

SUGGESTED PACING

SCIENCE INQUIRY AND APPLICATION

Content Statements: During the years of grades 5-8, all students must use the following scientific processes, with appropriate laboratory safety techniques, to construct their knowledge and understanding in all science content areas:

- Identify questions that can be answered through scientific investigations
- Design and conduct a scientific investigation
- Use appropriate mathematics, tools and techniques to gather data and information
- Analyze and interpret data
- Develop descriptions, models, explanations and predictions
- Think critically and logically to connect evidence and explanations
- Recognize and analyze alternative explanations and predictions
- Communicate scientific procedures and explanations

STRAND: EARTH AND SPACE SCIENCE (ESS)

Topic: Rocks, Minerals and Soil

This topic focuses on the study of rocks, minerals and soil, which make up the lithosphere. Classifying and identifying different types of rocks, minerals and soil can decode the past environment in which they formed.

Content Statements:

- Minerals have specific, quantifiable properties.
- Minerals are naturally occurring, inorganic solids that have a defined chemical composition.
- Minerals have properties that can be observed and measured. Minerals form in specific environments.

Content Statement:

- Igneous, metamorphic and sedimentary rocks have unique characteristics that can be used for identification and/or classification.
- Most rocks are composed of one or more minerals, but there are a few types of sedimentary rocks that contain organic material, such as coal. The composition of the rock, types of mineral present, mineral arrangement, and/or mineral shape and size can be used to identify the rock and to interpret its history of formation, breakdown (weathering) and transport (erosion).

Content Statement:

- Igneous, metamorphic and sedimentary rocks form in different ways.
- Magma or lava cools and crystallizes to form igneous rocks.
- Heat and pressure applied to existing rock forms metamorphic rocks.
- Sedimentary rock forms as existing rock weathers chemically and/or physically and the weathered material is compressed and then lithifies.
- Each rock type can provide information about the environment in which it was formed.

Content Statement:

- Soil is unconsolidated material that contains nutrient matter and weathered rock.
- Soil formation occurs at different rates and is based on environmental conditions, types of existing bedrock and rates of weathering.
- Soil forms in layers known as horizons. Soil horizons can be distinguished from one another based on properties that can be measured.

Content Statement:

- Rocks, minerals and soils have common and practical uses.
- Nearly all manufactured material requires some kind of geologic resource.
- Most geologic resources are considered nonrenewable. Rocks, minerals and soil are examples of geologic resources that are nonrenewable.

PRINT RESOURCES

ScienceFusion

- Unit 1, TE pages 16-115
- Unit 2, TE pages 115-246
- Unit 2, Lab Manual pages 93-215
- Unit 2, Assessment Guide pages 38-76

DIGITAL RESOURCES

ScienceFusion

- Unit 1, Digital Lessons
- Unit 2, Lesson 1 Digital Lesson
- Unit 2, Lesson 2 Digital Lesson
- Unit 2, Lesson 3 Digital Lesson
- Unit 2, Lesson 3 Virtual Lab
- Unit 2, Lesson 4 Digital Lesson
- Unit 2, Lesson 5 Digital Lesson
- Unit 2, Lesson 6 Digital Lesson
- Unit 2, Lesson 6 Virtual Lab
- Unit 2, Lesson 7 Digital Lesson
- Unit 2, Lesson 7 Virtual Lab

