

Houghton Mifflin Harcourt Tennessee Science (2010), Grade 5
correlated to
Tennessee Science Standards

Tennessee Science Standards	<i>Houghton Mifflin Harcourt Tennessee Science, Grade 5</i>
GRADE 5: EMBEDDED INQUIRY	
Grade Level Expectations	
GLE 0507.Inq.1 Explore different scientific phenomena by asking questions, making logical predictions, planning investigations, and recording data.	SE: S2–S3, S6–S7, S8–S9, 40, 66–67, 116, 134–135, 150, 176–177, 196, 254–255, 269, 294–295, 306–307, 318, 334–335, 346 TE: T30, T31, 40, 66–67, 104–105, 116, 134–135, 150, 176–177, 196, 254–255, 269, 294–295, 306–307, 318, 334–335, 346
GLE 0507.Inq.2 Select and use appropriate tools and simple equipment to conduct an investigation.	SE: S6–S7, 40, 197, 226–227, 318 TE: T30, 38, 40, 197, 226–227, 318
GLE 0507.Inq.3 Organize data into appropriate tables, graphs, drawings, or diagrams.	SE: 24–25, 40, 46–47, 52–53, 84–85, 150, 196–197, 202–203, 238, 286–287, 324–325, 352–353, 362–363 TE: 24–25, 40, 46–47, 52–53, 84–85, 150, 196–197, 202–203, 238, 286–287, 324–325, 352–353, 362–363
GLE 0507.Inq.4 Identify and interpret simple patterns of evidence to communicate the findings of multiple investigations.	SE: S4–S5, 92–93, 116, 122–123, 238, 294–295, 388 TE: T29, 92–93, 116, 122–123, 238, 294–295, 388
GLE 0507.Inq.5 Recognize that people may interpret the same results in different ways.	SE: S4–S5, 14–15, 104–105, 186–187, 286–287 TE: T29, 14–15, 186–187, 264–265, 286–287
GLE 0507.Inq.6 Compare the results of an investigation with what scientists already accept about this question.	SE: 168–169, 212–213, 244–245, 376–377 TE: 168–169, 212–213, 244–245, 376–377
Checks for Understanding	
✓0507.Inq.1 Identify specific investigations that could be used to answer a particular question and identify reasons for this choice.	SE: 47 TE: 47
✓0507.Inq.2 Identify tools needed to investigate specific questions.	SE: 177, 307 TE: 177, 307
✓0507.Inq.3 Maintain a science notebook that includes observations, data, diagrams, and explanations.	SE: 105, 169, 245, 255 TE: 105, 169, 245, 255
✓0507.Inq.4 Analyze and communicate findings from multiple investigations of similar phenomena to reach a conclusion.	SE: 93, 287, 295 TE: 93, 287, 295
State Performance Indicators	

SE=Student Edition

UR=Unit Resources

TE=Teacher Edition

Houghton Mifflin Harcourt Tennessee Science (2010), Grade 5
correlated to
Tennessee Science Standards

Tennessee Science Standards	<i>Houghton Mifflin Harcourt Tennessee Science, Grade 5</i>
SPI 0507.Inq.1 Select an investigation that could be used to answer a specific question.	SE: 319 TE: TCAP6, 319 UR: 6
GRADE 5: EMBEDDED TECHNOLOGY & ENGINEERING	
Grade Level Expectations	
GLE 0507.T/E.1 Describe how tools, technology, and inventions help to answer questions and solve problems.	SE: S2–S3, 22–23, 132–133, 304–305, 342–343, 374–375 TE: T28, 22–23, 132–133, 304–305, 342–343, 374–375
GLE 0507.T/E.2 Recognize that new tools, technology, and inventions are always being developed.	SE: 8, 22–23, 314–315 TE: 8, 22–23, 314–315, 374–375
GLE 0507.T/E.3 Identify appropriate materials, tools, and machines that can extend or enhance the ability to solve a specified problem.	SE: S12–S13, 162 TE: T33, 162
GLE 0507.T/E.4 Recognize the connection between scientific advances, new knowledge, and the availability of new tools and technologies.	SE: S10–S11, 192–193, 384–385 TE: T32, 192–193, 384–385
GLE 0507.T/E.5 Apply a creative design strategy to solve a particular problem generated by societal needs and wants.	SE: S10–S11, S14–S15, 222–225, 280 TE: T32, T34, 222–225, 280
Checks for Understanding	
✓0507.T/E.1 Explain how different inventions and technologies impact people and other living organisms.	SE: 293 TE: 293
✓0507.T/E.2 Design a tool or a process that addresses an identified problem caused by human activity.	SE: S12–S13, S14–S15, 280 TE: T33, T34, 280
✓0507.T/E.3 Determine criteria to evaluate the effectiveness of a solution to a specified problem.	SE: 175 TE: 175, 371
✓0507.T/E.4 Evaluate an invention that solves a problem and determine ways to improve the design.	TE: 171
State Performance Indicators	
SPI 0507.T/E.1 Select a tool, technology, or invention that was used to solve a human problem.	TE: TCAP11 UR: 11
SPI 0507.T/E.2 Recognize the connection between a scientific advance and the development of a new tool or technology.	TE: TCAP10 UR: 10
GRADE 5— LIFE SCIENCE	

