- *In order for each student to thrive, students, families, staff and community must be vested in their growth and development.*
- *All students need opportunities in and out of the classroom.*
- *FCS must be a reflection of our growing community and its needs.*
- *The Seven Habits of Highly Effective People supports life skills:*
    - *Habit 1: Be Proactive*
    - *Habit 2: Begin with the End in Mind*
    - *Habit 3: Put First Things First*
    - *Habit 4: Think Win-Win*
    - *Habit 5: Seek First to Understand, Then to Be Understood*
    - *Habit 6: Synergize*
    - *Habit 7: Sharpen the Saw*

HONORS PHYSICAL SCIENCE
CURRICULUM MAP

Week	Course Content	Topic	An Introduction to Physical Science Cengage
Week 1	Scientific Inquiry	Introduction to Class, Safety,	Chapter 1
Week 2	Scientific Inquiry	Density, Dimensional Analysis, Significant Digits	Chapter 1
Week 3	Study of matter	Atomic Structure	Chapters 9 & 10
Week 4	Study of matter	Atomic Structure	Chapters 9 & 10
Week 5	Study of matter	Periodic Table	Chapter 11
Week 6	Study of matter	Periodic Table	Chapter 11
Week 7	Study of matter	Chemical Bonds & Ions	Chapter 12
Week 8	Study of matter	Chemical Bonds & Ions	Chapter 12
Week 9	Study of matter	Chemical Changes/ Chemical Reactions	Chapter 13
Week 10	Study of matter	Chemical Changes/Chemical Reactions	Chapter 13
Week 11	Study of matter	Chemical Changes/Chemical Reactions	Chapter 13
Week 12	Study of matter	Chemical Changes/Chemical Reactions	Chapter 13
Week 13	Study of matter	States of Matter	Chapter 11
Week 14	Study of matter	Mixtures and Solutions	Chapter 11
Week 15	Study of matter	Mixtures and Solutions	Chapter 11
Week 16	Energy and Waves	Thermal Energy and Nutrition	Chapter 5
Week 17	Energy and Waves	Thermal Energy and Nutrition	Chapter 5
Week 18		Exam Review, Semester Exam	
Week 19	Energy and Waves	Kinetic and Potential Energy	Chapter 4
Week 20	Forces and motion	Motion	Chapter 2
Week 21	Forces and motion	Motion	Chapter 2
Week 22	Forces and motion	Motion	Chapters 2 & 3
Week 23	Forces and motion	Motion Vectors	Chapter 2
Week 24	Forces and motion	Motion Vectors	Chapter 2
Week 25	Forces and motion	Forces	Chapter 3
Week 26	Forces and motion	Forces	Chapter 3
Week 27	Energy and Waves	Light and Waves	Chapters 6 & 7
Week 28	Energy and Waves	Light and Waves	Chapters 6 & 7
Week 29	Energy and Waves	Electricity	Chapter 8
Week 30	Energy and Waves	Electricity	Chapter 8

Revised 2017

HONORS PHYSICAL SCIENCE
CURRICULUM MAP

Week 31	Study of matter	Nuclear Energy	Chapter 10
Week 32	Study of matter	Nuclear Energy	Chapter 10
Week 33	The Universe	The Universe	Chapters 16 & 18
Week 34	The Universe	The Universe	Chapters 16 & 18
Week 35	The Universe	The Universe	Chapters 16 & 18
Week 36		Exam Review, Semester Exam	

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/Honors Physical Science
Unit of Study	Scientific Inquiry/ Basic Skills (Measurement, Equipment and Safety)
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Scientific and engineering practices and crosscutting concepts to support students in developing useable knowledge to explain ideas across the science disciplines. In the physical science performance expectations at the high school level, there is a focus on several scientific practices. These include developing and using models, planning and conducting investigations, analyzing and interpreting data, using mathematical and computational thinking, and constructing explanations; and to use these practices to demonstrate understanding of the core ideas. Students are also expected to demonstrate understanding of several engineering practices, including design and evaluation.

"Unwrapped Skills" (students need to be able to do)	**"Unwrapped" Concepts (students need to know)**	**Bloom's Taxonomy Levels**
• Name all Equipment and its use in a science laboratory setting. • Identify safe and unsafe lab situations. • Calculate Density and explain if objects will sink, suspend or float on liquids of different densities. $density = \frac{mass}{volume}$ $\rho = \frac{m}{v}$ • Calculate answers to word problems using Dimensional Analysis . • Convert between Metric system(SI) and English systems.	• Safety is a top priority in all workplaces and science fields. • Converting from one unit to another is crucial to communicate between nations. • The metric system is a part of the international system of units. • All measurements have a degree of error (uncertainty) inherent in the precision of the tool being used to take the measurements. • Density is an intrinsic property of all materials regardless of their state of matter.	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate

- Calculate proper answers using significant figure rules.
- Calculate percent error (relative error).
- $$\%\ Error = \frac{|accepted - experimental|}{accepted} x\ 100\%$$
- Explain how precision is different from accuracy.

Vocabulary	Resources
Significant Figures Dimensional Analysis Metric System (SI) Percent Error (relative error) Uncertainty Precision Accuracy laboratory equipment Density Intrinsic	"Teaching High School Science" by Annenberg
Essential Questions	**Understanding/Corresponding Big Ideas**
1. How are measurements made? 2. What system of measurement is used in our country compared with other countries? 3. Why is safety critical in every workplace? 4. What is density?	

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/Honors Physical Science
Unit of Study	Atomic Structure
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Describe that matter is made of minute particles called atoms and atoms are comprised of even smaller components. Explain the structure and properties of atoms.

Supporting Standard(s):
1. Recognize that all atoms of the same element contain the same number of protons and may or may not have the same mass. Those with different masses (different number of neutrons) are called isotopes.
2. Illustrate that atoms with the same number of positively charged protons and negatively charged electrons are electrically neutral.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
• Identify an element given its chemical symbol. • Identify an element from the periodic table given the number of protons. • Using the periodic table, determine the number of protons, neutrons, or electrons in a neutral atom given the atomic number and mass number. • Draw the basic structure of an atom using an appropriate model or concept map. • Determine the difference in the number of neutrons that different isotopes of the same element contain when given their mass numbers.	• The structure of an atom (protons, neutrons, electrons, electron cloud). • The meaning and importance of atomic number, atomic mass and mass number. • The definition and relationship of atom, element and isotope. • Understand the chemical symbols used to represent elements. • Understand that for an atom to be electrically neutral it must contain an equal number of electrons and protons.	Demonstrate Design Differentiate

• Draw the electron dot notation of an element. • Distinguish between an ion and a neutral atom. • Explain the relationship between the number of protons and electrons in a neutral atom and an ion. • Describe the relationship between the nucleus and electrons. • Explain the demonstration that shows the attraction/repulsion between the positively charged nucleus and negatively charged electrons within the atom.	• The atomic number of an element is the number of protons in one of its atoms. No two elements have the same atomic number. • The mass number of an atom is the sum of the number of neutrons and the number of protons. Two different isotopes of the same element have the same atomic number. • The nucleus is the small, dense and positively charged center of an atom. • Isotopes are atoms of the same element that differ in the number of neutrons they contain.	

Vocabulary		Resources
Demonstrate	Atomic number	The Rutherford Experiment Cengage **An Introduction to Physical Science**
Design	Atomic mass	
Differentiate	Mass number	
Atom	Isotope	
Proton	Neutral atom	
Neutron	Element	
Electron	Periodic table	
Nucleus	Electron cloud	

Essential Questions	Understanding/Corresponding Big Ideas
1. What subatomic particles make up atoms? 2. What are elements? 3. What are isotopes?	1. Models are conceptual representations that help scientists understand that matter is made of atoms. 2. Atoms are made up of protons, neutrons, and electrons. 3. The protons and neutrons give the atom its mass while electrons give the atom its volume. 4. Atoms of the same element with different number of neutrons are isotopes.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/Honors Physical Science
Unit of Study	Periodic Table
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Describe that matter is made of minute particles called atoms and atoms are comprised of even smaller components. Explain the structure and properties of atoms.

Supporting Standard(s):
4. Show that when elements are listed in order according to the number of protons (called the atomic number), the repeating patterns of physical and chemical properties identify families of elements. Recognize that the periodic table was formed as a result of the repeating pattern of electron configurations.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to <u>know</u>)	Bloom's Taxonomy Levels
• Explain how the Periodic Table is arranged. • Determine the family and period of a given element in the Periodic Table. • Given a main group element, identify the number of valence electrons using the Periodic Table. • Given an element, determine what other elements would have similar properties using the Periodic Table. • Draw the electron dot configuration for a given element using the Periodic Table as a source of information.	• The structure of the Periodic Table and terms associated with the table (groups, families, periods, columns, energy levels, regions, etc.) • Elements are placed on the Periodic Table by their common properties and their atomic number. • Electron clouds and energy levels explain electron location. • All elements in the same period have the same number of energy levels. • Electron dot configurations consist of the symbol and valence electrons.	Demonstrate Design Differentiate Compare Contrast Summarize

• Demonstrate an understanding of all the components of the Periodic Table (color of symbol, color of background, numbers, numbers in parentheses, meanings of rows and columns, periods, families, groups, etc.)	• Elements in the same group have common chemical and physical properties. • Dimitrii Mendeleev created the modern Periodic Table. • Henry Moseley discovered each element has its own unique atomic number. • The atom is the smallest unit of an element. • An element is a substance that cannot be broken into simpler substances by chemical means.	

