



UTAH EDITION



# Inspire Science

Teacher Edition

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Graw  
Hill

## Correlations by Lesson to the UTAH Academic Standards for Science Grade 7

<p><b>Standard 7.1.1</b> Carry out an investigation which provides evidence that a change in an object's motion is dependent on the mass of the object and the sum of the forces acting on it. Various experimental designs should be evaluated to determine how well the investigation measures an object's motion. Emphasize conceptual understanding of Newton's First and Second Laws. Calculations will only focus on one-dimensional movement; the use of vectors will be introduced in high school.</p>	<p>Student Edition: 11-19; 20-35 Encounter/Explain the Phenomenon 21 Investigations 25, 20 Labs 14, 23, 27, 32, 39 STEM Project: Crash Course 60-62</p>
<p><b>Standard 7.1.2</b> Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects in a system. Examples could include collisions between two moving objects or between a moving object and a stationary object.</p>	<p>Student Edition: 36-45 Encounter/Explain the Phenomenon 37 Investigations 41 Labs 42 STEM Project: Crash Course 60-62</p>
<p><b>Standard 7.1.3</b> Construct a model using observational evidence to describe the nature of fields existing between objects that exert forces on each other even though the objects are not in contact. Emphasize the cause and effect relationship between properties of objects (such as magnets or electrically charged objects) and the forces they exert.</p>	<p>Student Edition: 46-59; 64-83; 84-95; 106-127 Encounter/Explain the Phenomenon 47, 67, 85 Investigations 49, 51, 54, 56, 110, 115, 120 Labs 48, 54, 74, 77, 88, 109, 116-117, 118, 123 STEM Project: Crash Course 60-62</p>
<p><b>Standard 7.1.4</b> Collect and analyze data to determine the factors that affect the strength of electric and magnetic forces. Examples could include electromagnets, electric motors, or generators. Examples of data could include the effect of the number of turns of wire on the strength of an electromagnet, or of increasing the number or strength of magnets on the speed of an electric motor.</p>	<p>Student Edition: 64-83; 84-95; 106-127 Encounter/Explain the Phenomenon 67, 85 Investigations 90, 110, 115, 120 Labs 68, 70, 71, 74, 77, 79, 87, 112-113, 116-117, 118, 123 STEM Project: The Great Metal Pick Up Machine 128-130</p>
<p><b>Standard 7.1.5</b> Engage in argument from evidence to support the claim that gravitational interactions within a system are attractive and dependent upon the masses of interacting objects. Examples of evidence for arguments could include mathematical data generated from various simulations.</p>	<p>Student Edition: 46-59 Encounter/Explain the Phenomenon 47 Investigations 49, 51, 54, 56 Labs 48, 54 STEM Project: Crash Course 60-62</p>
<p><b>Standard 7.2.1</b> Develop a model of the rock cycle to describe the relationship between energy flow and matter cycling that create igneous, sedimentary, and metamorphic rocks. Emphasize the processes of melting, crystallization, weathering, deposition, sedimentation, and deformation, which act together to form minerals and rocks.</p>	<p>Student Edition: 202-219 Encounter/Explain the Phenomenon 203 Investigations 211, 216 Labs 204, 206, 209, 214 STEM Project: Rockin' Around the Park 220-223</p>

<p><b>Standard 7.2.2</b> Construct an explanation based on evidence for how processes have changed Earth’s surface at varying time and spatial scales. Examples of processes that occur at varying time scales could include slow plate motions or rapid landslides. Examples of processes that occur at varying spatial scales could include uplift of a mountain range or deposition of fine sediments.</p>	<p>Student Edition: 164-181; 182-201 Encounter/Explain the Phenomenon 164, 183 Investigations 172, 187, 194, 195, 253, 304 Labs 166-167, 169, 171, 173, 184, 186, 188-189, 191 STEM Project: Rockin’ Around the Park 220-223</p>
<p><b>Standard 7.2.3</b> Ask questions to identify constraints of specific geologic hazards and evaluate competing design solutions for maintaining the stability of human-engineered structures, such as homes, roads, and bridges. Examples of geologic hazards could include earthquakes, landslides, or floods.</p>	<p>Student Edition: 226-247; 248-267; 268-294 Encounter/Explain the Phenomenon 227, 249, 269 Investigations 228, 230, 231, 239, 242, 243, 244, 245, 250, 256, 260, 262, 264, 270, 272, 273, 276-277, 278, 283, 285, 286, 291, 292 Labs 177, 232-234, 238, 258-259 STEM Project: Slippery Slopes 296-298</p>
<p><b>Standard 7.2.4</b> Develop and use a scale model of the matter in the Earth’s interior to demonstrate how differences in density and chemical composition (silicon, oxygen, iron, and magnesium) cause the formation of the crust, mantle, and core.</p>	<p>Student Edition: 154-157 Labs 155-156, 157 Teacher Edition: IP 154</p>
<p><b>Standard 7.2.5</b> Ask questions and analyze and interpret data about the patterns between plate tectonics and: (1) The occurrence of earthquakes and volcanoes. (2) Continental and ocean floor features. (3) The distribution of rocks and fossils. Examples could include identifying patterns on maps of earthquakes and volcanoes relative to plate boundaries, the shapes of the continents, the locations of ocean structures (including mountains, volcanoes, faults, and trenches), and similarities of rock and fossil types on different continents.</p>	<p>Student Edition: 134-145; 146-163; 164-181; 182 Encounter/Explain the Phenomenon 135, 147 Investigations 136, 137, 143, 150, 152, 158, 228, 250 Labs 138, 141, 148-149, 166-167, 169, 171, 173, 177 STEM Project: Rockin’ Around the Park 220-223</p>
<p><b>Standard 7.2.6</b> Make an argument from evidence for how the geologic time scale shows the age and history of Earth. Emphasize scientific evidence from rock strata, the fossil record, and the principles of relative dating, such as superposition, uniformitarianism and recognizing unconformities.</p>	<p>Student Edition: 302-315, 316-331 Encounter/Explain the Phenomenon 303, 317 Investigations 304, 308-309, 310-311, 312, 319, 321, 323, 324, 326 Labs 306, 328-329 STEM Project: History of Rock 332-334</p>
<p><b>Standard 7.3.1</b> Plan and carry out an investigation that provides evidence that the basic structures of living things are cells. Emphasize that cells can form single-celled or multicellular organisms, and that multicellular organisms are made of different types of cells.</p>	<p>Student Edition: 338-355 Encounter/Explain the Phenomenon 339 Investigations 340, 344, 348-349 Labs 341, 342, 365 STEM Project: It’s Alive! Or is it?</p>

