Unit 6 - Soil and Agriculture, Mineral & Mining and Land Use

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Department of Curriculum and Instruction

Belleville Public Schools

Curriculum Guide

Environmental Science

Soil and Agriculture, Mineral & Mining and Land Use

Belleville Board of Education

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Unit Overview

1. *Dynamic processes move matter within the earth and on its surface and can cause volcanic eruptions,* tsunamis, and earthquakes.
2. The three major types of rock found in the earth's crust are recycled very slowly by physical and chemical processes.
3. Some minerals in the earth's crust can be made into useful products, but extracting and using these resources can disturb the land, erode soils, produce large amounts of solid waste, and pollute the air, water, and soil.
4. Raising the price of a scarce mineral resource can lead to an increase in its supply, but there are environmental limits to this effect.
5. We can try to find substitutes for scarce resources, reduce resource waste, and recycle and reuse minerals.
6. Many of the poor have health problems from not getting enough food, while many people in affluent countries suffer health problems from eating too much.
7. The greatest obstacles to providing enough food for everyone are poverty, political upheaval, corruption, war, and the harmful environmental effects of food production.
8. The transfer of matter and energy between the biosphere, geosphere, atmosphere, and hydrosphere often takes place in soils.
9. The unconsolidated mineral or organic material on the immediate surface of the Earth that serves as a natural medium for the growth of land plants.
10. The four major systems of Earth are the geosphere, hydrosphere, atmosphere, and biosphere. The geosphere includes a metallic core, solid and molten rock, soil, and sediments. The atmosphere is the envelope of gas surrounding Earth. The hydrosphere includes the ice, water vapor, and liquid water in

the atmosphere, the ocean, lakes, streams, soils, and groundwater. The biosphere includes Earth's life, which can be found in many parts of the geosphere, hydrosphere, and atmosphere. Humans are part of the biosphere, and human activities have important impacts on all four spheres.

11. More sustainable food production involves reducing overgrazing and overfishing, irrigating more efficiently, using integrated pest management, promoting agrobiodiversity, and providing government subsidies only for more sustainable agriculture, fishing, and aquaculture.
12. We can improve food security by creating programs to reduce poverty and chronic malnutrition, relying more on locally grown food, and cutting waste.
13. Future food production may be limited by soil erosion and degradation, desertification, water and air pollution, climate change from greenhouse gas emissions, and loss of biodiversity.
14. We have used high-input industrialized agriculture and lower-input traditional methods to greatly increase supplies of food.
15. The greatest obstacles to providing enough food for everyone are poverty, political upheaval, corruption, war, and the harmful environmental effects of food production.
16. Many of the poor have health problems from not getting enough food, while many people in affluent countries suffer health problems from eating too much.
17. All Earth processes are the result of energy flowing and mass cycling within and between Earth's systems. This energy is derived from the sun and Earth's interior.
18. The flowing energy and cycling matter cause chemical and physical changes in Earth's materials and living organisms. For example, large amounts of carbon continually cycle among systems of rock, water, air, organisms, and fossil fuels such as coal and oil.
19. The survival of human societies is dependent on Earth's resources. Overall, there are positive correlations between population, natural resource consumption and environmental degradation, although environmental policies and technology influence these relationships. This can be applied to the regional, national and global scales
20. Much of the complex behavior of the Earth system can be thought of as cycles involving physical, chemical and biological processes that transfer components among various storage locations over time.
21. Since the industrial revolutions, nonrenewable fossil fuels including coal, natural gas, and oil, have become our primary sources of energy
22. Fossil Fuels are formed very slowly as buried organic matter is chemically transformed by heat, pressure, and anaerobic decomposition.
23. In evaluating energy sources it is important to compare the amount of energy obtained from them with the amount invested in their extraction and production. Coal is our most abundant fossil fuel. It results from organic matter that undergoes compression but little decomposition.
24. Coal is mined underground and strip-mined form the land surface, and is used today principally to generate electricity.
25. Natural gas is cleaner burning than coal or oil.
26. Natural gas often occurs with oil or coal deposits, is extracted in similar ways and becomes depleted in similar ways.
27. Crude oil is a thick, liquid mixture of hydrocarbons that is formed underground under high temperature and pressure

Enduring Understanding

1. Dynamic forces that move matter within the earth and on its surface recycle the earth's rocks, form

deposits of mineral resources, and cause volcanic eruptions, earthquakes, and tsunamis.

