EPSD Curriculum and HMH SCIENCE DIMENSIONS 2018 Alignment TEMPLATE

GRADE 5

EPSD Unit 3: Energy and Matter in Ecosystems (part I)
Second Marking Period

<table>
<tr><td colspan="2" rowspan="2">Overview: In this unit of study, students develop an understanding of the idea that plants get the materials they need for growth chiefly from air and water. Using models, students can describe the movement of matter among plants, animals, decomposers, and the environment, and they can explain that energy in animals' food was once energy from the sun. The crosscutting concepts of energy and matter and systems and system models are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in developing and using models and engaging in argument from evidence. Students are also expected to use these practices to demonstrate understanding of the core ideas. This unit is based on 5-LS1-1, 5-LS2-1, and 5-PS3-1.</td><td colspan="3">HMH Science Dimensions Program Resources</td></tr>
<tr><td colspan="3">Unit 3: Energy and Matter in Organisms
Unit Video (bird of prey trying to catch its next meal); Unit Overview p. 157; Vocabulary p. 159; Making Connections 159H; Unit Project p. 159I; Unit Performance Task pp. 214-215; Unit Review pp. 216-218</td></tr>
<tr><td colspan="2"></td><td colspan="3">Standard for all Units: Interactive Glossary (D); Leveled Readers (D); Beginning-of-Year Test (D/P); Unit Pretest; (D) Lesson Quizzes (D/P); Unit Test (D/P)

Note: Refer to the Curriculum Alignment Common Language (CACL) Guide to decipher acronyms.</td></tr>
<tr><td colspan="2" rowspan="2">Standards: (5-LS1-1) Support an argument that plants get the materials they need for growth chiefly from air and water. (5-LS2-1) Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. (5-PS3-1) Use models to describe that

Instructional Days: 15</td><td>Lesson 1: How Does Energy Get Transformed by Plants? pp. 160-177

D/P- CYEI (video) Plants growing in a hydroponic garden p. 161

P- ENB (prompt) Students identify what plants need to grow and how plants in the picture (hydroponic garden) are able to grow without soil. p. 161</td><td>Lesson 2: How Do Organisms Use Matter and Energy? pp. 178-195

D/P- CYEI (video) Life cycle of a frog p. 179

P- ENB (prompt) What is the frog made of? How does it get the raw materials that make its body and fuel its activities? p. 179
D/P- LS Students are asked to predict the outcome of</td><td>Lesson 3: How Do Organisms Interact? pp. 196-213

D/P- CYEI (video) Animals interacting with their environment p. 197

P- ENB (prompt) Students predict what they think will to the animals in the photo and how they will find the resources they need. p. 197</td></tr>
</table>

energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.		D/P- Plant Growth: Can It Grow? (Students watch video about plant growth and answer questions that follow.) p. 162 P- AWYK HO Activity What Do Plants Need to Grow? (Students work in groups to plan an experiment about what plants need to grow.) p. 163 D/P- Rainy Days (Students watch video and think about how water from the rainstorm affects the plant.) p. 163 D/P- ENGIT What's Right Amount? (Students draw a model of an irrigation system that optimizes water use in a dry area or in a wet area.) p. 164 D/P- LS Students research more about how too much water can affect plant growth. p. 165 D/P- DTM Thirsty Trees (Students work in pairs to come up with a method for finding out which plant takes in the most water.) p. 166	an animal denied its source of matter. p. 180 D/P- Taking It All In (Students watch the videos of different animals getting what they need from their environments and answer the questions that follow.) p. 181 P- ENB (prompt) Students make a list of some ways animals get their food and identify some sources of food for an animal. p. 182 D/P- DTM Growing Anew (Students watch video of sea star and use the graph to find the average rate of regrowth of a sea star's arm.) p. 183 D/P- HO Activity What Was for Dinner? (Students collaborate with their group to determine what fruit has the most energy.) pp. 184-187 D/P- Animal Energy: Brrr! It's Cold Outside (Students watch video to discover more about where many penguins make their home.) p. 188	D/P- It's Alive: Living Together (Students explore digital pictures online and select spots representing the living things in their ecosystem.) p. 198 P- AWYK HO Activity What's in Your Environment? (Students develop three interview questions that they could use to find out more about their classmates' environments, interview several classmates, and then summarize their findings.) p. 199 D/P- ENGIT Let's Clean Up! (Students select one specific place or environment that is affected by pollution and research the place to learn more about the impact of pollution on the living and nonliving things there.) p. 199 P- ENB (prompt) Students identify factors that all species need in a healthy ecosystem (considering plants and animals). p. 199
Objective 1: Students will be able to identify some of the living creatures that help decompose organic materials after creating a habitat for a living creature. **Objective 2:** Students will define a bio dome and name its important features and will use the engineering design process to create a model bio dome of a particular environment. **Objective 3:** Students will explain the meaning of an ecosystem. **Objective 4:** Students will understand and demonstrate how energy moves through an ecosystem.				
Topics: Energy and Matter in Ecosystems Twenty-First Century Themes and Skills include: The Four C's • Environmental Literacy • Global Awareness				
Essential Questions: Where do plants get the materials they need for growth? How does matter move among plants, animals,				