# UTAH Academic Standards for Science

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<p><b>Standard 7.3.2</b> Develop and use a model to describe the function of a cell in living systems and the way parts of cells contribute to cell function. Emphasize the cell as a system, including the interrelating roles of the nucleus, chloroplasts, mitochondria, cell membrane, and cell wall.</p>	<p>Student Edition: 356-369 Encounter/Explain the Phenomenon 357 Investigations 360-361, 363 Labs 358, 365 STEM Project: It's Alive! Or is it? 370-372</p>
<p><b>Standard 7.3.3</b> Construct an explanation using evidence to explain how body systems have various levels of organization. Emphasize understanding that cells form tissues, tissues form organs, and organs form systems specialized for particular body functions. Examples could include relationships between the circulatory, excretory, digestive, respiratory, muscular, skeletal, and nervous systems. Specific organ functions will be taught at the high school level.</p>	<p>Student Edition: 376-389, 390-495, 406-417, 418-433, 434-449 Encounter/Explain the Phenomenon 377, 391, 407, 419, 435 Investigations 378, 381, 384, 408, 409, 420, 425, 429, 436, 442, 444-445 Labs 385, 410, 413, 426-427, 440, 441, 447 STEM Project: Body of Evidence 450-452</p>
<p><b>Standard 7.4.1</b> Develop and use a model to explain the effects that different types of reproduction have on genetic variation, including asexual and sexual reproduction.</p>	<p>Student Edition: 456-471, 472-481, 506-507 Encounter/Explain the Phenomenon 457, 473 Investigations 461, 466, 467, 474, 475 Labs 464, 476 STEM Project: Get Your Game Face On 508-510</p>
<p><b>Standard 7.4.2</b> Obtain, evaluate, and communicate information about specific animal and plant adaptations and structures that affect the probability of successful reproduction. Examples of adaptations could include nest building to protect young from the cold, herding of animals to protect young from predators, vocalization of animals and colorful plumage to attract mates for breeding, bright flowers attracting butterflies that transfer pollen, flower nectar and odors that attract insects that transfer pollen, and hard shells on nuts that squirrels bury.</p>	<p>Student Edition: 482-491, 496-502 Encounter/Explain the Phenomenon 483, 497, 531 Investigations 484, 486, 489 Labs 491, 498, 500-501, 541 STEM Project: Get Your Game Face On 508-510</p>
<p><b>Standard 7.4.3</b> Develop and use a model to describe why genetic mutations may result in harmful, beneficial, or neutral effects to the structure and function of the organism. Emphasize the conceptual idea that changes to traits can happen because of genetic mutations. Specific changes of genes at the molecular level, mechanisms for protein synthesis, and specific types of mutations will be introduced at the high school level.</p>	<p>Student Edition: 514-515, 522-529 Encounter/Explain the Phenomenon 515 Investigations 522, 526 STEM Project: Population Probabilities 558-560</p>
<p><b>Standard 7.4.4</b> Obtain, evaluate, and communicate information about the technologies that have changed the way humans affect the inheritance of desired traits in organisms. Analyze data from tests or simulations to determine the best solution to achieve success in cultivating selected desired traits in organisms. Examples could include artificial selection, genetic modification, animal husbandry, and gene therapy.</p>	<p>Student Edition: 546-555 Encounter/Explain the Phenomenon 547 Investigations 553 Labs 548 STEM Project: Population Probabilities 558-560</p>

<p><b>Standard 7.5.1</b> Construct an explanation that describes how the genetic variation of traits in a population can affect some individuals' probability of surviving and reproducing in a specific environment. Over time, specific traits may increase or decrease in populations. Emphasize the use of proportional reasoning to support explanations of trends in changes to populations over time. Examples could include camouflage, variation of body shape, speed and agility, or drought tolerance.</p>	<p>Student Edition: 530-545, 546-555 Encounter/Explain the Phenomenon 531 Labs 532, 534, 541 STEM Project: Population Probabilities 558-560</p>
<p><b>Standard 7.5.2</b> Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth, under the assumption that natural laws operate today as in the past.</p>	<p>Student Edition: 564-577 Encounter/Explain the Phenomenon 565 Investigations 568 Labs 572 STEM Project: It's All Relative 590-592</p>
<p><b>Standard 7.5.3</b> Construct explanations that describe the patterns of body structure similarities and differences between modern organisms, and between ancient and modern organisms, to infer possible evolutionary relationships.</p>	<p>Student Edition: 578-589 Encounter/Explain the Phenomenon 579 Investigations 582, 585 Labs 580 STEM Project: It's All Relative 590-592</p>
<p><b>Standard 7.5.4</b> Analyze data to compare patterns in the embryological development across multiple species to identify similarities and differences not evident in the fully formed anatomy.</p>	<p>Student Edition: 583-584 Investigations 583 3D 584 STEM Project: It's All Relative 590-592</p>