EPSD Curriculum and HMH SCIENCE DIMENSIONS 2018 Alignment TEMPLATE

GRADE 6

EPSD Unit 4: Weather and Climate
Third Marking Period

<table>
<tr><td colspan="2" rowspan="2">Overview: This unit connects the concepts of Earth’s waters with weather and climate patterns. Students make sense of how Earth's geosystems operate by modeling the flow of energy and cycling of matter within and among different systems. A systems approach is also important here, examining the feedback between systems as energy from the Sun is transferred between systems and circulates though the ocean and atmosphere. The crosscutting concepts of cause and effect, systems and system models, and energy and matter are called out as frameworks for understanding the disciplinary core ideas. In this unit, students are expected to demonstrate proficiency in developing and using models and planning and carrying out investigations as they make sense of the disciplinary core ideas. Students are also expected to use these practices to demonstrate understanding of the core ideas</td><td colspan="3">HMH Science Dimensions Program Resources Module E</td></tr>
<tr><td colspan="3">Unit 2: Weather and Climate
Unit Video: (powerful winds and rain during a hurricane); Why it Matters p. 76; Unit Starter p. 77; Vocabulary p. 77G; Unit Project p. 77I; Unit Connections p. 140; Unit Review pp. 141-144; Unit Performance Task pp. 145-146</td></tr>
<tr><td colspan="2"></td><td colspan="3">Standard for all Units: (D) Interactive Multilingual Glossary; (D/P) Unit Pretest; (D) Lesson Quizzes; (D/P) Unit Tests</td></tr>
<tr><td rowspan="2">Standards: (MS-ESS2-5) Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions. (MS-ESS2-6) Develop and use a model to describe how unequal heating</td><td rowspan="2">Instructional Days: 20-25</td><td>Lesson 1: Influences on Weather pp. 78-99

D/P – WIM Questions p. 76

D/P- CYEI (video) What could cause a storm like this to happen suddenly? p. 79

P- ENB (prompt) Students gather evidence to help explain what causes sudden changes in weather like this storm (in Utah). p. 79
D/P- DTM Describe Relative Humidity</td><td>Lesson 2: Weather Prediction pp. 100-117

D/P – WIM Questions p. 76

D/P- CYEI (video) How does this forecaster know that stormy weather is coming? p. 101

P- ENB (prompt) Students gather evidence to explain how weather predictions are made. p. 101
D/P- DTM Predict Run Times Using a Model (Students use a graph and a mathematical model to</td><td>Lesson 3: Influences on Climate pp. 118-139

D/P – WIM Questions p. 76

D/P- CYEI (digital hotspots) Why might these two regions in Asia have such different climates? p. 119

P- ENB (prompt) Students gather evidence to help explain why the climates in these two locations (Singapore and</td></tr>
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and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates. (MS-ESS3-5) Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century. Technology Operations and Concepts: 8.1.8.A.3 Use and/or develop a simulation that provides an environment to solve a real world problem or theory. 8.1.8.A.1 Demonstrate knowledge of a real world problem using digital tools. 8.1.8.A.3 Use and/or develop a simulation that provides an environment to solve a real world problem or theory.		(Students investigate the relationship between temperature and relative humidity.) p. 81 P- ENB (prompt) Think about the storm that swept over the town in Utah. How did the clouds and snow form? p. 82 P- LS Describe Weather (Students respond to questions and cite specific evidence from the text when rewriting their descriptions.) p. 83 D/P- ENGIT Air Pressure and Weather Maps: Wind Farm Location (Students work in teams to study an air pressure map and draw conclusions about where to place wind turbines for the best results.) p. 84 P- ENB (prompt) Think again about the storm that blew over the town in Utah. What kind of pressure system was probably involved? Record evidence. p. 86 D/P- HOL Activity Model an Air Mass Interaction	make predictions about data.) p. 104 D/P- HOL Activity Predict Costs Using a Model (Students use a mathematical model to make predictions.) pp. 105-106 P- ENGIT Students think of ways to optimize their prediction-making process in the HOL Activity in order to make their future predictions more accurate.) p. 106 D/P- DTM Students use the equation to calculate the temperatures in Limestone County and Socorro County.) p. 107 P- ENB (prompt) How do forecasters use mathematical models to make predictions about future weather conditions? p. 109 P- ENB (prompt) Why do weather forecast models have limitations? Why are they still useful to people? Record evidence. p. 111	Taklamakan Desert) are so different. p. 119 D/P- DTM Analyze Climate Graphs p.121 D/P- Reflection and Absorption of Energy from the Sun (Students investigate the diagram to learn how sunlight interacts with the Earth system.) p. 122 D/P- Sunlight and Earth's Surface (Students explore the diagram to observe how sunlight hits Earth's surface differently at different latitudes.) p. 123 P- ENB (prompt) Students provide their thoughts on whether the albedos of the surfaces in Singapore and the Taklamakan Desert affect their climates. p. 124 P- ENGIT Students work in groups to write a recommendation for a plan to keep the amount of sunlight absorbed at a minimum in a city park. p. 125
Objective 1: Students will: Explain why the composition of Earth's atmosphere is important to living things. Explain how increasing altitude affects air pressure and density. Identify causes and effects of air pollution. Evaluate evidence that air pollution leads to changes in atmospheric temperature. **Objective 2:** Students will: Identify the major types of air masses and fronts. Determine the outcome when two air masses collide. Use a				