2. The available supply of a mineral resource depends on how much of it is in the earth's crust, how fast we use it, mining technology, market prices, and the harmful environmental effects of removing andusing it.
3. We can use mineral resources more sustainably by trying to find substitutes for scarce resources, reducing resource waste, and reusing and recycling nonrenewable minerals.
4. About 925 million people have health problems because they do not get enough to eat and 1.6 billion people face health problems from eating too much.
5. Modern industrialized agriculture has a greater harmful impact on the environment than any other human activity.
6. More sustainable forms of food production will greatly reduce the harmful environmental impacts of current systems while increasing food security and national security for all countries.
7. More sustainable food production involves reducing overgrazing and overfishing, irrigating more efficiently, using integrated pest management, promoting agrobiodiversity, and providing governments subsidies only for more sustainable agriculture, fishing, and aquaculture.
8. We can sharply cut pesticide use without decreasing crop yields by using a mix of cultivation techniques, biological pest controls, and small amounts of selected chemical pesticides as a last resort (integrated pest management).
9. Future food production may be limited by soil erosion and degradation, desertification, water and air pollution, climate change from greenhouse gas emissions, and loss of biodiversity.
10. We have used high-input industrialized agriculture and lower-input traditional methods to greatly increase supplies of food.
11. The greatest obstacles to providing enough food for everyone are poverty, political upheaval, corruption, war, and the harmful environmental effects of food production.
12. Many of the poor have health problems from not getting enough food, while many people in affluent countries suffer health problems from eating too much
13. Movement of mater through Earth's system is driven by Earth's internal and external sources of energy and results in changes in the physical and chemical properties of the matter.
14. Natural and human activities impact the cycling of matter and the flow of energy through ecosystems.
15. Natural ecosystems provide an array of basic functions that affect humans. These functions include maintenance of the quality of the atmosphere, generation of soils, control of the hydrologic cycle, disposal of wastes, and recycling of nutrients.
16. Earth is a system in which chemical elements exist in fixed amounts and move through the solid Earth, oceans, atmosphere, and living things as part of geochemical cycles.
17. The biogeochemical cycles in the Earth systems include the flow of microscopic and macroscopic resources from one reservoir in the hydrosphere, geosphere, atmosphere, or biosphere to another, are driven by Earth's internal and external sources of energy, and are impacted by human activity
18. Earth operates as a set of complex, dynamic, and interconnected systems, and is a part of the all-encompassing system of the universe.

Essential Questions

1. What are minerals?

2. How are minerals formed?
3. What are the different kinds of rocks and how are they formed?
4. What is mined?
5. What are the different mining methods?
6. What are the negative impacts of mining?
7. What are the mining regulations?

Exit Skills

1. Analyze a problem, developing hypothesis, and design a scientific experiment to test those hypothesis
2. Use statistical analysis of data collected to make an argument based on purely scientific evidence
3. Develop a vernacular of scientific terms and current environmental problems
4. Data mine from scientific journals and articles evaluating their scientific methodology for validity
5. Conduct scientific evidence gathering and analyze data

New Jersey Student Learning Standards (NJSLS-S)

SCI.9-12.HS-ETS1-1	Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.
SCI.9-12.HS-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.
SCI.9-12.HS-ETS1-3	Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.
SCI.9-12.HS-ETS1-4	Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.
9-12.HS-ESS1-6	Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth's formation and early history.

