EPSD Curriculum and ▲◕ HMH SCIENCE DIMENSIONS 2018 Alignment TEMPLATE

GRADE 6

EPSD Unit 2: Earth Systems: Rocks and Minerals (part I)
Second Marking Period

	HMH Science Dimensions Program Resources Module F
Overview: Students use practices to understand the significant and complex issues surrounding human uses of rock and mineral resources and the resulting impacts on the development of these resources. Students also understand that the distribution of these resources is uneven due to past and current geosciences processes or removal by humans. The crosscutting concepts of patterns, cause and effect, and stability and change are called out as organizing concepts for these disciplinary core ideas. In this unit of study students are expected to demonstrate proficiency in asking questions, analyzing and interpreting data, constructing explanations, and designing solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas.	**Unit 1: The Dynamic Earth** **Unit Video:** (Grand Canyon); **Why it Matters** p. 2; **Unit Starter** p. 3; **Vocabulary** p. 3I; **Unit Project** p. 3K; **Unit Connections** p. 86; **Unit Review** pp. 87-90; **Unit Performance Task** pp. 91-92

Standard for all Units: (D) Interactive Multilingual Glossary; (D/P) Unit Pretest; (D) Lesson Quizzes; (D/P) Unit Tests

Note: Refer to the Curriculum Alignment Common Language (CACL) Guide to decipher acronyms.

| **Standards:** (MS-ESS2-1) Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. (MS-ESS3-1) Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater | **Instructional Days:** 10 - 15 | **Lesson 1**: Weathering, Erosion and Deposition pp. 4-21

D/P – WIM Questions p. 2

D/P- CYEI (digital picture) A rock formation just offshore of Australia's Port Campbell National | **Lesson 2:** The Rock Cycle pp. 22-45

D/P – WIM Questions p. 2

D/P- CYEI (digital picture) How was the rock in this image of the Grand Canyon formed and shaped over time? p. 23 | **Lesson 3:** Earth's Plates pp. 46-67

D/P – WIM Questions p. 2

D/P- CYEI (video) How might this island have appeared? p. 47

P- ENB (prompt) Gather evidence to help explain | **Lesson 4:** Earth's Changing Surfaces pp. 68-85

D/P – WIM Questions p. 2

D/P- CYEI (video) How has this area of the Arizona desert changed in the last 50,000 years? p. 69 |

resources are the result of past and current geoscience processes. (MS-ESS3-4) Construct an argument supported by evidence for how increases in human population and per capita consumption of natural resources impact Earth's systems.		Park. What caused these changes at Fort Campbell National Park? p. 5 P- ENB (prompt) Gather evidence that will help explain what happened to the rock formation in Australia over time. p. 5 D/P- Types of Physical Weathering (Students explore digital images online.) p. 7 D/P- Types of Chemical Weathering (Students explore digital images online.) p. 8 P- ENB (prompt) Does the collapsed rock formation in Australia show signs of weathering? If so, identify the types of weathering that could have occurred. p. 8	P- ENB (prompt) Gather evidence to explain how the Grand Canyon formed and changed over time. p. 23 P- ENB (prompt) What characteristics do you see in the rocks that form the layers of the Grand Canyon (refer to eBook or p. 25)? List these in your notebook. p. 25 D/P- Student view video to observe the flow of lava from a volcano in Hawaii. p. 26 D/P- HOL Activity Model Crystal Formation p. 27 D/P- Students view video to explore more about sedimentary rock. pp. 30-31 D/P- ENGIT (animation) Sandstone is a type of sedimentary rock	how an island could suddenly appear. p. 47 D/P – DTM Calculate the Rate of Sea-Floor Spreading p. 54 P- ENB (prompt) What processes and features might release to the formation of an island like this? Explain. p. 55 P- ENB (prompt) What type of plate motion could be related to the formation of the new island of Japan? p. 56 D/P- Video of Earth's plates in motion. p .57 D/P- HOL Activity Model the Movement of Continents p. 58 D/P- Animation of Contents spreading over time. pp.59-60	P- ENB (prompt) Gather evidence to help explain the changes to Earth's surface in this area (Arizona Desert) over the last 50,000 years. p. 69 P- ENB (prompt) Which of Earth's subsystems were affected by the meteorite impact? What changes occurred in the subsystem? p. 71 D- Animation of Earth's water cycle. D- Animation of the cycling of Earth's energy P- ENB (prompt) How would you classify the size of the change to Earth's surface due to the impact of the meteorite? p. 75
Objective 1: Students will: Identify properties of minerals. Describe the process of mineral formation. Cite reasons for areas of high and low mineral distribution on a map. List uses of minerals. **Objective 2:** Students will: Identify the three main types of rocks. Explain how the rock cycle demonstrates the cycling of Earth's materials.				
Topic 1: Mineral Properties; Mineral Distribution; Uses of Minerals; and Twenty-First Century Themes and Skills (TFCTS) to include: The Four C's, Life and Career Skills, Information and Media literacy, Global Awareness and Environmental Literacy **Topic 2:** Rock Formation and TFCTS				
Essential Questions: Why aren't rocks and minerals distributed evenly across the world? How might we treat resources if we thought about the Earth as a spaceship on an extended				

