

SCIENCE DAYBOOKS © 2004

Grades 4-8

correlated to

Ohio

Science Grade-Level Indicators

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Science Daybook © 2004
correlated to
Ohio Science Grade-Level Indicators
Grade 4

E a r t h a n d S p a c e S c i e n c e s

| Grade-Level Indicators, Grade 4 | Science Daybook, Grade 4 |
|--|---|
| <p><i>Earth Systems</i></p> <p>1. Explain that air surrounds us, takes up space, moves around us as wind, and may be measured using barometric pressure.</p> | <p>Student Book: 66-67, 68, 70</p> <p>Teacher's Edition: 66, 67</p> |
| <p>2. Identify how water exists in the air in different forms (e.g., in clouds, fog, rain, snow and hail).</p> | <p>Student Book: 65, 95, 98, 99, 154, 155</p> <p>Teacher's Edition: 65, 95, 98, 99, 100, 154, 155</p> |
| <p>3. Investigate how water changes from one state to another (e.g., freezing, melting, condensation and evaporation).</p> | <p>Student Book: 95, 96-97, 98, 99, 100</p> <p>Teacher's Edition: 95, 96, 97, 98, 99, 100, 154, 155</p> |
| <p>4. Describe weather by measurable quantities such as temperature, wind direction, wind speed, precipitation and barometric pressure.</p> | <p>Student Book: 66-67, 69, 70-71, 72-73, 74</p> <p>Teacher's Edition: 66, 67, 71, 73, 74</p> |
| <p>5. Record local weather information on a calendar or map and describe changes over a period of time (e.g., barometric pressure, temperature, precipitation symbols and cloud conditions).</p> | <p>Student Book: 67, 71</p> <p>Teacher's Edition: 66, 67, 71</p> |
| <p>6. Trace how weather patterns generally move from west to east in the United States.</p> | <p>Student Book: 68</p> <p>Teacher's Edition: 68</p> |
| <p>7. Describe the weather which accompanies cumulus, cumulonimbus, cirrus and stratus clouds.</p> | <p>No specific chapter addresses this grade-level indicator. (See <i>Earth Science Daybook</i>.)</p> |

| Grade-Level Indicators, Grade 4 | Science Daybook, Grade 4 |
|---|---|
| <p><i>Processes That Shape Earth</i></p> <p>8. Describe how wind, water and ice shape and reshape Earth's land surface by eroding rock and soil in some areas and depositing them in other areas producing characteristic landforms (e.g., dunes, deltas and glacial moraines).</p> | <p>Teacher's Edition: 58</p> |
| <p>9. Identify and describe how freezing, thawing and plant growth reshape the land surface by causing the weathering of rock.</p> | <p>No specific chapter addresses this grade-level indicator. (See <i>Science Daybook, Grade 5.</i>)</p> |
| <p>10. Describe evidence of changes on Earth's surface in terms of slow processes (e.g., erosion, weathering, mountain building and deposition) and rapid processes (e.g. volcanic eruptions, earthquakes and landslides).</p> | <p>Student Book: 51-56 Teacher's Edition: 51, 52, 53, 54, 55, 56, 58</p> |

Life Sciences

| Grade-Level Indicators, Grade 4 | Science Daybook, Grade 4 |
|--|---|
| <p><i>Heredity</i></p> <p>1. Compare the life cycles of different plants including germination, maturity, reproduction and death.</p> | <p>Student Book: 34, 35, 36 Teacher's Edition: 34, 35, 36</p> |
| <p><i>Diversity and Interdependence of Life</i></p> <p>2. Relate plant structures to their specific functions (e.g., growth, survival and reproduction).</p> | <p>Student Book: 34, 35, 36 Teacher's Edition: 31, 34, 35, 36</p> |
| <p>3. Classify common plants according to their characteristics (e.g., tree leaves, flowers, seeds, roots and stems).</p> | <p>Student Book: 31, 34, 36 Teacher's Edition: 31, 34, 35, 36</p> |
| <p>4. Observe and explore that fossils provide evidence about plants that lived long ago and the nature of the environment at that time.</p> | <p>Student Book: 44-45, 46 Teacher's Edition: 43, 44-45, 46</p> |
| <p>5. Describe how organisms interact with one another in various ways (e.g., many plants depend on animals for carrying pollen or dispersing seeds).</p> | <p>Student Book: 37-42 Teacher's Edition: 38, 39, 40, 41, 42</p> |

Physical Sciences

| Grade-Level Indicators, Grade 4 | Science Daybook, Grade 4 |
|---|---|
| <p><i>Nature of Matter</i></p> <p>1. Identify characteristics of a simple physical change (e.g., heating or cooling can change water from one state to another and the change is reversible).</p> | <p>Student Book: 95-100</p> <p>Teacher's Edition: 95, 96, 97, 98, 99, 100, 154, 155</p> |
| <p>2. Identify characteristics of a simple chemical change. When a new material is made by combining two or more materials, it has chemical properties that are different from the original materials (e.g., burning paper, vinegar and baking soda).</p> | <p>No specific chapter addresses this grade-level indicator. (See <i>Science Daybook, Grade 5.</i>)</p> |
| <p>3. Describe objects by the properties of the materials from which they are made and that these properties can be used to separate or sort a group of objects (e.g., paper, glass, plastic and metal).</p> | <p>Student Book: 57, 60, 61-62</p> <p>Teacher's Edition: 57, 58, 59, 60, 61, 62</p> |
| <p>4. Explain that matter has different states (e.g., solid, liquid and gas) and that each state has distinct physical properties.</p> | <p>Student Book:</p> <p>Teacher's Edition: 98, 99, 100</p> |
| <p><i>Nature of Energy</i></p> <p>5. Compare ways the temperature of an object can be changed (e.g., rubbing, heating and bending of metal).</p> | <p>Student Book: 98, 99, 100</p> <p>Teacher's Edition: 95, 98, 99, 100</p> |

Science and Technology

| Grade-Level Indicators, Grade 4 | Science Daybook, Grade 4 |
|---|--|
| <p><i>Understanding Technology</i></p> <p>1. Explain how technology from different areas (e.g., transportation, communication, nutrition, healthcare, agriculture, entertainment and manufacturing) has improved human lives.</p> | <p>Student Book: 134-135, 153-158</p> <p>Teacher's Edition: 135, 153, 155, 156, 157, 158, 159, 161</p> |
| <p>2. Investigate how technology and inventions change to meet peoples' needs and wants.</p> | <p>Student Book: 153-157</p> <p>Teacher's Edition: 153, 155, 156, 157</p> |

| Grade-Level Indicators, Grade 4 | Science Daybook, Grade 4 |
|--|--|
| <p><i>Abilities To Do Technological Design</i></p> <p>3. Describe, illustrate and evaluate the design process used to solve a problem.</p> | <p>Student Book: 143, 144</p> <p>Teacher's Edition: 143, 144</p> |

S c i e n t i f i c I n q u i r y

| Grade-Level Indicators, Grade 4 | Science Daybook, Grade 4 |
|--|---|
| <p><i>Doing Scientific Inquiry</i></p> <p>1. Select the appropriate tools and use relevant safety procedures to measure and record length, weight, volume, temperature and area in metric and English units.</p> | <p>Student Book: 55-57, 66-67, 86</p> <p>Teacher's Edition: 15, 45, 49c, 49d, 54-55, 63, 66-67, 81, 83, 86, 87, 87b</p> |
| <p>2. Analyze a series of events and/or simple daily or seasonal cycles, describe the patterns and infer the next likely occurrence.</p> | <p>Student Book: 66-67, 68, 69-74</p> <p>Teacher's Edition: 66, 67, 68, 69, 71, 72, 73, 74, 94</p> |
| <p>3. Develop, design and conduct safe, simple investigations or experiments to answer questions.</p> | <p>Student Book: 35, 55-56, 61-62, 66-67, 86, 91, 94, 106, 109, 111, 112, 124, 132</p> <p>Teacher's Edition: 11b, 15, 28, 31, 35, 40, 47, 49b, 54-55, 61-62, 66-67, 83, 84-85, 86, 87b, 91, 92, 94, 104, 106, 109, 111, 112, 117, 124, 125a-125b, 132, 145a, 155, 156</p> |
| <p>4. Explain the importance of keeping conditions the same in an experiment.</p> | <p>No specific chapter addresses this grade-level indicator. (See <i>Science Daybook, Grade 5.</i>)</p> |
| <p>5. Describe how comparisons may not be fair when some conditions are not kept the same between experiments.</p> | <p>Student Book: 93</p> <p>Teacher's Edition: 93, 94</p> |
| <p>6. Formulate instructions and communicate data in a manner that allows others to understand and repeat an investigation or experiment.</p> | <p>Student Book: 35, 55-56, 61-62, 66-67, 86, 91, 94, 106, 109, 111, 112, 124, 132</p> <p>Teacher's Edition: 11b, 15, 28, 31, 35, 40, 47, 49b, 54-55, 61-62, 66-67, 83, 84-85, 86, 87b, 91, 92, 94, 104, 106, 109, 111, 112, 117, 124, 125a-125b, 132, 145a, 155, 156</p> |

