Grade 6 Science

Unit Title	**6.1 Minerals and Rocks**
Time frame	6.5 Weeks
21st Century Themes	Critical Thinking and Problem Solving Communication and Collaboration ICT (Information, Communications and Technology) Literacy Flexibility and Adaptability Initiative and Self-Direction Productivity and Accountability
Interdisciplinary focus and technology integration	Technology: Internet Art: Rock Cycle Illustration Language Arts- Reading Comprehension

Essential Questions

- What are minerals and how are they formed and used?
- What are the three main types of rocks and how are they formed and used?

Big Ideas

- Different rocks and minerals are found on Earth.

Learning Targets-students will be able to:

- Identify minerals and their properties.
- Explain how minerals form and are used.
- Identify how ores are processed to obtain metals.
- Use characteristics to identify the three main groups of rocks.
- Identify how the three main groups of rocks are formed and used.
- Label the rock cycle diagram.
- Describe how coral reefs are formed and how they provide evidence about Earth's history.

Assessment

- Formal and Informal Teacher Observations
- Tests / Quizzes
- Student Projects
- Diagrams and Models

- Experiment and Investigation

Differentiation

- Hands-On Activities
- Diagnostic Assessment (based on content /skill pre-tests)
- Kinesthetic Activities
- Re-teach and Enrichment Activities
- Cooperative Learning (Flexible Grouping)
- Peer Tutoring
- Tiered Activities and Assessments

Content Standards

5.4 Earth Systems Science

5.4.B

5.4.C

Approaches to Learning

Observation Skills- observing and communicating data in a lab report

Analyzing Skills – recognizing relationships

Evaluation Skills- developing criteria for judging their own work

Scientific Inquiry Skills – formulate questions, hypothesize and conduct experiments

Inquiry Skills – formulate questions, hypothesize and conduct experiments

Learning Experiences	Teaching Strategies
• Assessments • Chapter Outline/Notes • Notebook Tests • Presentations • Create crystals and compare • Examine and compare mineral and rock samples • Observe, sketch and identify rocks • Test how rocks react to acids • Predict the effects of pressure on rocks.	• Direct Instruction • Differentiated Instruction • Interdisciplinary Activities • Cooperative Learning Activities • Reinforcement and Remediation

Resources

- Internet
- Text: Prentice Hall Science Explorer- Earth Science Grade 6
- Trade Books
- Equipment

- Videos
- Mineral and Rock Samples

Grade 6 Science

Unit Title	**6.2 Earth's Waters**
Time frame	6.5 weeks
21st Century Themes	Critical Thinking and Problem Solving Communication and Collaboration ICT (Information, Communications and Technology) Literacy Flexibility and Adaptability Initiative and Self-Direction Productivity and Accountability
Interdisciplinary focus and technology integration	Technology: Internet Art: Illustrate the water cycle Language Arts- Reading Comprehension

Essential Questions	**Big Ideas**
•Where is freshwater found and how is it used, conserved and polluted? •What are the causes of wave's currents and tides? •How do scientists divide the ocean and ocean floor into zones?	•The Earth has fresh and salt water.

Learning Targets-students will be able to;

- .Describe the water cycle
- Identify where fresh water and salt water found on Earth
- Identify characteristics of river systems, ponds, and lakes
- Name the three types of wetlands and describe their important
- Describe how water moves through underground layers of soil and rock
- Compare and contrast how people use, conserve, and obtain fresh water from aquifers
- Classify sources of water pollution
- Identify the factors affect drinking water quality and why is it often treated before people drink it
- Understand how waves form, change, and affect shorelines
- What causes tides and affect their height
- Identify tides as a source of energy
- Describe how conditions in the ocean change with depth
- List the causes and effect of surface and deep currents

- Define upwelling and describe how it affect the distribution of nutrients in the oceans
- Name the main section and zones of the ocean
- Understand the classification of marine organisms and what conditions must they tolerate in the zones of the oceans
- Identify the living and nonliving oceans resources and what are the sources of ocean pollution

Assessment

- Formal and Informal Teacher Observations
- Tests / Quizzes
- Student Projects
- Diagrams and Models
- Experiment and Investigation

