

# SCIENCE DAYBOOKS

## Grades 4-8

correlated to

# North Carolina Science Standard Course of Study and Grade Level Competencies



EDUCATION GROUP



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### YOUR NORTH CAROLINA GREAT SOURCE REPRESENTATIVES

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**North Carolina Science Standard Course of Study**  
**and Grade Level Competencies**  
**Grade 4**

**COMPETENCY GOAL 1**

**The learner will make observations and conduct investigations to build an understanding of animal behavior and adaptation.**

Competency Objectives, Grade 4	Science Daybook, Grade 4
1.01 Observe and describe how all living and nonliving things affect the life of a particular animal including: <ul style="list-style-type: none"> <li>• Other animals.</li> <li>• Plants.</li> <li>• Weather.</li> <li>• Climate.</li> </ul>	<b>Student Book:</b> 37, 38, 39, 49, 127, 128, 129, 130, 131, 132, 133, 142, 143, 145, 147, 148, 149, 150, 151  <b>Teacher's Guide:</b> 37, 38, 39, 49b, 125a-125b, 127, 128, 129, 130, 131, 132, 133, 142, 143, 144, 147, 148, 149, 150, 151
1.02 Observe and record how animals of the same kind differ in some of their characteristics and discuss possible advantages and disadvantages of this variation.	<b>Student Book:</b> 38, 39, 44-45  <b>Teacher's Guide:</b> 38, 39, 45
1.03 Observe and discuss how behaviors and body structures help animals survive in a particular habitat.	<b>Student Book:</b> 13, 14, 15, 16, 17, 18, 37, 38, 39, 40, 41, 42, 44, 45, 139, 140, 141, 142, 143, 144  <b>Teacher's Guide:</b> 13, 14, 15, 16, 17, 18, 37, 38, 39, 40, 41, 42, 44, 45, 139, 140, 141, 142, 143, 144
1.04 Explain and discuss how humans and other animals can adapt their behavior to live in changing habitats.	<b>Student Book:</b> 139, 142, 143  <b>Teacher's Guide:</b> 45, 141, 142, 143
1.05 Recognize that humans can understand themselves better by learning about other animals.	No specific lesson addresses this objective.

## COMPETENCY GOAL 2

**The learner will conduct investigations and use appropriate technology to build an understanding of the composition and uses of rocks and minerals.**

Competency Objectives, Grade 4	Science Daybook, Grade 4
2.01 Describe and evaluate the properties of several minerals.	<b>Student Book:</b> 57, 60, 62, 87 <b>Teacher's Guide:</b> 57, 60, 61, 62
2.02 Recognize that minerals have a definite chemical composition and structure, resulting in specific physical properties including: <ul style="list-style-type: none"> <li>• Hardness.</li> <li>• Streak color.</li> <li>• Luster.</li> <li>• Magnetism.</li> </ul>	<b>Student Book:</b> 57, 60, 62, 87 <b>Teacher's Guide:</b> 57, 58, 60, 61
2.03 Explain how rocks are composed of minerals.	No specific lesson addresses this objective. (See <i>ScienceSaurus</i> .)
2.04 Show that different rocks have different properties.	<b>Student Book:</b> 57 <b>Teacher's Guide:</b> 57 Also see <i>ScienceSaurus</i> .
2.05 Discuss and communicate the uses of rocks and minerals.	No specific lesson addresses this objective. (See <i>ScienceSaurus</i> .)
2.06 Classify rocks and rock-forming minerals using student-made rules.	No specific lesson addresses this objective. (See <i>ScienceSaurus</i> .)
2.07 Identify and discuss different rocks and minerals in North Carolina including their role in geologic formations and distinguishing geologic regions.	No specific lesson addresses this objective.

## COMPETENCY GOAL 3

**The learner will make observations and conduct investigations to build an understanding of magnetism and electricity.**

Competency Objectives, Grade 4	Science Daybook, Grade 4
3.01 Observe and investigate the pull of magnets on all materials made of iron and the pushes or pulls on other magnets.	<b>Student Book:</b> 107, 108, 109, 110, 111, 112, 125 <b>Teacher's Guide:</b> 107, 108, 109, 110, 111, 112
3.02 Describe and demonstrate how magnetism can be used to generate electricity.	No specific lesson addresses this objective. (See <i>ScienceSaurus</i> .)
3.03 Design and test an electric circuit as a closed pathway including an energy source, energy conductor, and an energy receiver.	<b>Student Book:</b> 117, 118 <b>Teacher's Guide:</b> 117, 118
3.04 Explain how magnetism is related to electricity.	No specific lesson addresses this objective. (See <i>ScienceSaurus</i> .)
3.05 Describe and explain the parts of a light bulb.	<b>Student Book:</b> 117 <b>Teacher's Guide:</b> 113 Also see <i>ScienceSaurus</i> .
3.06 Describe and identify materials that are conductors and nonconductors of electricity.	<b>Student Book:</b> 114, 115 <b>Teacher's Guide:</b> 114, 115, 118
3.07 Observe and investigate that parallel and series circuits have different characteristics.	No specific lesson addresses this objective. (See <i>ScienceSaurus</i> .)
3.08 Observe and investigate the ability of electric circuits to produce light, heat, sound, and magnetic effects.	<b>Student Book:</b> 117, 118 <b>Teacher's Guide:</b> 117, 118
3.09 Recognize lightning as an electrical discharge and show proper safety behavior when lightning occurs.	<b>Student Book:</b> 114, 115 <b>Teacher's Guide:</b> 113, 114, 115

## COMPETENCY GOAL 4

The learner will conduct investigations and use appropriate technology to build an understanding of how food provides energy and materials for growth and repair of the body.

Competency Objectives, Grade 4	Science Daybook, Grade 4
4.01 Explain why organisms require energy to live and grow.	<b>Student Book:</b> 13, 14 <b>Teacher's Guide:</b> 14, 15, 129
4.02 Show how calories can be used to compare the chemical energy of different foods.	No specific lesson addresses this objective. (See <i>ACCESS Science</i> .)
4.03 Discuss how foods provide both energy and nutrients for living organisms.	<b>Student Book:</b> 127, 128, 129, 130 <b>Teacher's Guide:</b> 127, 128, 129, 130
4.04 Identify starches and sugars as carbohydrates.	No specific lesson addresses this objective. (See <i>ACCESS Science</i> .)
4.05 Determine that foods are made up of a variety of components.	<b>Student Book:</b> 31 <b>Teacher's Guide:</b> 31, 34, 38, 42 Also see <i>ACCESS Science</i> .



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**Grade 5**

**COMPETENCY GOAL 1**

**The learner will conduct investigations to build an understanding of the interdependence of plants and animals.**

Competency Objectives, Grade 5	Science Daybook, Grade 5
1.01 Describe and compare several common ecosystems (communities of organisms and their interaction with the environment).	<b>Student Book:</b> 43, 44, 45, 46, 47, 48, 49 <b>Teacher's Guide:</b> 43, 44, 45, 46, 47, 48
1.02 Identify and analyze the functions of organisms within the population of the ecosystem: <ul style="list-style-type: none"> <li>• Producers.</li> <li>• Consumers.</li> <li>• Decomposers.</li> </ul>	No specific lesson addresses this objective. (See <i>Science Daybook, Grade 4.</i> )
1.03 Explain why an ecosystem can support a variety of organisms.	<b>Student Book:</b> 43, 44, 45, 46, 47, 48, 49 <b>Teacher's Guide:</b> 43, 44, 45, 46, 47, 48
1.04 Discuss and determine the role of light, temperature, and soil composition in an ecosystem's capacity to support life.	<b>Student Book:</b> 25 <b>Teacher's Guide:</b> 19, 21, 26
1.05 Determine the interaction of organisms within an ecosystem.	<b>Student Book:</b> 43, 44, 45, 46, 47, 48, 49 <b>Teacher's Guide:</b> 43, 44, 45, 46, 47, 48
1.06 Explain and evaluate some ways that humans affect ecosystems. <ul style="list-style-type: none"> <li>• Habitat reduction due to development.</li> <li>• Pollutants.</li> <li>• Increased nutrients.</li> </ul>	<b>Student Book:</b> 43, 44, 45, 46, 47, 48, 49 <b>Teacher's Guide:</b> 27, 43, 44, 45, 46, 47, 48

Competency Objectives, Grade 5	Science Daybook, Grade 5
1.07 Determine how materials are recycled in nature.	No specific lesson addresses this objective. (See <i>Science Daybook, Grade 4.</i> )