Vocabulary		Resources
Protons	Period	Periodic Table The Rutherford Experiment Interactive Periodic Table Cengage **An Introduction to Physical Science**
Neutrons	Physical property	
Electrons	Chemical property	
Energy Levels	Atomic number	
Valance	Atomic mass	
Family	Rows	
Group	Columns	
Trends		
Atomic Radii		
Metals/nonmetals/metalloids		
Alkali metals		
Alkaline earth metal		
Halogens		
Noble gases		

Essential Questions	Understanding/Corresponding Big Ideas
1. How is the Modern Periodic Table arranged? 2. What are the trends in the Periodic Table and how do these relate to chemical properties?	1. Information about how elements react with one another are related to their placement on the periodic table.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/Honors Physical Science
Unit of Study	Chemical Bonds & Ions
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Explain how atoms react with each other to form other substances and how molecules react with each other or other atoms to form even different substances.

Supporting Standard(s):
1. Describe how ions are formed when an atom or a group of atoms acquire an unbalanced charge by gaining or losing one or more electrons.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to <u>know</u>)	Bloom's Taxonomy Levels
• Describe how an ion is formed. • Determine the charge of an ion given the number of electrons lost or gained by an atom. • Define a polyatomic ion. • Determine the number of electrons and protons in a polyatomic ion when given the formula and charge. • Draw the electron dot configuration for a given ion. • Explain how ions combine to form a salt. • Be able to use dot diagrams to demonstrate ionic bonds.	• When an atom loses electrons it becomes a cation. • When an atom gains electrons it becomes an anion. • The charge of an ion is placed to the upper right of the symbol of the element. • Polyatomic ions consist of a group of covalently bonded atoms that have an overall charge. • The Octet Rule states that an atom will tend to lose, gain or share electrons so that at least part of the time it has a filled outermost energy level of 8 valence electrons in that level. • An electron dot formula consists of the element symbol plus a dot for each valence electron.	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict

• Develop a chart representing ionic, covalent bonds. • Given a set of data predict whether a bond is ionic or covalent.	• Atoms obtain stability by forming chemical bonds by gaining, losing or sharing electrons. • A molecule is the smallest unit you can have of a compound that has a covalent bond. • An atom is more stable when the outermost energy level contains a maximum number of electrons. • The transfer of electrons between atoms forms an ionic bond. • The sharing of electrons between atoms forms a covalent bond. • Water is a polar molecule. • A subscript is a number to the lower left of a symbol that indicates the number of atoms of that element in the formula. • The name of the binary compounds end in "ide." The metallic element is named first.	

Vocabulary		Resources
Octet Rule Ion Polyatomic ion Competition Binary Compound	Patterns Trends Predict Apply	Periodic Table Cengage **An Introduction to Physical Science**

Essential Questions	Understanding/Corresponding Big Ideas
1. What ways can atoms combine and why do they combine at all? 2. What are electron dot diagrams? 3. What is a polyatomic ion? How is it different from a monoatomic ion? 4. How are compounds named?	1. Atoms combine to become more stable like the noble gases. They do so by gaining, losing, or sharing electrons. This is known as the Octet Rule. 2. Binary compounds are named with the metallic element named first and the nonmetal ending in "ide." 3. Binary compounds contain a metal and an nonmetal element.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/Honors Physical Science
Unit of Study	Chemical Changes/ Chemical Reactions
Pacing	4 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Describe that matter is made of minute particles called atoms and atoms are comprised of even smaller components.
Explain the structure and properties of atoms.
Explain how atoms react with each other to form other substances and how molecules react with each other or other atoms to form even different substances.

Supporting Standard(s):
1. Explain that the electric force between the nucleus and the electrons hold an atom together. Relate that on a larger scale, electric forces hold solid and liquid materials together (e.g. salt crystals, water).
2. Show how atoms may be bonded together by losing, gaining or sharing electrons and that in a chemical reaction, the number, type of atoms and total mass must be the same before and after the reaction (e.g. writing correct chemical formulas and writing balanced chemical equations).
3. Illustrate that chemical reactions are either endothermic or exothermic (e.g. cold packs, hot packs and the burning of fossil fuels).

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
• Identify chemical and physical properties. • Identify substances such as elements, compounds or mixtures. • Identify mixtures as solution or suspension (homogeneous or heterogeneous).	• A chemical change changes the physical and chemical properties of a substance. • A physical change doesn't change the identity of a substance. • To balance an equation the coefficients are changed so that the number of each element's atoms is the same on both sides of the equation.	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict

• Given a set of equations be able to determine if they are balanced and be able to balance those, which are not balanced. • Write a balanced equation and use it to explain the Law of Conservation of Mass. • Given a set of equations, be able to label whether the equation is an example of a direct reaction, decomposition, single-replacement, double replacement, or combustion. • Identify common acids and bases based on pH values. • Identify neutralization reactions. • Identify common reactions as endothermic or exothermic reactions. • Distinguish between endothermic and exothermic reactions. • Correctly place the energy in the chemical equation.	• The Law of Conservation of Mass states that mass cannot be created or destroyed, but it can change form. • The five general types of chemical reactions (direct combination {synthesis}, decomposition, single-replacement {displacement}, double replacement {displacement}, and combustion). • An endothermic reaction is a reaction that releases energy. • An exothermic reaction is a reaction that absorbs energy.	Create Explain Generate

Vocabulary		Resources
Chemical bond	Hydrogen bond	Cengage **An Introduction to Physical Science**
Covalent bond	Ionic bond	
Polar bond	Nonpolar bond	
Chemical equation	Chemical formula	
Create	Describe	
Explain	Generate	
Energy levels	Stability	
Hydrates	Binary	
Law of Conservation of Mass		
Symbol		

Revised 2017

Superscript Synthesis reaction Single replacement reaction Double replacement reaction Acid Base Product Endothermic Catalyst Precipitate pH Reactant Exothermic Inhibitor Decomposition reaction Coefficient Subscript Neutralization	
Essential Questions	**Understanding/Corresponding Big Ideas**
1. What is the difference between chemical and physical properties? 2. What are the various types of reactions chemicals can undergo? Why do they do this? 3. What is the difference between an endothermic and exothermic reaction? 4. What is a balanced chemical reaction and why do all chemical equations need to be balanced?	1. Physical properties do not change the identity of a substance while chemical properties do change their identities. 2. There are 5 main chemical reactions: synthesis, combustion, decomposition, single displacement, and double displacement. 3. Endothermic reactions require energy while exothermic release energy. 4. All equations need to be balanced because of the Law of Conservation of Mass and Energy.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/Honors Physical Science
Unit of Study	States of Matter
Pacing	1 week

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Describe the identifiable physical properties of substances (e.g. color, hardness, conductivity, density, concentration, ductility). Explain how changes in these properties can occur without changing the chemical nature of the substance.

Supporting Standard(s):
1. Investigate the properties of pure substances and mixtures (e.g. density, conductivity, hardness, properties of alloys, superconductors and semiconductors).

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
• List the properties of a solid, liquid and a gas. • Describe the differences in the molecular motion of solid, liquid and gas. • Explain the energy changes that take place during changes of phase. • Measure the specific heat of a substance using a calorimeter.	• Solids have a definite shape and volume. • Liquids have a definite volume, but not a definite shape. • Gases have neither a definite shape nor volume. • Phases/States of matter include solid, liquid and gas. If pressure is constant the state of matter present is dependent on temperature. • During a change in phase/state of matter the temperature will not change until the change of state is complete.	Demonstrate Design Differentiate Compare Contrast Summarize

	• The Kinetic Theory of Matter states that all molecules are in motion and the temperature is dependent on the average kinetic energy of a substance. Molecules with zero kinetic energy would be at absolute zero. • The amount of thermal expansion is dependent on the change in temperature, the identity of the substance and the original length. • Heat of fusion is the amount of heat required to melt 1 gram of a substance at its melting point. • Heat of vaporization is the amount of heat required to change 1 gram of a liquid to a gas at its boiling point.	

Vocabulary		Resources
Density	Alloys	Cengage **An Introduction to Physical Science**
Mass	Volume	
Hardness	Changes of State	
Heat of Fusion	Heat of Vaporization	
Gas	Liquid	
Solid	Deposition	
Melting	Boiling	
Condensation	Freezing	
Sublimation	Vaporization	

Essential Questions	Understanding/Corresponding Big Ideas
1. What are the Phases of Matter? 2. What is Heat of Vaporization and Heat of Fusion? 3. How is temperature related to kinetic energy? 4. What energy changes occur during phase changes?	1. The phases of matter include solids, liquids, gases, and plasma. 2. Heat of Vaporization is the amount of heat required to change 1 gram of liquid to a gas at its boiling point whereas Heat of Fusion is the amount of heat required to melt 1 gram of a substance at its melting point. 3. The higher the temperature of a substance, the higher its kinetic energy and vice-versa. 4. Energy changes occur during phase changes and these changes can be determined by analyzing data on a phase change graph.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/Honors Physical Science
Unit of Study	Mixtures & Solutions
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Describe the identifiable physical properties of substances (e.g. color, hardness, conductivity, density, concentration, ductility). Explain how changes in these properties can occur without changing the chemical nature of the substance.

Supporting Standard(s):
1. Investigate the properties of pure substances and mixtures (e.g. density, conductivity, hardness, properties of alloys, superconductors and semiconductors).