survey of the solar system? (How would astronauts manage their resources?)	D/P- LS Find Evidence for Weathering (Students analyze each photo and identify the correct terms to complete each statement and provide evidence to support their answer choices.) p. 9 D/P- DTM Calculate Rate of Erosion (Students view animation modeling sandbar formation, identifies the type of change that occurs and calculate rate of erosion.) p. 10 D/P- Students explore digital images that demonstrate how sediment and rocks can be picked up, carried and deposited by a glacier as it flows across the surface of the Earth. p. 12	that can be formed in a lab environment. Students identify how their knowledge of the formation of sandstone could help when designing a machine that could create the rock (refer to eBook or p. 31) in a lab. p. 31 D/P- DTM Buried in Time (Students calculate the length of time needed for a structure to be completely buried as a result of mineral deposition. p. 31 P- ENB (prompt) Students review picture in eBook or on p. 33 to identify whether they see any evidence of sedimentary rock in the Grand Canyon? If so, students make inferences to	D/P- Video of features formed from plates moving toward each other. p. 59-60 P- ENGIT Think about items you could use to represent tectonic plates or their motion. List or draw items and explain. p. 61 P- ENB (prompt) How does the flow of energy and cycling of matter relate to the formation of the island in Japan? p. 61 P- LS Cite Evidence for Plate Tectonics. p. 62 P-CER p. 62 D/P- TIF (enrich) People in Science: Doug Gibbons, Research Scientist Assistant; Hands-On Labs; Deep Sea	D/P- DTM Compare Rates of Change. p. 76 P- ENB (prompt) When the meteorite hit Earth, did its impact cause fast or slow changes to Earth's surface? p. 77 P- CER What is considered a quick geological process? Why? Should humans judge scientific processes from a human perspective or only judge them relative to other concepts within the field? Explain. p. 77 D/P- HOL Activity Analyze Visual Evidence pp. 78-79 P- CER Discuss which of Earth's subsystems was most affected by