9-12.HS-ESS2-2	Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.
9-12.HS-ESS2-2.4.1	Analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution.
9-12.HS-ESS1-6.6.1	Apply scientific reasoning to link evidence to the claims to assess the extent to which the reasoning and data support the explanation or conclusion.
9-12.HS-ESS2-1.7.1	Change and rates of change can be quantified and modeled over very short or very long periods of time. Some system changes are irreversible.
9-12.HS-ESS1-6.ESS1.C.1	Although active geologic processes, such as plate tectonics and erosion, have destroyed or altered most of the very early rock record on Earth, other objects in the solar system, such as lunar rocks, asteroids, and meteorites, have changed little over billions of years. Studying these objects can provide information about Earth's formation and early history.
9-12.HS-ESS1-5.ESS1.C.1	Continental rocks, which can be older than 4 billion years, are generally much older than the rocks of the ocean floor, which are less than 200 million years old.
9-12.HS-ESS2-2.ESS2.A.1	Earth's systems, being dynamic and interacting, cause feedback effects that can increase or decrease the original changes.
9-12.HS-ESS1-5.ESS2.B.1	Plate tectonics is the unifying theory that explains the past and current movements of the rocks at Earth's surface and provides a framework for understanding its geologic history.

Interdisciplinary Connections

LA.RH.11-12.1	Accurately cite strong and thorough textual evidence, (e.g., via discussion, written response, etc.), to support analysis of primary and secondary sources, connecting insights gained from specific details to develop an understanding of the text as a whole.
LA.RH.11-12.2	Determine the theme, central ideas, information and/or perspective(s) presented in a primary or secondary source; provide an accurate summary of how key events, ideas and/or author's perspective(s) develop over the course of the text.
LA.RH.11-12.3	Evaluate various perspectives for actions or events; determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
LA.RST.11-12.1	Accurately cite strong and thorough evidence from the text to support analysis of science and technical texts, attending to precise details for explanations or descriptions.
LA.RST.11-12.2	Determine the central ideas, themes, or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
LA.RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
LA.WHST.11-12.2.A	Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.
LA.WHST.11-12.2.B	Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
LA.WHST.11-12.2.C	Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts.
LA.WHST.11-12.2.D	Use precise language, domain-specific vocabulary and techniques such as metaphor,

	simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers.
LA.WHST.11-12.2.E	Provide a concluding paragraph or section that supports the argument presented.
MA.A-REI.C.5	Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.
MA.A-REI.C.6	Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.
MA.A-REI.C.7	Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically.
MA.A-SSE.A.1a	Interpret parts of an expression, such as terms, factors, and coefficients.
MA.A-SSE.B.3	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.

Learning Objectives

1. Describe the geologic processes that build and erode the Earth's surface
2. List the physical, chemical, and biological factors involved in soil formation
3. Explain the importance of humus to soil fertility
4. Differentiate between soil texture and soil structure
5. Explain how texture and structure influence soil atmosphere and soil water
6. Explain the role of living organisms in soil formation and fertility
7. Describe the various layers in a soil profile
8. Describe the processes of soil erosion by water and wind purposes
9. Explain how contour farming strip mining, terracing, waterways, windbreaks, and tillage to reduce soil erosion
10. Explain how land not suited for cultivated may still be productively used for other purposes
11. Explain how mechanization encouraged monoculture farming
12. List the advantages and disadvantages of monoculture farming
13. Explain why chemical fertilizers are used
14. Understand how fertilizers alter soil characteristics
15. Explain why modern agriculture makes extensive use of pesticides
16. Differentiate between persistent pesticides and non-persistent pesticides
17. List four problems associated with pesticide use
18. Define bio magnification and organic farming
19. Explain why integrated pest management depends on a complete knowledge of the pests life history
20. Recognize that genetically modified crops are created by using biotechnical techniques to insert genes from one species into another
21. Describe the rock cycle and discuss its importance in environmental science
22. Explain how soil forms and describe its characteristics
23. Explain how elements and minerals are extracted for human use.
24. Describe approaches and policies that promote sustainable land use
25. Describe human nutritional needs and the challenges of overcoming hunger and malnutrition Explain the development of modern industrial agriculture, the role played by inputs such as irrigation water, fertilizers, and pesticides, and the environmental consequences of modern farming methods.
26. Identify the benefits and costs of using genetically modified organisms in agriculture
27. Describe alternatives to industrial farming methods
28. Explain the environmental impacts of various approaches to raising and harvesting meat and fish.
29. Identify the major components of the technology that is used for the conversion of alternative fuels into

usable energy. Report on the history of human harvests of renewable energy options.