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to <u>know</u>)	Bloom's Taxonomy Levels
• Create a supersaturated solution. • Test the effect of temperature, agitation, and surface area of the particles on the dissolution of a solid. • Create a metal alloy.	• Solute is the substance dissolved in the solution. • Solvent is the substance in which a solute is dissolved. • The solubility of most solids increases as the temperature increases. • The solubility of gases in liquids increases as temperature decreases and pressure increases. • Saturated solution contains as much solute possible under prevailing conditions.	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate

	• Supersaturated solution contains more solute than what is normally possible under prevailing conditions.	

Vocabulary	Resources
Properties-physical and chemical Pure substance Mixture, solution, suspension Alloys Homogeneous Heterogeneous Elements Compounds	Cengage **An Introduction to Physical Science** "Teaching High School Science" by Annenberg

Essential Questions	Understanding/Corresponding Big Ideas
1. What conditions affect the rate of dissolution of a substance in water? 2. What is the difference between a pure substance and a mixture, an element and a compound? 3. What is the difference between different types of homogeneous and heterogeneous mixtures?	1. Compare and contrast saturated, unsaturated and supersaturated solutions using the definitions of the parts of a solution. 2. Design a procedure to separate various mixtures (e.g. sugar, rice and iron filings). 3. Compare and contrast the different types of homogeneous and heterogeneous mixtures.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/Honors Physical Science
Unit of Study	Thermal Energy & Nutrition
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Explain how thermal energy exists in the random motion and vibrations of atoms and molecules (kinetic energy).

Supporting Standard(s):
1. Recognize that the higher the temperature, the greater the average atomic or molecular motion (kinetic energy), and during changes of state the temperature remains constant.
2. Demonstrate that thermal energy can be transferred by conduction, convection, or radiation (e.g. through materials by the collision of particles, moving air masses or across empty space by forms of electromagnetic radiation).

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to <u>know</u>)	Bloom's Taxonomy Levels
• Measure specific heat of various alloys. • Define thermal energy. • Measure temperature using a digital thermometer as well as a liquid filled thermometer. • Measure heat flow using a calorimeter made from a styrofoam cup. • Measure the specific heat of a substance by using a calorimeter. • Calculate the amount of heat exchanged between two substances.	• Temperature is determined by the average kinetic energy of the molecules. • Temperature in °C = ({temperature in °F} –32) °5/9 • Absolute Zero = O Kelvin = -273 °C • Heat is the amount of thermal energy that is transferred between two substances having different temperatures. • Specific heat is the amount of heat required to raise the temperature of 1 gram of a substance by one degree Centigrade.	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate

• Explain how differences in surface area, mass and specific heat affect heat exchange. • Be able to use proper units for calculating specific heat. • Compare and contrast the transfer of thermal energy by conduction, convection and radiation. • Differentiate between conductors and insulators. • Compare and contrast the qualities of a good conductor versus a good insulator. • Explain how insulation affects the transfer of energy. • Describe how the Earth absorbs and reflects radiant energy from the sun. • Analyze how the reflected radiation from the Earth's surface is absorbed by the atmosphere, which leads to the greenhouse effect/global warming.	• Calorimetry is the measurement of the heat exchanged between two substances. • Conduction is the transfer of heat by the collisions between molecules. • Convection is the transfer of heat by currents in a fluid. • Radiation is the only method of heat transfer that can cross a vacuum. It travels as infrared radiation. • Insulators are poor conductors. • Solar energy can be used to heat a house or water. • Solar energy can be used to generate electricity. • A black surface is the best absorber of radiant heat and it is also the best emitter of radiant heat. • Global warming may be a result of the change in the wavelength of infrared radiation by certain gases in the atmosphere (Greenhouse Effect). • Trapped gases in a substance make it a better insulator.	

Vocabulary	Resources
Temperature Thermal Energy Thermal conductivity Electrical conductivity Absolute zero Semiconductor Superconductor	Cengage **An Introduction to Physical Science** "Teaching High School Science" by Annenberg

Conductor Calorie Calorimetry Calorimeter Joule Kilojoule Greenhouse Effect Global Warming Heat Heat of reaction Specific Heat Insulator Heat of solution Solar energy	
Essential Questions	**Understanding/Corresponding Big Ideas**
1. How much energy is released when a reaction causes 150g of water to rise from 22 degrees Celsius to 34 degrees Celsius? 2. How is heat transferred between particles within a single substance and between different substances? 3. What happens to the temperature of a substance as it undergoes a phase change?	1. Calculate the specific heat of a metal based on laboratory measurements. 2. Calculate the heat exchanged between two substances using a simple calorimeter. 3. Determine the effect of color on the transfer of radiant heat. 4. Create a chart that compares and contrasts conduction, convection and radiation.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/Honors Physical Science
Unit of Study	Kinetic & Potential Energy
Pacing	1 week

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Demonstrate that energy can be considered to be either kinetic (motion) or potential (stored).
Explain how energy may change form or be redistributed but the total quantity of energy is conserved.

Supporting Standard(s):
1. Explain how an object's kinetic energy depends on its mass and its speed.
2. Demonstrate that near Earth's surface an object's gravitational potential energy depends upon its weight (mg where m is the object's mass and g is the acceleration due to gravity) and height (h). (PE=mgh)
3. Trace the transformation of energy within a system (e.g. chemical to electrical to mechanical) and recognize that energy is conserved. Show that these transformations involve the release of some thermal energy.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
• Define kinetic and potential energy. • Measure the work done on an object or a person (w= force x distance). • Calculate an object's kinetic energy ($KE=^1/_2mv^2$). • Explain the relationship between kinetic energy, mass and velocity. • Verify the law of conservation of energy by measuring the transfer between PE and KE in a system (i.e. pendulum).	• Kinetic Energy = $1/2\ mv^2$ • Potential Energy is energy of position (stored energy). • Energy is the capacity or ability to do work. • Kinetic energy is energy of motion. Kinetic Energy = $1/2\ mv^2$. • Mass is the quantity of matter an object contains. • Work = distance x force.	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate Analyze

Revised 2017

• Calculate the potential energy of an object (PE=mgh). • State the law of conservation of energy. • Apply the law of conservation of energy by tracing the path of energy through a closed system. • Compare and contrast the three main types of energy – chemical, mechanical and electrical.	• Joule is the metric unit of energy and work. 1 joule = 1 Newton meter. • Law of Conservation of Energy states that energy cannot be created or destroyed but it can change form. • Gravitational potential energy = mgh. • A reference point/surface must be used to determine the gravitational potential energy a mass has. • Types of energy include chemical energy, electrical energy, mechanical energy, thermal energy, and nuclear energy.	

Vocabulary	Resources
Kinetic Energy Potential Energy Work Energy Mass Law of Conservation of Energy Gravitational Potential Energy Analyze Demonstrate Compare and contrast Gravity Velocity Joule	"Energy: Misconceptions and Models" document from U.K. Department for Education "Waves, Light, and Sound" from the Physics Zone www.cast.org "Teaching High School Science" – a series of videos-on-demand produced by Annenberg Cengage **An Introduction to Physical Science**
Essential Questions	**Understanding/Corresponding Big Ideas**
1. What is the difference between kinetic and potential energy? 2. When is scientific work done? 3. What ways can energy be transformed to illustrate the Law of Conservation of Energy?	1. Kinetic energy is moving energy while potential energy is due to an object's position. KE= ½ mv^2 and PE = mgh 2. Work is done when an object moves in the direction of the applied force. 3. Energy cannot be created nor destroyed, only transformed. There are various types of energy that can be changed from one type to another. These types include chemical, electrical, mechanical, thermal, and nuclear.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/Honors Physical Science
Unit of Study	Motion
Pacing	3 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Explain the movement of objects regarding their position, velocity, and acceleration.

Supporting Standard(s):
1. Demonstrate that motion is a measurable quantity that depends on the observer's frame of reference and describe the object's motion in terms of position, velocity, acceleration and time.
2. Demonstrate that any object does not accelerate (remains at rest or maintains a constant speed and direction of motion) unless an unbalanced (net) force acts on it.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
• Describe motion as a change in position relative to its frame of reference. • Describe speed as a change in motion. • Calculate speed, distance and time using the proper formula and its derivatives. (v = d/t). • Describe velocity as it relates to motion. • Distinguish between speed and velocity. • Analyze motion as a change in velocity, which can result in positive or negative acceleration.	• Velocity is both speed and direction. • Acceleration due to gravity has the symbol, g. The value for g at sea level is 9.8 m/s^2. • Frame of reference must be used when discussing motion. • Formula for speed (v = d/t), including proper units (m/s) • Formula for acceleration ($a = V_f - V_i / t$), including proper units, (m/s^2).	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate Analyze

• Calculate the rate of acceleration using final and initial velocity over units of time. • Calculate the rate of acceleration of a falling object due to gravity. • Describe constant speed as speed that does not change unless acted upon by an unbalancing force. • Describe instantaneous speed as speed at a given point in time.	• When an object is at a constant velocity the forces acting on it are balanced. Unbalanced forces acting on an object will cause it to accelerate. • Most calculations involve average speed, not instantaneous speed. • Inertia is the tendency of an object to resist any change in its state of motion. Inertia is proportional to the mass. • Changing speed and changing direction are both types of acceleration.	