Differentiation

- Hands-On Activities
- Diagnostic Assessment (based on content /skill pre-tests)
- Kinesthetic Activities
- Re-teach and Enrichment Activities
- Cooperative Learning (Flexible Grouping)
- Peer Tutoring
- Tiered Activities and Assessments

Content Standards

5.4 Earth Systems Science

B, C

Approaches to Learning

Observation Skills- observing and communicating data in a lab report

Analyzing Skills – recognizing relationships

Evaluation Skills- developing criteria for judging their own work

Scientific Inquiry Skills – formulate questions, hypothesize and conduct experiments

Inquiry Skills – formulate questions, hypothesize and conduct experiments

Learning Experiences and Suggested Activities	Teaching Strategies
• Assessments • Chapter Outline/Notes • Notebook Tests	• Direct Instruction • Differentiated Instruction • Interdisciplinary Activities

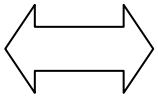
• Presentations • Observe and describe a sample of pond water • Layer pebbles and sand in a jar, pour in water and observe its path • Make a model of an artesian well • Test to see how water moves through different materials • Make a hygrometer • Make a model of an oil spill and investigate how best to clean it up	• Cooperative Learning Activities • Reinforcement and Remediation

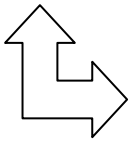
Resources

- Internet Diagram/ models
- Text: Prentice Hall Science Explorer- Earth Science Grade 6
- Tradebooks
- Equipment : Videos

Grade 6 Science

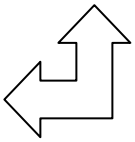
Unit Title	**6.3 Geologic Changes Through Time**
Time frame	6.5 weeks
21st Century Themes	Critical Thinking and Problem Solving Communication and Collaboration ICT (Information, Communications and Technology) Literacy Flexibility and Adaptability Initiative and Self-Direction Productivity and Accountability
Interdisciplinary focus and technology integration	Technology: Internet Art: Create a fossil Language Arts- Reading Comprehension

Essential Questions		**Big Ideas**
•What have geologists learned from the study of Earth's past?		•There are many things to be learned from the Earth's past



Learning Targets-students will be able to;

- Identify fossils, how they are formed and what they tell about organisms and environments of the past.
- Identify how the law of superposition helps determine age of rocks.
- Identify how index fossils are useful to geologists.
- Identify what is radioactive decay and what can be learned from radioactive dating.
- Identify what are the units of the geologic time scale and how does it show Earth's history.
- Identify when Earth was formed.
- How did Earth's physical features develop during Precambrian time and what were the early organisms like.
- What were the major events in the Palaeozoic, Mesozoic and Cainozoic Eras



Assessment

- Formal and Informal Teacher Observations
- Tests / Quizzes

- Student Projects
- Diagrams and Models
- Experiment and Investigation

Differentiation

- Hands-On Activities
- Diagnostic Assessment (based on content /skill pre-tests)
- Kinesthetic Activities
- Re-teach and Enrichment Activities
- Cooperative Learning (Flexible Grouping)
- Peer Tutoring
- Tiered Activities and Assessments

Content Standards

5.4 Earth Systems Science B, C

Approaches to Learning

Observation Skills- observing and communicating data in a lab report

Analyzing Skills – recognizing relationships

Evaluation Skills- developing criteria for judging their own work

Scientific Inquiry Skills – formulate questions, hypothesize and conduct experiments

Inquiry Skills – formulate questions, hypothesize and conduct experiments

Learning Experiences	Teaching Strategies
•Assessments •Chapter Outline/Notes •Notebook Tests •Presentations .	•Direct Instruction •Differentiated Instruction •Interdisciplinary Activities •Cooperative Learning Activities •Reinforcement and Remediation

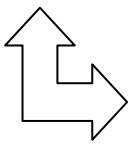
Resources

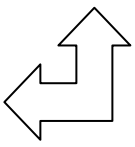
- Internet
- Text: Prentice Hall Science Explorer- Earth Science Grade 6
- Trade books
- Equipment
- Videos
- Mineral and Rock Samples

6th Grade Science

Unit Title	**6.4 Soil Formation**
Time frame	6.5 weeks
21st Century Themes	Creativity and Innovation Critical Thinking and Problem Solving Communication and Collaboration Productivity and Accountability Leadership and Responsibility
Interdisciplinary focus and technology integration	Technology Math Social Studies

Essential Questions	**Big Ideas**
• What are the processes of weathering and soil formation? • How do erosion and deposition change earth's surface?	• Weathering breaks down rock physically or chemically. Soil forms as weathered rock particles mix with decayed organic material, water, and air.





