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correlated to

Ohio Science Academic Content Standards Grades 6-8

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Ohio Science Academic Content Standards
Grade 6

Earth and Space Sciences

Grade-Level Indicators, Grade 6	ACCESS Science
Earth Systems 1. Describe the rock cycle and explain that there are sedimentary, igneous and metamorphic rocks that have distinct properties (e.g., color, texture) and are formed in different ways.	**Student Book:** 40-49
2. Explain that rocks are made of one or more minerals.	**Student Book:** 48
3. Identify minerals by their characteristic properties.	**Student Book:** 48

Life Sciences

Grade-Level Indicators, Grade 6	ACCESS Science
Characteristics and Structure of Life 1. Explain that many of the basic functions of organisms are carried out by or within cells and are similar in all organisms.	**Student Book:** 129-130, 149-157
2. Explain that multicellular organisms have a variety of specialized cells, tissues, organs and organ systems that perform specialized functions.	**Student Book:** 130, 152-157
3. Identify how plant cells differ from animal cells (e.g., cell wall and chloroplasts).	**Student Book:** 140-142

Grade-Level Indicators, Grade 6	ACCESS Science
Heredity 4. Recognize that an individual organism does not live forever; therefore reproduction is necessary for the continuation of every species and traits are passed on to the next generation through reproduction.	**Student Book:** 184-193
5. Describe that in asexual reproduction all the inherited traits come from a single parent.	**Student Book:** 188
6. Describe that in sexual reproduction an egg and sperm unite and some traits come from each parent, so the offspring is never identical to either of its parents.	**Student Book:** 189
7. Recognize that likenesses between parents and offspring (e.g., eye color, flower color) are inherited. Other likenesses, such as table manners are learned.	**Student Book:** 190, 192-193
Diversity and Interdependence of Life 8. Describe how organisms may interact with one another.	**Student Book:** 113-114, 116, 120-121, 131-133

Physical Sciences

Grade-Level Indicators, Grade 6	ACCESS Science
Nature of Matter 1. Explain that equal volumes of different substances usually have different masses.	**Student Book:** 209-210, 212, 228
2. Describe that in a chemical change new substances are formed with different properties than the original substance (e.g., rusting, burning).	**Student Book:** 250-251
3. Describe that in a physical change (e.g., state, shape and size) the chemical properties of a substance remain unchanged.	**Student Book:** 226-227, 234, 236
4. Describe that chemical and physical changes occur all around us (e.g., in the human body, cooking and industry).	**Student Book:** 224, 226-227, 250-252

Grade-Level Indicators, Grade 6	ACCESS Science
Nature of Energy 5. Explain that the energy found in nonrenewable resources such as fossil fuels (e.g., oil, coal and natural gas) originally came from the sun and may renew slowly over millions of years.	**Student Book:** 90, 95
6. Explain that energy derived from renewable resources such as wind and water is assumed to be available indefinitely.	**Student Book:** 90, 94
7. Describe how electric energy can be produced from a variety of sources (e.g., sun, wind and coal).	**Student Book:** 96
8. Describe how renewable and nonrenewable energy resources can be managed (e.g., fossil fuels, trees and water).	**Student Book:** 94, 97

Science and Technology

Grade-Level Indicators, Grade 6	ACCESS Science
Understanding Technology 1. Explain how technology influences the quality of life.	**Student Book:** 22, 94, 132, 180, 202, 214, 287

Scientific Inquiry

Grade-Level Indicators, Grade 6	ACCESS Science
Doing Scientific Inquiry 1. Explain that there are not fixed procedures for guiding scientific investigations; however, the nature of an investigation determines the procedures needed.	**Student Book:** 22-23
3. Distinguish between observation and inference.	**Student Book:** 103, 127, 247

Scientific Ways of Knowing

Grade-Level Indicators, Grade 6	ACCESS Science
Nature of Science 1. Identify that hypotheses are valuable even when they are not supported.	**Student Book:** 25
Ethical Practices 2. Describe why it is important to keep clear, thorough and accurate records.	**Student Book:** 22
Science and Society 3. Identify ways scientific thinking is helpful in a variety of everyday settings.	**Student Book:** 20
4. Describe how the pursuit of scientific knowledge is beneficial for any career and for daily life.	**Student Book:** 22, 117, 132, 144, 180, 202, 214, 287, 297
5. Research how men and women of all countries and cultures have contributed to the development of science.	**Student Book:** 22, 132, 202, 214, 287, 297

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Ohio Science Academic Content Standards
Grade 7

