EPSD Curriculum and HMH SCIENCE DIMENSIONS 2018 Alignment TEMPLATE

GRADE 1

EPSD Unit 5: Communicating with Light and Sound (part II)
Fourth Marking Period

<table>
<tr><td colspan="2" rowspan="2">Overview: In this unit of study, students continue to develop their understanding of the relationship between sound and vibrating materials as well as between the availability of light and the ability to see objects. Students apply their knowledge of light and sound to engage in engineering design to solve a simple problem involving communication with light and sound. The crosscutting concepts of structure and function and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for the disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in constructing explanations and designing solutions, asking questions and defining problems, and developing and using models. Students are also expected to use these practices to demonstrate understanding of the core ideas. This unit is based on 1-PS4-4, K-2-ETS1-1, and K-2-ETS1-2.</td><td colspan="3">HMH Science Dimensions Program Resources</td></tr>
<tr><td colspan="3">Unit 3: Light
Unit Video (How do the building look as sun shines on them?); Unit Overview p. 79; Vocabulary p. 81 Connecting with NGSS p. 81H; Unit Project p. 81I; Unit Performance Task pp. 132-133; Unit Review pp. 134-136</td></tr>
<tr><td colspan="2" rowspan="2">Standards: (1-PS4-4) Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance. (K-2-ETS1-1) Ask questions, make observations,

Instructional Days: 25-30</td><td colspan="3">Standard for all Units: Interactive Glossary (D); Leveled Readers (D); Beginning-of-Year Test (D/P); Unit Pretest (D/P); 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>Lesson 1: How Does Light Help Us See? pp. 82-97

D/P- CYEI (video) Fireworks in a dark sky p. 83

D/P- CYEI Students identify how they can see fireworks in a dark sky? p. 83
D/P- All About Light (Students watch videos and explore online to discover more about light.) pp. 84-85</td><td>Lesson 2: How Do Materials Block Light? pp. 98-111

D/P- CYEI (video) Puppet show in the dark p. 99

D/P- CYEI How does the artist make the shapes? p. 99
D/P- How Much Light? (Students explore online to discover more about how different materials allow different amounts of light</td><td>Lesson 3: How Does Light Travel? pp. 112-131

D/P- CYSI (video) Light in a student’s eyes p. 113

D/P- CYSI Students identify how they could point light away from their eyes. p. 113
D/P- Straight On (Students explore online to learn about how light travels in a straight line; student view video to find</td></tr>
</table>

and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. (K-2-ETS1-2) Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.		D/P- DTM Tell Time (Students respond to a question about daylight time.) p. 85 D/P- Students watch video and explore online to find out more about how the amount of light in a room affects what can be seen. p. 86 P- AWYK Read, Write, Share! Students make observations while being in a darkroom with a flashlight turned on; students talk with peers about observations. p. 86 D/P- HO Activity Make Observations in Different Light (Students make observations in different amounts of light and record observations under bright light, some light and low light; students can view video online about how to set up and perform activity.) pp. 87-88 P- CER Students make a claim about the different amounts of light shining on	to pass through them.) p. 100 D/P- HO Activity Test How Light Passes Through Materials (Students investigate what happens when different materials are placed in the path of light; students can go online to view video about how to set up and perform the activity.) pp. 101-102 P- CER Students write a claim that describes how light travels through different objects and provide evidence to support their claim. p. 102 P- AWYK Students locate objects in the classroom and categorize them as: All Light, Some Light, and No Light; students count and identify how many objects in each group. p. 103 D/P- Shadows (Students explore online to find out more about shadows and how they are made; students view video to discover how the size of	out more about what happens when light hits an object.) pp. 114-117 P- AWYK (ENB) Students work with a group to show how light travels in a straight line; students provide evidence to support their claim and record results in their ENB. p. 117 D/P- A New Direction (Students view video and explore online to find out more about how a mirror can redirect light.) pp. 118-120 D/P- HO Activity Test What Happens to Light (Students make a claim about how smooth, shiny surfaces affect a beam of light and support their claim with evidence and data from their observations during the exploration; students can go online to view a video about how to set up and perform the activity.) pp. 121-122
Objective 1: Students will design a communication tool, using sound waves, to direct a student to walk forwards and backwards. **Objective 2:** Students will plan a tool to transmit sound during day one. Students will build and investigate with their device. **Objective 3:** Students will design an experiment with one variable to transmit sound from one place to another. **Objective 4:** Students will design a light system to communicate with others. **Objective 5:** Students will work in groups to design and explain a way of using light to help human communication.				

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Topics: Communicating with Light and Sound Twenty-First Century Themes and Skills include: Environmental Literacy • The Four C's • Light and Sound **Essential Questions:** How can light or sound be used to communicate over a distance?	an object and provide evidence to support their claim. p. 88 D/P- See in the Dark (Students view videos and explore online to find out more about objects that give off their own light.) pp. 88-90 D/P- Students watch video and explore online to learn about what they can see in a cave when light shine in it. p. 91 P- AWYK (ENB) Students work in a small group to design a simple test that identifies how students can see some objects in the dark; students use evidence to answer the question and record findings in their ENB. p. 92 D/P- TIF (enrich) People in Science and Engineering: Thomas Edison; Animals That Glow pp. 93-94 D/P- Lesson Check p. 95 D/P- Self Check pp. 96-97 D- Lesson Quiz	shadows can change.) pp. 104-105 P- AWYK (ENB) Students work with a group and design a test using paper and light to investigate how the shape of an object affect its shadow; students use evidence to answer the question and record findings in their ENB. p. 106 D/P- TIF (enrich) Prisms; Make a Sundial pp. 107-108 D/P- Lesson Check p. 109 D/P- Self Check pp. 110-111 D- Lesson Quiz P- DI (ELL/RTI) p. 81G P-Extension p. 81G P- COLLAB p. 81H P- Connecting with NGSS p. 81H D- Science Safety HB D- CCC-HB D- ELA-HB D- M- HB D- SEP-HB	P- CER Students make a claim that shows their understanding that an object's type of material determines if light will reflect off the object. p. 122 D/P- DTM Solve Word Problems (Students identify how many feet a beam of light travels.) p. 123 P- AWYK (ENB) Students work with a partner to conduct a test and collect data to explore how to reflect light so it hits a certain spot; students explain if their test worked and write and draw their findings in their ENB. p. 123 D/P- Communicate with Light (Students watch videos and explore online to learn more about how people use light to communicate.) pp. 124-126 D/P- TIF (enrich) Careers in Science and Engineering: Camera

	P- DI (ELL/RTI) p. 81G P-Extension p. 81G P- COLLAB p. 81H P- Connecting with NGSS p. 81H D- Science Safety HB D- CCC-HB D- ELA-HB D- M- HB D- SEP-HB D- ScienceSarurs Reference HB D- YSI Simulation Message Projector	D- ScienceSarurs Reference HB	Engineer; Art with Light pp. 127-128 D/P- Lesson Check p. 129 D/P- Self Check pp. 130-131 D- Lesson Quiz P- DI (ELL/RTI) p. 81G P-Extension p. 81G P- COLLAB p. 81H P- Connecting with NGSS p. 81H D- Science Safety HB D- CCC-HB D- ELA-HB D- M- HB D- SEP-HB D- ScienceSarurs Reference HB D- YSI Simulation Message Projector

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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.
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.

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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.
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.