Board Approved
October 2014

Wilson Area School District
Planned Course Guide

Title of Planned Course: Earth and Space Science

Subject Area: Science

Grade Level: Seven

Course Description: This course is designed to serve as an introductory course for the students in the fields of Astronomy, Meteorology, Geology, Cartography, Science Process Skills, Chemistry, Physics, and Environmental Science. Students will be expected to focus on research and experimentation to gain a greater understanding of the world in which they live. Furthermore, they will be expected to read and analyze during the course, and synthesize the information in written form. Students will use these skills to question and actively engage with the material being presented. The topics in this course will range from studying the extremes of space to explaining the causes of natural phenomenon such as volcanic eruptions and earthquakes. By the conclusion of the course, students will be able to explain the forces of nature that both affect and reshape Earth.

Time/Credit for this Course: One Full School Year

Curriculum Writing Committee: Gail Gagner, Tad Fenton, Karl Hontz

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Wilson Area School District
Curriculum Map

*The cumulative list below contains the core topics that the students will be exposed to throughout the year. However, the following will be integrated throughout these topics: process skills, physics, and chemistry.

August: Process Skills

September: Process Skills

October: Process Skills and Astronomy

November: Astronomy

December: Meteorology

January: Meteorology

February: Geology

March: Geology

April: Cartography

May/June: Environmental Science

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Wilson Area School District
Planned Course Materials

Course Title: Earth and Space Science

Textbook:

Concepts and Challenges: Earth Science
Bernstein, Schachter, Winkler, Wolfe
2009
http://www.pearsonschool.com

Supplemental Resources:

Prentice Hall: Virtual Earth Science
CD-Rom and Lab Sheets
http://www.pearsonschool.com

Concepts and Challenges: Earth Science
Pearson – Online – Student Version
2009
http://www.conceptsandchallenges.com

Teacher Resources:

Discovery Education
United Streaming
http://www.discoveryeducation.com

Buckle Down Grade 8
Buckle Down Publishing
2007
http://www.buckledown.com

Concepts and Challenges: Earth Science
Pearson – Online – Teacher Version
2009
http://www.conceptsandchallenges.com

Learning and Assessing: Science Process Skills – fifth edition
Rezba, Sprague, McDonnough, and Matkins
Kendall/Hunt Publishing Company
2007

Concepts and Challenges: Earth Science
Lab Manual
Pearson
2009
http://www.conceptsandchallenges.com

Weather Bug
www.weatherbugachieve.com

NASA Earth Science for Educators
http://science.nasa.gov/educators/

Earth Science Resources ck-12
http://www.ck12.org/earth-science/

United States Environmental Protection Agency
http://www.epa.gov/

Teaching Earth Science Activities
http://geology.com/teacher/

Class Zone – Exploring Earth
http://www.classzone.com/books/earth_science/terc/navigation/home.cfm

Earth Science Week
http://www.earthsciweek.org/forteachers/

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Curriculum Scope and Sequence

Unit: Process Skills

Time Frame: 6 weeks

State Standards and Related Anchors: S8.A.1.1, 3.2.7.A, 3.2.7.B, S8.A.1.1.1, S8.A.1.1.2, S8.A.1.1.3, S8.A.1.1.4, S8.A.1.3, 3.1.7.E, 4.7.7.C, 4.8.7.C, S8.A.1.3.1, S8.A.1.3.2, S8.A.1.3.3, S8.A.1.3.4, S8.A.2.1, 3.2.7.B, 3.1.7.C, 3.1.7.D, S8.A.2.1.1, S8.A.2.1.2, S8.A.2.1.3, S8.A.2.1.4, S8.A.2.1.5, S8.A.2.1.6, S8.A.2.2 , 3.3.7.A, 3.7.7.B, 3.1.7.D, S8.A.2.2.1, S8.A.2.2.2, S8.A.2.2.3, S8A.3.1, 3.1.7.A, 3.4.7.B, 4.3.7.C, 4.2.7.D, 4.6.7.A, S8.A.3.2, 3.1.7.B, 3.2.7.B, 4.1.7.B, S8.A.3.3, 3.1.7.C, 3.2.7.B, S8.A.3.3.1, S8.A.3.3.2, S8.C.1.1, 3.4.7.A, S8.C.1.1.1, S8.C.1.1.2, S8.C1.1.3, 3.2.7.A1, 3.2.7.A2, 3.2.7.A3, 3.2.7.A4, 3.2.7.B4, 3.3.7.B2, 3.4.7.A1, 3.4.7.A2, 3.4.7.A3, 3.4.7.B, 3.4.7.C, 3.4.7.D, CC.3.5, CC.3.6