SCIENCE AND ACADEMIC VOCABULARY	
<p>Unit 1: Control, Data, Dependent Variable, Empirical Evidence, Evidence, Experiment, Hypothesis, Independent Variable, Observation, Pseudoscience, Theory, Variable</p> <p>Unit 2: Atom, Biomass, Cleavage, Composition, Compound, Conservation, Crystal, Deposition, Element, Energy Resource, Erosion, Fission, Fossil Fuel, Geothermal Energy, Humus, Hydroelectric Energy, Igneous Rock, Luster, Material Resource, Matter, Metamorphic Rock, Mineral, Natural Resources, Nonrenewable Resource, Nuclear Energy, Renewable Resource, Rift Zone, Rock, Rock Cycle, Sedimentary Rock, Soil, Soil Horizon, Soil Profile, Solar Energy, Stewardship, Streak, Subsidence, Texture, Uplift, Weathering, Wind Energy</p>	
DIFFERENTIATION	FIELD EXPERIENCE CONNECTIONS
<p>Leveled Inquiry</p> <ul style="list-style-type: none"> Unit 2 TE pages 120, 134, 150, 166, 184, 200, 214, 230 <p>Response to Intervention</p> <ul style="list-style-type: none"> Unit 2 TE page 121 <p>Differentiated Instruction (Basic, ELL, and Advanced)</p> <ul style="list-style-type: none"> Unit 2 TE pages 137, 153, 169, 181, 187, 203, 217, 226, 233 	
INQUIRY SKILLS	
<ul style="list-style-type: none"> Analyzing Components Analyzing Procedures Applying Concepts Building/Constructing Models Classifying Samples Collecting Evidence 	<ul style="list-style-type: none"> Collecting Samples Comparing Results/Data Developing Procedures Drawing Conclusions Evaluating Models
	<ul style="list-style-type: none"> Explaining Processes Making Inferences Making Observations Organizing Data Practicing Lab Techniques
HANDS-ON INQUIRY AND APPLICATION	
<ul style="list-style-type: none"> Unit 2, Lesson 1 Quick Lab 1: Renewable or Not? - LM pages 93-96 Unit 2, Lesson 1 Quick Lab 2: Production Impacts - LM pages 97-99 Unit 2, Lesson 1 Quick Lab 3: Investigating Local Geologic Resources - LM pages 100-104 Unit 2, Lesson 1 Field Lab 1: Natural Resources Used at Lunch - LM pages 105-114 Unit 2, Lesson 2 Quick Lab 1: Cooling Rate and Crystal Size - LM pages 115-117 Unit 2, Lesson 2 Quick Lab 2: Scratch Test - LM pages 118-120 Unit 2, Lesson 2 Quick Lab 3: Investigating Minerals for Integrated Circuits - LM pages 121-124 Unit 2, Lesson 2 Quick Lab 4: Identifying Minerals Using a Dichotomous Key - LM pages 125-129 Unit 2, Lesson 2 Exploration Lab 1: Intrinsic Identification of Minerals - LM pages 130-139 Unit 2, Lesson 3 Quick Lab 1: Crayon Rock Cycle - LM pages 140-143 Unit 2, Lesson 3 Quick Lab 2: Modeling Weathering - LM pages 144-417 Unit 2, Lesson 4 Quick Lab 1: Stretching Out - LM pages 148-150 Unit 2, Lesson 4 Quick Lab 2: Observing Rocks - LM pages 151-154 Unit 2, Lesson 4 STEM Lab 1: Modeling Rock Formation - LM pages 155-164 Unit 2, Lesson 5 Quick Lab 1: Observing Life in Soil - LM pages 165-169 Unit 2, Lesson 5 Quick Lab 2: Modeling a Soil Profile - LM pages 170-173 Unit 2, Lesson 5 Quick Lab 3: Observing the Impact of Earthworms on Soil - LM pages 174-177 Unit 2, Lesson 5 Field Lab 1: Comparing Soil Characteristics - LM pages 178-186 Unit 2, Lesson 6 Quick Lab 1: Modeling Nonrenewable Resources - LM pages 187-190 Unit 2, Lesson 6 Quick Lab 2: Modeling Nuclear Fission - LM pages 191-194 Unit 2, Lesson 7 Quick Lab 1: Design a Turbine - LM pages 195-198 Unit 2, Lesson 7 Quick Lab 2: Understanding Solar Panels - LM pages 199-203 Unit 2, Lesson 7 STEM Lab 1: Modeling Geothermal Power - LM pages 204-215 STEM - TE pages 178-181 	

ASSESSMENTS/PROGRESS MONITORING	ASSESSMENT GUIDE
<ul style="list-style-type: none"> • Formative and Summative Assessment <ul style="list-style-type: none"> ○ Unit 2, Lesson 1 - TE page 139 ○ Unit 2, Lesson 2 - TE page 155 ○ Unit 2, Lesson 3 - TE page 171 ○ Unit 2, Lesson 4 - TE page 189 ○ Unit 2, Lesson 5 - TE page 205 ○ Unit 2, Lesson 6 - TE page 219 ○ Unit 2, Lesson 7 - TE page 235 • Visual Summary and Lesson Review <ul style="list-style-type: none"> ○ Unit 2, Lesson 1 - TE page 146 ○ Unit 2, Lesson 2 - TE page 162 ○ Unit 2, Lesson 3 - TE page 177 ○ Unit 2, Lesson 4 - TE page 196 ○ Unit 2, Lesson 5 - TE page 211 ○ Unit 2, Lesson 6 - TE page 225 ○ Unit 2, Lesson 7 - TE page 241 • Unit 2 Review - TE page 242-245 	<ul style="list-style-type: none"> • Unit 2 Pretest - AG pages 38-39 • Lesson 1 Quiz: Natural Resources - AG page 40 • Lesson 1 Alternative Assessment: Natural Resources - AG page 41 • Lesson 2 Quiz: Minerals - AG page 42 • Lesson 2 Alternative Assessment: Minerals - AG page 43 • Lesson 3 Quiz: The Rock Cycle - AG page 44 • Lesson 3 Alternative Assessment: The Rock Cycle - AG page 45 • Lesson 4 Quiz: Three Classes of Rock - AG page 46 • Lesson 4 Alternative Assessment: Three Classes of Rock - AG page 47 • Lesson 5 Quiz: Soil Formation - AG page 48 • Lesson 5 Alternative Assessment: Soil Formation - AG page 49 • Lesson 6 Quiz: Nonrenewable Energy Resources - AG page 50 • Lesson 6 Alternative Assessment: Nonrenewable Energy Resources - AG page 51 • Lesson 7 Quiz: Renewable Energy Resources - AG page 52 • Lesson 7 Alternative Assessment: Renewable Energy Resources - AG page 53 • Performance-Based Assessment: Teacher Edition - AG page 54 • Performance-Based Assessment: Student Edition - AG page 55 • Unit 2 Review - AG pages 57-62 • Unit 2 Test A - AG pages 63-69 • Unit 2 Test B - AG pages 70-76
ACADEMIC CONNECTIONS TO OTHER DISCIPLINES:	
<ul style="list-style-type: none"> • Architecture Connection - TE page 188 • Art Connection - TE page 170 • Chemistry Connection - TE page 188 • Do the Math - TE page 159 • Do the Math - TE page 191 • Do The Math - TE page 221 • Earth Science Connection - TE page 138 • Ecology Connection - TE page 154 • Ecology Connection - TE page 170 	<ul style="list-style-type: none"> • Health Connection - TE page 218 • Life Science Connection - TE page 234 • Physical Science Connection - TE page 218 • Real World Connection - TE page 138 • Real World Connection - TE page 204 • Social Studies Connection - TE page 154 • Social Studies Connection - TE page 204