## COMPETENCY GOAL 2

**The learner will make observations and conduct investigations to build an understanding of landforms.**

Competency Objectives, Grade 5	Science Daybook, Grade 5
2.01 Identify and analyze forces that cause change in landforms over time including: <ul style="list-style-type: none"> <li>• Water and Ice.</li> <li>• Wind.</li> <li>• Gravity.</li> </ul>	<b>Student Book:</b> 51, 57, 58, 60, 62, 63, 66, 87 <b>Teacher's Guide:</b> 49b, 51, 57, 58, 59, 61, 62, 63, 64-65, 66, 67, 87
2.02 Investigate and discuss the role of the water cycle and how movement of water over and through the landscape helps shape land forms.	<b>Student Book:</b> 62 <b>Teacher's Guide:</b> 58, 59, 62, 66
2.03 Discuss and consider the wearing away and movement of rock and soil in erosion and its importance in forming: <ul style="list-style-type: none"> <li>• Canyons.</li> <li>• Valleys.</li> <li>• Meanders.</li> <li>• Tributaries.</li> </ul>	<b>Student Book:</b> 64-65, 66, 67, 68, 87 <b>Teacher's Guide:</b> 64-65, 66, 67, 68, 87
2.04 Describe the deposition of eroded material and its importance in establishing landforms including: <ul style="list-style-type: none"> <li>• Deltas.</li> <li>• Flood Plains.</li> </ul>	<b>Student Book:</b> 62 <b>Teacher's Guide:</b> 58, 59, 62
2.05 Discuss how the flow of water and the slope of the land affect erosion.	<b>Student Book:</b> 62, 63, 64, 65, 66 <b>Teacher's Guide:</b> 62, 63, 64, 65, 66
2.06 Identify and use models, maps, and aerial photographs as ways of representing landforms.	<b>Student Book:</b> 67, 68 <b>Teacher's Guide:</b> 67, 68

Competency Objectives, Grade 5	Science Daybook, Grade 5
2.07 Discuss and analyze how humans influence erosion and deposition in local communities, including school grounds, as a result of: <ul style="list-style-type: none"> <li>• Clearing land.</li> <li>• Planting vegetation.</li> <li>• Building dams.</li> </ul>	<b>Teacher's Guide:</b> 68 Also see <i>ScienceSaurus</i> .

### COMPETENCY GOAL 3

**The learner will conduct investigations and use appropriate technology to build an understanding of weather and climate.**

Competency Objectives, Grade 5	Science Daybook, Grade 5
3.01 Investigate the water cycle including the processes of: <ul style="list-style-type: none"> <li>• Evaporation.</li> <li>• Condensation.</li> <li>• Precipitation.</li> <li>• Run-off.</li> </ul>	<b>Teacher's Guide:</b> 76-77 Also see <i>Science Daybook, Grade 4</i> and <i>Earth Science Daybook</i> .
3.02 Discuss and determine how the following are affected by predictable patterns of weather: <ul style="list-style-type: none"> <li>• Temperature.</li> <li>• Wind direction and speed.</li> <li>• Precipitation.</li> <li>• Cloud cover.</li> <li>• Air pressure.</li> </ul>	<b>Student Book:</b> 75, 78  <b>Teacher's Guide:</b> 75, 77-78 Also see <i>Science Daybook, Grade 4</i> and <i>Earth Science Daybook</i> .
3.03 Describe and analyze the formation of various types of clouds and discuss their relation to weather systems.	<b>Student Book:</b> 75, 76  <b>Teacher's Guide:</b> 76-77 Also see <i>Science Daybook, Grade 4</i> and <i>Earth Science Daybook</i> .
3.04 Explain how global atmospheric movement patterns affect local weather.	<b>Teacher's Guide:</b> 76-77 Also see <i>Science Daybook, Grade 4</i> and <i>Earth Science Daybook</i> .
3.05 Compile and use weather data to establish a climate record and reveal any trends.	<b>Teacher's Guide:</b> 80 Also see <i>Science Daybook, Grade 4</i> and <i>Earth Science Daybook</i> .

Competency Objectives, Grade 5	Science Daybook, Grade 5
3.06 Discuss and determine the influence of geography on weather and climate: <ul style="list-style-type: none"> <li>• Mountains</li> <li>• Sea breezes</li> <li>• Water bodies.</li> </ul>	No specific lesson addresses this objective. (See <i>Science Daybook, Grade 4</i> and <i>Earth Science Daybook</i> .)

## COMPETENCY GOAL 4

**The learner will conduct investigations and use appropriate technologies to build an understanding of forces and motion in technological designs.**

Competency Objectives, Grade 5	Science Daybook, Grade 5
4.01 Determine the motion of an object by following and measuring its position over time.	<b>Student Book:</b> 107, 111 <b>Teacher's Guide:</b> 107, 111, 112
4.02 Evaluate how pushing or pulling forces can change the position and motion of an object.	<b>Teacher's Guide:</b> 107 Also see <i>Physical Science Daybook</i> and <i>ScienceSaurus</i> .
4.03 Explain how energy is needed to make machines move. <ul style="list-style-type: none"> <li>• Moving air.</li> <li>• Gravity.</li> </ul>	<b>Student Book:</b> 107, 108, 109, 110, 111, 112 <b>Teacher's Guide:</b> 107, 108, 109, 110, 111, 112
4.04 Determine that an unbalanced force is needed to move an object or change its direction.	<b>Teacher's Guide:</b> 107 Also see <i>Physical Science Daybook</i> and <i>ScienceSaurus</i> .
4.05 Determine factors that affect motion including: <ul style="list-style-type: none"> <li>• Force.</li> <li>• Friction.</li> <li>• Inertia.</li> <li>• Momentum.</li> </ul>	<b>Student Book:</b> 107, 108, 109, 110, 111, 112 <b>Teacher's Guide:</b> 107, 108, 109, 110, 111, 112
4.06 Build and use a model to solve a mechanical design problem. <ul style="list-style-type: none"> <li>• Devise a test for the model.</li> <li>• Evaluate the results of test.</li> </ul>	<b>Student Book:</b> 103-104, 107, 108, 109, 110, 111, 112, 131 <b>Teacher's Guide:</b> 103, 104, 107, 108, 109, 110, 111, 112, 131 Also see <i>ScienceSaurus</i> .
4.07 Determine how people use simple machines to solve problems.	<b>Student Book:</b> 107, 108, 109, 110, 111, 112 <b>Teacher's Guide:</b> 107, 108, 109, 110, 111, 112 Also see <i>ScienceSaurus</i> .



**Earth Science Daybook © 2003**  
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**Grade 6**

**COMPETENCY GOAL 1**

The learner will design and conduct investigations to demonstrate an understanding of scientific inquiry.

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
1.01 Identify and create questions and hypotheses that can be answered through scientific investigations.	<p><b>Earth Science Student Book:</b> 27, 72-73, 91, 113, 127, 153, 163, 175, 205</p> <p><b>Earth Science Teacher's Guide:</b> 27, 72B, 72, 91, 153, 163, 175, 204</p> <p><b>Life Science Student Book:</b> 24, 26, 94, 95, 96, 102, 103, 124, 126, 127, 129, 144, 145, 173, 188, 190, 191</p> <p><b>Life Science Teacher's Guide:</b> 24, 26, 94, 95, 96, 102, 103, 124, 126, 127, 129, 144, 145, 173, 188, 190, 191</p> <p><b>Physical Science Student Book:</b> 18, 76, 119, 150</p> <p><b>Physical Science Teacher's Guide:</b> 119, 124, 150, 151, 181</p>

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
<p>1.02 Develop appropriate experimental procedures for:</p> <ul style="list-style-type: none"> <li>• Given questions.</li> <li>• Student generated questions.</li> </ul>	<p><b>Earth Science Student Book:</b> 27, 29, 84, 95, 103, 105, 120-121, 127, 175</p> <p><b>Earth Science Teacher’s Guide:</b> 20B, 21, 29, 30B, 31, 27, 63, 67, 77, 78, 84, 95, 99, 103, 105, 113, 120-121, 123, 124B, 125, 127, 166B, 172, 173, 174, 175</p> <p><b>Life Science Student Book:</b> 12-13, 36-37, 78-79, 141, 144-145, 148-149</p> <p><b>Life Science Teacher’s Guide:</b> 12-13, 36-37, 78-79, 141, 144, 148-149</p> <p><b>Physical Science Student Book:</b> 18-19, 29, 55, 81, 107, 119, 133, 136-137, 148-149, 150-151, 156-157, 161, 184-185, 190-191, 197, 206-207, 217</p> <p><b>Physical Science Teacher’s Guide:</b> 18-19, 29, 55, 81, 103, 107, 119, 133, 136-137, 148-149, 150-151, 156-157, 161, 181, 184-185, 190-191, 197, 206-207, 217</p>