Earth and Space Sciences

Grade-Level Indicators, Grade 7	ACCESS Science
Earth Systems 1. Explain the biogeochemical cycles which move materials between the lithosphere (land), hydrosphere (water) and atmosphere (air).	**Student Book:** 115, 118-119
2. Explain that Earth's capacity to absorb and recycle materials naturally (e.g., smoke, smog and sewage) can change the environmental quality depending on the length of time involved (e.g. global warming).	**Student Book:** 108
3. Describe the water cycle and explain the transfer of energy between the atmosphere and hydrosphere.	**Student Book:** 70, 71
4. Analyze data on the availability of fresh water that is essential for life and for most industrial and agricultural processes. Describe how rivers, lakes and groundwater can be depleted or polluted becoming less hospitable to life and even becoming unavailable or unsuitable for life.	**Student Book:** 107
5. Make simple weather predictions based on the changing cloud types associated with frontal systems.	**Student Book:** 72, 74
8. Describe how temperature and precipitation determine climatic zones (biomes) (e.g., desert, grasslands, forests, tundra and alpine).	**Student Book:** 69, 114-115
9. Describe the connection between the water cycle and weather-related phenomenon (e.g., tornadoes, floods, droughts and hurricanes).	**Student Book:** 70-71, 73

Life Sciences

Grade-Level Indicators, Grade 7	ACCESS Science
Characteristics and Structure of Life 1. Investigate the great variety of body plans and internal structures found in multicellular organisms.	**Student Book:** 130, 149-157
Diversity and Interdependence of Life 2. Investigate how organisms or populations may interact with one another through symbiotic relationships and how some species have become so adapted to each other that neither could survive without the other (e.g.,predator-prey, parasitism, mutualism and commensalism).	**Student Book:** 120-121, 200-203, 205
3. Explain how the number of organisms an ecosystem can support depends on adequate biotic (living) resources (e.g., plants, animals) and abiotic (non-living) resources (e.g., light, water and soil).	**Student Book:** 114-121
4. Investigate how overpopulation impacts an ecosystem.	**Student Book:** 105-109
5. Explain that some environmental changes occur slowly while others occur rapidly (e.g., forest and pond succession, fires and decomposition).	**Student Book:** 53-61
6. Summarize the ways that natural occurrences and human activity affect the transfer of energy in Earth's ecosystems (e.g., fire, hurricanes, roads and oil spills).	**Student Book:** 104, 106-109
7. Explain that photosynthetic cells convert solar energy into chemical energy that is used to carry on life functions or is transferred to consumers and used to carry on their life functions.	**Student Book:** 141, 164-165
Evolution Theory 8. Investigate the great diversity among organisms.	**Student Book:** 125-133

Physical Sciences

Grade-Level Indicators, Grade 7	ACCESS Science
Nature of Matter 1. Investigate how matter can change forms but the total amount of matter remains constant.	**Student Book:** 224-227
Nature of Energy 2. Describe how an object can have potential energy due to its position or chemical composition and can have kinetic energy due to its motion.	**Student Book:** 258, 260-261
3. Identify different forms of energy (e.g., electrical, mechanical, chemical, thermal, nuclear, radiant and acoustic).	**Student Book:** 262
4. Explain how energy can change forms but the total amount of energy remains constant.	**Student Book:** 263
5. Trace energy transformation in a simple closed system (e.g., a flashlight).	**Student Book:** 263

Science and Technology

Grade-Level Indicators, Grade 7	ACCESS Science
Understanding Technology 3. Recognize that science can only answer some questions and technology can only solve some human problems.	**Student Book:** 22

Scientific Inquiry

Grade-Level Indicators, Grade 7	ACCESS Science
Doing Scientific Inquiry 1. Explain that variables and controls can affect the results of an investigation and that ideally one variable should be tested at a time; however it is not always possible to control all variables.	**Student Book:** 23
3. Formulate and identify questions to guide scientific investigations that connect to science concepts and can be answered through scientific investigations.	**Student Book:** 20-25
5. Analyze alternative scientific explanations and predictions and recognize that there may be more than one good way to interpret a given set of data.	**Student Book:** 25, 31, 199

Scientific Ways of Knowing

Grade-Level Indicators, Grade 7	ACCESS Science
Ethical Practices 1. Show that the reproducibility of results is essential to reduce bias in scientific investigations.	**Student Book:** 22
2. Describe how repetition of an experiment may reduce bias.	**Student Book:** 22