S c i e n t i f i c W a y s o f K n o w i n g

| Grade-Level Indicators, Grade 4 | Science Daybook, Grade 4 |
|--|---|
| <p><i>Nature of Science</i></p> <p>1. Differentiate fact from opinion and explain that scientists do not rely on claims or conclusions unless they are backed by observations that can be confirmed.</p> | <p>Student Book: 48</p> <p>Teacher’s Edition: 48, 111</p> |
| <p>2. Record the results and data from an investigation and make a reasonable explanation.</p> | <p>Student Book: 35, 55-56, 61-62, 66-67, 86, 91, 94, 106, 109, 111, 112, 124, 132</p> <p>Teacher’s Edition: 11b, 15, 28, 31, 35, 40, 47, 49b, 54-55, 61-62, 66-67, 83, 84-85, 86, 87b, 91, 92, 94, 104, 106, 109, 111, 112, 117, 124, 125a-125b, 132, 145a, 155, 156</p> |
| <p>3. Explain discrepancies in an investigation using evidence to support findings.</p> | <p>Student Book: 93</p> <p>Teacher’s Edition: 93, 94</p> |
| <p><i>Ethical Practices</i></p> <p>4. Explain why keeping records of observations and investigations is important.</p> | <p>Teacher’s Edition: 48</p> |



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correlated to
Ohio Science Grade-Level Indicators
Grade 5

E a r t h a n d S p a c e S c i e n c e s

| Grade-Level Indicators, Grade 5 | Science Daybook, Grade 5 |
|---|--|
| <p><i>The Universe</i></p> <p>1. Describe how night and day are caused by Earth's rotation.</p> | <p>No specific chapter addresses this grade-level indicator. (See <i>ScienceSaurus</i>.)</p> |
| <p>2. Explain that Earth is one of several planets to orbit the sun, and that the moon orbits Earth.</p> | <p>Student Book: 83 Teacher's Edition: 83, 85 (Also see <i>Science Daybook, Grade 4</i>.)</p> |
| <p>3. Describe the characteristics of Earth and its orbit about the sun (e.g., three-fourths of Earth's surface is covered by a layer of water [some of it frozen], the entire planet surrounded by a thin blanket of air, elliptical orbit, tilted axis and spherical planet).</p> | <p>No specific chapter addresses this grade-level indicator. (See <i>Science Daybook, Grade 4</i>.)</p> |
| <p>4. Explain that stars are like the sun, some being smaller and some larger, but so far away that they look like points of light.</p> | <p>No specific chapter addresses this grade-level indicator. (See <i>Science Daybook, Grade 4</i>.)</p> |
| <p><i>Earth Systems</i></p> <p>5. Explain how the supply of many non-renewable resources is limited and can be extended through reducing, reusing and recycling but cannot be extended indefinitely.</p> | <p>Student Book: 151 Teacher's Edition: 147, 151 (Also see <i>Science Daybook, Grade 4</i>.)</p> |
| <p>6. Investigate ways Earth's renewable resources (e.g., fresh water, air, wildlife and trees) can be maintained.</p> | <p>Student Book: 151 Teacher's Edition: 147, 151 (Also see <i>Science Daybook, Grade 4</i>.)</p> |

Life Sciences

| Grade-Level Indicators, Grade 5 | Science Daybook, Grade 5 |
|---|---|
| <p><i>Diversity and Interdependence of Life</i></p> <p>1. Describe the role of producers in the transfer of energy entering ecosystems as sunlight to chemical energy through photosynthesis.</p> | <p>No specific chapter addresses this grade-level indicator. (See <i>Life Science Daybook</i>.)</p> |
| <p>2. Explain how almost all kinds of animals' food can be traced back to plants.</p> | <p>Teacher's Edition: 25 (Also see <i>Science Daybook, Grade 4</i>.)</p> |
| <p>3. Trace the organization of simple food chains and food webs (e.g., producers, herbivores, carnivores, omnivores and decomposers).</p> | <p>Teacher's Edition: 26, 27 (Also see <i>Science Daybook, Grade 4</i>.)</p> |
| <p>4. Summarize that organisms can survive only in ecosystems in which their needs can be met (e.g., food, water, shelter, air, carrying capacity and waste disposal). The world has different ecosystems and distinct ecosystems support the lives of different types of organisms.</p> | <p>Student Book: 43, 45, 47 Teacher's Edition: 43, 44, 45, 46, 47, 48 (Also see <i>Science Daybook, Grade 4</i>.)</p> |
| <p>5. Support how an organism's patterns of behavior are related to the nature of that organism's ecosystem, including the kinds and numbers of other organisms present, the availability of food and resources, and the changing physical characteristics of the ecosystem.</p> | <p>Student Book: 43, 45, 47 Teacher's Edition: 43, 44, 45, 46, 47, 48 (Also see <i>Science Daybook, Grade 4</i>.)</p> |
| <p>6. Analyze how all organisms, including humans, cause changes in their ecosystems and how these changes can be beneficial, neutral or detrimental (e.g., beaver ponds, earthworm burrows, grasshoppers eating plants, people planting and cutting trees and people introducing a new species).</p> | <p>Student Book: 43-48 Teacher's Edition: 43, 44, 45, 46, 47, 48</p> |

Physical Sciences

| Grade-Level Indicators, Grade 5 | Science Daybook, Grade 5 |
|---|---|
| <p><i>Nature of Energy</i></p> <p>1. Define temperature as the measure of thermal energy and describe the way it is measured.</p> | <p>Student Book: 117 Teacher's Edition: 117 (Also see <i>Science Daybook, Grade 4</i>.)</p> |

| Grade-Level Indicators, Grade 5 | Science Daybook, Grade 5 |
|---|--|
| 2. Trace how thermal energy can transfer from one object to another by conduction. | Student Book: 113-118 Teacher's Edition: 114, 116, 117, 118 (Also see <i>Physical Science Daybook</i> .) |
| 3. Describe that electrical current in a circuit can produce thermal energy, light, sound and/or magnetic forces. | Student Book: 101-106 Teacher's Edition: 102, 103, 104, 105, 106 |
| 4. Trace how electrical current travels by creating a simple electric circuit that will light a bulb. | Student Book: 106 Teacher's Edition: 106 |
| 5. Explore and summarize observations of the transmission, bending (refraction) and reflection of light. | Student Book: 119-124 Teacher's Edition: 120, 121, 122, 123, 124 |
| 6. Describe and summarize observations of the transmission, reflection, and absorption of sound. | No specific chapter addresses this grade-level indicator. (See <i>Physical Science Daybook</i> .) |
| 7. Describe that changing the rate of vibration can vary the pitch of a sound. | No specific chapter addresses this grade-level indicator. (See <i>Physical Science Daybook</i> .) |

S c i e n c e a n d T e c h n o l o g y

| Grade-Level Indicators, Grade 5 | Science Daybook, Grade 5 |
|--|--|
| <i>Understanding Technology</i> 1. Investigate positive and negative impacts of human activity and technology on the environment. | Student Book: 132, 134-135, 138, 144, 151-152 Teacher's Edition: 132, 134, 135, 137, 138, 144, 149, 150, 155, 158 |
| <i>Abilities To Do Technological Design</i> 2. Revise an existing design used to solve a problem based on peer review. | Student Book: 45, 132, 157 Teacher's Edition: 45, 115, 132, 157 |
| 3. Explain how the solution to one problem may create other problems. | Student Book: 45 Teacher's Edition: 45 |