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
<p>1.03 Apply safety procedures in the laboratory and in field studies:</p> <ul style="list-style-type: none"> <li>• Recognize potential hazards.</li> <li>• Manipulate materials and equipment.</li> <li>• Conduct appropriate procedures.</li> </ul>	<p><b>Earth Science Student Book:</b> 24, 29, 84, 95, 102</p> <p><b>Earth Science Teacher’s Guide:</b> 20A, 24, 25, 29, 30A, 30B, 31, 35, 40A, 45, 52A, 52B, 53, 57, 61, 62A, 63, 67, 72A, 82A, 84, 94A, 95, 99, 102, 103, 114A, 114B, 115, 119, 123, 120, 124A, 124B, 125, 126, 131, 136A, 143, 156A, 156B, 157, 162, 166A, 166B, 173, 198A, 204</p> <p><b>Life Science Student Book:</b> 26, 32, 60, 78, 96, 132, 141, 144, 145, 148, 216, 217</p> <p><b>Life Science Teacher’s Guide:</b> 10A, 12, 20A, 20B, 25, 26, 30A, 32, 52A, 54, 55, 58, 59, 60, 72A, 78, 94A, 94B, 95, 96, 124A, 129, 132, 136A, 136B, 137, 139, 140, 141, 144, 145, 146A, 146, 147, 148, 149, 150, 151, 156A, 156B, 159, 163, 164, 166A, 167, 173, 175, 198A, 198B, 199, 203, 208A, 209, 215, 216, 217</p> <p><b>Physical Science Student Book:</b> 11, 29, 34, 35, 80, 81, 107, 110, 111, 133, 136, 145, 148, 150, 151, 156, 161, 164, 165, 184, 190, 197, 203, 206, 207, 214, 217</p> <p><b>Physical Science Teacher’s Guide:</b> 10A, 10B, 11, 15, 18, 20A, 21, 23, 25, 29, 30A, 30B, 31, 34, 35, 37, 72A, 75, 76, 79, 80, 81, 104A, 104B, 105, 107, 109, 110, 111, 114A, 114B, 117, 121, 123, 124A, 124B, 124, 125, 127, 128, 131, 133, 136A, 136B, 136, 139, 142, 143, 145, 146A, 147, 148, 149, 150, 151, 153, 155, 156A, 156, 159, 160, 161, 162, 163, 164, 165, 178A, 178B, 178, 179, 183, 184, 188A, 189, 190, 193, 196, 197, 198A, 198B, 201, 203, 205, 206, 207, 208A, 209, 210, 213, 214, 217</p>
<p>1.04 Analyze variables in scientific investigations:</p> <ul style="list-style-type: none"> <li>• Identify dependent and independent.</li> <li>• Use of a control.</li> <li>• Manipulate.</li> <li>• Describe relationships between.</li> <li>• Define operationally.</li> </ul>	<p><b>Earth Science Student Book:</b> 174</p> <p><b>Earth Science Teacher’s Guide:</b> 166B, 174</p> <p><b>Life Science Student Book:</b> 132, 133, 138, 158, 188, 191</p> <p><b>Life Science Teacher’s Guide:</b> 27, 95, 132, 133, 138, 139, 158, 188, 191</p> <p><b>Physical Science Teacher’s Guide:</b> 103, 129, 133, 151, 174, 191</p>

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
<p>1.05 Analyze evidence to:</p> <ul style="list-style-type: none"> <li>• Explain observations.</li> <li>• Make inferences and predictions.</li> <li>• Develop the relationship between evidence and explanation.</li> </ul>	<p><b>Earth Science Student Book:</b> 33, 47, 61, 85, 103, 121, 126, 132-133, 140-141, 149, 153, 168-169, 171, 174-175, 187, 195, 197, 200-201, 207</p> <p><b>Earth Science Teacher’s Guide:</b> 47, 85, 103, 116-117, 126, 132, 149, 171, 174, 187, 195, 201, 207</p> <p><b>Life Science Student Book:</b> 10, 11, 12, 13, 14, 18, 20, 22, 23, 24, 25, 26, 27, 34, 35, 36, 37, 40, 43, 44, 47, 48, 49, 54, 55, 58, 60, 63, 64, 67, 68, 71, 72, 75, 77, 79, 82, 85, 87, 91, 94, 97, 101, 104, 105, 108, 109, 110, 112, 114, 116, 117, 118, 119, 121, 128, 120, 121, 122, 123, 124, 127, 128, 130, 132, 133, 136, 137, 138, 139, 140, 141, 142, 143, 145, 146, 147, 148, 149, 150, 153, 154, 155, 156, 157, 162, 163, 164, 165, 166, 167, 168, 169, 178, 180, 182, 186, 187, 188, 191, 192, 194, 195, 196, 197, 198, 200, 202, 204, 205, 206, 208, 210, 212, 214, 216, 217</p> <p><b>Life Science Teacher’s Guide:</b> 9B, 10, 11, 12, 13, 14, 18, 20, 22, 23, 24, 25, 26, 27, 34, 35, 36, 37, 40, 43, 44, 47, 48, 49, 54, 55, 58, 60, 63, 64, 67, 68, 71, 72, 75, 77, 79, 82, 85, 87, 91, 94, 97, 101, 104, 105, 108, 109, 110, 112, 114, 116, 117, 118, 119, 121, 128, 120, 121, 122, 123, 124, 127, 128, 130, 132, 133, 136, 137, 138, 139, 140, 141, 142, 143, 145, 146, 147, 148, 149, 150, 153, 154, 155, 156, 157, 162, 163, 164, 165, 166, 167, 168, 169, 178, 180, 182, 186, 187, 188, 191, 192, 194, 195, 196, 197, 198, 200, 202, 204, 205, 206, 208, 210, 212, 214, 216, 217</p> <p><b>Physical Science Student Book:</b> 18-19, 55, 81, 107, 119, 133, 136-137, 148-149, 150-151, 156-157, 161, 164, 184-185, 190-191, 197, 206-207, 217</p> <p><b>Physical Science Teacher’s Guide:</b> 11, 18-19, 21, 23, 25, 31, 37, 53, 55, 81, 89, 95, 99, 105, 107, 117, 119, 121, 125, 128, 133, 136-137, 148-149, 150-151, 156-157, 159, 161, 163, 164, 179, 184, 190, 191, 197, 201, 206-207</p>

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
<p>1.06 Use mathematics to gather, organize, and present quantitative data resulting from scientific investigations:</p> <ul style="list-style-type: none"> <li>• Measurement.</li> <li>• Analysis of data.</li> <li>• Graphing.</li> <li>• Prediction models.</li> </ul>	<p><b>Earth Science Student Book:</b> 116-117, 139, 140-141, 149, 152, 162, 168, 181, 196-197, 200</p> <p><b>Earth Science Teacher’s Guide:</b> 30B, 78-79, 116-117, 139, 140, 149, 152, 162, 168, 173B, 174-175, 181, 196, 197, 200</p> <p><b>Life Science Student Book:</b> 167</p> <p><b>Life Science Teacher’s Guide:</b> 167</p> <p><b>Physical Science Student Book:</b> 18-19, 150-151, 206-207</p> <p><b>Physical Science Teacher’s Guide:</b> 18, 25, 26-27, 37, 63, 150-151, 163, 179, 206, 207</p>
<p>1.07 Prepare models and/or computer simulations to:</p> <ul style="list-style-type: none"> <li>• Test hypotheses.</li> <li>• Evaluate how data fit.</li> </ul>	<p><b>Earth Science Student Book:</b> 10, 11, 12, 84-85, 95, 103, 105, 120, 137</p> <p><b>Earth Science Teacher’s Guide:</b> 10, 11, 12, 57, 63, 67, 73, 82, 83, 84, 95, 100, 102-103, 104, 105, 111, 118, 120-121, 123, 125, 136, 137, 157, 166B, 173, 202, 206</p> <p><b>Life Science Student Book:</b> 13, 32, 36-37, 78-79, 100, 104-107, 148-149, 188</p> <p><b>Life Science Teacher’s Guide:</b> 10B, 11, 21, 25, 30, 32, 36-37, 53, 78-79, 100, 104B, 104-107, 132-133, 140, 148-149, 188</p> <p><b>Physical Science Student Book:</b> 18-19, 29, 34, 35, 107, 136-137, 138-141, 150-151</p> <p><b>Physical Science Teacher’s Guide:</b> 19, 28, 29, 34, 35, 104, 105, 107, 119, 136-137, 138-141, 151, 183</p>