Vocabulary

Gravity	Constant
Acceleration	Reference point
Net (force)	Velocity
Free Fall	Vectors
Mass	Final
Initial	Speed
Weight	Instantaneous

Resources

"Forces in 1 Dimension" – computer interactive simulation
"Motion Diagrams" – tutorial from Western Kentucky University
"The Physics Classroom" –computer tutorial on one-dimensional motion www.cast.org.
Cengage **An Introduction to Physical Science**

Essential Questions

1. When does an object accelerate?
2. What is a vector quantity?
3. What is the difference between speed and velocity?
4. What is the formula for acceleration?
5. How do you know an object is in motion?
6. When is an object in freefall?
7. What is inertia? How is it related to mass?

Understanding/Corresponding Big Ideas

1. An object accelerates when a net force acts upon it. It accelerates in the direction of the applied force. F=ma
2. Speed is distance over time. It does not have a direction associated with it. Velocity is a vector quantity. A vector has both direction and speed. $v = d/t$ is the equation for both velocity and speed.
3. Acceleration is the change in velocity over time. An object can accelerate.
4. A frame of reference is used to determine if an object is in motion.
5. An object is in freefall when the only force acting upon it is gravity.
6. Inertia is the tendency of an object to resist any change in its state of motion. It is proportional to the mass.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/Honors Physical Science
Unit of Study	Motion Vectors
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Explain the movement of objects based on the forces applied to them.

Supporting Standard(s):
1. Demonstrate that motion is a measurable quantity that depends on the observer's frame of reference and describe the object's motion in terms of position, velocity, acceleration and time.
2. Demonstrate that any object does not accelerate (remains at rest or maintains a constant speed and direction of motion) unless an unbalanced (net) force acts on it.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
• Construct a concept map that shows the relationship of mass, gravity, weight, gravitation potential energy, acceleration, et cetera. • Describe speed as a change in motion. • Describe velocity as it relates to motion. • Distinguish between speed and velocity. • Analyze motion as a change in velocity, which can result in positive or negative acceleration. • Describe constant speed as speed that does not change unless acted upon by an unbalancing force.	• Velocity is both speed and direction. • Acceleration due to gravity has the symbol, g. The value for g at sea level is 9.8 m/s^2. • How gravitational forces govern the characteristics and movement patterns of the planet, comets and asteroids in the Solar System. • Formula for Speed (v = d/t), including proper units (m/s). • Formula for acceleration (a = vf-vi / t), including proper units, (m/s^2).	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate Analyze

• Describe instantaneous speed as speed at a given point in time. • Distinguish between balanced and unbalanced forces and their effect on the movement of objects. • Explain how net forces are responsible for movement. • List all the forces acting on a horse and cart system(s). • Explain how a horse and cart can move and based on forces present. • Calculate the range of a projectile object. • Calculate the resultant of two vectors.	• When an object is at a constant velocity the forces acting on it are balanced. Unbalanced forces acting on an object will cause it to accelerate. • Force is a push or pull exerted on an object. The metric unit of force is the Newton. • If an airplane is flying at a constant velocity the drag is equal and opposite to the thrust.	

Vocabulary	Resources
Analyze Describe Friction Gravity Acceleration Drag Net (force) Velocity Free Fall Vectors Mass Final Initial Speed Weight Reference point Gravitational force g	"Forces in 1 Dimension" – computer interactive simulation "Motion Diagrams" – tutorial from Western Kentucky University "The Physics Classroom" –computer tutorial on one-dimensional motion Cengage **An Introduction to Physical Science** "Teaching High School Science"- video series

Newton's Law of Gravitational Attraction Instantaneous Newton Constant	
Essential Questions	**Understanding/Corresponding Big Ideas**
1. What is a vector quantity? 2. What is the difference between speed and velocity? 3. What is a force? What is a net force? 4. How do you know an object is in motion? 5. When is an object in freefall?	1. An object accelerates when a net force acts upon it. It accelerates in the direction of the applied force. F=ma 2. Speed is distance over time. It does not have a direction associated with it. Velocity is a vector quantity. A vector has both direction and speed. v = d/t is the equation for both velocity and speed. 3. A force is a push or pull. A net force is the sum of all the forces acting on an object. 4. A frame of reference is used to determine if an object is in motion. 5. An object is in freefall when the only force acting upon it is gravity.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/Honors Physical Science
Unit of Study	Forces
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Explain the movement of objects based on the forces applied to them.

Supporting Standard(s):
1. Demonstrate that any object does not accelerate (remains at rest or maintains a constant speed and direction of motion) unless an unbalanced (net) force acts on it.
2. Explain the change in motion (acceleration) of an object. Demonstrate that the acceleration is proportional to the net force acting on the object and inversely proportional to the mass of the object. (F=ma Note that weight is the gravitational force on a mass).
3. Demonstrate the ways in which frictional forces constrain the motion of objects (e.g. a car traveling around a curve, a block on an inclined plane, a person running, an airplane in flight).

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
• Construct a concept map that shows the relationship of mass, gravity, weight, gravitation potential energy, acceleration, et cetera. • Describe gravity as it relates to the mass of the objects and the distance between the objects. • Compare and contrast weight and mass. • Describe friction as it relates to changes in speed, velocity, and acceleration.	• Velocity is both speed and direction. • Weight = mg • Acceleration due to gravity has the symbol, g. The value for g at sea level is 9.8 m/s^2. • Mass is the quantity of matter an object contains and weight is a measure of gravitational force. Weight is proportional to mass.	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate

• Describe constant speed as speed that does not change unless acted upon by a net force. • Describe instantaneous speed as speed at a given point in time. • Distinguish between balanced and unbalanced forces and how they affect the movement of objects. • Explain how net forces are responsible for movement. • Distinguish among the three types of friction: sliding, rolling, fluid. • Explain the effect of mass and surface area on friction. • Measure the friction in a closed system.	• Gravitational Force is a force of attraction between 2 masses. • How gravitational forces govern the characteristics and movement patterns of the planet, comets and asteroids in the Solar System. • Friction is a force opposite the motion. • When an object is at a constant velocity the forces acting on it are balanced. Unbalanced forces acting on an object will cause it to accelerate. (Static and Nonstatic Systems) • Force is a push or pull exerted on an object. The metric unit of force is the Newton. • Inertia is the tendency of an object to resist any change in its state of motion. Inertia is proportional to the mass. • Changing speed and changing direction are both types of acceleration. • Explain how heat is lost due to friction as energy travels through a closed system. • The force of friction acts directly opposite the motion of the object. • Friction can produce an unbalanced force that will cause the object to accelerate. • If an airplane is flying at a constant velocity the drag is equal and opposite to the thrust.	Analyze

Vocabulary		Resources
Analyze	Describe	
Friction	Gravity	"Forces in 1 Dimension" – computer interactive simulation

Acceleration Net (force) Free Fall Mass Initial Weight Gravitational force Newton Newton's Law of Gravitational Attraction g Instantaneous Constant Newton	Drag Velocity Vectors Final Speed Reference point	"Motion Diagrams" – tutorial from Western Kentucky University "The Physics Classroom" –computer tutorial on one-dimensional motion Cengage **An Introduction to Physical Science** "Teaching High School Science"- video series

Essential Questions	**Understanding/Corresponding Big Ideas**
1. What is a vector quantity? 2. What is a force? What is a net force? 3. What is gravity and what determines how much gravity exists between two objects? 4. What is inertia? How is it related to mass? 5. What is the difference between mass and weight? 6. How is mass measured compared to weight? 7. What force opposes motion?	1. An object accelerates when a net force acts upon it. It accelerates in the direction of the net force. 2. A force is a push or pull. A net force is the sum of all the forces acting on an object. 3. A frame of reference is used to determine if an object is in motion. 4. An object is in freefall when the only force acting upon it is gravity. 5. Gravity is the attractive force between two masses. The distance between the two objects and their masses determines the amount of attractive force between them. The value of g on earth is 9.8 m/s^2. 6. Inertia is the tendency of an object to resist any change in its state of motion. It is proportional to the mass. 7. Mass is the amount of matter in an object. It is measured with a balance. Weight is a measure of the gravitational force. It is measured with a scale and is proportional to mass. The formula for weight is w = mg. 8. Friction is a force that opposes motion.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/Honors Physical Science
Unit of Study	Light and Waves
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Demonstrate that waves (e.g. sound, seismic, water, light) have energy and waves can transfer energy when they interact with matter.
Demonstrate that electromagnetic radiation is a form of energy. Recognize that light acts as a wave. Show that visible light is a part of the electromagnetic spectrum (e.g. radio waves, microwaves, infrared, visible light, ultraviolet, x-rays, and gamma rays).

