EPSD Curriculum and HMH SCIENCE DIMENSIONS 2018 Alignment TEMPLATE

GRADE 6

EPSD Unit 1: Earth Systems: Plate Tectonics, Earthquakes & Volcanos (part I)
First Marking Period

<table>
<tr><td rowspan="5">Overview: Students examine geoscience data in order to understand processes and events in Earth's history. Important crosscutting concepts in this unit are scale, proportion, and quantity, stability and change, and patterns in relation to the different ways geologic processes operate over geologic time. An important aspect of the history of Earth is that geologic events and conditions have affected the evolution of life, but different life forms have also played important roles in altering Earth's systems. Students understand how Earth's geosystems operate by modeling the flow of energy and cycling of matter within and among different systems. Students investigate the controlling properties of important materials and construct explanations based on the analysis of real geoscience data. Students are expected to demonstrate proficiency in analyzing and interpreting data and constructing explanations. They are also expected to use these practices to demonstrate understanding of the core ideas.</td><td colspan="4">HMH Science Dimensions Program Resources Module F</td></tr>
<tr><td colspan="4">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</td></tr>
<tr><td colspan="4">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.</td></tr>
<tr><td rowspan="2">Standards: (MS-ESS1-4) Construct a scientific explanation based on

Instructional Days: 40-45</td><td>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 Park. What caused</td><td>Lesson 2: The Rock Cycle pp. 22-45

D/P – WIM Questions p. 2

D/P- CYEI (digital picture) Rock layers of the Grand Canyon p. 23

P- ENB (prompt) Gather evidence to explain how the Grand Canyon</td><td>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 how an island could</td><td>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

P- ENB (prompt) Gather evidence to</td></tr>
</table>

evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history. (MS-ESS2-1) Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. (MS-ESS2-2) Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. (MS-ESS2-3) Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.		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 D/P- LS Find Evidence for	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 that can be formed in a lab environment. Students identify	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 D/P- Video of features formed	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 D/P- DTM Compare Rates of Change. p. 76 P- ENB (prompt) When the meteorite hit Earth, did its
Objective 1: Students will: Use direct and indirect evidence to explain the structure of Earth. Evaluate the merits of different models used to represent Earth. **Objective 2:** Students will: Explain how convection currents are formed. Explain how convection currents influence plate movement. Cite evidence supporting continental drift.					

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Objective 3: Students will: Explain evidence for sea-floor spreading. Explain the causes and effects of sea-floor spreading. **Objective 4:** Students will: Explain the theory of Plate Tectonics. Describe the three types of plate boundaries and features of each. **Objectives 5:** Students will: Explain how stress in the crust changes Earth's surface. Model fault formations. Identify land features that result from plate movement. **Objective 6:** Students will: Describe how energy travels through Earth. Debate the merits and limitations of different methods of measuring and locating earthquakes. Use design principals to construct and test a seismograph and an earthquake proof building. Research causes and effects of famous earthquakes and present findings to classmates. **Objective 7:** Students will: Map volcanos and earthquakes to find patterns in distribution on Earth. Determine factors that influence the viscosity of magma. Explain the types and stage of volcanic activity. Describe and identify different types of volcanic landforms.	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 P- ENB (prompt) Will gravity always play a role in erosion of a	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 determine how long they think it took to form and how the rock has changed over time? p. 33	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 Resources Debate; Propose Your Own Path pp. 63-64	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 the eruption of Mt. St. Helens? Citing evidence from HOL, was there any subsystem that was completely unaffected? p. 79

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Topic 1: Earth's Interior and Twenty-First Century Themes and Skills (TFCTS) to include: The Four C's, and Life and Career Skills **Topic 2:** Convection Currents; Continental Drift and TFCTS **Topic 3:** Sea-Floor Spreading and TFCTS **Topic 4:** The Theory of Plate Tectonics and TFCTS **Topic 5:** Forces in Earth's Crust and TFCTS **Topic 6:** Earthquakes; Seismic Waves; Monitoring Earthquakes; Earthquake Safety and TFCTS including: Information, Media, ITC, Literacy, and Global Awareness **Topic 7:** Volcanoes; Properties of Magma; Volcanic Eruptions; Volcanic Landforms; and TFCTS including: Information, Media, ITC, Literacy and Global Awareness **Essential Questions:** If no one was there, how do we know the Earth's history and structure? What provides the forces that drive Earth's systems?	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 D/P- TIF (enrich) Gold Rush; Hands-On Labs; Sailing Stones; Propose	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; Propose Your Own Path pp. 41-42 D/P- Lesson Self Check pp. 42-43 D- Lesson Quiz	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- ScienceSaurus Reference HB D- YSI Simulation What is Causing Earthquakes in Oklahoma?	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- Science Safety HB D- CCC-HB D- ELA-HB D- Math-HB D- ScienceSaurus Reference HB D- VL Erosion and Deposition by Rivers

	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	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- 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.