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
<p>1.08 Use oral and written language to:</p> <ul style="list-style-type: none"> <li>• Communicate findings.</li> <li>• Defend conclusions of scientific investigations.</li> </ul>	<p><b>Earth Science Student Book:</b> 10, 11, 16, 18, 19, 22, 23, 26, 27, 29, 32, 33, 34, 36, 37, 39, 40, 42, 43, 44, 46, 47, 49, 52, 54, 55, 56, 58, 59, 61, 64, 65, 69, 71, 72, 74, 75, 77, 79, 81, 82, 84, 85, 87, 90, 91, 95, 97, 98, 99, 100, 102, 103, 105, 106, 108, 109, 110, 112, 113, 114, 116, 117, 119, 121, 123, 124, 126, 127, 128, 129, 130, 132, 133, 137, 138, 139, 140, 141, 142, 144, 145, 146, 148, 149, 150, 152, 153, 155, 156, 158, 160, 162, 163, 165, 168, 169, 171, 172, 174, 175, 180, 181, 183, 184, 186, 187, 188, 191, 192, 194, 195, 197, 200, 201, 202, 204, 205, 207, 208, 210, 211, 213, 215, 216, 217</p> <p><b>Earth Science Teacher’s Guide:</b> 10-19, 20-29, 30-39, 40-51, 52-71, 72-81, 82-93, 94-103, 104-113, 114-123, 124-135, 136-145, 146-155, 156-165, 166-177, 178-187, 188-197, 198-207, 208-217</p> <p><b>Life Science Student Book:</b> 10, 12, 13, 14, 16, 17, 19, 22, 23, 24, 25, 26, 27, 29, 30, 32, 33, 34, 36, 37, 39, 40, 42, 43, 44, 46, 47, 49, 53, 56, 57, 60, 61, 62, 63, 64, 66, 67, 68, 70, 71, 72, 74, 75, 79, 81, 82, 84, 85, 88, 89, 94, 96, 97, 98, 100, 101, 103, 104, 105, 106, 107, 108, 109, 110, 112, 113, 114, 116, 117, 120, 121, 123, 124, 126, 127, 128, 130, 131, 133, 136, 138, 139, 141, 142, 144, 145, 146, 148, 149, 152, 153, 155, 157, 158, 160, 161, 162, 165, 166, 168, 169, 171, 172, 174, 175, 178, 180, 181, 182, 184, 185, 187, 188, 194, 195, 197, 198, 200, 201, 202, 204, 205, 208, 210, 211, 213, 214, 216, 217</p> <p><b>Life Science Teacher’s Guide:</b> 10-19, 20-29, 30-39, 40-51, 52-61, 62-71, 72-81, 82-91, 94-103, 104-113, 114-123, 124-133, 136-145, 146-155, 156-165, 166-175, 178-187, 188-197, 198-207, 208-217</p> <p><b>Physical Science Student Book:</b> 10, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 26, 27, 29, 30, 32, 33, 35, 38, 39, 41, 42, 44, 45, 46, 48, 49, 52, 54, 55, 56, 58, 59, 61, 62, 64, 65, 67, 68, 70, 71, 73, 74, 76, 77, 78, 80, 81, 82, 84, 85, 87, 88, 90, 91, 94, 96, 97, 98, 100, 101, 103, 104, 106, 107, 110, 111, 113, 115, 116, 118, 119, 120, 122, 123, 124, 127, 129, 130, 132, 133, 136, 137, 138, 140, 141, 142, 144, 145, 146, 148, 149, 150, 151, 152, 154, 155, 157, 158, 160, 161, 162, 164, 165, 167, 168, 170, 171, 172, 174, 175, 178, 180, 181, 182, 184, 185, 187, 188, 190, 191, 194, 195, 197, 199, 200, 203, 204, 206, 207, 208, 210, 211, 212, 214, 215, 217</p> <p><b>Physical Science Teacher’s Guide:</b> 10-19, 20-29, 30-39, 40-49, 52-61, 62-71, 72-81, 82-91, 94-103, 104-113, 114-123, 124-133, 136-145, 146-155, 156-165, 166-175, 178-187, 188-197, 198-207, 208-217</p>

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
<p>1.09 Use technologies and information systems to:</p> <ul style="list-style-type: none"> <li>• Research.</li> <li>• Gather and analyze data.</li> <li>• Visualize data.</li> <li>• Disseminate findings to others.</li> </ul>	<p><b>Earth Science Student Book:</b> 11, 14-15, 18-19, 21-23, 26-27, 29, 31-33, 36-37, 42-43, 46-47, 49, 54-55, 58-59, 61, 64-65, 68-69, 71, 74-75, 77-79, 81, 84-85, 87, 90-91, 95, 98-99, 102-103, 105, 108-109, 112-113, 116-117, 119-121, 123, 126-127, 129, 132-133, 137, 140-141, 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><b>Earth Science Teacher’s Guide:</b> 17, 20, 24, 25, 27, 28, 29, 45, 52, 53, 55, 56, 59, 60, 61, 62, 63, 64, 66, 70, 71, 79, 82, 83, 85, 86, 87, 89, 97, 99, 100, 103, 106, 107, 109, 113, 118, 119, 123, 133, 137, 142, 145, 147, 150, 151, 153, 155, 159, 164, 169, 170, 171, 174, 182, 183, 187, 189, 192, 195, 196, 197, 203, 205, 207, 208, 209, 212, 213</p> <p><b>Life Science Student Book:</b> 12-13, 16-17, 19, 22-23, 25-27, 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, 120-121, 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><b>Life Science Teacher’s Guide:</b> 10, 12-13, 24, 26-27, 30A, 33, 39, 54, 56, 61, 65, 67, 77, 81, 95, 120, 124, 126-127, 132-133, 136, 139, 142, 144-145, 150, 152, 159-161, 188, 190-191, 192, 193, 208, 217</p> <p><b>Physical Science Student Book:</b> 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, 217</p> <p><b>Physical Science Teacher’s Guide:</b> 17, 18, 19, 24, 38-39, 47, 57, 62, 65, 66, 67, 68, 71, 75, 77, 81, 108, 110, 113, 121, 128, 129, 131, 133, 143, 145, 146, 149, 150, 151, 153, 155, 156, 157, 159, 166B, 168, 169, 187, 189, 190-191, 193, 197, 199, 204, 206-207, 212, 215, 216, 217</p>

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
<p>1.10 Analyze and evaluate information from a scientifically literate viewpoint by reading, hearing, and/or viewing:</p> <ul style="list-style-type: none"> <li>• Scientific text.</li> <li>• Articles.</li> <li>• Events in the popular press.</li> </ul>	<p><b>Earth Science Student Book:</b> 13, 17, 20-21, 25-26, 28, 30-32, 35-36, 41-43, 45-47, 48-49, 53-55, 57-59, 63-65, 67-69, 70-71, 73-75, 76-79, 80-81, 83, 86-87, 89-91, 97-99, 101-102, 111-113, 115-117, 118-119, 122-123, 125-127, 129, 131-133, 136, 138-139, 143-145, 147-149, 151-153, 154-155, 157-159, 161-163, 164-165, 167-169, 170-171, 173-175, 179-181, 182-183, 185-187, 189-191, 193-195, 198-201, 203-205, 209-211, 212-213, 214-217</p> <p><b>Earth Science Teacher’s Guide:</b> 13, 17, 20, 25, 28, 30, 35, 41, 45, 48, 53, 57, 63, 67, 70, 73, 76, 80, 83, 86, 89, 97, 101, 111, 115, 118, 122, 125, 129, 131, 136, 138, 143, 147, 151, 154, 157, 161, 164, 167, 170, 173, 179, 182, 185, 189, 193, 198, 203, 209, 212, 214</p> <p><b>Life Science Student Book:</b> 11, 15-17, 18-19, 21-23, 24-25, 28-29, 31-33, 35, 38-39, 41-43, 45-47, 48-49, 52, 53, 55-57, 59-61, 65-67, 69-71, 73-75, 77, 83-85, 86-89, 95-97, 99-101, 102-103, 105-107, 109, 111-113, 115-117, 119-121, 122, 125-127, 129-131, 137-139, 140-141, 143, 147-149, 151-153, 154-155, 156-157, 159-161, 163-165, 167-169, 170-171, 173-175, 179-181, 183-185, 186-187, 189-191, 192-195, 199-201, 203-205, 209-211, 212-213, 215</p> <p><b>Life Science Teacher’s Guide:</b> 11, 15, 18, 21, 24, 28, 31, 35, 38, 40A, 41, 45, 48, 52, 53, 55, 59, 65, 69, 73, 77, 83, 86, 95, 99, 102, 105, 109, 111, 115, 119, 122, 125, 129, 137, 140, 143, 147, 151, 154, 156, 159, 163, 167, 170, 173, 179, 183, 186, 189, 192, 199, 203, 209, 212, 215</p> <p><b>Physical Science Student Book:</b> 11-13, 15-17, 21-23, 24-27, 28-29, 31-33, 36-39, 40-41, 43-45, 47-49, 53-54, 57-59, 60-61, 63-65, 66-67, 69-71, 72-73, 75-77, 79-80, 83-85, 86-87, 89-91, 95-97, 99-101, 102-103, 105-106, 109-111, 112-113, 114-115, 117-119, 121-123, 125-127, 128-129, 131-132, 139-141, 143-145, 147, 153-155, 159-160, 163-165, 166-167, 169-171, 173-175, 179-181, 183, 186-187, 193-195, 197, 198-199, 201-203, 205, 209-211, 213-215, 216</p> <p><b>Physical Science Teacher’s Guide:</b> 11, 15, 21, 24, 28, 31, 36, 40, 43, 47, 53, 57, 60, 63, 66, 69, 72, 75, 79, 83, 86, 89, 95, 99, 102, 105, 109, 112, 114, 117, 121, 125, 128, 131, 139, 143, 147, 153, 159, 163, 166, 169, 173, 179, 183, 186, 193, 197, 198, 201, 205, 209, 213, 216</p>

## COMPETENCY GOAL 2

The learner will demonstrate an understanding of technological design.