Supporting Standard(s):
1. Show how the properties of a wave depend on the properties of the medium through which it travels. Recognize that an electromagnetic wave can be propagated without a medium.
2. Describe how waves can superimpose on one another when propagated in the same medium. Analyze conditions in which waves can bend around corners, reflect off surfaces, are absorbed by materials they enter, and change direction and speed when entering a different material.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to <u>know</u>)	Bloom's Taxonomy Levels
• The student will use the flame test to identify metallic ions and will be able explain that the colors produced are the result of exciting the atoms. • The student will calculate the frequency of a wave when given the wavelength and speed of the wave. • The student will verify the Law of Reflection by experimentation.	• All forms of electromagnetic radiation travel at the speed of light. This is 300,000 km/s in a vacuum. • The different components of the electromagnetic spectrum have the same speed in a vacuum but different wavelengths and frequencies. The components listed from lowest frequency to highest are radio, microwaves, infrared, visible light (red, orange, yellow, green, blue and violet), ultraviolet, x-rays and gamma.	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create

• Describe the properties of a wave (frequency, wave length, velocity). • Describe the properties of a medium (transparency, opaque, translucent). • Discuss the effect of the properties medium on the properties of a wave. • Explain the difference between a mechanical wave and an electromagnetic wave. • Measure a sound wave's frequency and wavelength. • Demonstrate refraction with a piece of plate glass. • Examine The Doppler Effect. (No calculations) • Demonstrate absorption of the colors of light using colored film.	• The photon is a unit or quantity of electromagnetic radiation. • The ozone layer protects life on Earth from ultraviolet radiation. • Wavelength is the distance from a point on a wave to the next point like it. • Frequency is the number of cycles per second. The unit of frequency is the hertz. ! hz = 1 cycle/second= 1/second= s^{-1}. • A cycle is a portion of a wave that is 1 wavelength long. • When an atom absorbs photons electrons jump to higher energy levels. When the electrons jump down to lower energy levels photons are released. The energy involved in a specific jump is unique for that jump. • A lens works because the speed of light in glass is different than the speed of light in air. This difference causes refraction. • Reflection and refraction are wave-like properties. • A wave transports energy. Place waves into mechanical and electromagnetic categories. • Both prisms and lenses work because of refraction. Each wavelength of light has a different speed in the glass. • The medium in the substance through which a wave travels. Example: Water is the medium in a ripple tank.	Explain Generate Analyze

	• A substance can be either transparent, translucent or opaque to a wave. • Mechanical waves are either longitudinal or transverse waves. Mechanical waves produce a temporary displacement of the particles of the medium. Amplitude measures the amount of temporary displacement. • Transverse waves contain crests and troughs. • Reflection is a particle like property. The angle of incident is congruent to the angle of reflection. • Refraction is the bending of a wave as it travels from one medium into another in which the wave has a different speed. • Superimposed waves appear to combine, but they can separate later. • Diffusion is the spreading of wave beyond a barrier.	

Vocabulary		Resources
Electromagnetic radiation	Refraction	"Energy: Misconceptions and Models" from U.K. Department of Education "Waves, Light, and Sound" from the Physics Zone The Physics Classroom Cengage **An Introduction to Physical Science**
Photon	Reflection	
Radio wave	Laser	
Microwave	Energy Levels	
Infrared radiation	Wavelength	
Visible radiation	Frequency	
Ultraviolet radiation	Speed of Light	
X-ray	Propagation	
Gamma ray	Ripple Tank	
Lens	Diffraction	
Superimposition	Prism	
Trough	Crest	
Amplitude	Absorption	
Translucent	Transparent	
Opaque	Law of Reflection	

Essential Questions	Understanding/Corresponding Big Ideas
1. How is the electromagnetic spectrum arranged? 2. How is the velocity of a wave determined? 3. What is a transverse wave? What is a longitudinal wave? 4. What are the parts of a transverse wave? 5. What is the difference between reflection and refraction? 6. What is the Law of Reflection?	1. The EM spectrum is arranged from longest wavelength and lowest frequency to shortest wavelength and highest frequency. 2. The velocity of a wave is determined by its frequency and wavelength. 3. All EM waves travel at the speed of light, which is 3.01×10^8 m/s. 4. All waves carry energy. In a transverse wave, the object vibrates perpendicular to the energy. In a longitudinal wave, the object and the energy travel parallel to one another. 5. The parts of a transverse wave include the resting position, amplitude, wavelength, crest, and trough. 6. Reflection is the bouncing of a wave. Refraction is the bending of a wave as it travels from one medium into another. 7. The Law of Reflection states that the angle of incidence equals the angle of reflection.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/Honors Physical Science
Unit of Study	Electricity
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Describe the identifiable physical properties of substance (e.g. color, hardness, conductivity, density, concentration, ductility). Explain how changes in these properties can occur without changing the chemical nature of the substance.

Supporting Standard(s):
1. Compare the conductivity of different materials and explain the role of electrons in the ability to conduct electricity.

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to know)	Bloom's Taxonomy Levels
• Understand that electrons are the particles that flow in an electrical circuit. • Explain how an object becomes electrically charged. • Construct an electrical circuit and use it to determine conductivity. • Identify the properties of a conductor and an insulator. • Determine whether an object is a conductor, semiconductor, or an insulator. • Use a multimeter to measure the conductivity, current, voltage, and resistance of a circuit. • Given data, be able to compute Ohm's Law problems.	• An object accumulates a static charge when the number of protons is not the same as the number of electrons. • A conductor is a substance through which electricity easily moves. • Insulators are poor conductors. • Current electricity is the flow of electron. • A. C. is alternating current. • D.C. is direct current. • Ohm's Law $I = V/R$	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate Analyze

• Given a set of equipment, be able to set up both series and parallel circuits.	• A series circuit is a circuit in which there is only one pathway for electrons to take. • A parallel circuit has more than one pathway for electrons to take. • Know how lightning forms based on static electricity.	

Vocabulary		Resources
Electrons	Series circuit	"Energy: Misconceptions and Models" from the U.K. Department of Education
Electrical current	Parallel circuit	"Waves, Light, and Sound" from the Physics Zone
Conductor	Static electricity	The Physics Classroom
Insulator	Electroscope	Cengage **An Introduction to Physical Science**
Semiconductor	Dry cell	
Resistance		
Ohm's Law		
Ampere		
Volt		
Electrical conductivity		
Charge		
Attraction		
Repulsion		

Essential Questions	Understanding/Corresponding Big Ideas
1. What is the difference between an insulator and a conductor? 2. How is a house wired? What is the difference between a series and a parallel circuit? 3. What is lightning? 4. What is the difference between A.C. and D.C.? 5. What is Ohm's Law?	1. An insulator does not allow electricity to flow through it easily while a conductor does. 2. Houses are wired in parallel. A parallel circuit has 2 or more pathways for the electrons to travel while a series only has 1 path for the current to flow. 3. A buildup of static electricity in the atmosphere is lightning. A static charge occurs when the number of protons is not the same as the number of electrons. 4. A.C. is alternating current while D.C. is direct current. 5. Ohm's Law is used to determine how much resistance is in a circuit. The equation is $I = V/R$ where I is the current in Amps, V is the potential difference in Volts, and R is the resistance measured in Ohm's.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/Honors Physical Science
Unit of Study	Nuclear Energy
Pacing	2 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Describe radioactive substances as unstable nuclei that undergo random spontaneous nuclear decay emitting particles and/or high-energy wavelike radiation.

Supporting Standard(s):
1. Summarize how nuclear reactions convert a small amount of matter into a large amount of energy. (Fission involves the splitting of a large nucleus into smaller nuclei; fusion is the joining of two small nuclei into a large nucleus).

"Unwrapped Skills" (students need to be able to do)	"Unwrapped" Concepts (students need to <u>know</u>)	Bloom's Taxonomy Levels
• Create models representing the reactants and products in fusion and fission reactions. • Show potential environmental impact if a nuclear reactor were to be build in your community. • Compare and contrast fission and fusion.	• Fission is the splitting of a large nucleus into smaller nuclei. • Fusion is the joining of two small nuclei into one larger nucleus. • In the equation, $E=mc^2$, E represents energy produced, m represents mass and c represents the speed of light. • A nuclear reactor is a device that produces useful energy from a fission reaction. Presently, there are no practical fusion reactors in operation. • In a fission reaction, the free neutrons can cause a chain reaction by splitting other nuclei producing	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate Analyze Evaluate

	even more neutrons resulting in even more splitting of nuclei. • A thermonuclear reaction is used for fusion reactions since they take place at high temperatures. • An important consideration that must be made before a nuclear reactor is built is the environmental impact.	

Vocabulary		Resources
Radioactive Isotopes	Evaluate	Cengage **An Introduction to Physical Science** "Teaching High School Science" by Annenberg http://education-portal.com/academy/lesson/types-of-radioactive-decay-and-their-effect-on-the-nucleus.html http://education-portal.com/academy/lesson/half-life-calculating-radioactive-decay-and-interpreting-decay-graphs.html http://www.colorado.edu/physics/2000/isotopes/radioactive_decay3.html
Radiation	Analyze	
Nuclear decay	Rotate	
Unstable nuclei	Radioactive dating	
Stable nuclei	Radioactivity	
Alpha particles	Mass number	
Beta particles	Atomic number	
Gamma rays	Fusion	
Half-life	Fission	
Nuclear reactor	Nucleus	
$E=mc^2$		

Essential Questions	Understanding/Corresponding Big Ideas
1. Why do only certain nuclei emit radiation? 2. What is the difference between the different types of nuclear radioactivity? 3. What are the pros and cons of nuclear fission and fusion? 4. What is the historical significance of nuclear energy as a source of energy?	1. Radioactivity is determined by the stability of a nucleus. 2. Alpha, beta and gamma radiation have many differences including size, speed, mass and penetrating power. 3. Nuclear fission and fusion both produce large amounts of energy, however, fission produces radioactive waste and fusion is not controllable. 4. Nuclear power is a very polarizing subject in that it provides an alternative to fossil fuels, but has many negatives in its production.