SE=Student Edition

UR=Unit Resources

TE=Teacher Edition

Houghton Mifflin Harcourt Tennessee Science (2010), Grade 5
correlated to
Tennessee Science Standards

Tennessee Science Standards	<i>Houghton Mifflin Harcourt Tennessee Science, Grade 5</i>
Grade 5: Standard 1 — Cells	
Grade Level Expectations	
GLE 0507.1.1 Distinguish between the basic structures and functions of plant and animal cells.	SE: 14–15, 16–21, 41, 132–133 TE: 14–15, 16–21, 41, 132–133
Checks for Understanding	
✓0507.1.1 Label drawings of plant and animals cells.	SE: 15 TE: 9c, 15
✓0507.1.2 Compare and contrast the basic structures and functions of plant and animal cells.	SE: 21 TE: 20, 21
State Performance Indicators	
SPI 0507.1.1 Identify the major parts of plant and animal cells such as, the nucleus, cell membrane, cell wall, and cytoplasm.	SE: 21, 41 TE: TCAP2, 10d, 21, 41 UR: 2, 36–37
SPI 0507.1.2 Compare and contrast basic structures and functions of plant and animal cells.	SE: 41 TE: 10d, 41, TCAP5, 152 UR: 5, 36–37
Grade 5: Standard 2 — Interdependence	
Grade Level Expectations	
GLE 0507.2.1 Investigate different nutritional relationships among organisms in an ecosystem.	SE: 2–3, 46–47, 48–51, 66–67, 68–73, 74–75, 78–79, 94–95, 112–113 TE: 46–47, 48–51, 54–61, 66–67, 68–73, 74–75, 78–79, 94–95, 112–113
GLE 0507.2.2 Explain how organisms interact through symbiotic, commensal, and parasitic relationships.	SE: 4–5, 78, 86–87, 90–91, 116–117 TE: 78, 86–87, 116–117
GLE 0507.2.3 Establish the connections between human activities and natural disasters and their impact on the environment.	SE: 6–7, 92–93, 96–98, 104–105, 106–111, 114, 117, 252–253, 264–265 TE: 7, 92–93, 96–99, 104–105, 106–111, 114, 117, 252–253, 264–265
Checks for Understanding	
✓0507.2.1 Evaluate producer/consumer, predator/prey, and parasite/host relationships.	SE: 51, 67, 79, 91 TE: 51, 67, 79, 91
✓0507.2.2 Classify interspecific relationships within an ecosystem as mutualism, commensalism, or parasitism.	TE: 90
✓0507.2.3 Create a simple model illustrating the interspecific relationships within an ecosystem.	TE: 9c, 49

SE=Student Edition

UR=Unit Resources

TE=Teacher Edition

Houghton Mifflin Harcourt Tennessee Science (2010), Grade 5
correlated to
Tennessee Science Standards