Essential Content/Objectives: At the end of the unit, students will be able to:

- Demonstrate the fundamental concepts of the scientific method
  - Identify the steps of the scientific method.
  - Demonstrate understanding of the scientific method through various labs.
- Use data as evidence to support observations, explanations, and create inferences.
  - Analyze data through lab experiments.
- Demonstrate knowledge of scientific processes, procedures, and measurement tools by conducting scientific investigations.
  - Identify and demonstrate knowledge of measurement tools to acquire lab data.
  - Identify independent, dependent, and controlling variables in labs and scenarios.
  - Create their own lab write-ups from lab notes and data collected during experimentation.
  - Create graphs and data tables to visually represent collected lab data through experimentation.
- Use models to solve problems
  - Analyze models to solve scientific problems.
  - Design models based upon experiments.
  - Explain the use of models in either an experiment or a real-life problem.
  - Use models to explain a cause and effect relationship.
  - Correctly use models as a visual aid to explain a problem or solution to a problem.
- Identify patterns in science
  - Identify patterns through experimentation and chart the patterns through the use of graphs, tables, charts, or models.
  - Identify human and natural patterns.
- Identify and explain both physical and chemical properties
  - Correctly use the periodic table and identify elements.
  - Differentiate between compounds, molecules, elements, mixtures, and solutions.
  - Explain both physical and chemical changes.

Core Activities: Students will complete/participate in the following:

- Discuss correct procedures to complete a lab write-up
- Demonstrate/model the correct techniques of a lab write-up
- Discuss how to correctly write a hypothesis, procedure, and conclusion
- Labs: Measurement labs; creating data tables and graphs; classification labs; practice metric conversions
- Group Work: practice metric conversions; practice using lab equipment correctly
- Independent Work: students create their own lab write-up; packets on: variables, inferring, observations, predictions, classification, controls, etc.

Extension:

- Complete virtual labs
- Online concepts and challenges provided through Pearson online.

Remediation:

- Work in small groups
- Teacher directed small groups that would include differentiated instruction
- Provided with model labs with a differentiated rubric.

Instructional Methods

- Direct Instruction
- Note-taking strategies
- Small groups
- Labs
- Jigsaw
- Modeling
- Writing
- Independent practice
- Online extension
- Visual aids (Discovery Education and MIMIO)
- Cooperative group work during experimentation

Materials and Resources:

- *Concepts and Challenges: Earth Science Text*
- *Concepts and Challenges: Earth Science Lab Manual*
- *Learning and Assessing: Science Process Skills – 5th Edition*
- Teacher-made labs
- MIMIO lesson
- Discovery Education
- Virtual Earth Science – CD-Rom

Assessments:

- **Diagnostic:** large group discussion, observation and review of student work
- **Formative:** bloom's taxonomy – high and lower level questions, bell-ringers, topic quizzes, student pair share
- **Summative:** Process Skills Unit Test, Final Lab write-up, and quizzes

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Curriculum Scope and Sequence

Unit: Astronomy

Time Frame: 7 Weeks

State Standards, Related Anchors and Eligible Content: S8.C.3.1, 3.4.7.C, 3.6.7.C, S8.D.3.1, 3.4.7.D, 3.3.7.B1, 3.3.7.B2, S8.A.1.2.1, S8.A.1.2.3, S8.A.2.2.3, S8.A.3.2.1, S8.A.3.2.2, S8.A.3.2.3, S8.C.3.1.1, S8.C.3.1.2, S8.C.3.1.3, S8.D.3.1.1, S8.D.3.1.3, S8.D.3.1.2, S8.A.3.3, S8.A.3.3.2, S8.A.1.2.3, CC.3.5, CC.3.6, S8.A.2.1, S8.A.2.2, 3.2.7.B1, 3.2.7.B2, 3.2.7.B3, 3.2.7.B6, 3.3.7.B1, 3.3.7.B2, 3.4.7.A1, 3.4.7.B4, 3.4.7.C3, 3.4.7.D1, CC.3.5, CC.3.6

Essential Content/Objectives: At the end of the unit, students will be able to:

- Describe the physics of space, which includes an in depth analysis of Newton's laws and gravity
    - Identify Newton's Three Laws of Motion
    - Describe the differences between kinetic and potential energy
    - Apply the information gained from notes, labs, and articles to space flight. Thus, students will be able to describe through presentation, diagram, or writing how NASA and other space programs have addressed the physics of space.
    - Distinguish between conduction, convection, and radiation
    - Explain how energy is transferred through space
- Explain the movement of Earth and other celestial bodies in the solar system
    - Differentiate between rotation and revolution through modeling
    - Diagram the movement of Earth in relation to the moon
    - Identify and explain the causes of solar and lunar eclipses
    - Identify the differences between the inner and outer planets through replicated reports, power-points, and movie-maker projects
    - Explain the difference between asteroids, comets, meteors, and other celestial bodies through in-class discussions, open-ended responses, diagrams, and projects
    - Identify instruments used in observing and investigating space
- Explain the role of gravity within the solar system
    - Explain the concept of gravity through in-class discussion, group activities, and written-response
    - Demonstrate the effects of gravity

Core Activities: Students will complete/participate in the following:

- Complete in class activities that require them to differentiate between forces acting upon an object (ex: friction, gravity, and balanced versus unbalanced forces)
- Apply the information gained from notes, labs, and articles to space flight
- Describe through presentation, diagram, or writing how NASA and other space programs have addressed the physics of space
- Research the history of space exploration and the technology it created
- Lab: Newton's Three Laws
- Investigation of NASA program and space travel

Extension:

- Vodcasts or Podcasts
- *Concepts and Challenges* online
- Virtual lab
- Independent research

Remediation:

- Hands-on activities
- Differentiated labs/projects
- Student tutoring and small group work
- Teacher-web

Instructional Methods:

- In-class discussions
- Open-ended responses
- Diagrams
- Projects
- replicated reports, power-points, movie-maker projects
- Note-taking strategies using articles, websites, MIMIO's, and power-points
- Group work: Labs, Jigsaws, Group discussion, Learning centers
- Worksheets
- Graphic organizers
- Guided notes
- Independent work:
    - Student presentations (Power-Point, Windows Movie-Maker, Newscasts, MIMIO's, etc.)
    - Student research, written reports, parodies, poems, etc.
- Article comparison
- Web-quests
- Virtual labs and supplemental videos

Materials and Resources:

- *Concepts and Challenges: Earth Science Text*
- *Concepts and Challenges: Earth Science Lab Manual*
- *Learning and Assessing: Science Process Skills – 5th Edition*
- Teacher-made labs
- MIMIO lesson
- Discovery Education
- Virtual Earth Science – CD-Rom
- YouTube and internet based educational resources.

Assessment:

- **Diagnostic:** Group discussion, pre-test, open-ended response
- **Formative:** higher and lower level questions, open ended response questions, peer review, daily bell-ringers, classroom worksheets, and class discussions
- **Summative:** Presentations using various media, quizzes, a unit test, and lab reports

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Curriculum Scope and Sequence

Unit: Meteorology

Time Frame: 8 weeks

State Standards and Related Anchors: S8.A.2.2, 3.3.7.A, 3.7.7.B, 3.1.7.D, S8.A.2.2.1, S8.A.2.2.2, S8.A.2.2.3, S8.A.3.2.2, S8.D.1.3, 3.5.7.D, 4.3.7.B, 4.1.7.A, S8.D.1.3.1, S8.D.2.1, 3.5.7.C, S8.D.2.1.1, S8.D.2.1.2, S8.D.2.1.3, S8.C.2.1, 3.4.7.B, 4.2.7.B, S8.C.2.1.2, CC3.5, CC3.6, 3.2.7.B2, 3.2.7.B3, 3.2.7.B6, 3.3.7.A5

Essential Content/Objectives: At the end of the unit, students will be able to:

- Identify weather instruments and the appropriate measurements related to these instruments
    - Identify a thermometer, aneroid barometer, mercury barometer, anemometer, psychrometer, and a wind vane
    - Determine relative humidity using charts and weatherbug simulation activities
- Describe the water cycle and its related physical processes (evaporation, condensation, precipitation, transpiration, runoff, infiltration, energy outputs, and phase changes)
    - Identify the physical processes of the water cycle by labeling a diagram and completing a chart
- Explain the impact of water systems on the local weather or the climate of a region
    - Identify and label air masses and fronts on weather maps
- Identify how global wind patterns influence regional weather and climate
    - Identify trade winds, doldrums, prevailing westerlies, polar easterlies, and horse latitudes given a world map
    - Identify the weather created by global wind patterns through a matching activity
- Identify cloud types, wind directions, and barometric pressure changes
    - Identify cloud types and the weather associated with these clouds through pictures and weatherbug interactive activities
    - Identify sea and land breezes through diagrams and pictures
    - Compare and contrast specific and relative humidity using a Venn diagram
- Explain how energy is transferred from one place to another through convection, conduction, and radiation
    - Identify convection, conduction, and radiation by using example pictures
    - Explain the transfer of energy in convection, conduction, and radiation in a given scenario

Core Activities: Students will complete/participate in the following:

- Identify cloud types and the weather associated with these clouds through pictures and weatherbug interactive activities
- Labs: percent of oxygen in the atmosphere - create and label a chart of the Earth's atmosphere
- Group Work: analyzing and creating models, charts, and graphs; weatherbugachieve.com

- Independent Work:
    - Analyze information from meteorological instruments to predict weather patterns
    - describe weather and climate patterns on global levels
    - Analyze and explain weather forecasts
    - Interpret weather data and symbol, create weather maps
    - Differentiate cloud types and formation
    - Describe layers of earth's atmosphere
    - Identify different air masses and wind patterns
    - Diagram water cycle
    - Describe radiation, conduction and convection, evaporation and condensation
    - Explain energy transfer

Extension:

- Vodcasts or podcasts
- Concepts and challenges online virtual labs
- Creating weather maps
- Weather disasters and phenomenon investigations

Remediation:

- Hands-on activities
- Differentiated labs/projects
- Tutoring and small group work
- Teacher-web
- Poster projects

Instructional Methods:

- Direct Instruction
- Jigsaw
- Graphic organizers/ note-taking strategies
- MIMIO presentations
- Discovery Education
- Virtual labs through weatherbug
- Hands-on labs
- Student presentations
- journal articles
- webquests
- research

Materials and Resources:

- *Concepts and Challenges: Earth Science Text/Lab Manual*
- *Learning and Assessing: Science Process Skills – 5th Edition*
- Teacher-made labs
- MIMIO lesson
- Discovery Education
- Virtual Earth Science – CD-Rom
- Weather Station – Weather Bug

Assessment:

- **Diagnostic:** Group discussion and pre-test
- **Formative:** higher and lower level questions, open ended response questions, peer review, daily bell-ringers, classroom worksheets, and class discussions
- **Summative:** Presentations using various media, quizzes, a unit test, and lab reports

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Curriculum Scope and Sequence

Unit: Geology

Time Frame: 7 weeks

State Standards, Related Anchors, and Eligible Content: S8.D.1.1, 3.5.7.A, 4.4.7.B, CC.3.5, CC.3.6, S8.A.3.2.1, S8.D.1.1.1, S8.D.1.1.2, S8.D.1.1.3, S8.D.1.1.4, S8.A.3.2, S8.A.3.2.1, S8.A.3.2.2, S8.A.3.2.3, S8.A.3.3, S8.A.3.3.2, S8.C.1.1.2, S8.A.2.1, S8.A.2.2, 3.3.7.A1, 3.3.7.A2, 3.3.7.A3, 3.3.7.A6, 3.4.7.E6

Essential Content/Objectives/Activities:

- Describe the elements of the rock cycle
    - Diagram, explain, or model the rock cycle
    - Identify the movement of rocks through the rock cycle
    - Identify the effects the rock cycle has on both Earth and various
- Identify and describe the natural processes that shape Earth's surface
    - Explain the formation of volcanoes, earthquakes, mountains, and tsunamis
    - Identify the effects of weathering, sedimentation, erosion, deposition
- Identify and describe the origins of the current theory of plate tectonics
    - Explain Alfred Wegener's theory of Continental Drift based upon his evidence (fossil record, ancient climates, continental arrangement)
    - Address the importance of the discovery of mid-ocean ridges, oceanic trenches, and magnetic stripping in the development of plate tectonics
    - Identify how plate tectonics continues to shape the surface of earth by relating the theory to natural disasters
    - Explain how the theory of plate tectonics created the coal mining region of Pennsylvania
- Identify various soil types along with the formation of various stones
    - Address various soil types
    - Identify the minerals and processes needed that form various rocks
    - Calculate the density of specific minerals through mathematical calculations along with identifying a variety of minerals, which will include using Moh's hardness scale