decomposers, and the environment? How can energy in animals' food be traced to the sun?	P- ENB (prompt) Students identify whether plants that do not need a lot of water or plants that do need a lot of water would grow better in their area. Then students consider that the type of plant best suited for their area is a plant that does not need a lot of water and identify what they could do to grow such a plant in their area.) p. 166 D/P- HO Activity Lights Out! (Students collaborate with peers to collect data about how light is related to plant growth and survival.) pp. 167-169 D/P- Making Food (Students watch video to discover more about how plants make food.) p. 170 D/P- AWYK HO Activity In and Out (Students apply what they've learned to make a model that shows all of the parts of a plant that are involved in photosynthesis.) p. 171 P- ENB (prompt) Students look at the illustration of	D/P- DTM Counting Krill Calories (Using the data provided, students calculate how many calories an Adelie penguin eats in a typical summer day.) p. 188 D/P- Energy on the Move (Students watch video to discover more about how the sun's energy is used and transferred by the sunflower and other organisms.) p. 189 D/P- AWYK HO Activity Where's the Heat? (Students compare room temperature to body temperature.) p. 190 P- ENB (prompt) Students list sources of energy and sources of matter for animals. p. 190 D/P- LS Use the Internet (Students use digital resources to research what the largest animal on Earth today is and what it eats.) p. 190 D/P- TIF (enrich) Careers in Science and Engineering:	D/P- LS Students apply what they have learned about niches to explain how red-shouldered hawks and barred owls can both get what they need from their shared habitat. p. 201 D/P- HO Activity What's Out There? (Students watch the video to discover more about studying ecosystems and collaborate with their group members to study the components of an ecosystem and how they interact.) pp. 202-204 D/P- Populations and Communities (Students study pictures to learn more about animal populations.) p. 205 D/P- DTM Calculate Energy Units p. 206 P- ENB (prompt) Students research two living things that have similar niches in the same environment and explain how limiting factors affect and control the sizes of the

	the stomata again and explain how stomata help a plant get the materials it needs to grow; students describe what would happen if a plant did not have stomata. p. 172 D/P- LS Use Visual Displays (Students explain how plants get air, water, and energy, and how these resources are used to make food.) p. 172 D/P- TIF (enrich) Careers in Science and Engineering: A Moss-Powered Radio pp. 173-174 D- Not Only Plants; Design Your Own Hydroponics System Ecosystem D/P- Lesson Self Check pp. 175-176 D/P- Lesson Roundup p. 177 D- Lesson Quiz P- DI (ELL/RTI) p. 159G P- Extension p. 159G P- COLLAB p. 159H P- Connections to Science p. 159H	Animal Nutritionist pp. 191-192 D- In the Water; Engineer It: Feed Me Now! D/P- Lesson Self Check pp. 193-194 D/P- Lesson Roundup p. 195 D- Lesson Quiz P- DI (ELL/RTI) p. 159G P- Extension p. 159G P- COLLAB p. 159H P- Connections to Science p. 159H D- Science Safety HB D- CCC-HB D- ELA-HB D- Math-HB D- ScienceSaurus Reference HB	populations of these living things. p. 208 D/P- LS Making Inferences (Students research and compare two populations that compete in an ecosystem and identify the resource or resources for which the populations compete. p. 208 D/P- TIF (enrich) People in Science and Engineering: It's All Fun and Games pp. 209-210 D- Engineer It! Tiny Ecosystems; Animal Atlas D/P- Lesson Self Check pp. 211-212 D/P- Lesson Roundup p. 213 D- Lesson Quiz P- DI (ELL/RTI) p. 159G P- Extension p. 159G P- COLLAB p. 159H P- Connections to Science p. 159H D- Science Safety HB D- ELA-HB D- Math-HB

EPSD Curriculum and HMH SCIENCE DIMENSIONS 2018 Alignment TEMPLATE

	D- Science Safety HB D- CCC-HB D- ELA-HB D- Math-HB D- SEP-HB D- ScienceSaurus Reference HB D- YSI Simulation What Do Plants Need?		D- SEP-HB D- ScienceSaurus Reference HB

Curriculum Alignment Common Language (CACL) Guide K-5		
Acronym	**Word/Phrase**	**Description**
AWYK	Apply What You Know	Hands on opportunities for students to apply learning.
CER	Claims Evidence Reasoning	Students make a claim and gather evidence along the way (during EXPLORATORY activities) to support claim.
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.

EPSD Curriculum and HMH SCIENCE DIMENSIONS 2018 Alignment TEMPLATE

D	Digital	Program resources and features in interactive digital form.
DI (ELL/RTI) **Extension** **COLLAB** **Connections to Science**	Differentiated Instruction (English Language Learner/Response to Intervention) Collaboration Connections to Science	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 (prompt)	Student notebook or journal used to gather evidence during EXPLORATORY learning activities to support their claims.
ENGIT	Engineer It	Integrated subject learning.
HB **CCC-HB** **ELA-HB** **M-HB** **SEP-HB**	Handbooks Crosscutting Concepts English Language Arts Math Science and Engineering Practices	Students who need extra support in grasping concepts or to refresh student knowledge of skills.
HO	Hands-On (Activity)	Student collaboration activities.
LS	Language Smarts	Integrated subject learning.
P	Print	Program resources and features in print form.

EPSD Curriculum and HMH SCIENCE DIMENSIONS 2018 Alignment TEMPLATE

TIF	Take It Further (enrich)	Enrichment activities for students in print or digital.
YSI	You Solve It (Simulation)	Open-ended simulation-based learning with multiple answer options.