30. Determine the level of pollution generated and the impact of environmental degradation for the renewable resources including burning firewood, burning wastes, and burning bio fuel (specifically methane).
31. Compare and contrast the benefits and drawbacks of nuclear power, wind power, and alternative bio fuels. Determine the availability, access, and public acceptance of nuclear power, wind power, and alternative bio fuels. Determine the maximum sustainable yield of renewable energy and describe the limitations of fuel production.
32. Explain what radiation is and the sources of both natural and anthropogenic sources.
33. Compare and contrast the benefits and drawbacks of nuclear power, wind power, and alternative bio fuels. Determine the availability, access, and public acceptance of nuclear power, wind power, and alternative bio fuels. Determine the maximum sustainable yield of renewable energy and describe the limitations of fuel production.
34. Explain what radiation is and the sources of both natural and anthropogenic sources.
35. What is the importance of the consistent development of new fuels for the future and what is the relationship of technology and environmental science?
36. Summarize the effects of wastes from bio fuels, ethanol, and biodiesel in compared to hydrogen fuel cells, and new hybrid technology.
37. Explain the development and collection process of solar productive electricity.
38. Summarize the level of pollution generated and the technique for energy collection. What is the relationship of the techniques for the collection of solar energy and the efficiency of the conversion for energy for electricity and power
39. Describe the geographical distribution of energy produced for solar energy. Predict the ecological impacts of the collection of solar energy.
40. Describe how energy use and energy resources have varied over time, both in the united states and worldwide
41. Compare the energy efficiencies of the extraction and conversion of different fuels
42. Explain the various means of generating electricity
43. Discuss the uses and consequences of using coal, oil, natural gas, ands nuclear fuels
44. Describe projections of future supplies of our conventional energy resources.
45. Define renewable energy resources
46. Describe strategies to conserve energy and increase energy efficiency
47. Compare and contrast the various forms of biomass energy
48. Explain the advantages and disadvantages of hydroelectricity, solar energy, geothermal energy, wind energy, and hydrogen as energy resources
49. Describe the environmental and economic options we must assess in planning our energy future.

Suggested Activities & Best Practices

Plan-

- Chapter Lesson Plans - Chapter 12 and 13
- Chapter Presentation - Chapter 12 and 13
- Bell Ringer - Fish Farms of the Furture (Chapter 12) and Coal Sludge Dam Breaks (Chapter 13)

Central Case Studies

- 3D GeoTour - Genetically Modified Crops (Chapter 12) and Coltan Mining in the Congo and Australia (Chapter 13)
- Extension of Reading - Tainted Corn Containinating Iawa Farms (Chapter 12) and What is Coltan (Chapter 13)
- Local Case Study - Sustainable Agriculture (Chapter 12) and Abandoned Mines (Chapter 13)

Labs and Activities

- Modeling Activity - Combating Erosion (Chapter 12) and Mineral Identification (chapter 13)
- Scientific Method Laboratory - Testing Soil Properties (Chapter 12) and Mineral Identifcation (Chapter 13)
- Local Case Study - Local Planting Conditions (Chapter 12) and Outdoor Lab and Local Geology (Chapter 13)
- 21 st Centruy Skills Online - Is it safe to salt mine?

Activities

- Guided Reading - Worms at Work
- Graphing Activity - Animal Food Production Efficiency and Food Policy (Chapter 12)
- Mapping - Origins of Agriculture (Chapter 12)
- Writing Activity - Dark Earth in the Amazon (Chapter 12)

Assessment

- Self Assessment
- Tests A and B
- Quizzes and Practice

Assessment Evidence - Checking for Understanding (CFU)

Chapter Quizzes and Tests (Summative)

Socratic Questioning (Formative)

Lab Journal (Alternative)

Common Department Benchmark (Benchmark)

Oncourse Assessment Tools (Formative)

Do Now and Exit Tickets (Formative)

- Admit Tickets
- Anticipation Guide
- Common Benchmarks
- Compare & Contrast
- Create a Multimedia Poster
- DBQ's
- Define
- Describe
- Evaluate
- Evaluation rubrics