weather map to predict future weather. Identify features of the six main climate regions. Evaluate evidence for climate change. **Topics 1:** Air Composition; Air Pressure; Air Pollution; 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 **Topics 2:** Air Masses and Fronts; Predicting the Weather Climate; and TFCTS **Essential Questions**: What factors interact and influence weather and climate? What is the relationship between the complex interactions of air masses and changes in weather conditions? What are the major factors that determine regional climates?	(Students make a prediction about how a model will show the interaction between a warm and a cool air mass and construct the model; students explore video related to lab.) p. 88 D/P- The Formation of Fronts (Students watch animation to learn more about different types of fronts.) p. 89 P- ENB (prompt) Which type of front is most likely associated with the weather change in the town in Utah? p. 90 D/P- LS Compare and Contrast Information (Students compare and contrast information from the experiment.) p. 90 D/P- Relate Global Precipitation to Global Winds (Students view video online from the NASA Global Precipitation Measurement mission.) p. 94	P- LS Students respond to questions and cite evidence from the text and the map to explain how the forecast could be useful. p. 112 D/P- TIF (enrich) People in Science: J. Marshall Shepherd, Meteorologist and Climatologist pp. 113-114 D- Hands-On Lab; Hurricane Prediction; Propose Your Own Path D/P- Lesson Self Check pp. 115-117 D- Lesson Quiz D- Make Your Own Study Guide P- DI (ELL/RTI) p. 77G P- Extension p. 77G P- COLLAB p. 77H P- Connections to Other Disciplines p. 77H D- Science Safety HB D- CCC-HB D- ELA-HB D- Math-HB D-SEP-HB	D/P- Latitude's Effect on Climate Patterns (Students watch the animation to see how the intensity of sunlight at different latitudes results in different climates.) p. 126 P- ENB (prompt) Students think about Singapore and the Taklamakan Desert as they continue to explore the section and identify factors that might influence their climates. p. 127 D/P- HOL Activity Model Your Climate (Students develop and use a model to describe their local climate.) p. 131 P- LS Students make a multimedia presentation to help clarify their model (from the HOL Activity) and emphasize their main points. p. 131 P- ENB (prompt) In which major climate zones are the Taklamakan Desert and Singapore? Use the regional climate map to determine which climates

	D/P- TIF (enrich) Snowflake Sizes and Patterns pp. 95-96 D- Hands-On Lab; El Nino and La Nina: Effects on Local Weather; Propose Your Own Path D/P- Lesson Self Check pp. 97-99 D- Lesson Quiz D- Make Your Own Study Guide P- DI (ELL/RTI) p. 77G P- Extension p. 77G P- COLLAB p. 77H P- Connections to Other Disciplines p. 77H D- Science Safety HB D- CCC-HB D- ELA-HB D- Math-HB D-SEP-HB D- ScienceSaurus Reference HB D- VL Forecasting the Weather	D- ScienceSaurus Reference HB	correspond to each place. p. 134 D/P- TIF (enrich) Exploring the Greenhouse Effect pp. 135-136 D- Hands-On Lab; Lake Effect; Propose Your Own Path D/P- Lesson Self Check pp. 137-139 D- Lesson Quiz D- Make Your Own Study Guide P- DI (ELL/RTI) p. 77G P- Extension p. 77G P- COLLAB p. 77H P- Connections to Other Disciplines p. 77H D- Science Safety HB D- CCC-HB D- ELA-HB D- Math – HB D- SEP-HB D- ScienceSaurus Reference HB D- YSI Simulation Can You Explain the Different

			Climates in Two California Cities?

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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.