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
<p>2.01 Explore evidence that "technology" has many definitions.</p> <ul style="list-style-type: none"> <li>• Artifact or hardware.</li> <li>• Methodology or technique.</li> <li>• System of production.</li> <li>• Social-technical system.</li> </ul>	<p><b>Earth Science Student Book:</b> 12-15, 16-19, 34-37, 38-39, 60-61, 66-69, 70-71, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Earth Science Teacher's Guide:</b> 12, 13, 16-19, 34-37, 38-39, 43, 55, 60-61, 66-69, 70-71, 77, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Life Science Student Book:</b> 18-19, 76-79, 160-169, 172-175, 212-213</p> <p><b>Life Science Teacher's Guide:</b> 18-19, 76-79, 107, 160-169, 172-175, 212-213</p> <p><b>Physical Science Student Book:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 124, 125, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p> <p><b>Physical Science Teacher's Guide:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p>

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
<p>2.02 Use information systems to:</p> <ul style="list-style-type: none"> <li>• Identify scientific needs, human needs, or problems that are subject to technological solution.</li> <li>• Locate resources to obtain and test ideas.</li> </ul>	<p><b>Earth Science Student Book:</b> 12-15, 16-19, 34-37, 38-39, 60-61, 66-69, 70-71, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Earth Science Teacher’s Guide:</b> 12, 13, 16-19, 34-37, 38-39, 43, 55, 60-61, 66-69, 70-71, 77, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Life Science Student Book:</b> 18-19, 76-79, 160-169, 172-175, 212-213</p> <p><b>Life Science Teacher’s Guide:</b> 18-19, 76-79, 107, 160-169, 172-175, 212-213</p> <p><b>Physical Science Student Book:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 124, 125, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p> <p><b>Physical Science Teacher’s Guide:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 142-145, 149, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p>

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
<p>2.03 Evaluate technological designs for:</p> <ul style="list-style-type: none"> <li>• Application of scientific principles.</li> <li>• Risks and benefits.</li> <li>• Constraints of design.</li> <li>• Consistent testing protocols.</li> </ul>	<p><b>Earth Science Student Book:</b> 12-15, 16-19, 34-37, 38-39, 60-61, 66-69, 70-71, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Earth Science Teacher’s Guide:</b> 12, 13, 16-19, 34-37, 38-39, 43, 55, 60-61, 66-69, 70-71, 77, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Life Science Student Book:</b> 18-19, 76-79, 160-169, 172-175, 212-213</p> <p><b>Life Science Teacher’s Guide:</b> 18-19, 76-79, 107, 160-169, 172-175, 212-213</p> <p><b>Physical Science Student Book:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 124, 125, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p> <p><b>Physical Science Teacher’s Guide:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p>

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
<p>2.04 Apply tenets of technological design to make informed consumer decisions about:</p> <ul style="list-style-type: none"> <li>• Products.</li> <li>• Processes.</li> <li>• Systems.</li> </ul>	<p><b>Earth Science Student Book:</b> 12-15, 16-19, 34-37, 38-39, 60-61, 66-69, 70-71, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Earth Science Teacher’s Guide:</b> 12, 13, 16-19, 34-37, 38-39, 43, 55, 60-61, 66-69, 70-71, 77, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Life Science Student Book:</b> 18-19, 76-79, 160-169, 172-175, 212-213</p> <p><b>Life Science Teacher’s Guide:</b> 18-19, 76-79, 107, 160-169, 172-175, 212-213</p> <p><b>Physical Science Student Book:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 124, 125, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p> <p><b>Physical Science Teacher’s Guide:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p>

### COMPETENCY GOAL 3

**The learner will build an understanding of the geological cycles, forces, processes, and agents which shape the lithosphere.**

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
<p>3.01 Evaluate the forces that shape the lithosphere including:</p> <ul style="list-style-type: none"> <li>• Crustal plate movement.</li> <li>• Folding and faulting.</li> <li>• Deposition.</li> <li>• Volcanic activity.</li> <li>• Earthquakes.</li> </ul>	<p><b>Earth Science Student Book:</b> 62, 78-79, 86, 88, 89</p> <p><b>Earth Science Teacher’s Guide:</b> 62, 63, 78, 86, 88</p>
<p>3.02 Examine earthquake and volcano patterns.</p>	<p><b>Earth Science Student Book:</b> 88, 89, 90-91</p> <p><b>Earth Science Teacher’s Guide:</b> 88, 89, 90-91</p>

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
3.03 Explain the model for the interior of the earth.	No specific lesson addresses this objective. (See <i>ScienceSaurus</i> .)
3.04 Describe the processes which form and the uses of earth materials. <ul style="list-style-type: none"> <li>• Rock cycle.</li> <li>• Minerals.</li> <li>• Characteristics of rocks.</li> <li>• Economic use of rocks and minerals.</li> <li>• Value of gems and precious metals.</li> <li>• Common gems, minerals, precious metals and rocks found in N.C.</li> </ul>	<b>Earth Science Student Book:</b> 21, 22  <b>Earth Science Teacher’s Guide:</b> 21, 22
3.05 Analyze soil properties that can be observed and measured to predict soil quality including: <ul style="list-style-type: none"> <li>• Color.</li> <li>• Horizon profile.</li> <li>• Infiltration.</li> <li>• Soil temperature.</li> <li>• Structure.</li> <li>• Consistency.</li> <li>• Texture.</li> <li>• Particle size.</li> <li>• pH.</li> <li>• Fertility.</li> <li>• Soil moisture.</li> </ul>	<b>Earth Science Student Book:</b> 52, 53, 55  <b>Earth Science Teacher’s Guide:</b> 53
3.06 Evaluate ways in which human activities have affected Earth’s pedosphere and the measures taken to control the impact: <ul style="list-style-type: none"> <li>• Vegetative cover.</li> <li>• Agriculture.</li> <li>• Land use.</li> <li>• Nutrient balance.</li> <li>• Soil as a vector.</li> </ul>	<b>Earth Science Student Book:</b> 52, 55, 60, 61  <b>Earth Science Teacher’s Guide:</b> 52, 60, 61
3.07 Assess the use of technology and information systems in monitoring lithospheric phenomenon.	<b>Earth Science Student Book:</b> 80, 89  <b>Earth Science Teacher’s Guide:</b> 80, 88, 89
3.08 Conclude that the good health of environments and organisms requires: <ul style="list-style-type: none"> <li>• Monitoring of the pedosphere.</li> <li>• Taking steps to maintain soil quality.</li> <li>• Stewardship.</li> </ul>	<b>Earth Science Student Book:</b> 60, 61  <b>Earth Science Teacher’s Guide:</b> 60, 61

## COMPETENCY GOAL 4

**The learner will investigate the cycling of matter.**

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
<p>4.01 Describe the flow of energy and matter in natural systems:</p> <ul style="list-style-type: none"> <li>• Energy flows through ecosystems in one direction, from the sun through producers to consumers to decomposers.</li> <li>• Matter is transferred from one organism to another and between organisms and their environments.</li> <li>• Water, nitrogen, carbon dioxide, and oxygen are substances cycled between the living and non-living environments.</li> </ul>	<p><b>Earth Science Student Book:</b> 94</p> <p><b>Earth Science Teacher’s Guide:</b> 52</p> <p><b>Life Science Student Book:</b> 188, 196</p> <p><b>Life Science Teacher’s Guide:</b> 75, 125, 129, 182, 188, 189, 191, 192, 196, 204</p>
<p>4.02 Evaluate the significant role of decomposers.</p>	<p><b>Earth Science Teacher’s Guide:</b> 52</p> <p><b>Life Science Teacher’s Guide:</b> 189</p> <p>Also see <i>ScienceSaurus</i>.</p>
<p>4.03 Examine evidence that green plants make food.</p> <ul style="list-style-type: none"> <li>• Photosynthesis is a process carried on by green plants and other organisms containing chlorophyll.</li> <li>• During photosynthesis, light energy is converted into stored energy which the plant, in turn, uses to carry out its life processes.</li> </ul>	<p><b>Life Science Student Book:</b> 24, 25, 27, 28</p> <p><b>Life Science Teacher’s Guide:</b> 24, 25, 27, 28, 124, 129</p>
<p>4.04 Evaluate the significance of photosynthesis to other organisms:</p> <ul style="list-style-type: none"> <li>• The major source of atmospheric oxygen is photosynthesis.</li> <li>• Carbon dioxide is removed from the atmosphere and oxygen is released during photosynthesis.</li> <li>• Green plants are the producers of food that is used directly or indirectly by consumers.</li> </ul>	<p><b>Life Science Student Book:</b> 24, 25, 27, 28</p> <p><b>Life Science Teacher’s Guide:</b> 24, 25, 27, 28, 124</p>
<p>4.05 Evaluate designed systems for ability to enable growth of certain plants and animals.</p>	<p><b>Life Science Student Book:</b> 18-19, 48-49, 124-128, 178-181, 182-185, 192-195</p> <p><b>Life Science Teacher’s Guide:</b> 18, 48-49, 125, 126, 131, 179, 183, 192, 194</p>