- Exit Tickets
- Explaining
- Fist- to-Five or Thumb-Ometer
- Illustration
- Journals
- KWL Chart
- Learning Center Activities
- Multimedia Reports
- Newspaper Headline
- Outline
- Question Stems
- Quickwrite
- Quizzes
- Red Light, Green Light
- Self- assessments
- Socratic Seminar
- Study Guide
- Surveys
- Teacher Observation Checklist
- Think, Pair, Share
- Think, Write, Pair, Share
- Top 10 List
- Unit review/Test prep
- Unit tests
- Web-Based Assessments
- Written Reports

Primary Resources & Materials

Environmental Science: Your World your turn - Jay Withgott

Ancillary Resources

Teacher and Publisher supplied power points, notes, guides, labs, and worksheets

Resource manuals

Internet Resources

Computer Activities

Technology Infusion

Gizmos

Near POD

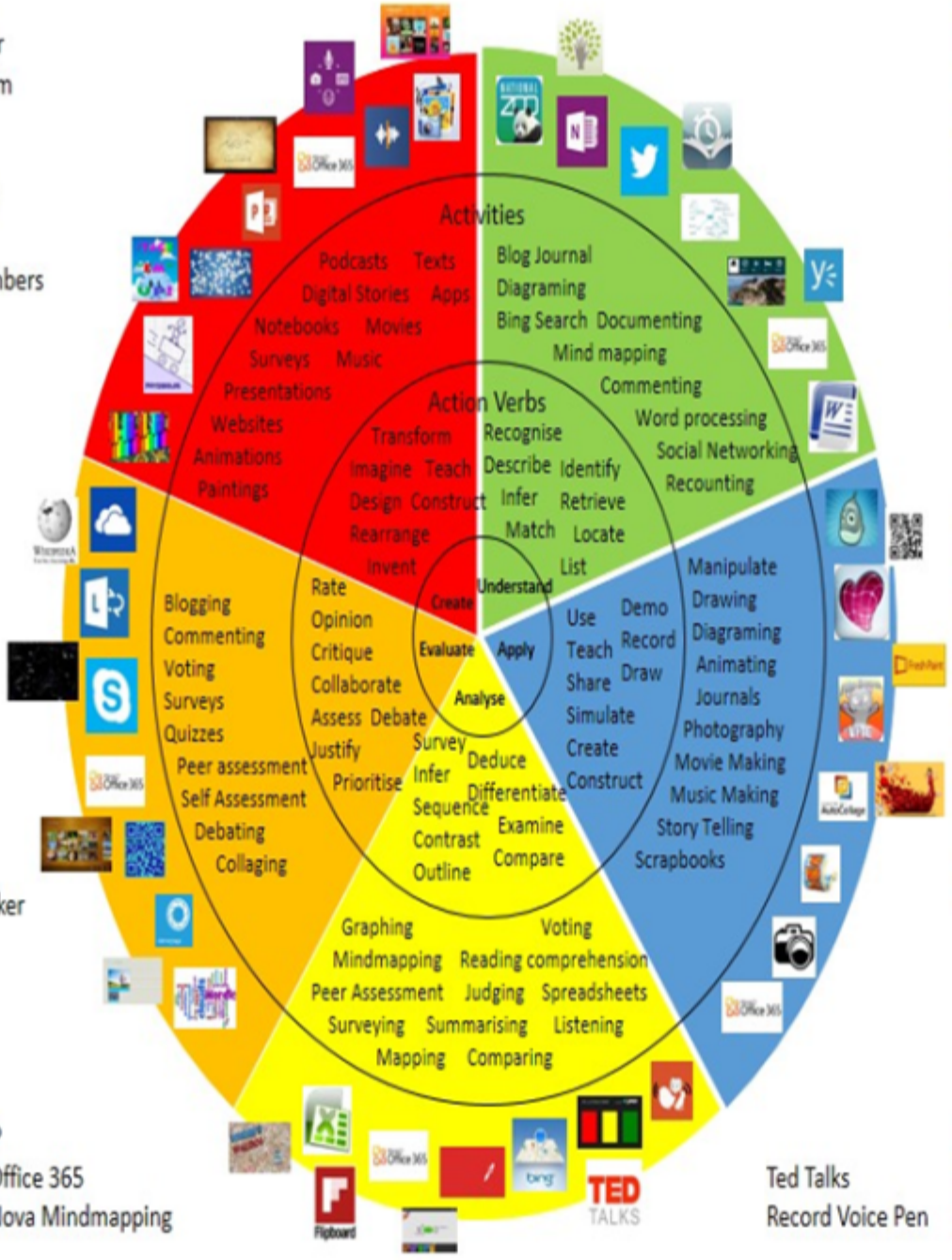
Google Classroom

JamBoards

Win 8.1 Apps/Tools Pedagogy Wheel

Podcasts
Photostory 3
Kid Story Builder
Music Maker Jam
Paint A Story
Office 365
MS PowerPoint
Stack 'Em Up
NqSquared Numbers
Physamajig
Xylophone 8

Wikipedia
Skydrive
Lync
SkyMap
Skype
Office 365
Puzzle Touch
Easy QR
Memorylage
Life Moments
Word Cloud Maker



Where's Waldo?
MS Excel
Flipboard
Office 365
Nova Mindmapping

Ted Talks
Record Voice Pen

Originally taken from http://www.coetail.com/vzimmer/files/2013/02/iPadagogy-Wheel.001.jpg
And adapted for Windows 8.1 devices by Charlotte Beckhurst @CharBeckhurst

Alignment to 21st Century Skills & Technology

- English Language Arts;
- Mathematics;
- Science and Scientific Inquiry (Next Generation);
- Social Studies, including American History, World History, Geography, Government and Civics, and Economics;
- World languages;
- Technology;
- Visual and Performing Arts.

CRP.K-12.CRP1.1	Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.
CRP.K-12.CRP2.1	Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.
CRP.K-12.CRP3.1	Career-ready individuals understand the relationship between personal health, workplace performance and personal well-being; they act on that understanding to regularly practice healthy diet, exercise and mental health activities. Career-ready individuals also take regular action to contribute to their personal financial well-being, understanding that personal financial security provides the peace of mind required to contribute more fully to their own career success.
