

HMH SCIENCE **DIMENSIONS™**  
ENGINEERED for the  
NEXT GENERATION

# Biology

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**GRADES 9–12**

## Scope and Sequence

### Unit 1: Living Systems

LS1-2, LS1-3, ETS1-2, ETS1-3

**Lesson 1: Life in the Earth System**

**Lesson 2: Organisms: Cells to Body Systems**

**Lesson 3: Mechanisms of Homeostasis**

**Lesson 4: Bioengineering**

*Thing Explainer:* Bags of Stuff Inside You

### Unit 2: Chemistry in Living Systems

LS1-6

**Lesson 1: Chemical Bonds and Reactions**

**Lesson 2: Carbon-Based Molecules**

### Unit 3: Matter and Energy in Living Systems

LS1-5, LS1-7, LS2-3, LS2-4, LS2-5, ETS1-1, ETS1-3

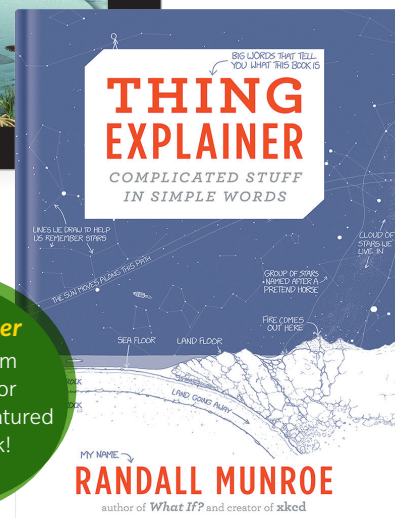
**Lesson 1: Photosynthesis**

**Lesson 2: Cellular Respiration**

**Lesson 3: Modeling Matter and Energy in Ecosystems**

**Lesson 4: Cycling of Matter and Energy in Ecosystems**

*Thing Explainer:* Tree



#### *Thing Explainer*

Illustrations from  
xkcd.com author  
Randall Munroe featured  
in the textbook!

## Unit 4: Ecosystems: Stability and Change

LS2-1, LS2-2, LS2-6

**Lesson 1: Population Dynamics**

**Lesson 2: Ecosystem Dynamics**

**Thing Explainer:** How Forests Come Back

## Unit 5: Cells: Stability and Change

LS1-4

**Lesson 1: The Cell Cycle**

**Lesson 2: Mitosis and Differentiation**

**Thing Explainer:** Tiny Bags of Water

## Unit 6: Structure and Function of DNA

LS1-1

**Lesson 1: DNA Structure and Replication**

**Lesson 2: Protein Synthesis**

**Lesson 3: Gene Expression and Regulation**

## Unit 7: Genetics and Heredity

LS3-1, LS3-2, LS3-3, ETS1-3

**Lesson 1: Meiosis**

**Lesson 2: Mendel and Heredity**

**Lesson 3: Traits and Probability**

**Lesson 4: Mutations and Genetic Diversity**

**Lesson 5: Genetic Engineering**

**Thing Explainer:** Books Inside Us

## Unit 8: Evidence for Evolution

LS4-1, LS4-2

**Lesson 1: Lines of Evidence for Evolution**

**Lesson 2: Theory of Natural Selection**

## Unit 9: Patterns of Evolution

LS2-8, LS3-3, LS4-3, LS4-4, LS4-5

**Lesson 1: Evolution of Populations**

**Lesson 2: Changes in Species**

**Lesson 3: Adaptive Value of Behavior**

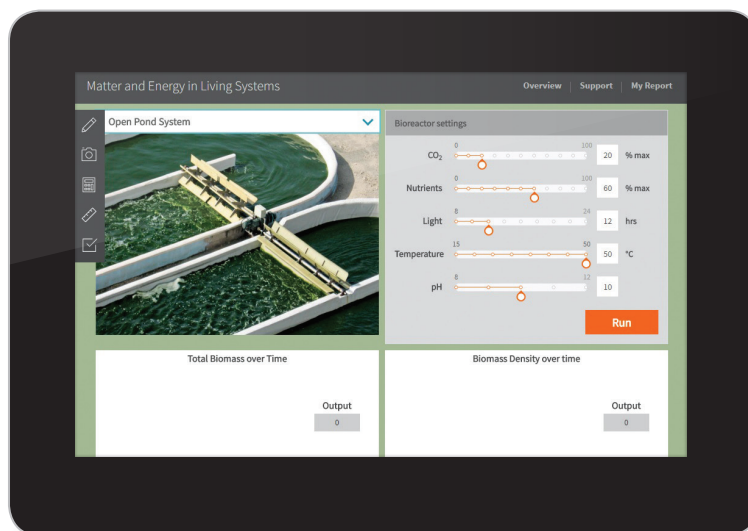
## Unit 10: Patterns of Evolution

LS2-2, LS2-7, LS4-6, ETS1-1, ETS1-4

**Lesson 1: Human Population Growth and the Environment**

**Lesson 2: Human Impacts on Biodiversity**

**Lesson 3: Engineering Solutions to Environmental Impacts**



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