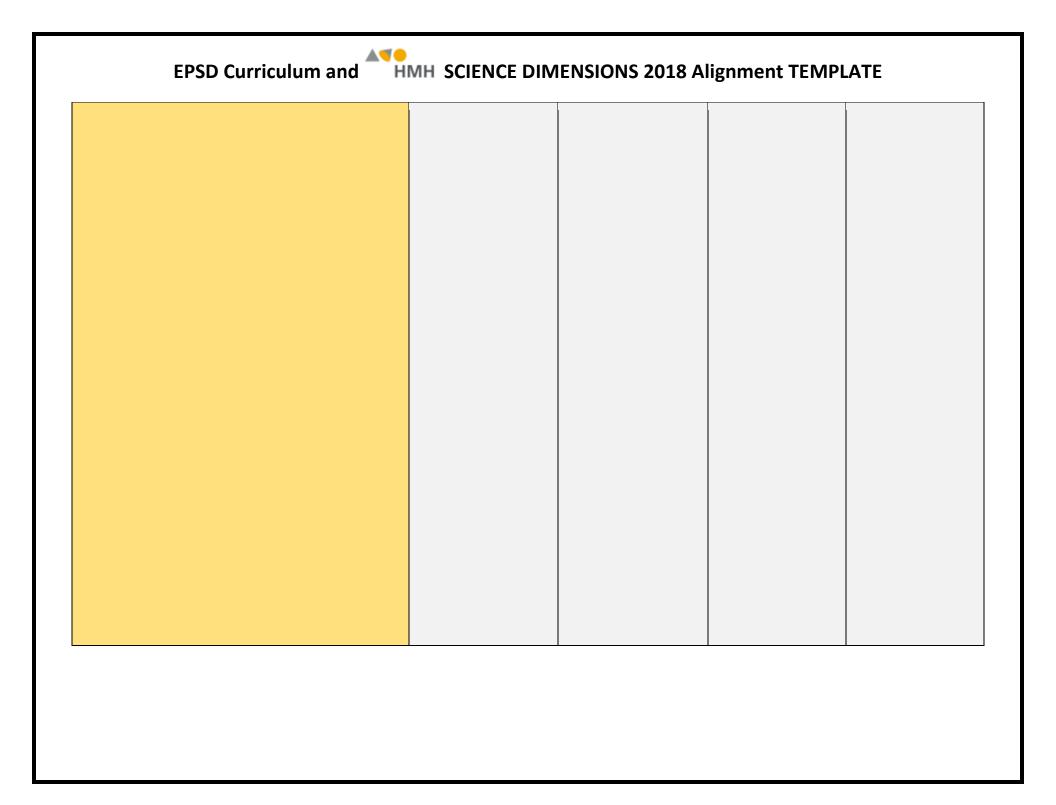|			
	P- ENB (prompt) Will gravity always play a role in erosion of a shoreline feature, such as the collapse of a rock formation in Australia? If so, identify the process, or processes that would lead up to the collapse. p. 13 D/P- ENGIT What technologies make it possible for us to understand the scale of changes that occurred as a result of the breaking of the glacier dam holding back Lake Missoula's waters? p. 14 D/P- HOL Activity Model Erosion and Deposition p. 15 D/P- Students use drawing tools to draw what they think the canyon will look like in 1 million years. p. 16	determine how long they think it took to form and how the rock has changed over time? p. 33 D/P- (digital picture) Metamorphic Rock Formation pp. 35-37 D/P- (digital picture) The Rock Cycle pp. 38-39 P- ENB (prompt) How did the process in the rock cycle play a role in the formation of the Grand Canyon? p. 39 D/P- LS Model the Rock Cycle (Students tell a story of a teaspoon of sediment moving through the rock cycle, including a rock cycle diagram to go with their story.) p. 40 D/P- TIF (enrich) Coal Mining; Hands-On Lab; Geodes;	Resources Debate; Propose Your Own Path pp. 63-64 D/P- Lesson Self Check pp. 65-67 D- Lesson Quiz D- Make Your Own Study Guide P- DI (ELL/RTI) p. 3I P- Extension p. 3I P- COLLAB p. 3J P- Connections to Other Disciplines p. 3J D- Science Safety HB D- CCC-HB D- ELA-HB D- Math-HB D- SEP-HB D- ScienceSaurus Reference HB D- YSI Simulation What is Causing Earthquakes in Oklahoma?	the eruption of Mt. St. Helens? Citing evidence from HOL, was there any subsystem that was completely unaffected? p. 79 P- LS Examine Changes over Time. p. 80 D/P- TIF (enrich) Yellowstone Is Changing; Hands-On Labs; Destination Mars; Propose Your Own Path pp. 81-82 D/P- Lesson Self Check pp. 83-85 D- Lesson Quiz D- Make Your Own Study Guide P- DI (ELL/RTI) p. 3I P- Extension p. 3I P- COLLAB p. 3J P- Connections to Other Disciplines p. 3J