Scientific Inquiry

| Grade-Level Indicators, Grade 5 | Science Daybook, Grade 5 |
|---|--|
| <p><i>Doing Scientific Inquiry</i></p> <p>1. Select and safely use the appropriate tools to collect data when conducting investigations and communicating findings to others (e.g., thermometers, timers, balances, spring scales, magnifiers, microscopes and other appropriate tools).</p> | <p>Student Book: 93-94, 106, 117</p> <p>Teacher's Edition: 87b, 87c, 87d, 93-94, 106, 117, 137, 145b, 149</p> |
| <p>2. Evaluate observations and measurements made by other people and identify reasons for any discrepancies.</p> | <p>Teacher's Edition: 156, 157</p> |
| <p>3. Use evidence and observations to explain and communicate the results of investigations.</p> | <p>Student Book: 60-61, 71, 74, 78-79, 93-94, 99, 100, 106, 117, 151-152</p> <p>Teacher's Edition: 35, 60-61, 62, 71, 74, 78-79, 93-94, 99, 100, 106, 117, 125a-125b, 151-152, 157</p> |
| <p>4. Identify one or two variables in a simple experiment.</p> | <p>No specific chapter addresses this grade-level indicator. (See <i>Life Science Daybook</i>.)</p> |
| <p>5. Identify potential hazards and/or precautions involved in an investigation.</p> | <p>No specific chapter addresses this grade-level indicator. (See <i>ScienceSaurus</i>.)</p> |
| <p>6. Explain why results of an experiment are sometimes different (e.g., because of unexpected differences in what is being investigated, unrealized differences in the methods used or in the circumstances in which the investigation was carried out, and because of errors in observations).</p> | <p>Student Book: 69-74, 156</p> <p>Teacher's Edition: 69, 70, 71, 156, 157</p> |

Scientific Ways of Knowing

| Grade-Level Indicators, Grade 5 | Science Daybook, Grade 5 |
|--|---|
| <p><i>Nature of Science</i></p> <p>1. Summarize how conclusions and ideas change as new knowledge is gained.</p> | <p>Student Book: 69-74, 156, 157</p> <p>Teacher's Edition: 69, 70, 71, 74, 156, 157</p> |

| Grade-Level Indicators, Grade 5 | Science Daybook, Grade 5 |
|---|---|
| 2. Develop descriptions, explanations and models using evidence to defend/support findings. | Student Book: 51-56, 69-74, 81-86, 127-132 Teacher's Edition: 53, 71, 73, 83, 85 |
| 3. Explain why an experiment must be repeated by different people or at different times or places and yield consistent results before the results are accepted. | Student Book: 72-74, 156, 157, 158 Teacher's Edition: 70, 74, 156, 157, 158 |
| 4. Identify how scientists use different kinds of ongoing investigations depending on the questions they are trying to answer (e.g., observations of things or events in nature, data collection and controlled experiments). | Student Book: 72-74, 156, 157 Teacher's Edition: 156, 157 |
| <i>Ethical Practices</i> 5. Keep records of investigations and observations that are understandable weeks or months later. | Student Book: 61, 71, 117, 157 Teacher's Edition: 117 |
| <i>Science and Society</i> 6. Identify a variety of scientific and technological work that people of all ages, backgrounds and groups perform. | Student Book: 156, 157, 158, 163 Teacher's Edition: 156, 157, 158, 160, 161, 163 |



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 correlated to
Ohio Science Grade-Level Indicators
Grade 6

E a r t h a n d S p a c e S c i e n c e s

| Grade-Level Indicators, Grade 6 | Science Daybooks, Grades 6-8 |
|---|---|
| <i>Earth Systems</i> 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. | Earth Science Student Book: 20-23 Earth Science Teacher’s Edition: 20, 21-22, 23 |
| 2. Explain that rocks are made of one or more minerals. | Earth Science Student Book: 24 |
| 3. Identify minerals by their characteristic properties | Earth Science Student Book: 24 |

L i f e S c i e n c e s

| Grade-Level Indicators, Grade 6 | Science Daybooks, Grades 6-8 |
|---|--|
| <i>Characteristics and Structure of Life</i> 1. Explain that many of the basic functions of organisms are carried out by or within cells and are similar in all organisms. | Life Science Student Book: 10-13, 14-17, 18-19, 20-23, 24-27, 28-29 Life Science Teacher’s Edition: 10B, 10, 13, 14, 15, 17, 20, 23 |
| 2. Explain that multicellular organisms have a variety of specialized cells, tissues, organs and organ systems that perform specialized functions. | Life Science Student Book: 14-17, 24-27, 40-43, 44-47, 48-49 Life Science Teacher’s Edition: 10B, 14, 16, 30B, 40B, 40, 43, 44, 47 |

| Grade-Level Indicators, Grade 6 | Science Daybooks, Grades 6-8 |
|---|--|
| 3. Identify how plant cells differ from animal cells (e.g., cell wall and chloroplasts). | <p>Life Science Student Book: 17, 24-27</p> <p>Life Science Teacher’s Edition: 24</p> |
| <p><i>Heredity</i></p> <p>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.</p> | <p>Life Science Student Book: 30-33, 34-35, 54-57, 62-63, 64-67, 68-71</p> <p>Life Science Teacher’s Edition: 30, 31, 32, 34, 35, 54, 55, 57, 62B, 62, 63, 64, 68, 70, 71</p> |
| 5. Describe that in asexual reproduction all the inherited traits come from a single parent. | No specific chapter addresses this grade-level indicator. (See <i>ScienceSaurus</i> .) |
| 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. | <p>Life Science Student Book: 18-19, 35</p> <p>Life Science Teacher’s Edition: 18, 54</p> |
| 7. Recognize that likenesses between parents and offspring (e.g., eye color, flower color) are inherited. Other likenesses, such as table manners are learned. | <p>Life Science Student Book: 54-57, 62-63, 64-67, 68-71</p> <p>Life Science Teacher’s Edition: 54, 55, 56, 57, 62B, 62, 63, 64, 65, 67, 68, 69, 70, 71</p> |
| <p><i>Diversity and Interdependence of Life</i></p> <p>8. Describe how organisms may interact with one another</p> | <p>Life Science Student Book: 124-127, 128-131, 132-133, 176, 182-185, 186-187, 188-191, 192-195, 196-197</p> <p>Life Science Teacher’s Edition: 124-127, 128-131, 132-133, 176, 182-185, 186-187, 188-191, 192-195, 196-197</p> |

Physical Sciences

| Grade-Level Indicators, Grade 6 | Science Daybooks, Grades 6-8 |
|--|--|
| <p><i>Nature of Matter</i></p> <p>1. Explain that equal volumes of different substances usually have different masses.</p> | No specific chapter addresses this grade-level indicator. (See <i>ScienceSaurus</i> .) |

| Grade-Level Indicators, Grade 6 | Science Daybooks, Grades 6-8 |
|---|--|
| 2. Describe that in a chemical change new substances are formed with different properties than the original substance (e.g., rusting, burning). | <p>Physical Science Student Book: 188-191, 192-195, 196-197</p> <p>Physical Science Teacher’s Edition: 188, 189, 190, 193, 197</p> |
| 3. Describe that in a physical change (e.g., state, shape and size) the chemical properties of a substance remain unchanged. | <p>Physical Science Student Book: 152-155</p> <p>Physical Science Teacher’s Edition: 152, 153</p> |
| 4. Describe that chemical and physical changes occur all around us (e.g., in the human body, cooking and industry). | <p>Life Science Student Book: 14-15, 24-25</p> <p>Life Science Teacher’s Edition: 14, 15, 24-25</p> <p>Physical Science Student Book: 154, 155, 188-191, 205-207</p> <p>Physical Science Teacher’s Edition: 152, 153, 154, 155, 188, 190, 191, 205, 206, 207</p> |
| <p><i>Nature of Energy</i></p> <p>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.</p> | <p>Earth Science Student Book: 30-33, 38-39</p> <p>Earth Science Teacher’s Edition: 30, 31, 38, 39</p> |
| 6. Explain that energy derived from renewable resources such as wind and water is assumed to be available indefinitely. | <p>Earth Science Student Book: 34-37, 38-39</p> <p>Earth Science Teacher’s Edition: 35, 36-37, 39</p> |
| 7. Describe how electric energy can be produced from a variety of sources (e.g., sun, wind and coal). | <p>Earth Science Student Book: 30-33, 34-37, 38-39</p> <p>Earth Science Teacher’s Edition: 30, 31, 32, 33, 34, 35, 36-37, 38, 39</p> |
| 8. Describe how renewable and nonrenewable energy resources can be managed (e.g., fossil fuels, trees and water). | <p>Earth Science Student Book: 30-33, 34-37, 38-39</p> <p>Earth Science Teacher’s Edition: 30, 31, 32, 33, 34, 35, 36-37, 38, 39</p> |