Tennessee Science Standards	<i>Houghton Mifflin Harcourt Tennessee Science, Grade 5</i>
√0507.2.4 Analyze basic information from a body of text to identify key issues or assumptions about the relationships among organisms in an ecosystem.	TE: 62, 109
√0507.2.5 Create a poster to illustrate how human activities and natural disasters affect the environment.	SE: 111 TE: 111
State Performance Indicators	
SPI 0507.2.1 Describe the different types of nutritional relationships that exist among organisms.	SE: 51, 73, 79 TE: TCAP7, 42d, 51, 73, 79, 80d UR: 7, 55, 74
SPI 0507.2.2 Distinguish among symbiotic, commensal, and parasitic relationships.	SE: 91, 117, 152 TE: TCAP2, 80d, 91, 152 UR: 2, 75
SPI 0507.2.3 Use information about the impact of human actions or natural disasters on the environment to support a simple hypothesis, make a prediction, or draw a conclusion.	SE: 111, 117 TE: TCAP3, 80d, 111 UR: 3, 75
Grade 5: Standard 3 — Flow of Matter and Energy	
Grade Level Expectations	
GLE 0507.3.1 Demonstrate how all living things rely on the process of photosynthesis to obtain energy.	SE: 21, 68–73, 79 TE: 21, 68–73, 79
Checks for Understanding	
√0507.3.1 Identify the cell structures that enable plants to conduct photosynthesis.	SE: 21 TE: 21
√0507.3.2 Design a graphic organizer that illustrates the difference between plants and animals in the movement of food energy through an ecosystem.	SE: 73 TE: 71, 73
State Performance Indicators	
SPI 0507.3.1 Identify photosynthesis as the food manufacturing process in plants.	SE: 79 TE: TCAP10, 42d, 79 UR: 10, 56
SPI 0507.3.2 Compare how plants and animals obtain energy.	SE: 79, 152 TE: TCAP3, 42d, 79, 152 UR: 3, 56
Grade 5: Standard 4 — Heredity	
Grade Level Expectations	

SE=Student Edition

UR=Unit Resources

TE=Teacher Edition

Houghton Mifflin Harcourt Tennessee Science (2010), Grade 5
correlated to
Tennessee Science Standards

Tennessee Science Standards	<i>Houghton Mifflin Harcourt Tennessee Science, Grade 5</i>
GLE 0507.4.1 Describe how genetic information is passed from parents to offspring during reproduction.	SE: 124–131, 134–135, 136–145, 150–151 TE: 124–131, 134–135, 136–145, 150–151
GLE 0507.4.2 Recognize that some characteristics are inherited while others result from interactions with the environment.	SE: 122–123, 124–131, 136–145, 146–147, 148 TE: 122–123, 124–131, 136–145, 146–147, 148
Checks for Understanding	
✓0507.4.1 Explain how genetic information is transmitted from parents to offspring.	TE: 135, 145 UR: 135, 145
✓0507.4.2 Create a chart that compares hereditary and environmental traits.	SE: 123, 131 TE: 123, 131
✓0507.4.3 Distinguish between a scar and a birthmark in terms of their origins.	SE: 151 TE: 151
State Performance Indicators	
SPI 0507.4.1 Recognize that information is passed from parent to offspring during reproduction.	SE: 145, 151 TE: 118d, 145, 151 UR: 88–89
SPI 0507.4.2 Distinguish between inherited traits and those that can be attributed to the environment.	SE: 131, 151, 153 TE: TCAP4, 118d, 131, 151, 153 UR: 4, 88–89
Grade 5: Standard 5 — Biodiversity and Change	
Grade Level Expectations	
GLE 0507.5.1 Investigate physical characteristics associated with different groups of animals.	SE: 24–25, 26–35, 36–37, 38, 40–41, 54–61, 62–65, 78, 84–85 TE: 9c, 24–25, 26–35, 36–37, 38, 40–41, 54–61, 62–65, 78, 84–85
GLE 0507.5.2 Analyze fossils to demonstrate the connection between organisms and environments that existed in the past and those that currently exist.	SE: 98–101, 102–103, 117, 158–159 TE: 98–101, 102–103, 117
Checks for Understanding	
✓0507.5.1 Classify animals according to their physical characteristics.	SE: 25, 35, 41 TE: 9d, 25, 32, 35, 41
✓0507.5.2 Design a model to illustrate how an animal’s physical characteristics enable it to survive in a particular environment.	TE: 61, 85 UR: 61, 85
✓0507.5.3 Investigate tropisms that plants exhibit in response to changes in their environment.	TE: 100