Learning Targets-students will be able to:

- Identify and describe the causes of mechanical and chemical weathering
- Name the factors that determine the rate at which weathering occurs
- Define soil and describe how it forms
- Classify soils based on their composition, climate, and plants
- Describe the effects of soil loss/degradation on human survival and ecological balance
- Identify and describe techniques for soil conservation

Assessment

Rubrics	Teacher-Created Assessment
Lab Reports	Classroom Participation
Homework Completion	Group Participation

Differentiation

Hands-on Activities
Diagnostic Assessment
Kinesthetic
Re-teaching
Enrichment Activities
Cooperative Learning
Peer Tutoring
Tiered Instruction
Alternative Assessment

Content Standards

5.1
5.2.6A.1-3
5.2.8.A.1-7

Approaches to Learning

Observation Skills- observing and communicating data in a lab report

Analyzing Skills – recognizing relationships

Evaluation Skills- developing criteria for judging their own work

Scientific Inquiry Skills – formulate questions, hypothesize and conduct experiments

Inquiry Skills – formulate questions, hypothesize and conduct experiments

Learning Experiences	Teaching Strategies
"Comparing Soils" pg 255 Rock Shake How Fast Can it Fizz	•Evaluation of lab reports, rubrics to assess writing, written assessment •Peer/group discussion, lecture, board work, evaluations, discussion of lab work, use of technology •Utilization of key terms

Resources

Prentice Hall Science Explorer: Earth Science

Grade 6 Science

Unit Title	**6.5 Energy Resources**
Time frame	6.5 weeks
21st Century Themes	Critical Thinking and Problem Solving Communication and Collaboration ICT (Information, Communications and Technology) Literacy Flexibility and Adaptability Initiative and Self-Direction Productivity and Accountability
Interdisciplinary focus and technology integration	Technology History Math Language Arts Art

Essential Questions	**Big Ideas**
• How do fuels provide energy? •What are the three main fossil fuels? •What are some forms of renewable energy?	•Renewable and non-renewable energy resources differ in cost and availability. •The earth's resources differ in the environmental effects of producing and using them.

Learning Targets-students will be able to;

- .Name the three main fossil fuels
- Explain why fossil fuels are considered non renewable resources
- Name three forms of renewable energy
- Describe what happens during a nuclear fission
- Explain how a nuclear power plant creates electricity
- Name and describe two ways we can conserve energy

Assessment

- Formal and Informal Teacher Observations
- Tests / Quizzes
- Student Projects
- Diagrams and Models
- Experiment and Investigation

Differentiation

- Hands-On Activities
- Diagnostic Assessment (based on content /skill pre-tests)
- Activities
- Re-teach and Enrichment Activities
- Cooperative Learning (Flexible Grouping)
- Peer Tutoring
- Tiered Activities and Assessments

Content Standards

5.4 Earth Systems Science

B, C

Approaches to

Observation skills- observing and communicating data in a lab report

Analyzing skills – recognizing relationships

Evaluation skills- developing criteria for judging their own work

Scientific Inquiry Skills – formulate questions, hypothesize and conduct experiments

Inquiry skills – formulate questions, hypothesize and conduct experiments

Learning Experiences and Suggested Activities	Teaching Strategies
• Assessments • Chapter outline/notes • Notebook tests • Presentations • Design and Build a Solar Toy • "Keeping Comfortable" pg 379	• Direct instruction • Differentiated instruction • Interdisciplinary activities • Cooperative learning activities • Reinforcement and remediation

Resources

Text: Prentice Hall Science Explorer- Earth Science Grade 6