Science and Technology

| Grade-Level Indicators, Grade 6 | Science Daybooks, Grades 6-8 |
|--|--|
| <p><i>Understanding Technology</i></p> <p>1. Explain how technology influences the quality of life.</p> | <p>Earth Science Student Book: 106-109, 110-113</p> <p>Earth Science Teacher’s Edition: 106, 107, 108, 109, 110, 111, 112-113</p> <p>Life Science Student Book: 196-197</p> <p>Life Science Teacher’s Edition: 196, 197</p> <p>Physical Science Student Book: 46-49, 62-65</p> <p>Physical Science Teacher’s Edition: 47, 62B, 62, 63</p> |
| <p>2. Explain how decisions about the use of products and systems can result in desirable or undesirable consequences (e.g., social and environmental).</p> | <p>Earth Science Student Book: 106-109, 112-113, 118-119, 122-123, 130-133</p> <p>Earth Science Teacher’s Edition: 106, 107, 108, 109, 110, 111, 112-113, 119, 123, 130</p> <p>Life Science Student Book: 196-197</p> <p>Life Science Teacher’s Edition: 196, 197</p> <p>Physical Science Student Book: 46-47, 102-103</p> <p>Physical Science Teacher’s Edition: 33, 46, 47, 102, 103</p> |
| <p>3. Describe how automation (e.g., robots) has changed manufacturing including manual labor being replaced by highly-skilled jobs.</p> | <p>Physical Science Student Book: 42-45</p> <p>Physical Science Teacher’s Edition: 42, 43, 45</p> |
| <p>4. Explain how the usefulness of manufactured parts of an object depend on how well their properties allow them to fit and interact with other materials.</p> | <p>Physical Science Student Book: 30-33, 34-35, 36-39</p> <p>Physical Science Teacher’s Edition: 31, 32, 35, 36-37</p> |
| <p><i>Abilities To Do Technological Design</i></p> <p>5. Design and build a product or create a solution to a problem given one constraint (e.g., limits of cost and time for design and production, supply of materials and environmental effects).</p> | <p>Earth Science Student Book: 130-133</p> <p>Earth Science Teacher’s Edition: 130, 132</p> <p>Life Science Student Book: 174</p> <p>Life Science Teacher’s Edition: 174</p> <p>Physical Science Student Book: 35, 49</p> <p>Physical Science Teacher’s Edition: 35</p> |

Scientific Inquiry

| Grade-Level Indicators, Grade 6 | Science Daybooks, Grades 6-8 |
|---|--|
| <p><i>Doing Scientific Inquiry</i></p> <p>1. Explain that there are not fixed procedures for guiding scientific investigations; however, the nature of an investigation determines the procedures needed.</p> | <p>Earth Science Student Book: 120-121</p> <p>Earth Science Teacher’s Edition: 13, 29, 30B, 35, 120-121</p> <p>Life Science Student Book: 144-145, 216-217</p> <p>Life Science Teacher’s Edition: 144, 145, 216, 217</p> <p>Physical Science Student Book: 150-151, 184-185, 197, 206-207</p> <p>Physical Science Teacher’s Edition: 30B, 31, 37, 150, 151, 184, 185, 197, 201, 206, 207</p> |
| <p>2. Choose the appropriate tools or instruments and use relevant safety procedures to complete scientific investigations</p> | <p>Earth Science Student Book: 29, 120-121</p> <p>Earth Science Teacher’s Edition: 13, 29, 30B, 35, 120-121</p> <p>Life Science Student Book: 144-145, 216-217</p> <p>Life Science Teacher’s Edition: 144, 216</p> <p>Physical Science Student Book: 150-151, 184-185, 197, 206-207</p> <p>Physical Science Teacher’s Edition: 30B, 31, 37, 150, 151, 184, 185, 197, 201, 206, 207</p> |

| Grade-Level Indicators, Grade 6 | Science Daybooks, Grades 6-8 |
|--|---|
| <p>3. Distinguish between observation and inference.</p> | <p>Earth Science Student Book: 14-15, 18-19, 21-23, 26-27, 29, 31-33, 36-37, 38-39, 42-43, 46-47, 49, 54-55, 58-59, 60-61, 64-65, 68-69, 71, 74-75, 77-49, 81, 84-85, 87, 90-91, 94-95, 98-99, 102-103, 104-105, 108-109, 112-113, 116-117, 119-121, 123, 126-127, 129, 132-133, 137, 139-141, 144-145, 148-149, 152-153, 155, 158-159, 162-163, 165, 168-169, 171, 174-175, 180-181, 183, 186-187, 190-191, 194-195, 196-197, 200-201, 204-205, 206-207, 210-211, 213, 215-217</p> <p>Earth Science Teacher’s Edition: 16, 18, 28-29, 30, 34, 40, 41, 42, 43, 44, 45, 47, 48, 49, 52, 55, 56, 58, 61, 62, 66, 67, 70, 71, 72, 73, 80, 82, 84-85, 86, 88, 95, 96, 97, 103, 104, 106, 110, 118, 120-121, 124, 125, 126, 128, 129, 130, 138, 141, 142, 143, 154, 155, 160, 164, 165, 166, 168, 169, 173, 174, 187, 192, 193</p> <p>Life Science Student Book: 12, 16-17, 19, 22-23, 26-27, 29, 32-33, 36-37, 39, 42-43, 46-47, 49, 53, 56-57, 60-61, 62-63, 66-67, 70-71, 74-75, 78-79, 81, 84-85, 87-89, 90-91, 96-97, 100-101, 103, 105-107, 109, 112-113, 116-117, 118-119, 123, 126-127, 130-131, 132-133, 138-139, 141, 144-145, 148-149, 151-153, 155, 157, 160-161, 164-165, 168-169, 171, 174-175, 180-181, 184-185, 187, 190-191, 193-195, 196-197, 200-201, 204-205, 206-207, 210-211, 213, 216-217</p> <p>Life Science Teacher’s Edition: 12, 13, 14, 18, 20, 24, 26-27, 40, 44, 47, 48-49, 54, 55, 64, 67, 68, 72, 75, 85, 87, 91, 94, 97, 98, 101, 104, 105, 108-109, 110, 112, 114, 116-117, 118, 119, 120, 121, 122-123, 128, 130, 132-133, 137, 139, 140-141, 142, 143, 145, 146, 148-149, 150, 154-155, 156-157, 162, 164, 165, 178, 180, 182, 186, 187, 192, 196, 197, 198, 200, 202, 205, 206, 208, 214, 216, 217</p> <p>Physical Science Student Book: 12-13, 16-17, 18-19, 22-23, 25-27, 29, 32-33, 34-35, 38-39, 41, 44-45, 48-49, 54-55, 58-59, 61, 64-65, 67, 70-71, 73, 76-77, 80-81, 84-85, 87, 90-91, 96-97, 100-101, 103, 106-107, 110-111, 113, 115, 118-119, 122-123, 126-127, 129, 132-133, 136-137, 140-141, 144-145, 148-149, 150-151, 154-155, 156-157, 160-161, 164-165, 167, 170-171, 174-175, 180-181, 184-185, 187, 190-191, 194-195, 197, 199, 202-203, 206-207, 210-211, 214-215</p> <p>Physical Science Teacher’s Edition: 10, 14, 16, 19, 20, 23, 28-29, 30, 31, 34-35, 36, 40, 41, 42, 43, 46, 48, 52, 54, 55, 56, 59, 61, 62, 64, 65, 67, 68, 70, 71, 72, 73, 74, 77, 78, 81, 82, 85, 94, 104, 107, 110, 112, 113, 114, 115, 116, 120, 124, 127, 128, 129, 136, 146, 149, 152, 157, 162, 165, 169, 172, 174, 178, 181, 182, 183, 186, 187, 188, 190, 191, 192, 197, 198, 199, 206-207</p> |

| Grade-Level Indicators, Grade 6 | Science Daybooks, Grades 6-8 |
|--|---|
| <p>4. Explain that a single example can never prove that something is always correct, but sometimes a single example can disprove something.</p> | <p>Earth Science Student Book: 174-175</p> <p>Earth Science Teacher’s Edition: 174, 175</p> <p>Life Science Student Book: 138-139</p> <p>Life Science Teacher’s Edition: 137, 138</p> <p>Physical Science Student Book: 141, 211</p> <p>Physical Science Teacher’s Edition: 10B, 141, 211</p> |