## COMPETENCY GOAL 5

**The learner will build understanding of the Solar System.**

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
<p>5.01 Analyze the components and cycles of the solar system including:</p> <ul style="list-style-type: none"> <li>• Sun.</li> <li>• Planets and moons.</li> <li>• Asteroids and meteors.</li> <li>• Comets.</li> <li>• Phases.</li> <li>• Seasons.</li> <li>• Day/year.</li> <li>• Eclipses.</li> </ul>	<p><b>Earth Science Student Book:</b> 178, 182, 184, 187, 188, 190, 196-197, 198-199, 200-201</p> <p><b>Earth Science Teacher’s Guide:</b> 178, 179, 182, 185, 187, 189, 190, 196, 198, 201</p>
<p>5.02 Compare and contrast the Earth to other planets in terms of:</p> <ul style="list-style-type: none"> <li>• Size.</li> <li>• Composition.</li> <li>• Relative distance from the sun.</li> <li>• Ability to support life.</li> </ul>	<p><b>Earth Science Student Book:</b> 190</p> <p><b>Earth Science Teacher’s Guide:</b> 190</p> <p>Also see <i>ScienceSaurus</i>.</p>
<p>5.03 Relate the influence of the sun and the moon’s orbit to the gravitational effects produced on Earth.</p> <ul style="list-style-type: none"> <li>• Solar storms.</li> <li>• Tides.</li> </ul>	<p>No specific lesson addresses this objective. (See <i>ScienceSaurus</i>.)</p>
<p>5.04 Describe space explorations and the understandings gained from them including:</p> <ul style="list-style-type: none"> <li>• N.A.S.A.</li> <li>• Technologies used to explore space.</li> <li>• Historic timeline.</li> <li>• Apollo mission to the moon.</li> <li>• Space Shuttle.</li> <li>• International Space Station.</li> <li>• Future goals.</li> </ul>	<p><b>Earth Science Student Book:</b> 184, 185, 193, 194</p> <p><b>Earth Science Teacher’s Guide:</b> 184, 185, 193, 195</p>
<p>5.05 Describe the setting of the solar system in the universe including:</p> <ul style="list-style-type: none"> <li>• Galaxy.</li> <li>• Size.</li> <li>• The uniqueness of Earth.</li> </ul>	<p><b>Earth Science Teacher’s Guide:</b> 206</p> <p>Also see <i>ScienceSaurus</i>.</p>

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
5.06 Analyze the spin-off benefits generated by space exploration technology including: <ul style="list-style-type: none"> <li>• Medical.</li> <li>• Materials.</li> <li>• Transportation.</li> <li>• Processes.</li> <li>• Future research.</li> </ul>	No specific lesson addresses this objective. (See <i>ScienceSaurus</i> .)

## COMPETENCY GOAL 6

**The learner will conduct investigations and examine models and devices to build an understanding of the characteristics of energy transfer and/or transformation.**

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
6.01 Determine how convection and radiation transfer energy.	<b>Earth Science Student Book:</b> 35, 36  <b>Earth Science Teacher's Guide:</b> 35  <b>Physical Science Student Book:</b> 102  <b>Physical Science Teacher's Guide:</b> 103
6.02 Analyze heat flow through materials or across space from warm objects to cooler objects until both objects are at equilibrium.	<b>Earth Science Student Book:</b> 34  <b>Earth Science Teacher's Guide:</b> 34  <b>Physical Science Student Book:</b> 128-129, 132  <b>Physical Science Teacher's Guide:</b> 129, 132
6.03 Analyze sound as an example that vibrating materials generate waves that transfer energy. <ul style="list-style-type: none"> <li>• Frequency.</li> <li>• Amplitude.</li> <li>• Loudness.</li> <li>• How sound travels through different material.</li> <li>• Form and function of the human ear.</li> </ul>	<b>Life Science Student Book:</b> 116  <b>Life Science Teacher's Guide:</b> 115, 116-117  <b>Physical Science Student Book:</b> 87, 105, 109, 110  <b>Physical Science Teacher's Guide:</b> 87, 105, 106, 109, 110

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
6.04 Evaluate data for qualitative and quantitative relationships associated with energy transfer and/or transformation.	<p><b>Physical Science Student Book:</b> 14-17, 18-19, 52-55, 56-59, 60-61, 62-65, 82-85, 86-87, 94-97, 102-103, 104-107, 108-111, 112-113, 114-115, 116-119, 120-123, 124-127, 128-129, 130-133, 152-155, 182-185, 186-187, 200-203, 204-207</p> <p><b>Physical Science Teacher’s Guide:</b> 14, 15, 16, 17, 19, 59, 87, 95, 151</p>
6.05 Analyze the physical interactions of light and matter: <ul style="list-style-type: none"> <li>• Absorption.</li> <li>• Scattering.</li> <li>• Color perception.</li> <li>• Form and function of the human eye.</li> </ul>	<p><b>Physical Science Student Book:</b> 115, 116, 117, 119</p> <p><b>Physical Science Teacher’s Guide:</b> 114-115, 116, 117, 119</p>
6.06 Analyze response to heat to determine the suitability of materials for use in technological design: <ul style="list-style-type: none"> <li>• Conduction.</li> <li>• Expansion.</li> <li>• Contraction.</li> </ul>	<p><b>Physical Science Teacher’s Guide:</b> 35</p> <p>Also see <i>ScienceSaurus</i>.</p>
6.07 Analyze the Law of Conservation of Energy: <ul style="list-style-type: none"> <li>• Conclude that energy cannot be created or destroyed, but only changed from one form into another.</li> <li>• Conclude that the amount of energy stays the same, although within the process some energy is always converted to heat.</li> <li>• Some systems transform energy with less loss of heat than others.</li> </ul>	<p>No specific lesson addresses this objective. (See <i>ScienceSaurus</i>.)</p>

## COMPETENCY GOAL 7

**The learner will conduct investigations and use technologies and information systems to build an understanding of population dynamics.**

Competency Objectives, Grade 6	Science Daybooks, Grades 6-8
7.01 Describe ways in which organisms interact with each other and with non-living parts of the environment: <ul style="list-style-type: none"> <li>• Coexistence/Cooperation/Competition.</li> <li>• Symbiosis.</li> <li>• Mutual dependence.</li> </ul>	<p><b>Life Science Student Book:</b> 124, 125, 126, 127, 202, 203, 204, 205</p> <p><b>Life Science Teacher’s Guide:</b> 124, 125, 126, 127, 202, 203, 204, 205</p>

<b>Competency Objectives, Grade 6</b>	<b>Science Daybooks, Grades 6-8</b>
<p>7.02 Investigate factors that determine the growth and survival of organisms including:</p> <ul style="list-style-type: none"> <li>• Light.</li> <li>• Temperature range.</li> <li>• Mineral availability.</li> <li>• Soil/rock type.</li> <li>• Water.</li> <li>• Energy.</li> </ul>	<p><b>Life Science Student Book:</b> 54, 55</p> <p><b>Life Science Teacher’s Guide:</b> 54, 55</p> <p><b>Physical Science Student Book:</b> 147</p> <p><b>Physical Science Teacher’s Guide:</b> 146, 147</p>
<p>7.03 Explain how changes in habitat may affect organisms.</p>	<p><b>Life Science Student Book:</b> 72-73, 77, 196-197</p> <p><b>Life Science Teacher’s Guide:</b> 72-73, 77, 196-197</p>
<p>7.04 Evaluate data related to human population growth, along with problems and solutions:</p> <ul style="list-style-type: none"> <li>• Waste disposal.</li> <li>• Food supplies.</li> <li>• Resource availability.</li> <li>• Transportation.</li> <li>• Socio-economic patterns.</li> </ul>	<p><b>Life Science Student Book:</b> 196, 197, 206, 207</p> <p><b>Life Science Teacher’s Guide:</b> 196, 197, 206, 207</p>
<p>7.05 Examine evidence that overpopulation by any species impacts the environment.</p>	<p><b>Life Science Student Book:</b> 178, 179, 180, 181</p> <p><b>Life Science Teacher’s Guide:</b> 178, 179, 180, 181</p>
<p>7.06 Investigate processes which, operating over long periods of time, have resulted in the diversity of plant and animal life present today:</p> <ul style="list-style-type: none"> <li>• Natural selection.</li> <li>• Adaptation.</li> </ul>	<p><b>Life Science Student Book:</b> 54, 55, 56, 57, 58, 59, 60, 61, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 94, 95, 96, 97, 98, 99, 100, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 178, 181, 182, 183, 184, 185, 192, 193, 194, 195, 198, 199, 200, 201, 202, 203, 204, 205, 214, 215, 216, 217, 218</p> <p><b>Life Science Teacher’s Guide:</b> 54, 55, 56, 57, 58, 59, 60, 61, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 94, 95, 96, 97, 98, 99, 100, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 178, 181, 182, 183, 184, 185, 192, 193, 194, 195, 198, 199, 200, 201, 202, 203, 204, 205, 214, 215, 216, 217, 218</p>



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 correlated to  
**North Carolina Science Standard Course of Study**  
**and Grade Level Competencies**  
**Grade 7**

**COMPETENCY GOAL 1**

The learner will design and conduct investigations to demonstrate an understanding of scientific inquiry.

