EPSD Curriculum and HMH SCIENCE DIMENSIONS 2018 Alignment TEMPLATE

GRADE Kindergarten

Unit 1: Engineering and Technology
Marking Period

NGSS Overview:

The performance expectations in kindergarten help students formulate answers to questions such as: "What happens if you push or pull an object harder? Where do animals live and why do they live there? What is the weather like today and how is it different from yesterday?" Kindergarten performance expectations include PS2, PS3, LS1, ESS2, ESS3, and ETS1.

With the Disciplinary Core Ideas, students are expected to develop understanding of patterns and variations in local weather and the purpose of weather forecasting to prepare for, and respond to, severe weather. Students are able to apply an understanding of the effects of different strengths or different directions of pushes and pulls on the motion of an object to analyze a design solution. Students are also expected to develop understanding of what plants and animals (including humans) need to survive and the relationship between their needs and where they live.

The crosscutting concepts of patterns; cause and effect; systems and system models; interdependence of science, engineering, and technology; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. In the kindergarten performance expectations, students are expected to demonstrate grade-appropriate proficiency in asking questions, developing and using models, planning and carrying out investigations, analyzing and interpreting data, designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are expected to use these practices to demonstrate understanding of the core ideas.

Performance Expectations:	**HMH Science Dimensions Program Resources**
ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a	**Unit 1: Engineering and Technology** **Unit Video** (sand object moving across the sand); **Unit Overview** p. 1; **Vocabulary** p. 3; **Connecting with NGSS** 3H; **Unit Project** 3I; **Unit Performance Task** pp. 32-33; **Unit Review** pp. 34-36

<table>
<tr><td>new or improved object or tool.

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.

ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</td><td colspan="2">Standard for all Units: Interactive Glossary (D); Leveled Readers (D); 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>Objectives:

Lesson 1: Use observations and questions to identify engineers as workers who find solutions to problems.

Lesson 2: Use observations and analyze a solution to solve a problem.</td><td rowspan="3">Lesson 1: Engineer It: What Does an Engineer Do? pp. 4-17

D/P- CYSI (video) Flying disc stuck in a tree p. 5

D/P- CYSI The flying disc is stuck in the tree. How can they get it down? p. 5
D/P- Problems and Solutions (Students watch videos and explore online to find out more about problems and solutions.) pp. 6-8
P- AWYK Read, Write, Share! (Students ask questions using questions words such as what, why, or how; students draw or write about a problem and a possible solution.) p. 8
D/P- HO Activity Engineer It: Problem and Solution (Students ask questions to identify a problem and design a solution; students can watch the video of the steps</td><td rowspan="3">Lesson 2: Engineer It: How Can We Use a Design Process? pp. 18-31

D/P- CYSI (video) A ball park p. 19

D/P- CYSI Where can lights be put so people can see when it is dark? p. 19
D/P- A Design Process: Step 1 and Step 2 (Students watch videos and explore online to find out more about the design process, steps 1 and 2.) p. 20
D/P- DTM Students identify a cylinder. p. 21
P- AWYK (ENB) Students draw a tower and discuss in small groups their ideas about which tower would work best and why; students draw their answer in their ENB. p. 21
D/P- A Design Process: Step 3 and Step 4 (Students watch videos and explore online to learn more about the design process,</td></tr>
<tr><td>Instructional Days: 12 Days for Core; 24 Days for Comprehensive</td></tr>
<tr><td>Unit Project Questions: Have you ever had a mixed pile of coins? What can you make to help sort the coins?</td></tr>
</table>

Unit Vocabulary: problem solution engineer technology design process model	*for this activity.)* pp. 9-10 P- CER *Students make a claim about how their design solves a problem and provide evidence to support their claim.* p. 10 D/P- *Engineers (Students watch video about how engineers solve problems and explore online to discover more about engineers and how they help us solve problems.)* pp. 11-12 P- AWYK (ENB) *Students identify how technology has helped them to solve a problem.* p. 12 D/P- TIF (enrich) Careers *in Science and Engineering: Toy Engineer; Changes in Technology* pp. 13-14 D/P- Lesson Check p. 15 D/P- Self Check- pp. 16-17 D- Lesson Quiz P- DI ELL/RTI – p. 3G P- Extension p. 3G P- COLLAB p. 3H P- Connecting with NGSS p. 3H D- Science Safety HB D- CCC-HB D- ELA-HB D- M- HB D-SEP-HB	*steps 3 and 4.)* pp. 22-23 P- AWYK (ENB) *Students think about a problem that needs a solution and write or draw about the problem; students use evidence to tell how a design process would help them find a solution.* p. 23 D/P- *A Design Process: Step 5 (Students watch video and explore online to learn more about the design process, step 5.)* p. 24 P- AWYK (ENB) *Students identify what the students are using (in the eBook or in the picture on p. 24) to communicate a solution and pick one step in the design process to draw a picture or tell about a time they used that step.* p. 24 D/P- HO Activity *Engineer It: A Design Process (Students use steps in the design process to develop, test, modify and compare models that solve a problem.)* pp. 25-26 P- CER *Students make a claim about their tool and provide evidence.* p. 26 D/P- TIF (enrich) *People in Science and Engineering: Dr. Ayanna Howard; Wants and Needs* pp. 27-28 D/P- Lesson Check p. 29 D/P- Self Check pp. 30-31 D- Lesson Quiz

	D- ScienceSarurs Reference HB	P- DI ELL/RTI – p. 3G P- Extension p. 3G P- COLLAB p. 3H P- Connecting with NGSS p. 3H D- Science Safety HB D- CCC-HB D- ELA-HB D- M- HB D- SEP-HB D- ScienceSarurs Reference HB D- YSI Simulation *Off to the Races!*

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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.