S c i e n t i f i c W a y s o f K n o w i n g

| Grade-Level Indicators, Grade 6 | Science Daybooks, Grades 6-8 |
|---|---|
| <p><i>Nature of Science</i></p> <p>1. Identify that hypotheses are valuable even when they are not supported.</p> | <p>Life Science Student Book: 26-27, 139</p> <p>Life Science Teacher’s Edition: 26, 27, 139</p> <p>Physical Science Student Book: 19, 151</p> <p>Physical Science Teacher’s Edition: 19, 119</p> |
| <p><i>Ethical Practices</i></p> <p>2. Describe why it is important to keep clear, thorough and accurate records.</p> | <p>Physical Science Teacher’s Edition: 62B, 65, 199</p> |
| <p><i>Science and Society</i></p> <p>3. Identify ways scientific thinking is helpful in a variety of everyday settings.</p> | <p>Earth Science Student Book: 128-129</p> <p>Earth Science Teacher’s Edition: 129</p> <p>Physical Science Student Book: 209, 212-215</p> <p>Physical Science Teacher’s Edition: 209, 215</p> |
| <p>4. Describe how the pursuit of scientific knowledge is beneficial for any career and for daily life.</p> | <p>Earth Science Student Book: 19, 42-43</p> <p>Earth Science Teacher’s Edition: 19, 43</p> <p>Life Science Student Book: 85</p> <p>Physical Science Student Book: 42-45, 46-49, 209, 215</p> <p>Physical Science Teacher’s Edition: 42, 71, 208, 209, 215</p> |

| Grade-Level Indicators, Grade 6 | Science Daybooks, Grades 6-8 |
|--|--|
| <p>5. Research how men and women of all countries and cultures have contributed to the development of science.</p> | <p>Earth Science Student Book: 40-43, 44-47, 48-49, 171, 202-205</p> <p>Earth Science Teacher’s Edition: 42, 43, 45, 46, 49, 191, 203</p> <p>Life Science Student Book: 54-57, 59, 83, 166-169</p> <p>Life Science Teacher’s Edition: 54, 59, 166, 167</p> <p>Physical Science Student Book: 88-91, 138-141, 196-197, 209, 212-215</p> <p>Physical Science Teacher’s Edition: 62B, 89, 140, 196, 197, 208B, 212, 215</p> |



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Physical Science Daybook © 2003
 correlated to
Ohio Science Grade-Level Indicators
Grade 7

E a r t h a n d S p a c e S c i e n c e s

| Grade-Level Indicators, Grade 7 | Science Daybooks, Grades 6-8 |
|--|---|
| <p><i>Earth Systems</i></p> <p>1. Explain the biogeochemical cycles which move materials between the lithosphere (land), hydrosphere (water) and atmosphere (air).</p> | <p>Earth Science Student Book: 94-95</p> <p>Earth Science Teacher’s Edition: 94, 95</p> |
| <p>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).</p> | <p>Earth Science Student Book: 172-175</p> <p>Earth Science Teacher’s Edition: 172, 173, 174, 175</p> |
| <p>3. Describe the water cycle and explain the transfer of energy between the atmosphere and hydrosphere.</p> | <p>Earth Science Student Book: 94-95</p> <p>Earth Science Teacher’s Edition: 94, 96, 97, 101</p> |
| <p>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.</p> | <p>Earth Science Student Book: 106-109, 110-113</p> <p>Earth Science Teacher’s Edition: 108, 109, 110, 111, 112, 113</p> |
| <p>5. Make simple weather predictions based on the changing cloud types associated with frontal systems.</p> | <p>Earth Science Student Book: 146-149, 156-159</p> <p>Earth Science Teacher’s Edition: 146, 147, 148, 149, 156, 157, 158</p> <p>(Also see <i>ScienceSaurus</i>.)</p> |

| Grade-Level Indicators, Grade 7 | Science Daybooks, Grades 6-8 |
|---|---|
| 6. Determine how weather observations and measurements are combined to produce weather maps and that data for a specific location at one point in time can be displayed in a station model. | Earth Science Student Book: 146-149, 156-159 Earth Science Teacher's Edition: 146, 147, 148, 149, 158 (Also see <i>ScienceSaurus</i> .) |
| 7. Read a weather map to interpret local, regional and national weather. | Earth Science Student Book: 146-149, 156-159 Earth Science Teacher's Edition: 148, 149, 158 (Also see <i>ScienceSaurus</i> .) |
| 8. Describe how temperature and precipitation determine climatic zones (biomes) (e.g., desert, grasslands, forests, tundra and alpine). | Life Science Student Book: 198-201 Life Science Teacher's Edition: 198, 199, 200, 203 |
| 9. Describe the connection between the water cycle and weather-related phenomenon (e.g., tornadoes, floods, droughts and hurricanes). | Earth Science Teacher's Edition: 94, 156B, 156, 160, 161 |

Life Sciences

| Grade-Level Indicators, Grade 7 | Science Daybooks, Grades 6-8 |
|---|---|
| <i>Characteristics and Structure of Life</i> 1. Investigate the great variety of body plans and internal structures found in multicellular organisms. | Life Science Student Book: 80-81, 84, 85, 87, 90-91 Life Science Teacher's Edition: 80, 84, 85, 87, 90, 91 |
| <i>Diversity and Interdependence of Life</i> 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). | Life Science Student Book: 124-127, 128-131, 132-133, 176, 182-185, 186-187, 188-191, 192-195, 196-197 Life Science Teacher's Edition: 124-127, 128-131, 132-133, 176, 182-185, 186-187, 188-191, 192-195, 196-197 |
| 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). | Life Science Student Book: 186-187, 188-191, 192-195 Life Science Teacher's Edition: 186, 187, 190, 191, 192, 193, 194, 195 |

| Grade-Level Indicators, Grade 7 | Science Daybooks, Grades 6-8 |
|--|--|
| 4. Investigate how overpopulation impacts an ecosystem. | Life Science Student Book: 186-187 Life Science Teacher's Edition: 186, 187 |
| 5. Explain that some environmental changes occur slowly while others occur rapidly (e.g., forest and pond succession, fires and decomposition). | Earth Science Student Book: 62-65, 66-69, 70-71 Earth Science Teacher's Edition: 62B, 62, 63, 69, 70, 71, 82B |
| 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). | Earth Science Student Book: 52-55, 56-59, 70-71 Earth Science Teacher's Edition: 52B, 52, 53, 55, 57, 70, 71 |
| 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. | Life Science Student Book: 24-25 Life Science Teacher's Edition: 25 |
| <i>Evolution Theory</i> 8. Investigate the great diversity among organisms. | Life Science Student Book: 80-81, 84, 85, 87, 90-91 Life Science Teacher's Edition: 80, 84, 85, 87, 90, 91 |

Physical Sciences

| Grade-Level Indicators, Grade 7 | Science Daybooks, Grades 6-8 |
|---|---|
| <i>Nature of Matter</i> 1. Investigate how matter can change forms but the total amount of matter remains constant. | No specific lesson addresses this grade-level indicator. (See <i>ScienceSaurus</i> .) |
| <i>Nature of Energy</i> 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. | Physical Science Student Book: 14-17, 18-19 Physical Science Teacher's Edition: 14, 15, 16, 17, 18, 19 |

| Grade-Level Indicators, Grade 7 | Science Daybooks, Grades 6-8 |
|---|---|
| 3. Identify different forms of energy (e.g., electrical, mechanical, chemical, thermal, nuclear, radiant and acoustic). | <p>Earth Science Student Book: 34-37, 130-133, 206-207</p> <p>Earth Science Teacher’s Edition: 30, 33, 34, 35, 37, 130-131, 206</p> <p>Physical Science Student Book: 56-59, 60-61, 94-97, 98-101, 102-103, 128-129, 198-199, 200-203, 204-207</p> <p>Physical Science Teacher’s Edition: 59, 60, 61, 94B, 94, 95, 97, 98, 102, 124B, 129, 183, 187, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207</p> |
| 4. Explain how energy can change forms but the total amount of energy remains constant. | <p>Physical Science Student Book: 14-17, 18-19, 59</p> <p>Physical Science Teacher’s Edition: 14, 16, 17, 19, 59, 70</p> |
| 5. Trace energy transformation in a simple closed system (e.g., a flashlight). | <p>Physical Science Student Book: 70-71, 81, 87</p> <p>Physical Science Teacher’s Edition: 70, 71, 87</p> |

