# EPSD Curriculum and HMH SCIENCE DIMENSIONS 2018 Alignment TEMPLATE

**GRADE 1**

**Unit 5: Communicating with Light and Sound (part I)**
**Fourth Marking Period**

<table>
<tr><td colspan="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="2">HMH Science Dimensions Program Resources</td></tr>
<tr><td colspan="2"></td><td colspan="2">Unit 2: Sound<br>Unit Video (paint bouncing); Unit Overview p. 39; Vocabulary p. 41; Connecting with NGSS p. 41H; Unit Project p. 41I; Unit Performance Task pp. 74-75; Unit Review pp. 76-78</td></tr>
<tr><td colspan="2"></td><td colspan="2">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)<br><br>Note: Refer to the Curriculum Alignment Common Language (CACL) Guide to decipher acronyms.</td></tr>
<tr><td colspan="2"></td><td>Lesson 1: What Is Sound? pp. 42-57<br><br>D/P- CYEI (video) Glass of water next to a speaker p. 43<br><br>D/P- CYEI Why does the water move? p. 43<br>D/P- Make a Sound (Students watch video and explore online to find out more about the causes of sound.) pp. 44-45<br>P- AWYK Students work with a group to perform a simple test to gather evidence about the effect of causing a metal ruler to vibrate; students also identify what causes the sound to change.) p. 45</td><td>Lesson 2: Engineer It: How Can We Communicate with Sound? pp. 58-73<br><br>D/P- CYEI (video) Dolphins swimming in water p. 59<br><br>D/P- CYEI Students identify how they could use sound to send a message over a distance. p. 59<br>D/P- Communicate with Sound (Students explore online to learn more about how people communicate with sound.) pp. 60-61<br>P- AWYK Students work with a partner or small group and take turns naming and</td></tr>
<tr><td>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,</td><td>Instructional Days: 25-30</td><td colspan="2"></td></tr>
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| 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- Volume and Pitch (Students explore online to find out more about volume and pitch.) pp. 46-48<br>D/P- DTM Compare Numbers (Students compare numbers using symbols.) p. 49<br>P- AWYK Read, Write, Share! (Students work with a partner to list objects in the classroom that make sounds with a high pitch and objects that make sounds with a low pitch; students talk with other student pairs about their list.) p. 49<br>D/P- What Makes It Move (Student watch video and explore online to learn more about how sound can make objects move.) p. 50<br>P- AWYK (ENB) Students work with a partner to explore sound and plan a test to show that sound can make materials vibrate; students use evidence to explain what happened and record findings in their ENB. p. 50<br>D/P- HO Activity Make Something Move with Sound (Students work in small groups to answer the question, Can sound make rice move? Students can go online to view a video about how to set up and perform the activity.) pp. 51-52<br>P- CER Students make a claim about whether sound can make rice move and provide evidence. p. 52 | showing a way to communicate with sound. p. 61<br>D/P- Communicate over Distances (Students explore online to find out more about how people communicate over distances.) p. 62<br>D/P- HO Activity Engineer It: Communicate over Distance (Students design and construct a device to enhance communication with sound over distance; students can watch video online about how to set up and perform the activity.) pp. 63-64<br>P- CER Students make a claim that explains how they used materials provided in the activity to help them communicate with sound and provide evidence to support their claim. p. 64<br>P- AWYK Students work with a small group to estimate the distance they think sound will travel and use their feet to measure the distance. p. 65<br>D/P- Send a Message (Students explore online to discover more about the differences between older communication technologies versus newer communication technologies; students also and find out more about how technology is used to communicate.) pp. 66-67 |
| **Objective 1:** Students will design a communication tool, using sound waves, to direct a student to walk forwards and backwards.<br><br>**Objective 2:** Students will plan a tool to transmit sound during day one. Students will build and investigate with their device.<br><br>**Objective 3:** Students will design an experiment with one variable to transmit sound from one place to another.<br><br>**Objective 4:** Students will design a light system to communicate with others.<br><br>**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<br>Twenty-First Century Themes and Skills include: Environmental Literacy • The Four C's • Light and Sound<br><br>**Essential Questions:** How can light or sound be used to communicate over a distance? | D/P- TIF (enrich) People in Science and Engineering: Ludwig van Beethoven; Pitch In pp. 53-54<br><br>D/P- Lesson Check p. 55<br>D/P- Self Check pp. 56-57<br>D- Lesson Quiz<br><br>P- DI (ELL/RTI) p. 41G<br>P-Extension p. 41G<br>P- COLLAB p. 41H<br>P- Connecting with NGSS p. 41H<br><br>D- Science Safety HB<br>D- CCC-HB<br>D- ELA-HB<br>D- M- HB<br>D- SEP- HB<br>D- ScienceSarurs Reference HB<br><br>D- YSI Simulation Getting the Band Together | P- AWYK (ENB) Students work in small groups to list ideas to solve a problem by communicating with sound over a distance; students draw one of their solutions and use evidence to tell why their solution will work. Scenario: The clock in the next classroom is broken. Students want to tell that class what time it is, but they cannot leave their room. Students list ideas for solutions in their ENB. p. 68<br><br>D/P- TIF (enrich) Careers in Science and Engineering: Sound Engineer; Morse Code pp. 69-70<br><br>D/P- Lesson Check p. 71<br>D/P- Self Check pp. 72-73<br>D- Lesson Quiz<br><br>P- DI (ELL/RTI) p. 41G<br>P-Extension p. 41G<br>P- COLLAB p. 41H<br>P- Connecting with NGSS p. 41H<br><br>D- Science Safety HB<br>D- CCC-HB<br>D- ELA-HB<br>D- M- HB<br>D- SEP-HB<br>D- ScienceSarurs Reference HB |

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| Curriculum Alignment Common Language (CACL) Guide K-5 | | |
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| **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)**<br>**Extension**<br>**COLLAB**<br>**Connections to Science** | Differentiated Instruction (English Language Learner/Response to Intervention)<br>Collaboration<br>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**<br>**CCC-HB**<br>**ELA-HB**<br>**M-HB**<br>**SEP-HB** | Handbooks<br>Crosscutting Concepts<br>English Language Arts<br>Math<br>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. |