Competency Objectives, Grade 7	Science Daybooks, Grades 6-8
1.01 Identify and create questions and hypotheses that can be answered through scientific investigations.	<p><b>Earth Science Student Book:</b> 27, 72-73, 91, 113, 127, 153, 163, 175, 205</p> <p><b>Earth Science Teacher's Guide:</b> 27, 72B, 72, 91, 153, 163, 175, 204</p> <p><b>Life Science Student Book:</b> 24, 26, 94, 95, 96, 102, 103, 124, 126, 127, 129, 144, 145, 173, 188, 190, 191</p> <p><b>Life Science Teacher's Guide:</b> 24, 26, 94, 95, 96, 102, 103, 124, 126, 127, 129, 144, 145, 173, 188, 190, 191</p> <p><b>Physical Science Student Book:</b> 18, 76, 119, 150</p> <p><b>Physical Science Teacher's Guide:</b> 119, 124, 150, 151, 181</p>

Competency Objectives, Grade 7	Science Daybooks, Grades 6-8
<p>1.02 Develop appropriate experimental procedures for:</p> <ul style="list-style-type: none"> <li>• Given questions.</li> <li>• Student generated questions.</li> </ul>	<p><b>Earth Science Student Book:</b> 27, 29, 84, 95, 103, 105, 120-121, 127, 175</p> <p><b>Earth Science Teacher’s Guide:</b> 20B, 21, 29, 30B, 31, 27, 63, 67, 77, 78, 84, 95, 99, 103, 105, 113, 120-121, 123, 124B, 125, 127, 166B, 172, 173, 174, 175</p> <p><b>Life Science Student Book:</b> 12-13, 36-37, 78-79, 141, 144-145, 148-149</p> <p><b>Life Science Teacher’s Guide:</b> 12-13, 36-37, 78-79, 141, 144, 148-149</p> <p><b>Physical Science Student Book:</b> 18-19, 29, 55, 81, 107, 119, 133, 136-137, 148-149, 150-151, 156-157, 161, 184-185, 190-191, 197, 206-207, 217</p> <p><b>Physical Science Teacher’s Guide:</b> 18-19, 29, 55, 81, 103, 107, 119, 133, 136-137, 148-149, 150-151, 156-157, 161, 181, 184-185, 190-191, 197, 206-207, 217</p>

Competency Objectives, Grade 7	Science Daybooks, Grades 6-8
<p>1.03 Apply safety procedures in the laboratory and in field studies.</p> <ul style="list-style-type: none"> <li>• Recognize potential hazards.</li> <li>• Safely manipulate materials and equipment.</li> <li>• Conduct appropriate procedures.</li> </ul>	<p><b>Earth Science Student Book:</b> 24, 29, 84, 95, 102</p> <p><b>Earth Science Teacher’s Guide:</b> 20A, 24, 25, 29, 30A, 30B, 31, 35, 40A, 45, 52A, 52B, 53, 57, 61, 62A, 63, 67, 72A, 82A, 84, 94A, 95, 99, 102, 103, 114A, 114B, 115, 119, 123, 120, 124A, 124B, 125, 126, 131, 136A, 143, 156A, 156B, 157, 162, 166A, 166B, 173, 198A, 204</p> <p><b>Life Science Student Book:</b> 26, 32, 60, 78, 96, 132, 141, 144, 145, 148, 216, 217</p> <p><b>Life Science Teacher’s Guide:</b> 10A, 12, 20A, 20B, 25, 26, 30A, 32, 52A, 54, 55, 58, 59, 60, 72A, 78, 94A, 94B, 95, 96, 124A, 129, 132, 136A, 136B, 137, 139, 140, 141, 144, 145, 146A, 146, 147, 148, 149, 150, 151, 156A, 156B, 159, 163, 164, 166A, 167, 173, 175, 198A, 198B, 199, 203, 208A, 209, 215, 216, 217</p> <p><b>Physical Science Student Book:</b> 11, 29, 34, 35, 80, 81, 107, 110, 111, 133, 136, 145, 148, 150, 151, 156, 161, 164, 165, 184, 190, 197, 203, 206, 207, 214, 217</p> <p><b>Physical Science Teacher’s Guide:</b> 10A, 10B, 11, 15, 18, 20A, 21, 23, 25, 29, 30A, 30B, 31, 34, 35, 37, 72A, 75, 76, 79, 80, 81, 104A, 104B, 105, 107, 109, 110, 111, 114A, 114B, 117, 121, 123, 124A, 124B, 124, 125, 127, 128, 131, 133, 136A, 136B, 136, 139, 142, 143, 145, 146A, 147, 148, 149, 150, 151, 153, 155, 156A, 156, 159, 160, 161, 162, 163, 164, 165, 178A, 178B, 178, 179, 183, 184, 188A, 189, 190, 193, 196, 197, 198A, 198B, 201, 203, 205, 206, 207, 208A, 209, 210, 213, 214, 217</p>
<p>1.04 Analyze variables in scientific investigations:</p> <ul style="list-style-type: none"> <li>• Identify dependent and independent.</li> <li>• Use of a Control.</li> <li>• Manipulate.</li> <li>• Describe relationships between.</li> <li>• Define operationally.</li> </ul>	<p><b>Earth Science Student Book:</b> 174</p> <p><b>Earth Science Teacher’s Guide:</b> 166B, 174</p> <p><b>Life Science Student Book:</b> 132, 133, 138, 158, 188, 191</p> <p><b>Life Science Teacher’s Guide:</b> 27, 95, 132, 133, 138, 139, 158, 188, 191</p> <p><b>Physical Science Teacher’s Guide:</b> 103, 129, 133, 151, 174, 191</p>

Competency Objectives, Grade 7	Science Daybooks, Grades 6-8
<p>1.05 Analyze evidence to:</p> <ul style="list-style-type: none"> <li>• Explain observations.</li> <li>• Make inferences and predictions.</li> <li>• Develop the relationship between evidence and explanation.</li> </ul>	<p><b>Earth Science Student Book:</b> 33, 47, 61, 85, 103, 121, 126, 132-133, 140-141, 149, 153, 168-169, 171, 174-175, 187, 195, 197, 200-201, 207</p> <p><b>Earth Science Teacher’s Guide:</b> 47, 85, 103, 116-117, 126, 132, 149, 171, 174, 187, 195, 201, 207</p> <p><b>Life Science Student Book:</b> 10, 11, 12, 13, 14, 18, 20, 22, 23, 24, 25, 26, 27, 34, 35, 36, 37, 40, 43, 44, 47, 48, 49, 54, 55, 58, 60, 63, 64, 67, 68, 71, 72, 75, 77, 79, 82, 85, 87, 91, 94, 97, 101, 104, 105, 108, 109, 110, 112, 114, 116, 117, 118, 119, 121, 128, 120, 121, 122, 123, 124, 127, 128, 130, 132, 133, 136, 137, 138, 139, 140, 141, 142, 143, 145, 146, 147, 148, 149, 150, 153, 154, 155, 156, 157, 162, 163, 164, 165, 166, 167, 168, 169, 178, 180, 182, 186, 187, 188, 191, 192, 194, 195, 196, 197, 198, 200, 202, 204, 205, 206, 208, 210, 212, 214, 216, 217</p> <p><b>Life Science Teacher’s Guide:</b> 9B, 10, 11, 12, 13, 14, 18, 20, 22, 23, 24, 25, 26, 27, 34, 35, 36, 37, 40, 43, 44, 47, 48, 49, 54, 55, 58, 60, 63, 64, 67, 68, 71, 72, 75, 77, 79, 82, 85, 87, 91, 94, 97, 101, 104, 105, 108, 109, 110, 112, 114, 116, 117, 118, 119, 121, 128, 120, 121, 122, 123, 124, 127, 128, 130, 132, 133, 136, 137, 138, 139, 140, 141, 142, 143, 145, 146, 147, 148, 149, 150, 153, 154, 155, 156, 157, 162, 163, 164, 165, 166, 167, 168, 169, 178, 180, 182, 186, 187, 188, 191, 192, 194, 195, 196, 197, 198, 200, 202, 204, 205, 206, 208, 210, 212, 214, 216, 217</p> <p><b>Physical Science Student Book:</b> 18-19, 55, 81, 107, 119, 133, 136-137, 148-149, 150-151, 156-157, 161, 164, 184-185, 190-191, 197, 206-207, 217</p> <p><b>Physical Science Teacher’s Guide:</b> 11, 18-19, 21, 23, 25, 31, 37, 53, 55, 81, 89, 95, 99, 105, 107, 117, 119, 121, 125, 128, 133, 136-137, 148-149, 150-151, 156-157, 159, 161, 163, 164, 179, 184, 190, 191, 197, 201, 206-207</p>

Competency Objectives, Grade 7	Science Daybooks, Grades 6-8
<p>1.06 Use mathematics to gather, organize, and present quantitative data resulting from scientific investigations:</p> <ul style="list-style-type: none"> <li>• Measurement.</li> <li>• Analysis of data.</li> <li>• Graphing.</li> <li>• Prediction models.</li> </ul>	<p><b>Earth Science Student Book:</b> 116-117, 139, 140-141, 149, 152, 162, 168, 181, 196-197, 200</p> <p><b>Earth Science Teacher’s Guide:</b> 30B, 78-79, 116-117, 139, 140, 149, 152, 162, 168, 173B, 174-175, 181, 196, 197, 200</p> <p><b>Life Science Student Book:</b> 167</p> <p><b>Life Science Teacher’s Guide:</b> 167</p> <p><b>Physical Science Student Book:</b> 18-19, 150-151, 206-207</p> <p><b>Physical Science Teacher’s Guide:</b> 18, 25, 26-27, 37, 63, 150-151, 163, 179, 206, 207</p>
<p>1.07 Prepare models and/or computer simulations to:</p> <ul style="list-style-type: none"> <li>• Test hypotheses.</li> <li>• Evaluate how data fit.</li> </ul>	<p><b>Earth Science Student Book:</b> 10, 11, 12, 84-85, 95, 103, 105, 120, 137</p> <p><b>Earth Science Teacher’s Guide:</b> 10, 11, 12, 57, 63, 67, 73, 82, 83, 84, 95, 100, 102-103, 104, 105, 111, 118, 120-121, 123, 125, 136, 137, 157, 166B, 173, 202, 206</p> <p><b>Life Science Student Book:</b> 13, 32, 36-37, 78-79, 100, 104-107, 148-149, 188</p> <p><b>Life Science Teacher’s Guide:</b> 10B, 11, 21, 25, 30, 32, 36-37, 53, 78-79, 100, 104B, 104-107, 132-133, 140, 148-149, 188</p> <p><b>Physical Science Student Book:</b> 18-19, 29, 34, 35, 107, 136-137, 138-141, 150-151</p> <p><b>Physical Science Teacher’s Guide:</b> 19, 28, 29, 34, 35, 104, 105, 107, 119, 136-137, 138-141, 151, 183</p>