Science and Technology

| Grade-Level Indicators, Grade 7 | Science Daybooks, Grades 6-8 |
|---|---|
| <p><i>Understanding Technology</i></p> 1. Explain how needs, attitudes and values influence the direction of technological development in various cultures. | <p>Earth Science Student Book: 106-109, 110-113, 212-215, 216-217</p> <p>Earth Science Teacher’s Edition: 106, 107, 108, 109, 110, 111, 112-113, 212, 216</p> <p>Life Science Student Book: 196-197</p> <p>Life Science Teacher’s Edition: 196, 197</p> <p>Physical Science Student Book: 42-45, 46-49, 62-65</p> <p>Physical Science Teacher’s Edition: 42, 47, 62, 63</p> |

| Grade-Level Indicators, Grade 7 | Science Daybooks, Grades 6-8 |
|---|--|
| <p>2. Describe how decisions to develop and use technologies often put environmental and economic concerns in direct competition with each other.</p> | <p>Earth Science Student Book: 106-109, 112-113, 118-119, 122-123, 130-133</p> <p>Earth Science Teacher’s Edition: 106, 107, 108, 109, 110, 111, 112-113, 119, 123, 130</p> <p>Life Science Student Book: 196-197</p> <p>Life Science Teacher’s Edition: 196, 197</p> <p>Physical Science Student Book: 46-47, 102-103</p> <p>Physical Science Teacher’s Edition: 33, 46, 47, 102, 103</p> |
| <p>3. Recognize that science can only answer some questions and technology can only solve some human problems.</p> | <p>Physical Science Student Book: 49</p> <p>Physical Science Teacher’s Edition: 49</p> |
| <p><i>Abilities To Do Technological Design</i></p> <p>4. Design and build a product or create a solution to a problem given two constraints (e.g., limits of cost and time for design and production or supply of materials and environmental effects).</p> | <p>Earth Science Student Book: 130-133</p> <p>Earth Science Teacher’s Edition: 130, 132</p> <p>Life Science Student Book: 174</p> <p>Life Science Teacher’s Edition: 174</p> <p>Physical Science Student Book: 35, 49</p> <p>Physical Science Teacher’s Edition: 35</p> |

S c i e n t i f i c I n q u i r y

| Grade-Level Indicators, Grade 7 | Science Daybooks, Grades 6-8 |
|---|--|
| <p><i>Doing Scientific Inquiry</i></p> <p>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.</p> | <p>Earth Science Student Book: 174</p> <p>Earth Science Teacher’s Edition: 174</p> <p>Life Science Student Book: 138, 191</p> <p>Life Science Teacher’s Edition: 27, 133, 137, 138, 139, 191</p> <p>Physical Science Teacher’s Edition: 103, 129, 151, 174, 191</p> |

| Grade-Level Indicators, Grade 7 | Science Daybooks, Grades 6-8 |
|---|--|
| <p>2. Identify simple independent and dependent variables.</p> | <p>Earth Science Student Book: 174</p> <p>Earth Science Teacher’s Edition: 174</p> <p>Life Science Student Book: 138, 191</p> <p>Life Science Teacher’s Edition: 27, 133, 137, 138, 139, 191</p> <p>Physical Science Teacher’s Edition: 103, 129, 151, 174, 191</p> |
| <p>3. Formulate and identify questions to guide scientific investigations that connect to science concepts and can be answered through scientific investigations.</p> | <p>Earth Science Student Book: 27, 175</p> <p>Earth Science Teacher’s Edition: 27, 129, 175</p> <p>Life Science Student Book: 139</p> <p>Life Science Teacher’s Edition: 139</p> |
| <p>4. Choose the appropriate tools and instruments and use relevant safety procedures to complete scientific investigations.</p> | <p>Earth Science Student Book: 29, 120-121</p> <p>Earth Science Teacher’s Edition: 13, 29, 30B, 35, 120-121</p> <p>Life Science Student Book: 144-145, 216-217</p> <p>Life Science Teacher’s Edition: 144, 216</p> <p>Physical Science Student Book: 150-151, 184-185, 197, 206-207</p> <p>Physical Science Teacher’s Edition: 30B, 31, 37, 150, 151, 184, 185, 197, 201, 206, 207</p> |
| <p>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.</p> | <p>Earth Science Student Book: 128-129, 174-175</p> <p>Earth Science Teacher’s Edition: 128, 129, 174, 175</p> <p>Life Science Student Book: 139, 190-191</p> <p>Life Science Teacher’s Edition: 137, 139</p> <p>Physical Science Student Book: 141, 211</p> <p>Physical Science Teacher’s Edition: 49, 141, 211</p> |

| Grade-Level Indicators, Grade 7 | Science Daybooks, Grades 6-8 |
|---|--|
| <p>6. Identify faulty reasoning and statements that go beyond the evidence or misinterpret the evidence.</p> | <p>Earth Science Student Book: 154-155, 174-175</p> <p>Earth Science Teacher’s Edition: 155, 174, 175</p> <p>Life Science Student Book: 139</p> <p>Life Science Teacher’s Edition: 137</p> <p>Physical Science Student Book: 141</p> <p>Physical Science Teacher’s Edition: 140, 141</p> |
| <p>7. Use graphs, tables and charts to study physical phenomena and infer mathematical relationships between variables (e.g., speed and density).</p> | <p>Earth Science Student Book: 22, 29, 32, 39, 47, 60-61, 87, 116-117, 119, 130, 139, 140, 149, 152, 162-163, 174, 197, 200</p> <p>Earth Science Teacher’s Edition: 13, 41, 61, 116, 130, 139, 140, 149, 152, 162, 197, 200</p> <p>Life Science Student Book: 12-13, 26-27, 33, 34, 36, 49, 56, 63, 70, 79, 82-85, 87, 110, 120, 127, 128, 132-133, 138, 144-145, 152, 160, 164-165, 190, 193-195, 200-201, 204-205, 210, 213</p> <p>Life Science Teacher’s Edition: 34, 49, 87, 110, 120, 126, 128, 138, 152, 160, 190, 193, 204-205, 210, 213</p> <p>Physical Science Student Book: 10, 14, 18-19, 25-26, 55, 90, 91, 110, 133, 144-145, 148-149, 151, 154, 157, 160, 161, 167, 184-185, 190, 194, 203, 206-207, 210, 215, 217</p> <p>Physical Science Teacher’s Edition: 10, 14, 90, 91, 103, 110, 148, 151, 154, 160, 167, 194, 203, 215</p> |

S c i e n t i f i c W a y s o f K n o w i n g

| Grade-Level Indicators, Grade 7 | Science Daybooks, Grades 6-8 |
|---|--|
| <p><i>Ethical Practices</i></p> <p>1. Show that the reproducibility of results is essential to reduce bias in scientific investigations.</p> | <p>Earth Science Student Book: 129, 174-175</p> <p>Earth Science Teacher’s Edition: 129, 173, 174, 175</p> <p>Life Science Student Book: 136-139, 190-191</p> <p>Life Science Teacher’s Edition: 137, 139, 190-191</p> <p>Physical Science Student Book: 49, 141, 208-211</p> <p>Physical Science Teacher’s Edition: 49, 141, 208, 209, 210, 211</p> |
| <p>2. Describe how repetition of an experiment may reduce bias.</p> | <p>Earth Science Student Book: 129, 174-175</p> <p>Earth Science Teacher’s Edition: 129, 173, 174, 175</p> <p>Life Science Student Book: 136-139, 190-191</p> <p>Life Science Teacher’s Edition: 137, 139, 190-191</p> <p>Physical Science Student Book: 49, 141, 208-211</p> <p>Physical Science Teacher’s Edition: 49, 141, 208, 209, 210, 211</p> |
| <p><i>Science and Society</i></p> <p>3. Describe how the work of science requires a variety of human abilities and qualities that are helpful in daily life (e.g., reasoning, creativity, skepticism and openness).</p> | <p>Earth Science Student Book: 26, 27, 129</p> <p>Earth Science Teacher’s Edition: 26, 27, 129</p> <p>Physical Science Student Book: 215</p> <p>Physical Science Teacher’s Edition: 208, 215</p> |



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 correlated to
Ohio Science Grade-Level Indicators
Grade 8

E a r t h a n d S p a c e S c i e n c e s

| Grade-Level Indicators, Grade 8 | Science Daybooks, Grades 6-8 |
|--|--|
| <p><i>The Universe</i></p> <p>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.</p> | <p>Earth Science Student Book: 186-187, 188-191</p> <p>Earth Science Teacher’s Edition: 189, 190 (Also see <i>Science Daybook, Grade 5.</i>)</p> |
| <p>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.</p> | <p>Earth Science Student Book: 185-187</p> <p>Earth Science Teacher’s Edition: 186, 187</p> |
| <p>3. Compare the orbits and composition of comets and asteroids with that of Earth.</p> | <p>Earth Science Student Book: 184-187, 188-191</p> <p>Earth Science Teacher’s Edition: 186, 187, 190, 191</p> |
| <p>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).</p> | <p>Earth Science Student Book: 20, 178-181, 182-183</p> <p>Earth Science Teacher’s Edition: 20, 25, 178, 187, 182</p> |
| <p>5. Explain that the universe consists of billions of galaxies that are classified by shape.</p> | <p>Earth Science Teacher’s Edition: 206 (Also see <i>ScienceSaurus.</i>)</p> |
| <p>6. Explain interstellar distances are measured in light years (e.g., the nearest star beyond the sun is 4.3 light years away).</p> | <p>No specific lesson addresses this grade-level indicator. (See <i>ScienceSaurus.</i>)</p> |