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Grade 8

Earth and Space Sciences

Grade-Level Indicators, Grade 8	ACCESS Science
The Universe 1. Describe how objects in the solar system are in regular and predictable motions that explain such phenomena as days, years, seasons, eclipses, tides and moon cycles.	**Student Book:** 77-85
2. Explain that gravitational force is the dominant force determining motions in the solar system and in particular keeps the planets in orbit around the sun.	**Student Book:** 84, 294, 299
3. Compare the orbits and composition of comets and asteroids with that of Earth.	**Student Book:** 294-295, 298-301
4. Describe the effect that asteroids or meteoroids have when moving through space and sometimes entering planetary atmospheres (e.g., meteor- "shooting star" and meteorite).	**Student Book:** 294-295
5. Explain that the universe consists of billions of galaxies that are classified by shape.	**Student Book:** 296-297
6. Explain interstellar distances are measured in light years (e.g., the nearest star beyond the sun is 4.3 light years away).	**Student Book:** 296
7. Examine the life cycle of a star and predict the next likely stage of a star.	**Student Book:** 298
8. Name and describe tools used to study the universe (e.g., telescopes, probes, satellites and spacecraft).	**Student Book:** 297

Grade-Level Indicators, Grade 8	ACCESS Science
Earth Systems 9. Describe the interior structure of Earth and Earth's crust as divided into tectonic plates riding on top of the slow moving currents of magma in the mantle.	**Student Book:** 29-35
10. Explain that most major geological events (e.g., earthquakes, volcanic eruptions, hot spots and mountain building) result from plate motion.	**Student Book:** 36-37
11. Use models to analyze the size and shape of Earth, its surface and its interior (e.g., globes, topographic maps, satellite images).	**Student Book:** 32-33, 78-79
12. Explain that some processes involved in the rock cycle are directly related to thermal energy and forces in the mantle that drive plate motions.	**Student Book:** 42, 44-49
13. Describe how landforms are created through a combination of destructive (e.g., weathering and erosion) and constructive processes (e.g., crustal deformation, volcanic eruptions and deposition of sediment).	**Student Book:** 53-54, 56-61
15. Illustrate how the three primary types of plate boundaries (transform, divergent and convergent) cause different landforms (e.g., mountains, volcanoes and ocean trenches).	**Student Book:** 34-36

Life Sciences

Grade-Level Indicators, Grade 8	ACCESS Science
Heredity 1. Describe that asexual reproduction limits the spread of detrimental characteristics through a species and allows for genetic continuity.	**Student Book:** 188
2. Recognize that in sexual reproduction new combinations of traits are produced which may increase or decrease an organism's chances for survival.	**Student Book:** 189-190, 192-193

Grade-Level Indicators, Grade 8	ACCESS Science
Evolution Theory 3. Explain how variations in structure, behavior or physiology allow some organisms to enhance their reproductive success and survival in a particular environment.	**Student Book:** 197-203, 205
4. Explain that diversity of species is developed through gradual processes over many generations (e.g., fossil record).	**Student Book:** 198-199, 204
5. Investigate how an organism adapted to a particular environment may become extinct if the environment, as shown by the fossil record, changes.	**Student Book:** 202-205

Physical Sciences

Grade-Level Indicators, Grade 8	ACCESS Science
Forces and Motion 1. Describe how the change in the position (motion) of an object is always judged and described in comparison to a reference point.	**Student Book:** 269, 275
2. Explain that motion describes the change in the position of an object (characterized by a speed and direction) as time changes.	**Student Book:** 275
3. Explain that an unbalanced force acting on an object changes that object's speed and/or direction.	**Student Book:** 272-273
Nature of Energy 4. Demonstrate that waves transfer energy.	**Student Book:** 282, 284-289
5. Demonstrate that vibrations in materials may produce waves that spread away from the source in all directions (e.g., earthquake waves and sound waves).	**Student Book:** 288

Science and Technology

Grade-Level Indicators, Grade 8	ACCESS Science
Understanding Technology 1. Examine how science and technology have advanced through the contributions of many different people, cultures and times in history.	**Student Book:** 22, 132, 202, 214, 287, 297
2. Examine how choices regarding the use of technology are influenced by constraints caused by various unavoidable factors (e.g., geographic location, limited resources, social, political and economic considerations).	**Student Book:** 95-96, 106-107

Scientific Inquiry

Grade-Level Indicators, Grade 8	ACCESS Science
Doing Scientific Inquiry 3. Read, construct and interpret data in various forms produced by self and others in both written and oral form (e.g., tables, charts, maps, graphs, diagrams and symbols).	**Student Book:** 24

Scientific Ways of Knowing

Grade-Level Indicators, Grade 8	ACCESS Science
Nature of Science 1. Identify the difference between description (e.g., observation and summary) and explanation (e.g., inference, prediction, significance and importance).	**Student Book:** 21-22, 25, 38, 43, 50, 103, 247
Ethical Practices 2. Explain why it is important to examine data objectively and not let bias affect observations.	**Student Book:** 22

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