CRP.K-12.CRP4.1	Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.
CAEP.9.2.12.C.1	Review career goals and determine steps necessary for attainment.
CAEP.9.2.12.C.2	Modify Personalized Student Learning Plans to support declared career goals.
CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.
CAEP.9.2.12.C.4	Analyze how economic conditions and societal changes influence employment trends and future education.
CAEP.9.2.12.C.5	Research career opportunities in the United States and abroad that require knowledge of

	world languages and diverse cultures.
CAEP.9.2.12.C.6	Investigate entrepreneurship opportunities as options for career planning and identify the knowledge, skills, abilities, and resources required for owning and managing a business.
CAEP.9.2.12.C.7	Examine the professional, legal, and ethical responsibilities for both employers and employees in the global workplace.
TECH.8.1.12.A.1	Create a personal digital portfolio which reflects personal and academic interests, achievements, and career aspirations by using a variety of digital tools and resources.
TECH.8.1.12.A.2	Produce and edit a multi-page digital document for a commercial or professional audience and present it to peers and/or professionals in that related area for review.
TECH.8.1.12.A.3	Collaborate in online courses, learning communities, social networks or virtual worlds to discuss a resolution to a problem or issue.
TECH.8.1.12.A.4	Construct a spreadsheet workbook with multiple worksheets, rename tabs to reflect the data on the worksheet, and use mathematical or logical functions, charts and data from all worksheets to convey the results.
TECH.8.1.12.A.5	Create a report from a relational database consisting of at least two tables and describe the process, and explain the report results.
TECH.8.1.12.A.CS2	Select and use applications effectively and productively.

21st Century Skills/Interdisciplinary Themes

- Communication and Collaboration
- Creativity and Innovation
- Critical thinking and Problem Solving
- ICT (Information, Communications and Technology) Literacy
- Information Literacy
- Life and Career Skills
- Media Literacy

21st Century Skills

- Civic Literacy
- Environmental Literacy
- Financial, Economic, Business and Entrepreneurial Literacy
- Global Awareness
- Health Literacy

Differentiation

Small Group Instruction

Study Guides

Project Based Learning

Differentiations:

- Small group instruction
- Small group assignments
- Extra time to complete assignments
- Pairing oral instruction with visuals
- Repeat directions
- Use manipulatives
- Center-based instruction
- Token economy
- Study guides
- Teacher reads assessments allowed
- Scheduled breaks
- Rephrase written directions
- Multisensory approaches
- Additional time
- Preview vocabulary
- Preview content & concepts
- Story guides
- Behavior management plan
- Highlight text
- Student(s) work with assigned partner
- Visual presentation
- Assistive technology
- Auditory presentations
- Large print edition
- Dictation to scribe
- Small group setting

Hi-Prep Differentiations:

- Alternative formative and summative assessments
- Choice boards
- Games and tournaments
- Group investigations
- Guided Reading

- Independent research and projects
- Interest groups
- Learning contracts
- Leveled rubrics
- Literature circles
- Multiple intelligence options
- Multiple texts
- Personal agendas
- Project-based learning
- Problem-based learning
- Stations/centers
- Think-Tac-Toes
- Tiered activities/assignments
- Tiered products
- Varying organizers for instructions

Lo-Prep Differentiations

- Choice of books or activities
- Cubing activities
- Exploration by interest
- Flexible grouping
- Goal setting with students
- Jigsaw
- Mini workshops to re-teach or extend skills
- Open-ended activities
- Think-Pair-Share
- Reading buddies
- Varied journal prompts
- Varied supplemental materials

Special Education Learning (IEP's & 504's)

Quiz and Test Study Guides

Graphic Organizers

Powerpoints posted on google classroom

- printed copy of board work/notes provided
- additional time for skill mastery
- assistive technology
- behavior management plan
- Center-Based Instruction
- check work frequently for understanding
- computer or electronic device utilizes
- extended time on tests/ quizzes
- have student repeat directions to check for understanding
- highlighted text visual presentation
- modified assignment format
- modified test content
- modified test format
- modified test length
- multiple test sessions
- multi-sensory presentation
- preferential seating
- preview of content, concepts, and vocabulary
- Provide modifications as dictated in the student's IEP/504 plan
- reduced/shortened reading assignments
- Reduced/shortened written assignments
- secure attention before giving instruction/directions
- shortened assignments
- student working with an assigned partner
- teacher initiated weekly assignment sheet
- Use open book, study guides, test prototypes

English Language Learning (ELL)

Peer to assist students

Allow tests and quizzes to be taken in ESL room with extra time

Students allowed to use electronic devices for translation

Word Lists provided

- teaching key aspects of a topic. Eliminate nonessential information
- using videos, illustrations, pictures, and drawings to explain or clarif
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning;
- allowing students to correct errors (looking for understanding)
- allowing the use of note cards or open-book during testing
- decreasing the amount of workpresented or required
- having peers take notes or providing a copy of the teacher's notes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using computer word processing spell check and grammar check features
- using true/false, matching, or fill in the blank tests in lieu of essay tests

At Risk

Provide modified test

Tutoring times offered

Allow students to correct test for partial credit

Extended time for assignments

- allowing students to correct errors (looking for understanding)
- teaching key aspects of a topic. Eliminate nonessential information
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning

- allowing students to select from given choices
- allowing the use of note cards or open-book during testing
- collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test.
- decreasing the amount of workpresented or required
- having peers take notes or providing a copy of the teacher's notes
- marking students' correct and acceptable work, not the mistakes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using authentic assessments with real-life problem-solving
- using true/false, matching, or fill in the blank tests in lieu of essay tests
- using videos, illustrations, pictures, and drawings to explain or clarify

Talented and Gifted Learning (T&G)

Provide enrichment articles and assignments

Allow students to complete independent study assignments

- Above grade level placement option for qualified students
- Advanced problem-solving
- Allow students to work at a faster pace
- Cluster grouping
- Complete activities aligned with above grade level text using Benchmark results
- Create a blog or social media page about their unit
- Create a plan to solve an issue presented in the class or in a text
- Debate issues with research to support arguments
- Flexible skill grouping within a class or across grade level for rigor
- Higher order, critical & creative thinking skills, and discovery
- Multi-disciplinary unit and/or project
- Teacher-selected instructional strategies that are focused to provide challenge, engagement, and growth opportunities
- Utilize exploratory connections to higher-grade concepts

- Utilize project-based learning for greater depth of knowledge