

# EPSD Curriculum and HMH SCIENCE DIMENSIONS 2018 Alignment TEMPLATE

## GRADE 7

### EPSD Unit 1: Cell Structure and Function First Marking Period

<p><b>Overview:</b> Students demonstrate age appropriate abilities to plan and carry out investigations to develop evidence that living organisms are made of cells. Students gather information to support explanations of the relationship between structure and function in cells. They are able to communicate an understanding of cell theory and understand that all organisms are made of cells. Students understand that special structures are responsible for particular functions in organisms. They then are able to use their understanding of cell theory to develop and use physical and conceptual models of cells. The crosscutting concepts of scale, proportion, and quantity and structure and function provide a framework for understanding the disciplinary core ideas. Students are expected to demonstrate proficiency in planning and carrying out investigations, analyzing and interpreting data, and developing and using models. Students are also expected to use these science and engineering practices to demonstrate understanding of the disciplinary core ideas.</p>		HMH Science Dimensions Program Resources Module B	
		<p><b>Unit 1 Cells</b>  <b>Unit Video</b> (microscopic view of tiny organisms swimming around in a sample of pond water); <b>Why it Matters</b> p. 2; <b>Unit Starter</b> p. 3; <b>Vocabulary</b> p. 3G; <b>Unit Project</b> p. 3I; <b>Unit Connections</b> p. 36; <b>Unit Review</b> pp. 37-40; <b>Unit Performance Task</b> pp. 41-42</p>	
		<p><b>Standard for all Units:</b> (D) Interactive Multilingual Glossary; (D/P) Unit Pretest; (D) Lesson Quizzes; (D/P) Unit Test</p> <p><b>Note:</b> Refer to the Curriculum Alignment Common Language (CACL) Guide to decipher acronyms.</p>	
		<p><b>Lesson 1:</b> The Characteristics of Cells pp. 4-17</p> <p>D/P – WIM Questions p. 2</p> <p>D/P- CYEI (digital picture) How do these tiny structures relate to the onion? p. 5</p> <p>P- ENB (prompt) Gather evidence to explain how whole organisms are made up of building blocks, or cells. p. 5</p> <p>P- ENB (prompt) Is the onion shown at the beginning of the lesson an example of a living or nonliving thing? p. 7</p>	<p><b>Lesson 2:</b> Cell Structures and Function pp. 18-35</p> <p>D/P – WIM Questions p. 2</p> <p>D/P- CYEI (digital picture) How is a cell like a sports stadium? p. 19</p> <p>P- ENB (prompt) Gather evidence to explain how a cell's functions are performed by specific cell structures. p. 19</p> <p>D/P- Students digitally interact with diagrams of the Prokaryotic Cell, Animal Cell and Plant Cell. pp. 21-23</p>
<p><b>Standards:</b> (MS-LS1-1) Conduct an investigation to provide evidence that living things are made of cells; either one cell or</p>	<p><b>Instructional Days:</b> 10-15</p>		

EPSD Curriculum and  HMH SCIENCE DIMENSIONS 2018 Alignment TEMPLATE

<p>many different numbers and types of cells. (MS-LS1-2) Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.</p>		<p>D/P- Students view video of cell division. p. 9 D/P- LS Summarize Parts of a Theory (Students summarize the three parts of the cell theory in their own words, using examples of organisms in which they are familiar with.) p. 9</p>	<p>D/P- Students view digital images and decide which organelle matches each analogy. p. 25 D/P- HOL Activity Use Cell Models to Investigate Cell Size (Students determine how one can predict the impact of cell size on cell function.) pp. 26-27</p>
<p><b>Objective 1:</b> Students will: Conduct an investigation to produce data that provides evidence distinguishing between living and nonliving things. Conduct an investigation to produce data supporting the concept that living things may be made of one cell or many and varied cells.</p> <p><b>Objective 2:</b> Students will: Distinguish between living and nonliving things. Observe different types of cells that can be found in the makeup of living things.</p> <p><b>Objective 3:</b> Students will: Develop and use a model to describe the function of a cell as a whole. Develop and use a model to describe how parts of cells contribute to the cell's function. Develop and use models to describe the relationship between the structure and function of the cell wall and cell membrane.</p>		<p>D/P- HOL Activity Observe Cells with a Microscope pp. 11-12 D/P- DTM Referring to the HOL Activity (step 11), students use magnitude thinking to correlate detail seen with the magnification scales. p. 12 D/P- ENGIT Referring to the HOL Activity (step 12), students identify the needs filled by the microscope and the limitations of the microscope being used. p. 12 P- ENB (prompt) What does observing different scales on the onion skin tell you about its composition? Record evidence. p. 12</p> <p>D/P- TIF (enrich) Microscopes over Time pp. 13-14 D- Hands-On Labs; Making a Microscope; Propose Your Own Path</p>	<p>D/P- DTM Referring to the HOL Activity (step 4), students use variables to analyze how the surface area-to-volume ratio affects transportation of materials in a cell. p. 27 P- ENB (prompt) Students think about the model they are developing that compares a sports stadium to a cell. Students describe the primary role each organelle plays in a cell and identify a similar role that is filled in a sports stadium. How do these components contribute to the function of the whole system for a cell and a sports stadium? p. 28 P- ENB (prompt) While a sports stadium is a system much like a cell is, it does not have the same limits on size that cells do. How do other parts of a cell depend on the function of the cell membrane and how is this relationship different between the components of a sports stadium? p. 30</p>
<p><b>Topics:</b> Cell Theory; Cell Structure; Cellular Transport; and Twenty-First Century Themes and Skills(TFCTS) to include: The Four C's and Life and Career Skills</p>		<p>D/P- Lesson Self Check pp. 15-17 D- Lesson Quiz D-Make Your Own Study Guide</p>	