| Grade-Level Indicators, Grade 8 | Science Daybooks, Grades 6-8 |
|---|--|
| 7. Examine the life cycle of a star and predict the next likely stage of a star. | <p>Earth Science Student Book: 198-201</p> <p>Earth Science Teacher’s Edition: 198B, 198-199, 200, 201</p> |
| 8. Name and describe tools used to study the universe (e.g., telescopes, probes, satellites and spacecraft). | <p>Earth Science Student Book: 185-187, 202-205, 208-211, 214-217</p> <p>Earth Science Teacher’s Edition: 185, 186, 187, 203, 204, 214, 217</p> |
| <p><i>Earth Systems</i></p> <p>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.</p> | <p>Earth Science Student Book: 20-23, 35, 78-79</p> <p>Earth Science Teacher’s Edition: 78, 79</p> |
| 10. Explain that most major geological events (e.g., earthquakes, volcanic eruptions, hot spots and mountain building) result from plate motion. | <p>Earth Science Student Book: 23, 88-89</p> <p>Earth Science Teacher’s Edition: 23, 89</p> |
| 11. Use models to analyze the size and shape of Earth, its surface and its interior (e.g., globes, topographic maps, satellite images). | <p>Earth Science Student Book: 10, 12-15, 16-19, 80-81, 142</p> <p>Earth Science Teacher’s Edition: 10, 11, 13, 14, 15, 16, 80, 81, 142, 143</p> |
| 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. | <p>Earth Science Student Book: 20-23</p> <p>Earth Science Teacher’s Edition: 20, 21, 22, 23</p> |
| 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). | <p>Earth Science Student Book: 20-23, 62-65, 70-71</p> <p>Earth Science Teacher’s Edition: 21, 22, 23, 62B, 62, 70</p> |
| 14. Explain that folding, faulting and uplifting can rearrange the rock layers so the youngest is not always found on top. | <p>Earth Science Student Book: 23</p> |
| 15. Illustrate how the three primary types of plate boundaries (transform, divergent and convergent) cause different landforms (e.g., mountains, volcanoes and ocean trenches). | <p>Earth Science Teacher’s Edition: 80, 81 (Also see <i>ScienceSaurus</i>.)</p> |

Life Sciences

| Grade-Level Indicators, Grade 8 | Science Daybooks, Grades 6-8 |
|---|--|
| <p><i>Heredity</i></p> <p>1. Describe that asexual reproduction limits the spread of detrimental characteristics through a species and allows for genetic continuity.</p> | <p>No specific lesson addresses this grade-level indicator. (See <i>ScienceSaurus</i>.)</p> |
| <p>2. Recognize that in sexual reproduction new combinations of traits are produced which may increase or decrease an organism's chances for survival.</p> | <p>Life Science Student Book: 54-57, 62-63, 64-67, 68-71</p> <p>Life Science Teacher's Edition: 56, 57, 62B, 62, 63, 64, 65, 67, 68, 69, 70, 71</p> |
| <p><i>Evolution Theory</i></p> <p>3. Explain how variations in structure, behavior or physiology allow some organisms to enhance their reproductive success and survival in a particular environment.</p> | <p>Life Science Student Book: 72-75, 76-79, 80-81, 198-201</p> <p>Life Science Teacher's Edition: 72B, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 198, 200, 201</p> |
| <p>4. Explain that diversity of species is developed through gradual processes over many generations (e.g., fossil record).</p> | <p>Life Science Student Book: 72-75, 82-85, 200</p> <p>Life Science Teacher's Edition: 72B, 72, 73, 74, 75,</p> |
| <p>5. Investigate how an organism adapted to a particular environment may become extinct if the environment, as shown by the fossil record, changes.</p> | <p>Life Science Student Book: 75, 76-79</p> <p>Life Science Teacher's Edition: 72B, 75, 76, 77, 79</p> |

Physical Sciences

| Grade-Level Indicators, Grade 8 | Science Daybooks, Grades 6-8 |
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| <p><i>Forces and Motion</i></p> <p>1. Describe how the change in the position (motion) of an object is always judged and described in comparison to a reference point.</p> | <p>Physical Science Student Book: 10-13, 14-17</p> <p>Physical Science Teacher’s Edition: 10, 11, 12, 13, 15</p> |
| <p>2. Explain that motion describes the change in the position of an object (characterized by a speed and direction) as time changes.</p> | <p>Physical Science Student Book: 10-13, 14-17, 18-19</p> <p>Physical Science Teacher’s Edition: 10-13, 14-17, 18-19</p> |
| <p>3. Explain that an unbalanced force acting on an object changes that object's speed and/or direction.</p> | <p>Physical Science Student Book: 12, 13, 21-23</p> <p>Physical Science Teacher’s Edition: 12, 13, 20B, 20, 21, 22, 23</p> |
| <p><i>Nature of Energy</i></p> <p>4. Demonstrate that waves transfer energy.</p> | <p>Physical Science Student Book: 94-97, 98-101, 104-107, 108-111, 112-113</p> <p>Physical Science Teacher’s Edition: 94B, 94, 95, 96, 97, 98, 99, 100, 101, 104A, 104B, 104, 105, 106, 108, 109, 112, 113</p> |
| <p>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).</p> | <p>Life Science Student Book: 116</p> <p>Life Science Teacher’s Edition: 116</p> <p>Physical Science Student Book: 98-101, 104-107, 108-111, 112-113</p> <p>Physical Science Teacher’s Edition: 98, 99, 100, 101, 104A, 104B, 104, 105, 106, 108, 109, 112</p> |

Science and Technology

| Grade-Level Indicators, Grade 8 | Science Daybooks, Grades 6-8 |
|---|--|
| <p><i>Understanding Technology</i></p> <p>1. Examine how science and technology have advanced through the contributions of many different people, cultures and times in history.</p> | <p>Earth Science Student Book: 40-43, 44-47, 48-49, 171, 202-205</p> <p>Earth Science Teacher’s Edition: 42, 43, 45, 46, 49, 191, 203</p> <p>Life Science Student Book: 54-57, 59, 83, 166-169</p> <p>Life Science Teacher’s Edition: 54, 59, 166, 167</p> <p>Physical Science Student Book: 88-91, 138-141, 196-197, 209, 212-215</p> <p>Physical Science Teacher’s Edition: 62B, 89, 140, 196, 197, 208B, 212, 215</p> |
| <p>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).</p> | <p>Earth Science Student Book: 106-109, 112-113, 118-119, 122-123, 130-133</p> <p>Earth Science Teacher’s Edition: 106, 107, 108, 109, 110, 111, 112-113, 119, 123, 130</p> <p>Life Science Student Book: 196-197</p> <p>Life Science Teacher’s Edition: 196, 197</p> <p>Physical Science Student Book: 46-47, 102-103, 138-141</p> <p>Physical Science Teacher’s Edition: 33, 46, 47, 102, 103, 138</p> |
| <p><i>Abilities To Do Technological Design</i></p> <p>3. Design and build a product or create a solution to a problem given more than two constraints (e.g., limits of cost and time for design and production, supply of materials and environmental effects).</p> | <p>Earth Science Student Book: 110-113, 130-133</p> <p>Earth Science Teacher’s Edition: 111, 112, 113, 130, 132</p> <p>Life Science Student Book: 174</p> <p>Life Science Teacher’s Edition: 174</p> <p>Physical Science Student Book: 35, 49</p> <p>Physical Science Teacher’s Edition: 35</p> |

| Grade-Level Indicators, Grade 8 | Science Daybooks, Grades 6-8 |
|---|---|
| <p>4. Evaluate the overall effectiveness of a product design or solution.</p> | <p>Earth Science Student Book: 110-113, 130-133</p> <p>Earth Science Teacher’s Edition: 111, 112, 113, 130, 132</p> <p>Life Science Student Book: 174</p> <p>Life Science Teacher’s Edition: 174</p> <p>Physical Science Student Book: 35, 49</p> <p>Physical Science Teacher’s Edition: 35</p> |