	D/P- TIF (enrich) Gold Rush; Hands-On Labs; Sailing Stones; Propose Your Own Path pp. 17-18 D/P- Lesson Self Check pp. 19-21 D- Lesson Quiz D- Make Your Own Study Guide P- DI (ELL/RTI) p. 3I P- Extension p. 3I P- COLLAB p. 3J P- Connections to Other Disciplines p. 3J D- Science Safety HB D- CCC-HB D- ELA-HB D- SEP-HB D- Math-HB D- ScienceSaurus Reference HB	Propose Your Own Path pp. 41-42 D/P- Lesson Self Check pp. 42-43 D- Lesson Quiz D- Make Your Own Study Guide P- DI (ELL/RTI) p. 3I P- Extension p. 3I P- COLLAB p. 3J P- Connections to Other Disciplines p. 3J D- Science Safety HB D- CCC-HB D- ELA-HB D- Math – HB D- SEP-HB D- ScienceSaurus Reference HB D- VL Erosion and Deposition by Rivers D- VL Erosion and Deposition of Sand Dunes		D- Science Safety HB D- CCC-HB D- ELA-HB D- Math-HB D- SEP-HB D- ScienceSaurus Reference HB D- VL Erosion and Deposition by Rivers D- VL Erosion and Deposition of Sand Dunes

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Curriculum Alignment Common Language (CACL) Guide 6-8		
Acronym	**Word/Phrase**	**Description**
CER	Claims Evidence Reasoning	Students make a claim and gather evidence along the way (during EXPLORATORY activities) to support claim.
CCC-HB	Crosscutting Handbook	Students who need extra support in grasping concepts or to refresh student knowledge of skills.
CYEI	Can You Explain It	Lesson phenomenon used to ENGAGE students in learning at the beginning of the lesson.
CYSI	Can You Solve It	Lesson phenomenon used to ENGAGE students in learning at the beginning of the lesson.
D	Digital	Program resources and features in interactive digital form.
DI (ELL/RTI) Extension COLLAB Connections to Other Disciplines	Differentiated Instruction (English Language Learner/Response to Intervention) Collaboration Connections to Other Disciplines	A page that lists all learning activities used to differentiate learning, engage students in collaborative activities and connect learning to other subjects.
DTM	Do the Math	Integrated subject learning.
ENB	Evidence Notebook	Student notebook or journal used to gather evidence during EXPLORATORY learning activities to support their claims.
ENGIT	Engineer It	Integrated subject learning.
ELA-HB	English Language Arts Handbook	Students who need extra support in grasping concepts or to refresh student knowledge of skills.
HOL	Hands-On Lab	Activities or experiments that enable students to demonstrate scientific procedures and analysis.
LS	Language SmArts	Integrated subject learning.

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M-HB	Math Handbook	Students who need extra support in grasping concepts or to refresh student knowledge of skills.
P	Print	Program resources and features in print form.
SEP-HB	Science and Engineer Practices Handbook	Students who need extra support in grasping concepts or to refresh student knowledge of skills.
TIF	Take It Further (enrich)	Enrichment activities for students in digital or print.
VBP	Video Based Project	Real life videos related to science and/or engineering that enable students to demonstrate mastery of performance expectations.
VL	Virtual Lab	Fully interactive simulations in which students perform experiments, collect data and answer questions.
WIM	Why It Matters	Questions related to lessons within each unit that asks students to consider how science affects the world around them.
YSI	You Solve It (Simulation)	Open-ended simulation-based learning with multiple answer options.