# EPSD Curriculum and HMH SCIENCE DIMENSIONS 2018 Alignment TEMPLATE

<p><b>Essential Questions:</b> How do cells contribute to the functioning of an organism? How will astrobiologists know if they have found life elsewhere in the solar system? How do the functions of cells support an entire organism?</p>	<p>P- DI (ELL/RTI) p. 3G            P- Extension p. 3G            P- COLLAB p. 3H            P- Connections to Other Disciplines p. 3H</p> <p>D-Science Safety HB            D- CCC-HB            D- ELA-HB            D-M-HB            D- SEP-HB            D-ScienceSaurus Reference HB</p> <p>D- VL Analyzing Cells</p>	<p>D/P- LS Citing evidence from the text and from their calculations, students explain why cells are unable to perform important functions if they become too large. p. 30            D/P- ENGIT Students imagine themselves designing a building that must minimize energy transfer in the form of heat loss. Have students describe a building shape that they think would minimize heat loss through the surface of the building and explain how that shape relates to the surface area-to-volume ratio. p. 30</p> <p>D/P- TIF (enrich) People in Science: Lynn Margulis, Biologist pp. 31-32            D- Hands-On Labs; Understanding Cell Metabolism; Propose Your Own Path</p> <p>D/P- Lesson Self Check pp. 33-35            D- Lesson Quiz            D-Make Your Own Study Guide</p> <p>P- DI (ELL/RTI) p. 3G            P- Extension p. 3G            P- COLLAB p. 3H            P- Connections to Other Disciplines p. 3H</p> <p>D-Science Safety HB            D- ELA-HB            D-M-HB            D- SEP-HB            D-ScienceSaurus Reference HB</p>
--	---	---

EPSD Curriculum and  HMH SCIENCE DIMENSIONS 2018 Alignment TEMPLATE

		D- VL Analyzing Cells
--	--	-----------------------

EPSD Curriculum and  **HMH SCIENCE DIMENSIONS 2018 Alignment TEMPLATE**

Curriculum Alignment Common Language (CACL) Guide 6-8		
Acronym	Word/Phrase	Description
<b>CER</b>	Claims Evidence Reasoning	Students make a claim and gather evidence along the way (during EXPLORATORY activities) to support claim.
<b>CCC-HB</b>	Crosscutting Handbook	Students who need extra support in grasping concepts or to refresh student knowledge of skills.
<b>CYEI</b>	Can You Explain It	Lesson phenomenon used to ENGAGE students in learning at the beginning of the lesson.
<b>CYSI</b>	Can You Solve It	Lesson phenomenon used to ENGAGE students in learning at the beginning of the lesson.
<b>D</b>	Digital	Program resources and features in interactive digital form.
<b>DI (ELL/RTI) Extension COLLAB Connections to Other Disciplines</b>	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.
<b>DTM</b>	Do the Math	Integrated subject learning.
<b>ENB</b>	Evidence Notebook	Student notebook or journal used to gather evidence during EXPLORATORY learning activities to support their claims.
<b>ENGIT</b>	Engineer It	Integrated subject learning.
<b>ELA-HB</b>	English Language Arts Handbook	Students who need extra support in grasping concepts or to refresh student knowledge of skills.
<b>HOL</b>	Hands-On Lab	Activities or experiments that enable students to demonstrate scientific procedures and analysis.
<b>LS</b>	Language SmArts	Integrated subject learning.

EPSD Curriculum and  **HMH SCIENCE DIMENSIONS 2018 Alignment TEMPLATE**

<b>M-HB</b>	Math Handbook	Students who need extra support in grasping concepts or to refresh student knowledge of skills.
<b>P</b>	Print	Program resources and features in print form.
<b>SEP-HB</b>	Science and Engineer Practices Handbook	Students who need extra support in grasping concepts or to refresh student knowledge of skills.
<b>TIF</b>	Take It Further (enrich)	Enrichment activities for students in digital or print.
<b>VBP</b>	Video Based Project	Real life videos related to science and/or engineering that enable students to demonstrate mastery of performance expectations.
<b>VL</b>	Virtual Lab	Fully interactive simulations in which students perform experiments, collect data and answer questions.
<b>WIM</b>	Why It Matters	Questions related to lessons within each unit that asks students to consider how science affects the world around them.
<b>YSI</b>	You Solve It (Simulation)	Open-ended simulation-based learning with multiple answer options.