S c i e n t i f i c I n q u i r y

| Grade-Level Indicators, Grade 8 | Science Daybooks, Grades 6-8 |
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| <p><i>Doing Scientific Inquiry</i></p> <p>1. Choose the appropriate tools or instruments and use relevant safety procedures to complete scientific investigations.</p> | <p>Earth Science Student Book: 29, 120-121</p> <p>Earth Science Teacher’s Edition: 13, 29, 30B, 35, 120-121</p> <p>Life Science Student Book: 144-145, 216-217</p> <p>Life Science Teacher’s Edition: 144, 216</p> <p>Physical Science Student Book: 150-151, 184-185, 197, 206-207</p> <p>Physical Science Teacher’s Edition: 30B, 31, 37, 150, 151, 184, 185, 197, 201, 206, 207</p> |
| <p>2. Describe the concepts of sample size and control and explain how these affect scientific investigations.</p> | <p>Earth Science Student Book: 174</p> <p>Earth Science Teacher’s Edition: 172</p> <p>Physical Science Teacher’s Edition: 184, 185 (Also see <i>ScienceSaurus</i>.)</p> |

| Grade-Level Indicators, Grade 8 | Science Daybooks, Grades 6-8 |
|---|---|
| <p>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).</p> | <p>Earth Science Student Book: 10, 11, 12, 18, 21, 22, 29, 30, 31, 32, 36, 38, 39, 47, 54, 58, 60-61, 62, 64, 68, 77, 78-79, 80, 87, 94, 95, 96, 98, 102, 103, 104, 106, 108, 110, 115, 116-117, 119, 120, 123, 126, 130, 132, 137, 139, 140, 141, 142, 143, 144, 148, 149, 152, 155, 158, 162-163, 166, 168, 174, 178, 180, 186, 187, 190, 194, 197, 200, 206</p> <p>Earth Science Teacher’s Edition: 10, 11, 12, 13, 18, 21, 23, 30, 31, 36, 38, 41, 54, 58, 61, 62, 64, 68, 77, 78, 79, 80, 94, 95, 96, 98, 102, 103, 104, 108, 115, 116, 123, 126, 130, 131, 132, 137, 139, 140, 142, 144, 148, 149, 152, 155, 158, 162, 166, 180, 186, 190, 194, 197, 200, 206</p> <p>Life Science Student Book: 11, 12-13, 16, 17, 20, 31, 26-27, 33, 34, 36, 42, 46, 49, 55, 56, 66, 63, 70, 76, 79, 82-85, 87, 89, 98, 100, 110, 112, 116, 118, 120, 126, 127, 128, 132-133, 138, 144-145, 150, 152, 157, 160, 162, 164-165, 168, 171, 180, 184, 186, 188, 190, 193-195, 196, 200-201, 202, 204-205, 206, 208, 210, 211, 213</p> <p>Life Science Teacher’s Edition: 11, 13, 16, 20, 31, 32, 34, 35, 34, 41, 42, 44, 46, 49, 66, 85, 87, 88, 100, 110, 112, 116, 118, 120, 126, 128, 138, 152, 160, 162, 168, 171, 180, 188, 190, 193, 196, 204-205, 210, 211, 213</p> <p>Physical Science Student Book: 10, 12, 13, 14, 16, 17, 18-19, 22, 25-26, 29, 32, 34, 35, 41, 44, 54, 55, 59, 61, 64, 70, 73, 76, 80, 81, 84, 85, 87, 90, 91, 100, 108, 109, 110, 115, 118, 119, 122, 126, 132, 133, 138, 140, 144-145, 148-149, 151, 154, 157, 160, 161, 167, 170, 174, 180, 181, 184-185, 187, 190, 194, 202, 03, 206-207, 210, 215, 217</p> <p>Physical Science Teacher’s Edition: 10, 12, 13, 16, 17, 14, 20B, 22, 29, 52B, 54, 59, 61, 70, 73, 76, 80, 84, 85, 87, 90, 91, 94B, 100, 103, 108, 109, 110, 122, 126, 138, 139, 140, 145, 148, 151, 154, 160, 167, 170, 174, 178B, 180, 181, 194, 202, 203, 215</p> |
| <p>4. Apply appropriate math skills to interpret quantitative data (e.g., mean, median and mode).</p> | <p>Earth Science Teacher’s Edition: 79, 108, 153, 162, 174, 180</p> <p>Life Science Teacher’s Edition: 36, 42, 46, 78, 100, 127, 138, 152, 174, 190-191, 200</p> <p>Physical Science Teacher’s Edition: 59, 77, 101, 122, 145, 160, 185, 190</p> |

Scientific Ways of Knowing

| Grade-Level Indicators, Grade 8 | Science Daybooks, Grades 6-8 |
|---|---|
| <p><i>Nature of Science</i></p> <p>1. Identify the difference between description (e.g., observation and summary) and explanation (e.g., inference, prediction, significance and importance).</p> | <p>Earth Science Student Book: 14-15, 18-19, 21-23, 26-27, 29, 31-33, 36-37, 38-39, 42-43, 46-47, 49, 54-55, 58-59, 60-61, 64-65, 68-69, 71, 74-75, 77-49, 81, 84-85, 87, 90-91, 94-95, 98-99, 102-103, 104-105, 108-109, 112-113, 116-117, 119-121, 123, 126-127, 129, 132-133, 137, 139-141, 144-145, 148-149, 152-153, 155, 158-159, 162-163, 165, 168-169, 171, 174-175, 180-181, 183, 186-187, 190-191, 194-195, 196-197, 200-201, 204-205, 206-207, 210-211, 213, 215-217</p> <p>Earth Science Teacher’s Edition: 16, 18, 28-29, 30, 34, 40, 41, 42, 43, 44, 45, 47, 48, 49, 52, 55, 56, 58, 61, 62, 66, 67, 70, 71, 72, 73, 80, 82, 84-85, 86, 88, 95, 96, 97, 103, 104, 106, 110, 118, 120-121, 124, 125, 126, 128, 129, 130, 138, 141, 142, 143, 154, 155, 160, 164</p> <p>Life Science Student Book: 12, 16-17, 19, 22-23, 26-27, 29, 32-33, 36-37, 39, 42-43, 46-47, 49, 53, 56-57, 60-61, 62-63, 66-67, 70-71, 74-75, 78-79, 81, 84-85, 87-89, 90-91, 96-97, 100-101, 103, 105-107, 109, 112-113, 116-117, 118-119, 123, 126-127, 130-131, 132-133, 138-139, 141, 144-145, 148-149, 151-153, 155, 157, 160-161, 164-165, 168-169, 171, 174-175, 180-181, 184-185, 187, 190-191, 193-195, 196-197, 200-201, 204-205, 206-207, 210-211, 213, 216-217</p> <p>Life Science Teacher’s Edition: 12, 13, 14, 18, 20, 24, 26-27, 40, 44, 47, 48-49, 54, 55, 64, 67, 68, 72, 75, 85, 87, 91, 94, 97, 98, 101, 104, 105, 108-109, 110, 112, 114, 116-117, 118, 119, 120, 121, 122-123, 128, 130, 132-133, 137, 139, 140-141, 142, 143, 145, 146, 148-149, 150, 154-155, 156-157, 162, 164, 165, 178, 180, 182, 186, 187, 192, 196, 197, 198, 200, 202, 205, 206</p> <p>Physical Science Student Book: 12-13, 16-17, 18-19, 22-23, 25-27, 29, 32-33, 34-35, 38-39, 41, 44-45, 48-49, 54-55, 58-59, 61, 64-65, 67, 70-71, 73, 76-77, 80-81, 84-85, 87, 90-91, 96-97, 100-101, 103, 106-107, 110-111, 113, 115, 118-119, 122-123, 126-127, 129, 132-133, 136-137, 140-141, 144-145, 148-149, 150-151, 154-155, 156-157, 160-161, 164-165, 167, 170-171, 174-175, 180-181, 184-185, 187, 190-191, 194-195, 197, 199, 202-203, 206-207, 210-211, 214-215</p> <p>Physical Science Teacher’s Edition: 10, 14, 16, 19, 20, 23, 28-29, 30, 31, 34-35, 36, 40, 41, 42, 43, 46, 48, 52, 54, 55, 56, 59, 61, 62, 64, 65, 67, 68, 70, 71, 72, 73, 74, 77, 78, 81, 82, 85, 94, 104, 107, 110, 112, 113, 114, 115, 116, 120, 124, 127, 128, 129, 136, 146, 149, 152, 157, 162, 165, 169, 172, 174, 178, 181, 182, 183, 186</p> |

| Grade-Level Indicators, Grade 8 | Science Daybooks, Grades 6-8 |
|---|--|
| <p><i>Ethical Practices</i></p> <p>2. Explain why it is important to examine data objectively and not let bias affect observations.</p> | <p>Earth Science Student Book: 129, 174-175</p> <p>Earth Science Teacher’s Edition: 129, 173, 174, 175</p> <p>Life Science Student Book: 136-139, 190-191</p> <p>Life Science Teacher’s Edition: 137, 139, 190-191</p> <p>Physical Science Student Book: 49, 141, 208-211</p> <p>Physical Science Teacher’s Edition: 49, 141, 208, 209, 210, 211</p> |



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