FINDLAY CITY SCHOOLS
Curriculum Design-Grades 6-12

Subject(s)	Physical Science
Grade/Course	9/Honors Physical Science
Unit of Study	The Universe
Pacing	3 weeks

PRIORITY AND SUPPORTING STANDARDS

Priority Standard(s):
Explore the history and formation of the universe.

Supporting Standard(s):

"Unwrapped Skills" (students need to be able to do)	**"Unwrapped" Concepts (students need to <u>know</u>)**	**Bloom's Taxonomy Levels**
• Explain the "big bang" theory and list facts for its validity. • Evaluate data analyzing the ability of various types of electromagnetic radiation entering earth's atmosphere. • Develop an understanding of the history of space exploration. • Analyze an H-R diagram and explain the life cycle of a star. • Summarize how stars undergo fusion and how elements change from light to heavy.	• According to the "big bang" theory, the universe came into existence from a large explosion which is in a constant expansion (doppler effect). • Technology provides the basis for many new discoveries related to space and the universe through use of computers to decipher a multitude of complex data. • The universe contains billions of galaxies. • Galaxies contain billions of stars. • Gravitational attraction between hydrogen and helium clouds created stars through high gravitational forces generating nuclear reactions. • The attraction between stars create galaxies.	Demonstrate Design Differentiate Compare Contrast Summarize Diagram Apply Predict Create Explain Generate Analyze

Vocabulary		Resources
The "big bang" Theory	radio telescope	Cengage **An Introduction to Physical Science**
Nuclear fusion	X-Ray telescope	
stars	The Milky Way	
galaxy	luminosity	
HR diagram	red giant	
Doppler Effect	white dwarf	
Universe	supernova	
gravity	super giant	
main sequence	nebula	
black hole	neutron star	

Essential Questions	Understanding/Corresponding Big Ideas
1. How did the universe form? 2. How do objects in the universe move? 3. How do we know what stars are made of?	1. The universe is expanding. 2. Stars have a life cycle.

EXHIBIT D

JEWELRY

Course #347

Course of Study

Findlay City Schools

2017

TABLE OF CONTENTS

COURSE SUMMARY: Students will explore and use the techniques of glass fusing, enameling, fabrication and flame work beads to produce individual pieces of hand-crafted jewelry. Materials for the course include copper, brass, nickel, and silver. Due to the high cost of some jewelry materials, students may need to supplement beyond the art fees.

JEWELRY

Course #347

Writing Team

Jon Gaberdiel

Mission Statement

Educating and Empowering for Life

Beliefs

Our beliefs form the ethical foundation of the Findlay City Schools.
We believe….

- *All students and families have worth and are to be valued.*
- *Students need a safe and inclusive environment in order to fully express who they are.*
- *All students can learn.*
- *In order for each student to thrive, students, families, staff and community must be vested in their growth and development.*
- *All students need opportunities in and out of the classroom.*
- *FCS must be a reflection of our growing community and its needs.*
- *The Seven Habits of Highly Effective People supports life skills:*
    - *Habit 1: Be Proactive*
    - *Habit 2: Begin with the End in Mind*
    - *Habit 3: Put First Things First*
    - *Habit 4: Think Win-Win*
    - *Habit 5: Seek First to Understand, Then to Be Understood*
    - *Habit 6: Synergize*
    - *Habit 7: Sharpen the Saw*

Jewelry
CURRICULUM MAP

WEEK	UNIT	TOPIC	STANDARDS
1	Introduction	Classroom set-up; Class expectations; Safety Procedures	2 PE, 1 PR, 2 PR, 3 PR, 4 PR
2	Polymer Beads; Paper Beads, Flame work bead introduction	Jewelry design completion options	2 PE, 1 PR, 2 PR, 3 PR, 4 PR
3	Glass Fusing		2 PE, 1 PR, 2 PR, 3 PR, 4 PR
4			
5	Enamel	Enameling on Copper	2 PE, 1 PR, 2 PR, 3 PR, 4 PR
6			
7	Pewter	Pewter Casting	2 PE, 1 PR, 2 PR, 3 PR, 4 PR
8			
9	Wire Fabrication	Wire Ring/Bracelet Original Wire Design	2 PE, 1 PR, 2 PR, 3 PR, 4 PR
10			
11			
12	Sheet Metal Fabrication	Sheet Band Original Sheet Design	2 PE, 1 PR, 2 PR, 3 PR, 4 PR
13			
14			1 PE, 2 PE, 4 PE, 1 PR
15			
16	Culminating Project	Combination of techniques	2 PE, 1 PR, 2 PR, 3 PR, 4 PR
17			
18			

Findlay City Schools
JEWELRY – Grades 9-12

Subject(s)	JEWELRY
Grade/Course	9-12
Unit of Study	Introduction: classroom set-up, class expectations, safety procedures
Pacing	1 week

STATE STANDARDS

2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• An artist must be familiar with the set up and functioning of a studio to safely and effectively produce artwork in the space.	• What are the functions of the various equipment and tools within the studio? • What safety procedures must be followed in the studio?	Evaluation Synthesis Analysis Application

Enduring Understandings	Program Components (Learning Activities)
• Each student has a responsibility to themselves and their peers to help maintain an efficiently functioning jewelry studio.	• Students will tour the jewelry studio. • They will become acquainted with classroom procedures, expectations and safety information.
Vocabulary	**Resources/Best Practices**
See Appendix I - Jewelry Vocabulary	• Handouts • Demonstrations • Graphic organizers

Subject(s)	JEWELRY
Grade/Course	9-12
Unit of Study	Polymer Beads, Paper Beads, Flame Work Bead Introduction
Pacing	1 week - ongoing

STATE STANDARDS

2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Combining a variety of jewelry elements into a design may create a more cohesive, visually engaging final product.	• How can polymer, paper, and/or flame work beads contribute to a more aesthetically pleasing jewelry composition?	Evaluation Synthesis Application Analysis

Enduring Understandings	Program Components (Learning Activities)
• Artists make decisions regarding the combination of various materials into a composition based on color, texture, size, shape and other factors.	• Students will create polymer, paper and flame work beads for potential inclusion in future jewelry designs.

Vocabulary	Resources/Best Practices
See Appendix I - Jewelry Vocabulary	• Demonstration • Hand outs • Graphic Organizers • Web research • Videos

Subject(s)	JEWELRY
Grade/Course	9-12
Unit of Study	Glass Fusing
Pacing	2 weeks

STATE STANDARDS

2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Glass provides jewelry artists with a medium to stack, arrange and fuse designs for pendants, bracelets, earrings, etc.	• What does the fusing process involve? • What is the difference between a full and tack fuse?	Evaluation Synthesis Application Analysis

Enduring Understandings	Program Components (Learning Activities)
• A variety of visual and textural effects can be achieved through full and tack glass fusing.	• Students will create designs with glass to produce full and tack fused jewelry.

Vocabulary	Resources/Best Practices
See Appendix I - Jewelry Vocabulary	• Demonstration • Videos • Graphic organizers • Web research • Graphic organizers

Subject(s)	JEWELRY
Grade/Course	9-12
Unit of Study	Enamel
Pacing	2 weeks

STATE STANDARDS

2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Enamel is a powdered glass that allows jewelry artists to create designs on surfaces such as copper.	• How is enameling different from glass fusing? • What are the steps to enameling on copper?	Evaluation Synthesis Application Analysis

Enduring Understandings	Program Components (Learning Activities)
• The ease with which enamel is manipulated provides jewelry artists with a great deal of flexibility and options for design solutions.	• Students will create at least one functional piece of jewelry using the technique of glass enameling.

Vocabulary	Resources/Best Practices
See Appendix I - Jewelry Vocabulary	• Demonstration • Graphic organizers • Hand outs • Videos • Web research

Subject(s)	JEWELRY
Grade/Course	9-12
Unit of Study	Pewter
Pacing	2 weeks

STATE STANDARDS

2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Casting allows the artist to create an exact replica of a form.	• What are the steps to the pewter casting procedure?	Evaluation Synthesis Application Analysis

Enduring Understandings	Program Components (Learning Activities)
• A plaster mold is used as the base for the casting. • The reverse design is carved in one-half of the mold and filled with liquid pewter.	• Students will create a pewter case pendant design.

Vocabulary	Resources/Best Practices
See Appendix I - Jewelry Vocabulary	• Demonstration • Hand outs • Videos • Graphic organizers • Web research

Subject(s)	JEWELRY
Grade/Course	9-12
Unit of Study	Wire Fabrication
Pacing	3 weeks

STATE STANDARDS

2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Wire fabrication involves the joining of wire designs together through hot joins (soldering) or cold joins (rivets, wrapping, etc.).	• What are the steps to the soldering process? • What are options for cold joining metals together?	Evaluation Synthesis Analysis Application

Enduring Understandings	Program Components (Learning Activities)
• A variety of metals may be joined through a variety of techniques to create different products with varied aesthetics.	• Students will design and construct a wire fabricated piece of jewelry.

Vocabulary	Resources/Best Practices
See Appendix I - Jewelry Vocabulary	• Demonstration • Graphic organizers • Hand outs • Videos • Web research

Subject(s)	JEWELRY
Grade/Course	9-12
Unit of Study	Sheet Metal Fabrication
Pacing	4 weeks

STATE STANDARDS

2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Sheet metal fabrication is the joining of metal through soldering or cold joining to create a variety of jewelry forms.	• How does wire fabrication differ from sheet fabrication? • Can wire and sheet metal be combined into a fabrication design?	Evaluation Synthesis Analysis Application

Enduring Understandings	Program Components (Learning Activities)
• A variety of products and aesthetics can be achieved through sheet metal fabricated jewelry.	• Students will design and create a sheet metal fabrication piece of jewelry.