SE=Student Edition

UR=Unit Resources

TE=Teacher Edition

Houghton Mifflin Harcourt Tennessee Science (2010), Grade 5
correlated to
Tennessee Science Standards

Tennessee Science Standards	<i>Houghton Mifflin Harcourt Tennessee Science, Grade 5</i>
✓0507.5.4 Use fossil evidence to describe an environment from the past.	SE: 117 TE: 117
✓0507.5.5 Use fossils to match a previously existing organism with one that exists today.	SE: 101 TE: 101
State Performance Indicators	
SPI 0507.5.1 Identify physical and behavioral adaptations that enable animals such as, amphibians, reptiles, birds, fish, and mammals to survive in a particular environment.	SE: 35, 41, 61, 79, 153 TE: TCAP8, TCAP10, 10d, 35, 41, 42d, 61, 79, 80d, 118d, 153 UR: 8, 10, 36–37, 55, 74, 88–89
SPI 0507.5.2 Explain how fossils provide information about the past.	SE: 101, 117 TE: TCAP10, 80d, 101, 117 UR: 10, 74
GRADE 5— EARTH AND SPACE SCIENCE	
Grade 5: Standard 6 — The Universe	
Grade Level Expectations	
GLE 0507.6.1 Compare planets based on their known characteristics.	SE: 168–169, 170–175, 176–177, 178–183, 194, 196–197 TE: 168–169, 170–175, 176–177, 178–183, 194, 196–197
GLE 0507.6.2 Recognize that charts can be used to locate and identify star patterns.	SE: 156–157, 186–187, 188–191 TE: 156–157, 186–187, 188–191
Checks for Understanding	
✓0507.6.1 Develop a chart that communicates the major characteristics of each planet.	SE: 183 TE: 163c, 163d, 181, 183
✓0507.6.2 Use images of the night sky to identify different seasonal star patterns.	SE: 187, 197 TE: 187, 197
✓0507.6.3 Research a star pattern using a chart.	SE: 191 TE: 190, 191
State Performance Indicators	
SPI 0507.6.1 Distinguish among the planets according to their known characteristics such as appearance, location, composition, and apparent motion.	SE: 175, 183, 197 TE: TCAP2, 164d, 175, 183, 197 UR: 2, 119–120

SE=Student Edition

UR=Unit Resources

TE=Teacher Edition

Houghton Mifflin Harcourt Tennessee Science (2010), Grade 5
correlated to
Tennessee Science Standards

Tennessee Science Standards	<i>Houghton Mifflin Harcourt Tennessee Science, Grade 5</i>
SPI 0507.6.2 Select information from a complex data representation to draw conclusions about the planets.	SE: 197, 270 TE: 197, 270
SPI 0507.6.3 Identify methods and tools for identifying star patterns.	SE: 191, 197, 270 TE: 164d, 191, 197, 270 UR: 119
Grade 5: Standard 7 — The Earth	
Grade Level Expectations	
GLE 0507.7.1 Compare geologic events responsible for the earth’s major geological features.	SE: 160–161, 202–203, 204–211, 212–213, 214–221, 226–227, 228–233, 234–235, 236, 238–239 TE: 160–161, 202–203, 204–211, 212–213, 214–221, 226–227, 228–233, 234–235, 236, 238–239
Checks for Understanding	
√0507.7.1 Create a model to illustrate geologic events responsible for changes in the earth’s crust.	SE: 203, 211, 213, 221, 227 TE: 163c, 203, 211, 213, 221, 227
√0507.7.2 Prepare a chart to compare how volcanoes, earthquakes, faulting, and plate movements affect the earth’s surface features.	SE: 239 TE: 233, 239
State Performance Indicators	
SPI 0507.7.1 Describe internal forces such as volcanoes, earthquakes, faulting, and plate movements that are responsible for the earth’s major geological features, such as mountains, valleys, etc.	SE: 160–161, 211, 221, 233, 239, 271 TE: TCAP5, TCAP9, 161, 198d, 211, 221, 233, 239, 271 UR: 5, 9, 139–140
Grade 5: Standard 8 — The Atmosphere	
Grade Level Expectations	
GLE 0507.8.1 Analyze and predict how major landforms and bodies of water affect atmospheric conditions.	SE: 52–53, 244–245, 248–251, 254–255, 256–259, 266, 268–269 TE: 52–53, 244–245, 248–251, 254–255, 256–259, 266, 268–269
Checks for Understanding	
√0507.8.1 Compare the climates of coastal and inland areas at similar latitudes to demonstrate the ocean’s impact on weather and climate.	SE: 53, 263 TE: 53, 263
√0507.8.2 Use land maps to demonstrate how mountain ranges affect weather and climate.	SE: 269 TE: 249, 269

