EPSD Curriculum and HMH SCIENCE DIMENSIONS 2018 Alignment TEMPLATE

GRADE 6

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

<table>
<tr><td colspan="2">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="3">HMH Science Dimensions Program Resources Module G</td></tr>
<tr><td colspan="2">Standards: (MS-ESS1-4) Construct a scientific</td><td colspan="3">Unit 1: Earth’s Natural Hazards
Unit Video: (destructive wildfire); Why it Matters p. 2; Unit Starter p. 3; Vocabulary p. 3G; Unit Project p. 3I; Unit Connections p. 66; Unit Review pp. 67-70; Unit Performance Task pp. 71-72</td></tr>
<tr><td>Instructional Days: 40-45</td><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 colspan="2"></td><td>Lesson 1: Natural Hazards pp. 4-25

D/P – WIM Questions p. 2

D/P- CYEI (digital picture) How was this city suddenly buried without warning? p. 5

P- ENB (prompt) Gather evidence to help explain what could have suddenly buried this ancient city. p. 5</td><td>Lesson 2: Natural Hazard Prediction pp. 26-47

D/P – WIM Questions p. 2

D/P- CYEI (digital image) Why is there a tsunami hazard warning sign on this calm beach? p. 27

P- ENB (prompt) How do we know which coastal areas are more likely to be affected by tsunamis? p. 27</td><td>Lesson 3: Engineer It: Reducing the Effects of Natural Hazards pp. 48-65

D/P – WIM Questions p. 2

D/P- CYEI (digital picture) How can we reduce the harmful effects of a flood? p. 49

P- ENB (prompt) How can some of the harmful effects of flooding be reduced in a</td></tr>
</table>

explanation based on 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.		P- ENB (prompt) What kinds of natural hazards could suddenly bury a city and the people who live there? Record your evidence. p. 9 D/P- DTM Interpret Natural Disaster Data p. 11 D- Videos showing quiet and explosive volcanic eruptions. P- ENB (prompt) Could a volcanic eruption suddenly bury a city and its inhabitants? Record your evidence. p. 14 D/P- HOL Assess Building Sites Near a Volcano pp. 15-16 D/P- ENGIT Students consider which factors developers should consider when choosing a location (Step 3). p. 16 D/P- DTM Analyze Eruption Data p. 17 P- ENB (prompt) As students explore this section (i.e., Exploration 3: Interpreting Patterns in Tornado Data), they think about whether a tornado could suddenly bury a city and its habitants.	P- ENB (prompt) How might scientific understanding, historical data, and monitoring help to determine where tsunami warning signs should be placed. p. 29 D/P- HOL Predict a Landslide pp. 30-31 P-ENGIT Determine A Safe Building Site (Students respond to question.) p. 31 D/P Student watch video about volcanic monitoring in Iceland. p. 34 P- ENB (prompt) What kinds of data might scientist collect in order to identify where tsunamis are likely to occur? How can scientists predict when tsunamis are likely to occur? p. 35 D/P- DTM Explain Earthquake Probability p. 36 P- LS Use Flood Maps: Flood Risk in New York City (Students use map skills to respond to question) p. 47 D/P- TIF (enrich) Predicting Asteroid Impacts; Hands-On	community like the one shown in the picture on p. 49? p. 49 D/P- Students watch video to explore more about people helping a community respond to a natural disaster. p. 52 D/P- LS Students complete table by identifying criteria and constraints relating to the design problem of structures p. 56 D/P- DTM Students use relative numerical rankings of variables to compare how well solutions address the criteria. p. 57 D/P- HOL Develop and Evaluate a Flood Solution (Students will use the engineering design process to design and model a structure that will withstand the effects of a flood in a warm, moist climate.) pp.58-59 P- ENB (prompt) What are some ways the engineering design process can be used
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. **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	Students record their evidence. p. 18 P- LS Compare Tornado Data p. 20 D/P- TIF (enrich) The Cost of Natural Disaster; Hands-On Labs; Forest Fires; Propose Your Own Path pp. 21-22 D/P- Lesson Self Check pp. 23-25 D- Lesson Quiz D- Make Your Own Study Guide P- DI (ELL/RTI) p. 3G P- Extension p. 3G P- COLLAB p. 3H P- Connections to Other Disciplines p. 3H D- Science Safety HB D-CCC-HB D- ELA-HB D- Math-HB D- SEP-HB D- ScienceSaurus Reference HB D- VBP Earthquake-Proof Buildings	Lab; Technology for Hurricane Forecasts; Propose Your Own Path pp. 43-44 D/P- Lesson Self Check pp. 45-47 D- Lesson Quiz D- Make Your Own Study Guide P- DI (ELL/RTI) p. 3G P- Extension p. 3G P- COLLAB p. 3H P- Connections to Other Disciplines p. 3H D- Science Safety HB D- CCC-HB D- ELA-HB D- Math-HB D- SEP-HB D- ScienceSaurus Reference HB D- VBP Earthquake-Proof Buildings	to reduce the impact of floods? p. 60 D/P- TIF (enrich) Careers in Engineering: Geotechnical Engineer; Hands-On Lab; Climate Change Mitigation; Propose Your Own Path pp. 61-62 D/P- Lesson Self Check pp. 63-65 D- Lesson Quiz D- Make Your Own Study Guide P- DI (ELL/RTI) p. 3G P- Extension p. 3G P- COLLAB p. 3H P- Connections to Other Disciplines p. 3H D- Science Safety HB D-CCC-HB D- ELA-HB D- Math-HB D- SEP-HB D- ScienceSaurus Reference HB D- VBP Earthquake-Proof Buildings

activity. Describe and identify different types of volcanic landforms. **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?	D- YSI Simulation Where and When Do Most Human-Caused Fires Occur		

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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.