Vocabulary	Resources/Best Practices
See Appendix I - Jewelry Vocabulary	• Demonstration • Hand outs • Videos • Graphic organizers • Web research

Subject(s)	JEWELRY
Grade/Course	9-12
Unit of Study	Culminating Project
Pacing	3 weeks

STATE STANDARDS

2 PE, 1 PR, 2 PR, 3 PR, 4 PR (HS Intermediate)

Big Ideas	Essential Questions	Bloom's Taxonomy Levels
• Artists often combine media to create a product with a look or function not achievable with a single medium.	• Which media combine efficiently, and in what order?	Evaluation Synthesis Analysis Application

Enduring Understandings	Program Components (Learning Activities)
• Combining jewelry media allows artists to create a unique look and function tailored to a specific aesthetic.	• Students will design and create a piece or pieces of jewelry combining at least two media/techniques used throughout the semester.

Vocabulary	Resources/Best Practices
See Appendix I - Jewelry Vocabulary	• Demonstration • Hand outs • Videos • Graphic organizers • Web research

Appendix I

JEWELRY VOCABULARY

Glass Fusing Vocabulary	*Copper Enameling Vocabulary*	*Fabrication Vocabulary*
Glass Cutter	Enamel	Fabrication
Running pliers	Pigment	Solder
Wheeled nippers	Kiln	Flux
Kiln	Transparent	Anneal
Fiber paper	Opaque	Pickle
Coefficient of expansion (COE)	Thermo-shock	Tripoli
Annealing	Crazing	Rouge
Full fuse	Frit	Lacquer
Tack fuse		

Ohio Department of Education

2012 Visual Art Standards
GRADES 9 - 12

ENDURING UNDERSTANDINGS	**Personal Choice and Vision:** Students construct and solve problems of personal relevance and interest when expressing themselves through visual art. **Critical and Creative Thinking:** Students combine and apply artistic and reasoning skills to imagine, create, realize and refine artworks in conventional and innovative ways. **Authentic Application and Collaboration:** Students work individually and in groups to focus ideas and create artworks that address genuine local and global community needs. **Literacy:** As consumers, critics and creators, students evaluate and understand artworks and other texts produced in the media forms of the day.		
Students will: **PROGRESS POINTS**	A. Understand and articulate the intrinsic worth and public value of arts and cultural participation. B. Draw on a variety of sources to generate, select and evaluate ideas to create personally meaningful products. C. Address and communicate complex visual and conceptual ideas using a range of technical skill and art media including new technologies. D. Access and evaluate information from a variety of sources for visual reference with attention to ethical and legal issues. E. Apply reasoning skills to communicate key ideas expressed in their artworks and the works of others and use appropriate criteria and language to critique the works. F. Analyze and use digital tools to understand how and why images are created and interpreted and how media influences culture, beliefs and behaviors. G. Demonstrate flexibility and reflective habits when creating visual art forms in a variety of artistic contexts and environments. H. Demonstrate respect for, and effectively work with, socially and culturally diverse teams or content to increase innovation and quality.		
COGNITIVE AND CREATIVE LEARNING PROCESSES	**PERCEIVING/KNOWING (PE)**	**PRODUCING/PERFORMING (PR)**	**RESPONDING/REFLECTING (RE)**
ACHIEVEMENT LEVEL CONTENT STATEMENTS **HS Beginning**	1PE Examine and articulate the effects of context on visual imagery. 2PE Identify and describe the sources artists use for visual reference and to generate ideas for artworks. 3PE Identify the relationship between community or cultural values and trends in visual art. 4PE Identify the factors that influence the work of individual artists. 5PE Describe the role of technology as a visual art medium. 6PE Describe the decisions made in the design of everyday objects.	1PR Demonstrate basic technical skill and craftsmanship with various art media when creating images from observation, memory and imagination. 2PR Apply the elements and principles of art and design using a variety of media to solve specific visual art problems. 3PR Explore multiple solutions to visual art problems through preparatory work. 4PR Establish the appropriate levels of craftsmanship when completing artworks. 5PR Investigate how to access available digital tools and innovative technologies to create and manipulate artwork. 6PR Identify and apply visual literacy as a means to create images that are personally expressive.	1RE Explore various methods of art criticism in responding to artworks. 2RE Identify assessment practices to manage, monitor and document their learning. 3RE Use appropriate vocabulary to define and describe techniques and materials used to create works of art. 4RE Investigate the role of innovative technologies in the creation and composition of new media imagery. 5RE Identify and explain one or more theories of aesthetics and visual culture. 6RE Identify various venues for viewing works of art. 7RE Recognize and articulate the importance of lifelong involvement and advocacy in the arts.
HS Intermediate	1PE Examine the context details of visual imagery and explain the social and cultural influences on the images. 2PE Describe sources visual artists use to generate ideas for artworks. 3PE Explore the relationship between community or cultural values and trends in visual art. 4PE Analyze the work of individual artists and explain how they are influenced by cultural factors. 5PE Explore the application of technology to the production of visual artworks. 6PE Connect processes and decisions made in the design of everyday objects, environments, and communications	1PR Demonstrate proficient technical skills and craftsmanship with various art media when creating images from observation, memory, or imagination. 2PR Make informed choices in the selection of materials and techniques as they relate to solving a visual problem. 3PR Generate a variety of solutions to visual arts problems through preparatory work. 4PR Establish and apply appropriate levels of craftsmanship to complete artworks. 5PR Understand and demonstrate how to access available digital tools and innovative technologies to create and manipulate artwork. 6PR Incorporate visual literacy as a means to create images that advance individual expression and communication.	1RE Apply methods of art criticism when discussing selected works of art. 2RE Apply assessment practices to revise and improve their artworks and to document their learning. 3RE Expand the use of arts-specific vocabulary to define and describe techniques and materials used to create works of art. 4RE Explain the role of innovative technologies in the creation and composition of new media imagery. 5RE Compare and contrast various theories of aesthetics and visual culture. 6RE Identify the challenges various venues present to the creation of works of art. 7RE Explore and discuss opportunities for lifelong involvement and advocacy in the arts.
HS Accelerated	1PE Analyze interdisciplinary connections that influence social and cultural contexts of visual imagery. 2PE Analyze and explain the factors that influence artworks. 3PE Compare and contrast the styles in artworks by artists of different cultures and historical trends. 4PE Explain how individual artists impact cultural developments. 5PE Investigate the influence of technology on visual art and its effects on their own works. 6PE Identify, examine and understand the aesthetic, stylistic and functional considerations of designing objects, environments and communications	1PR Demonstrate increased technical skill and craftsmanship with various art media when creating images from observation, memory and imagination. 2PR Make informed choices in the selection of materials and techniques that relate to solving a visual problem. 3PR Solve visual art problems that demonstrate skill, imagination and observation. 4PR Prepare artworks for display that demonstrate high levels of craftsmanship. 5PR Explore and expand on personal art applications through the use of available digital tools, innovative technologies and media arts. 6PR Expand visual literacy as a means to create images that advance individual expression and communication.	1RE Apply art criticism methods and inquiry skills to interpret visual images produced by new media and media arts. 2RE Practice self-assessment to understand their progress and prioritize steps for improvement. 3RE Explain artistic processes from idea conception to completion of a work of art using descriptive and arts-specific terminology. 4RE Respond to critical questions about the meaning and influence of new media imagery in our culture. 5RE Develop and support a personal philosophy of art based on aesthetic theories and understanding of visual culture. 6RE Explain how a response to a work of art is affected by the context in which it is viewed. 7RE Investigate and plan strategies for lifelong involvement and advocacy in the arts.

HS Advanced	1PE Interpret social and cultural contexts to develop personal meaning in visual imagery. 2PE Interpret and evaluate the way a theme or meaning in an artwork expresses the social, political or cultural context. 3PE Compare and contrast universal themes and sociopolitical issues in artworks from different cultures and historical periods. 4PE Demonstrate the ability to form and defend judgments regarding the relationships between artists and culture. 5PE Envision and explain how technology can impact visual art and literacy. 6PE Apply self-direction, independence and a purposed approach when defining and solving a visual design problem.	1PR Demonstrate advanced technical skills and craftsmanship with various art media when creating images from observation, memory and imagination. 2PR Use criteria to revise works-in-progress and describe changes made and what was learned in the process. 3PR Contribute to a portfolio of works that demonstrates technical skill, a range of media and various original solutions to visual art problems. 4PR Select, organize and prepare artworks for exhibition. 5PR Create original artworks that demonstrate the ability to select, use and vary available digital tools and innovative technologies. 6PR Visually express complex concepts and meaning in their artworks.	1RE Apply art criticism methods and inquiry skills as viewer, critic and consumer of visual images produced by new media and media arts. 2RE Apply assessment practices to select, organize and present personal artworks that document their understanding of visual art and literacy concepts. 3RE Apply inquiry and analytic processes when viewing, judging and consuming visual content and images produced by new media and media arts. 4RE Analyze and explain the relationship between the content and ideas in artworks and the use of media and compositional elements. 5RE Defend personal philosophies of art based on a connection to aesthetic theories and visual culture. 6RE Engage in discourse and express a point of view about issues related to the public display of works of art. 7RE Form and demonstrate personal strategies for lifelong involvement and advocacy in the arts.