SE=Student Edition

UR=Unit Resources

TE=Teacher Edition

Houghton Mifflin Harcourt Tennessee Science (2010), Grade 5
correlated to
Tennessee Science Standards

Tennessee Science Standards	<i>Houghton Mifflin Harcourt Tennessee Science, Grade 5</i>
√0507.8.3 Use weather maps of the United States to graph temperature and precipitation for inland and coastal regions.	TE: 259
√0507.8.4 Use local environmental information to analyze how weather and climate are affected by landforms and bodies of water.	SE: 251 TE: 251
State Performance Indicators	
SPI 0507.8.1 Describe the effects of the oceans on weather and climate.	SE: 251, 269, 271 TE: TCAP3, 240d, 251, 269, 271 UR: 3, 153–154
SPI 0507.8.2 Explain how mountains affect weather and climate.	SE: 263, 269 TE: TCAP11, 240d, 263, 269 UR: 11, 153
GRADE 5— PHYSICAL SCIENCE	
Grade 5: Standard 9 — Matter	
Grade Level Expectations	
GLE 0507.9.1 Observe and measure the simple chemical properties of common substances.	SE: 296–297, 301–303, 319 TE: 296–297, 301–303, 319, 392
GLE 0507.9.2 Design and conduct an experiment to demonstrate how various types of matter freeze, melt, or evaporate.	SE: 290–293, 306–307, 308–313, 316, 318–319 TE: 290–293, 306–307, 308–313, 316, 318–319
GLE 0507.9.3 Investigate factors that affect the rate at which various materials freeze, melt, or evaporate.	SE: 278–279, 308–313, 319 TE: 278–279, 308–313, 319
Checks for Understanding	
√0507.9.1 Compare the simple chemical properties of common substances.	SE: 303 TE: 281c, 281d, 303
√0507.9.2 Investigate how different types of materials freeze, melt, evaporate, or dissipate.	SE: 313, 319 TE: 281c, 291, 301, 313, 319, 339
√0507.9.3 Use data from a simple investigation to determine how temperature change affects the rate of evaporation and condensation.	SE: 313 TE: 311, 313
State Performance Indicators	
SPI 0507.9.1 Distinguish between physical and chemical properties.	SE: 293, 303, 309, 319 TE: TCAP4, 282d, 293, 303, 309, 319 UR: 4, 183–184

SE=Student Edition

UR=Unit Resources

TE=Teacher Edition

Houghton Mifflin Harcourt Tennessee Science (2010), Grade 5
correlated to
Tennessee Science Standards