Core Activities: Students will complete/participate in the following:

- Rock identification
- Building of models
- Construction of diagrams
- Demonstrate a rock moving through the rock cycle, which would highlight the movement from sedimentary to metamorphic and from metamorphic to igneous rock
- Guided practice worksheets
- Timeline activities
- Student presentations
- Article comparison
- Web-quests
- Virtual labs and supplemental videos

- Diagrams of Earth
- Density Labs
- Creating visual aids and models of tectonic plates
- Identification labs: rocks and minerals
- Rock Cycle Lab (Crayon lab)
- Soil Labs

Extension:

- Supplemental reading
- Concepts and Challenges online
- Virtual labs
- Working with lab models
- Student designed labs
- Creating models and diagrams
- Creating a documentary focusing on local geology, field trip to the coal mining region of Pennsylvania

Remediation:

- Hands-on activities
- Differentiated labs/projects
- Student tutoring and small group work
- Leveled reading

Instructional Methods:

- In-class discussions
- Diagrams
- Note-taking strategies using articles
- Websites/MIMIO's/power-points
- Group work: labs, jigsaws, group discussion, projects, and learning centers
- Worksheets: graphic organizers, guided notes, and guided discussions
- Independent work:
    - Student presentations (Power-Point, Windows Movie-Maker, Newscasts, MIMIO's, etc.)
    - Student research, written reports, narrative writing, parodies, poems, etc.

Materials and Resources:

- *Concepts and Challenges: Earth Science Text*
- *Concepts and Challenges: Earth Science Lab Manual*
- *Learning and Assessing: Science Process Skills – 5th Edition*
- Teacher-made labs
- MIMIO lesson
- Discovery Education
- Virtual Earth Science – CD-Rom
- YouTube and internet based educational resources

Assessment:

- **Diagnostic:** Group discussion, pre-test, and open-ended response questions
- **Formative:** higher and lower level questions, open ended response questions, peer review, daily bell-ringers, classroom worksheets, lab activities, class discussions, student led instruction, student created activities
- **Summative:** Presentations using various media, quizzes, a unit test, student created projects and lab reports

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Curriculum Scope and Sequence

Unit: Cartography

Time Frame: 4 weeks

State Standards, Related Anchors and Common Core: S8.A.1.1, 3.2.7.A, 3.2.7.B, S8.A.1.1.4, S8.D.1.3, 3.5.7.D, 4.3.7.B, 4.1.7.A, 4.1.7.B, 4.1.7.C, S8.D.1.3.2, S8.D.1.3.3, S8.D.1.3, CC 3.5, CC3.6, 3.3.7.A4, 3.3.7.A6

Essential Content/Objectives: At the end of the unit, students will be able to:

- Read, analyze, and create topographic and profile maps
    - Decipher symbols, legends, scales, and contour intervals by viewing MIMIO demonstrations and using topographic maps of various areas
    - Determine latitude and longitude using various world maps
    - Create topographic map using the rules of cartography
    - Create a profile map using landforms of the ocean floor
- Compare and contrast characteristics of freshwater and saltwater systems on the basis of their physical characteristics
    - Analyze charts and graphs to compare and contrast freshwater and saltwater systems
    - Determine the density of freshwater and saltwater systems using lab equipment
- Distinguish among different water systems and describe their relationships to each other as well as to landforms
    - Create diagrams of how groundwater collects in soil and reaches Earth's surface
    - Describe how lakes and ponds form and how they change through modeling
    - Analyze why ocean temperatures and salinity in the oceans vary by using data charts and graphs
- Identify the physical characteristics of a stream
    - Describe the three stages in the life cycles of a river or stream through modeling

Core Activities: Students will complete/participate in the following:

- View MIMIO demonstrations and using topographic maps of various areas
- Worksheets: graphic organizers, models, charts and graphs
- Labs: Conducting contour line lab, Profile Mapping Lab
- Group Work: Comparing maps; deciphering symbols, legends, scales, etc.
- Independent Work: analyzing graphs and charts, creating their own map based on the rules of cartography, writing activity associated with the creation of the map

Extension:

- Journal writing
- Creating own society for the map

Remediation:

- Small group instruction
- Tutoring
- Differentiated rubrics

Instructional Methods:

- In-class discussions
- Diagrams
- Note-taking strategies using articles
- Websites/MIMIO's/power-points
- Group work: labs, jigsaws, group discussion, projects, and learning centers
- Worksheets: graphic organizers, guided notes, and guided discussions

Materials and Resources:

- *Concepts and Challenges: Earth Science Text*
- *Concepts and Challenges: Earth Science Lab Manual*
- *Learning and Assessing: Science Process Skills – 5th Edition*
- Teacher-made labs
- MIMIO lesson
- Discovery Education
- Virtual Earth Science – CD-Rom
- Internet
- Geological Maps – models
- Google-Earth

Assessment:

- **Diagnostic:** Group discussion and map practice activities
- **Formative:** higher and lower level questions, peer review, daily bell-ringers, classroom worksheets, and practice maps – packets
- **Summative:** completed map – student design, quizzes, a unit test

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Curriculum Scope and Sequence

Unit: Environmental Science

Time Frame: 4 weeks

State Standards, Related Anchors, and Eligible Content: S8.A.3.2.1, S8.A.3.2.2, S8.A.3.2.3, S8.C.2.2, 3.4.7.B, 4.2.7.B, S8.C.2.2.1, S8.C.2.2.2, S8.C.2.2.3, 3.5.7.B, 3.6.7.A, 4.2.7.C, S8.D.1.2, 3.5.7.B, 3.6.7.A, 4.2.7.C, S8.D.1.2.2, S8.A.3.3, S8.A.3.3.1, S8.A.3.3.2, S8.A.1.2.1, S8.A.1.2.3, S8.A.2.1, S8.A.2.2, 3.4.7.A1, 3.4.7.A3, 3.4.7.B1, 3.4.7.B2, 3.4.7.B3, 3.4.7.E6, CC.3.5, CC.3.6

Essential Content/Objectives: At the end of the unit, students will be able to:

- Describe how the sun is the major source of energy for Earth
  - Diagram or explain the effects the sun has on Earth
  - Explain how the Sun's energy can be harnessed
- Compare and contrast nonrenewable and renewable energy sources
  - Investigate the uses of renewable and nonrenewable energy sources
  - Describe the waste produced by both nonrenewable and renewable energy sources
- Identify and describe the potential impact of humans on the environment
  - Research and report on human dependency upon natural resources
  - Discuss and predict the potential affects that humans will have on Earth's natural resources
  - Investigate and be able to describe impact humans have had on the environment over the course of history

Core Activities: Students will complete/participate in the following:

- Investigate the uses of renewable and nonrenewable energy sources through research, articles, web-quests, notes, group activities, etc.
- Describe impact humans have had on the environment over the course of history through class discussion, research, journal articles, etc
- Investigation of current energy sources
- Timeline of energy source development
- Hypothesize new energy solutions and future technological developments
- Debate the impact of humans on the environment
- Describe sources of air and water pollution
- Investigation of conservation policies through Pennsylvania Game Commission and State Park Service

Extension:

- present topics for debate
- Design an energy efficient home
- Identify ways of saving energy
- Present a speech or video highlighting environmental concerns
- Investigate disaster resulting from energy sources

Remediation:

- Tutoring
- student pair-share
- Differentiated projects through a variety of media
- Supplemental videos and websites
- Student presented lessons

Instructional Methods:

- Note-taking strategies using articles, websites, MIMIO's, and power-points
- Group work: labs, jigsaws, group discussion, projects, and learning centers
- Worksheets: graphic organizers, guided notes, and guided discussions
- Independent work:
    - Student presentations (Power-Point, Windows Movie-Maker, Newscasts, MIMIO's, etc.)
    - Student research, written reports, newspapers, letters, parodies, poems, etc.
- Article comparison
- Web-quests
- Virtual labs and supplemental videos

Materials and Resources:

- *Concepts and Challenges: Earth Science Text*
- *Concepts and Challenges: Earth Science Lab Manual*
- *Learning and Assessing: Science Process Skills – 5th Edition*
- Teacher-made labs
- MIMIO lesson
- Discovery Education
- Virtual Earth Science – CD-Rom
- Internet based educational resources
- YouTube
- Newspapers, Magazines, Government websites.

Assessment:

- **Diagnostic:** Group discussion, open-ended response, pre-test
- **Formative:** higher and lower level questions, open ended response questions, peer review, daily bell-ringers, classroom worksheets, and class discussions/debates
- **Summative:** Presentations using various media, quizzes, a unit test