EXHIBIT D

GLENWOOD MIDDLE SCHOOL

Phone: (419) 425-8373 | **1715 North Main St. Findlay, OH 45840** | **Fax: (419) 427-5455**
Janice Panuto, Principal | Anthony Nugeness, Assistant Principal | Megan Kirian, Bethany Barnhart, Guidance Counselors

October 4, 2017

Curriculum Committee,

I am writing on behalf of the Ellen Foos and myself, Intervention Specialists for the MD students at Glenwood Middle School. I am formally requesting science textbooks for our students. In the past, the only current materials available to our students was, and continues to be Unique Curriculum, a web-based program designed for students with special needs. While there have been valuable lesson materials through this program, it falls short of meeting our students' needs. Firstly, the program switches back and forth between science and social studies. On months where social studies lessons are provided, there is no science. When this happens, we are forced to improvise and create lessons. When the science material is available, it often times is too simplistic for our academically higher students. When it is engaging, there isn't enough material to last for an entire month. This program also does not do enough to cover the content standards. Since I began using Unique Curriculum eight years ago, the topic of Benjamin Franklin has been a social studies topic three times. The system is designed to be on a 3-year rotation so that, from 6th through 8th grade, all the content standards have been presented. This has not been the case.

The materials we have sampled are the grades 2-3 and 4-5 *ScienceSaurus* science books. This is the same series of books used by the high school MD unit beginning with grade 6. Over the summer, Ellen and I worked on a curriculum map for middle school science. Using these books, the materials from Unique Curriculum and the 6th grade science textbook used by the regular education students, we were able to develop a series of lessons to be taught to address all the 6th grade content standards.

While I realize there are budgetary considerations involved, we currently have only limited science materials that do not meet the students' needs. I respectfully request 25 each of the grade 2-3 *ScienceSaurus* textbooks and the grade 4-5 *ScienceSaurus* textbooks. This would provide our students with researched based material to last through the entire school year, and it would align with the science curriculum they will be taught when entering high school.

Thank you,
Kathy Rayle
Intervention Specialist
Glenwood Middle School

EXHIBIT D

APPLICATION FOR PILOT COURSE
FINDLAY CITY SCHOOLS

DIRECTIONS: All of the following items are part of the application and must be submitted to the Curriculum Director:

- Completed application form with all signatures**
- Draft course of study*
- Draft curriculum map*

Course Title:

Teaching Professions: **Classroom Management**
Child and Adolescent Development
Communities, Schools, and Stakeholders
Education Principles

Rationale for the course:

Classroom Management: **Students will apply developmentally appropriate techniques to advance learners' social and emotional growth. They will create classroom environments to maximize the learning potential of each learner. Additionally, students will create and enforce classroom rules, establish classroom routines, and model self-discipline for learners. Conflict resolution, positive discipline and behavioral-modification techniques will be emphasized throughout the course.**

Child and Adolescent Development: **Students will examine and apply the theoretical foundations of human growth and development to children and adolescents. Additionally, learners will determine children's learning styles; stages of social, emotional, cognitive and physical development; and needed accommodations in educational settings. Throughout the course, family and community engagement, cultural influences on learners and language growth and development will be emphasized.**

Communities, Schools, and Stakeholders: **Students will examine the relationship of families, communities and schools in the growth and development of learners. They will implement strategies to actively involve families and communities in child development and learning, determine community resources and services available to families and schools, and act as advocates for students and learning. Throughout the course, working with socially, culturally, linguistically diverse families will be emphasized.**

Education Principles: **In this first course in the pathway, students will research the historical perspectives and theories of education used in the forming of their own personal educational philosophy. Students will assess legal, ethical and organizational issues. Additionally, students will assess developmental appropriate practices and identify challenging issues associated with teaching children with diverse needs. Career planning, professional guidelines and ethical practices will also be emphasized.**

Intended audience:

This is a Millstream Career Center program intended for junior and seniors.

Number of students interested in the course and the method used to assess student interest:

Currently there are 12 seniors and 16 juniors. We are hoping to increase interest by changing the program from Early Childhood Education (ECE) to Teaching Professions (TP). Millstream does a recruiting campaign to all sophomores at Findlay High School and area county schools. Students must apply and be accepted into the program.

Enrollment limitations:

The enrollment is limited to 25 students.

Prerequisites:

None

Materials and equipment needed:

Textbook: Teaching by Sharleen L. Kato (Goodheart-Willcox Publisher)

Anticipated course costs and collateral impact:

The textbook purchase will cost $1,941.60 and includes access to all materials for 6 years.

Availability of funds:

The funds have been approved by Millstream's director.

Availability of qualified staff:

Jackie Gleason is the qualified instructor.

Length of course:

Two years

Does this course fulfill a graduation requirement (specify) or is it an elective?

Elective

How does this proposed course help meet the mission and goals of Findlay City Schools?

This course is a Millstream program designed for students interested in being teachers to explore the field of education. This program will educate and empower students for life.

REQUIRED SIGNATURES:

INITIATOR: ***Jackie Gleason***

DEPARTMENT CHAIR:_____

PRINCIPAL:_____

MILLSTREAM DIRECTOR (if applicable): David M. Denloff

CURRICULUM DIRECTOR: Richard L. Stevens

SUPPORTING STAFF:_____

FHS & MILLSTREAM **MILLSTREAM**

4/6/06

*Draft course of study must include:

- Standard(s) — Competency
- Benchmark(s) — Terminal Objectives
- Indicator(s) — Competency Builders
- Follow an approved format

*Draft curriculum map must include:

- Time frame
- Indicator
- Topic
- Follow an approved format

Action taken by Curriculum Council: Date _____

☐ Recommend to superintendent
☐ Reject
☐ Table

Superintendent Action: ☐ Approve ☐ Disapprove

Signature: _____ Date: _____

****The superintendent will determine if it is economically feasible/desirable to offer the course.**

Millstream Career Center

Millstream Career Center is making some significant changes to the education programming this year. The program is transitioning from Early Childhood Education (ECE) to Teaching Professions (TP). Early Childhood Education focuses on birth to seven years of age. Teaching Professions' emphasis is K-12. The TP program remains a two year commitment for high school juniors and seniors interested in the field of education. This is the first year for both programs to move to four "courses" for instruction. With the help of Mary Jo Kohl, Education Program Specialist from the Ohio Department of Education, the courses were strategically selected to crosswalk the current seniors finishing their ECE Pathway and current juniors on the TP Pathway. The following courses will be taught the 2017-2018 school year since they are approved courses for both ECE and TP:

Communities, Schools and Stakeholders

Subject Code: 350225

Students will examine the relationship of families, communities and schools in the growth and development of learners. They will implement strategies to actively involve families and communities in child development and learning, determine community resources and services available to families and schools, and act as advocates for students and learning. Throughout the course, working with socially, culturally, linguistically diverse families will be emphasized.

Classroom Management

Subject Code: 350030

Students will apply developmentally appropriate techniques to advance learners' social and emotional growth. They will create classroom environments to maximize the learning potential of each learner. Additionally, students will create and enforce classroom rules, establish classroom routines, and model self-discipline for learners. Conflict resolution, positive discipline and behavioral-modification techniques will be emphasized throughout the course.

Millstream Career Center's education program will officially become Teaching Professions for the 2018-2019 school year. The final two courses for the TP Pathway will be taught to the current juniors during their senior year completing the TP Pathway. Those courses are:

Education Principles

Subject Code: 350010

In this first course in the pathway, students will research the historical perspectives and theories of education used in the forming of their own personal educational philosophy. Students will assess legal, ethical and organizational issues. Additionally, students will assess developmental appropriate practices and identify challenging issues associated with teaching children with diverse needs. Career planning, professional guidelines and ethical practices will also be emphasized.

Child and Adolescent Development

Subject Code: 350035

Students will examine and apply the theoretical foundations of human growth and development to children and adolescents. Additionally, learners will determine children's learning styles; stages of social, emotional, cognitive and physical development; and needed accommodations in educational settings. Throughout the course, family and community engagement, cultural influences on learners and language growth and development will be emphasized.

I am currently taking the course *Curriculum Construction* through the University of Toledo. With the guidance of the professor, I am writing the course of study for Teaching Professions using the new 2016 standards. The course of study will be completed in December. In the meantime, with the help of Stephanie Roth, I found a textbook (the only one on the market) that correlates with about 95% of the state standards for the four Teaching Professions' courses. I am hoping that the textbooks can be purchased before the course of study is finalized. This does not follow protocol, but I am hoping an exception can be made in this instance so textbooks can be in the hands of students as soon as possible.

Thank you for your consideration,

Jackie Gleason

EXHIBIT D

TEXTBOOK PROPOSAL

2017-18 School Year
Board Meeting
November 6, 2017

CLASS/TITLE OF BOOK	COPYRIGHT	AUTHOR	PUBLISHER	COST
Middle School MH Science – Year 1				
ScienceSaurus (Level 2-3) ISBN #1533666	2013		Houghton Mifflin	$33.40
ScienceSaurus (Level 4-5) ISBN #1533667	2013		Houghton Mifflin	$33.40
Teaching Professions				
Teaching ISBN # 978-1-63126-009-4	2016	Sharleen Kato	Goodheart-Willcox	$74.97