Tennessee Science Standards	<i>Houghton Mifflin Harcourt Tennessee Science, Grade 5</i>
SPI 0507.9.2 Describe the differences among freezing, melting, and evaporation.	SE: 319 TE: TCAP7, 282d, 319 UR: 7, 183–184
SPI 0507.9.3 Describe factors that influence the rate at which different types of material freeze, melt, or evaporate.	SE: 313, 390 TE: TCAP4, 282d, 313, 390 UR: 4, 184
Grade 5: Standard 10 — Energy	
Grade Level Expectations	
GLE 0507.10.1 Design an experiment to illustrate the difference between potential and kinetic energy.	SE: 324–325, 326–331, 332–333, 344, 347 TE: 324–325, 326–331, 332–333, 344, 347
GLE 0507.10.2 Conduct experiments on the transfer of heat energy through conduction, convection, and radiation.	SE: 276–277, 278–279, 334–335, 336–341, 346–347 TE: 279, 334–335, 336–341, 344, 346–347
Checks for Understanding	
√0507.10.1 Design and conduct an investigation to demonstrate the difference between potential and kinetic energy.	SE: 325 TE: 325, 329
√0507.10.2 Create a graphic organizer that illustrates different types of potential and kinetic energy.	SE: 331 TE: 331
√0507.10.3 Describe the differences among conduction, convection, and radiation.	SE: 341 TE: 341
√0507.10.4 Create a poster to illustrate the major forms of energy.	SE: 347 TE: 347
√0507.10.5 Demonstrate different ways that energy can be transferred from one object to another.	SE: 335 TE: 335
State Performance Indicators	
SPI 0507.10.1 Differentiate between potential and kinetic energy.	SE: 331, 347, 391 TE: TCAP5, 331, 347, 391 UR: 5
SPI 0507.10.2 Use data from an investigation to determine the method by which heat energy is transferred from one object or material to another.	SE: 341, 347 TE: TCAP6, 341, 347, 391 UR: 6
Grade 5: Standard 11 — Motion	

SE=Student Edition

UR=Unit Resources

TE=Teacher Edition

Houghton Mifflin Harcourt Tennessee Science (2010), Grade 5
correlated to
Tennessee Science Standards

Tennessee Science Standards	<i>Houghton Mifflin Harcourt Tennessee Science, Grade 5</i>
Grade Level Expectations	
GLE 0507.11.1 Design an investigation, collect data and draw conclusions about the relationship among mass, force, and distance traveled.	SE: 274–275, 352–353, 354–359, 361, 362–363, 364–373, 386, 388–389 TE: 352–353, 354–359, 361, 362–363, 364–373, 386, 388–389
Checks for Understanding	
✓0507.11.1 Predict how the amount of mass affects the distance traveled given the same amount of applied force.	SE: 361 TE: 361
✓0507.11.2 Prepare statements about the relationship among mass, applied force, and distance traveled.	SE: 353, 389 TE: 353, 389
✓0507.11.3 Design and conduct experiments using a simple experimental design to demonstrate the relationship among mass, force, and distance traveled.	SE: 363 TE: 363, 371
State Performance Indicators	
SPI 0507.11.1 Explain the relationship that exist among mass, force, and distance traveled.	TE: 373, 389, 390 TE: TCAP8, TCAP9, 348d, 373, 390 UR: 8, 9, 216–217
Grade 5: Standard 12 — Forces in Nature	
Grade Level Expectations	
GLE 0507.12.1 Recognize that the earth attracts objects without directly touching them.	SE: 360–361, 389 TE: 360–361, 364–373, 389
GLE 0507.12.2 Investigate how the shape of an object influences the way that it falls toward the earth.	SE: 371, 389 TE: 371, 389
GLE 0507.12.3 Provide examples of how forces can act at a distance.	SE: 360–361, 376–377, 378–383, 384–385, 388–389 TE: 360–361, 376–377, 378–383, 384–385, 388–389
Checks for Understanding	
✓0507.12.1 Explain and give examples of how forces act at a distance.	SE: 377, 383 TE: 377, 380, 383
✓0507.12.2 Demonstrate how the shape of an object affects how it falls toward the earth.	TE: 360
✓0507.12.3 Design and explain an investigation exploring the earth’s pull on objects.	SE: 373 TE: 373
State Performance Indicators	

SE=Student Edition

UR=Unit Resources

TE=Teacher Edition

Houghton Mifflin Harcourt Tennessee Science (2010), Grade 5
correlated to
Tennessee Science Standards

Tennessee Science Standards	<i>Houghton Mifflin Harcourt Tennessee Science, Grade 5</i>
SPI 0507.12.1 Recognize that the earth attracts objects without touching them.	SE: 383, 389 TE: TCAP9, 348d, 383 UR: 9, 217
SPI 0507.12.2 Identify the force that causes objects to fall to the earth.	SE: 389 TE: TCAP2, 348d UR: 2, 216
SPI 0507.12.3 Use data to determine how shape affects the rate at which a material falls to earth.	SE: 361, 389, 391 TE: TCAP11, 361, 391 UR: 11

SE=Student Edition

UR=Unit Resources

TE=Teacher Edition