Competency Objectives, Grade 7	Science Daybooks, Grades 6-8
<p>1.08 Use oral and written language to:</p> <ul style="list-style-type: none"> <li>• Communicate findings.</li> <li>• Defend conclusions of scientific investigations</li> </ul>	<p><b>Earth Science Student Book:</b> 10, 11, 16, 18, 19, 22, 23, 26, 27, 29, 32, 33, 34, 36, 37, 39, 40, 42, 43, 44, 46, 47, 49, 52, 54, 55, 56, 58, 59, 61, 64, 65, 69, 71, 72, 74, 75, 77, 79, 81, 82, 84, 85, 87, 90, 91, 95, 97, 98, 99, 100, 102, 103, 105, 106, 108, 109, 110, 112, 113, 114, 116, 117, 119, 121, 123, 124, 126, 127, 128, 129, 130, 132, 133, 137, 138, 139, 140, 141, 142, 144, 145, 146, 148, 149, 150, 152, 153, 155, 156, 158, 160, 162, 163, 165, 168, 169, 171, 172, 174, 175, 180, 181, 183, 184, 186, 187, 188, 191, 192, 194, 195, 197, 200, 201, 202, 204, 205, 207, 208, 210, 211, 213, 215, 216, 217</p> <p><b>Earth Science Teacher’s Guide:</b> 10-19, 20-29, 30-39, 40-51, 52-71, 72-81, 82-93, 94-103, 104-113, 114-123, 124-135, 136-145, 146-155, 156-165, 166-177, 178-187, 188-197, 198-207, 208-217</p> <p><b>Life Science Student Book:</b> 10, 12, 13, 14, 16, 17, 19, 22, 23, 24, 25, 26, 27, 29, 30, 32, 33, 34, 36, 37, 39, 40, 42, 43, 44, 46, 47, 49, 53, 56, 57, 60, 61, 62, 63, 64, 66, 67, 68, 70, 71, 72, 74, 75, 79, 81, 82, 84, 85, 88, 89, 94, 96, 97, 98, 100, 101, 103, 104, 105, 106, 107, 108, 109, 110, 112, 113, 114, 116, 117, 120, 121, 123, 124, 126, 127, 128, 130, 131, 133, 136, 138, 139, 141, 142, 144, 145, 146, 148, 149, 152, 153, 155, 157, 158, 160, 161, 162, 165, 166, 168, 169, 171, 172, 174, 175, 178, 180, 181, 182, 184, 185, 187, 188, 194, 195, 197, 198, 200, 201, 202, 204, 205, 208, 210, 211, 213, 214, 216, 217</p> <p><b>Life Science Teacher’s Guide:</b> 10-19, 20-29, 30-39, 40-51, 52-61, 62-71, 72-81, 82-91, 94-103, 104-113, 114-123, 124-133, 136-145, 146-155, 156-165, 166-175, 178-187, 188-197, 198-207, 208-217</p> <p><b>Physical Science Student Book:</b> 10, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 26, 27, 29, 30, 32, 33, 35, 38, 39, 41, 42, 44, 45, 46, 48, 49, 52, 54, 55, 56, 58, 59, 61, 62, 64, 65, 67, 68, 70, 71, 73, 74, 76, 77, 78, 80, 81, 82, 84, 85, 87, 88, 90, 91, 94, 96, 97, 98, 100, 101, 103, 104, 106, 107, 110, 111, 113, 115, 116, 118, 119, 120, 122, 123, 124, 127, 129, 130, 132, 133, 136, 137, 138, 140, 141, 142, 144, 145, 146, 148, 149, 150, 151, 152, 154, 155, 157, 158, 160, 161, 162, 164, 165, 167, 168, 170, 171, 172, 174, 175, 178, 180, 181, 182, 184, 185, 187, 188, 190, 191, 194, 195, 197, 199, 200, 203, 204, 206, 207, 208, 210, 211, 212, 214, 215, 217</p> <p><b>Physical Science Teacher’s Guide:</b> 10-19, 20-29, 30-39, 40-49, 52-61, 62-71, 72-81, 82-91, 94-103, 104-113, 114-123, 124-133, 136-145, 146-155, 156-165, 166-175, 178-187, 188-197, 198-207, 208-217</p>

Competency Objectives, Grade 7	Science Daybooks, Grades 6-8
<p>1.09 Use technologies and information systems to:</p> <ul style="list-style-type: none"> <li>• Research.</li> <li>• Gather and analyze data.</li> <li>• Visualize data.</li> <li>• Disseminate findings to others.</li> </ul>	<p><b>Earth Science Student Book:</b> 11, 14-15, 18-19, 21-23, 26-27, 29, 31-33, 36-37, 42-43, 46-47, 49, 54-55, 58-59, 61, 64-65, 68-69, 71, 74-75, 77-79, 81, 84-85, 87, 90-91, 95, 98-99, 102-103, 105, 108-109, 112-113, 116-117, 119-121, 123, 126-127, 129, 132-133, 137, 140-141, 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><b>Earth Science Teacher’s Guide:</b> 17, 20, 24, 25, 27, 28, 29, 45, 52, 53, 55, 56, 59, 60, 61, 62, 63, 64, 66, 70, 71, 79, 82, 83, 85, 86, 87, 89, 97, 99, 100, 103, 106, 107, 109, 113, 118, 119, 123, 133, 137, 142, 145, 147, 150, 151, 153, 155, 159, 164, 169, 170, 171, 174, 182, 183, 187, 189, 192, 195, 196, 197, 203, 205, 207, 208, 209, 212, 213</p> <p><b>Life Science Student Book:</b> 12-13, 16-17, 19, 22-23, 25-27, 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, 120-121, 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><b>Life Science Teacher’s Guide:</b> 10, 12-13, 24, 26-27, 30A, 33, 39, 54, 56, 61, 65, 67, 77, 81, 95, 120, 124, 126-127, 132-133, 136, 139, 142, 144-145, 150, 152, 159-161, 188, 190-191, 192, 193, 208, 217</p> <p><b>Physical Science Student Book:</b> 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, 217</p> <p><b>Physical Science Teacher’s Guide:</b> 17, 18, 19, 24, 38-39, 47, 57, 62, 65, 66, 67, 68, 71, 75, 77, 81, 108, 110, 113, 121, 128, 129, 131, 133, 143, 145, 146, 149, 150, 151, 153, 155, 156, 157, 159, 166B, 168, 169, 187, 189, 190-191, 193, 197, 199, 204, 206-207, 212, 215, 216, 217</p>

Competency Objectives, Grade 7	Science Daybooks, Grades 6-8
<p>1.10 Analyze and evaluate information from a scientifically literate viewpoint by reading, hearing, and/or viewing:</p> <ul style="list-style-type: none"> <li>• Scientific text.</li> <li>• Articles.</li> <li>• Events in the popular press.</li> </ul>	<p><b>Earth Science Student Book:</b> 13, 17, 20-21, 25-26, 28, 30-32, 35-36, 41-43, 45-47, 48-49, 53-55, 57-59, 63-65, 67-69, 70-71, 73-75, 76-79, 80-81, 83, 86-87, 89-91, 97-99, 101-102, 111-113, 115-117, 118-119, 122-123, 125-127, 129, 131-133, 136, 138-139, 143-145, 147-149, 151-153, 154-155, 157-159, 161-163, 164-165, 167-169, 170-171, 173-175, 179-181, 182-183, 185-187, 189-191, 193-195, 198-201, 203-205, 209-211, 212-213, 214-217</p> <p><b>Earth Science Teacher’s Guide:</b> 13, 17, 20, 25, 28, 30, 35, 41, 45, 48, 53, 57, 63, 67, 70, 73, 76, 80, 83, 86, 89, 97, 101, 111, 115, 118, 122, 125, 129, 131, 136, 138, 143, 147, 151, 154, 157, 161, 164, 167, 170, 173, 179, 182, 185, 189, 193, 198, 203, 209, 212, 214</p> <p><b>Life Science Student Book:</b> 11, 15-17, 18-19, 21-23, 24-25, 28-29, 31-33, 35, 38-39, 41-43, 45-47, 48-49, 52, 53, 55-57, 59-61, 65-67, 69-71, 73-75, 77, 83-85, 86-89, 95-97, 99-101, 102-103, 105-107, 109, 111-113, 115-117, 119-121, 122, 125-127, 129-131, 137-139, 140-141, 143, 147-149, 151-153, 154-155, 156-157, 159-161, 163-165, 167-169, 170-171, 173-175, 179-181, 183-185, 186-187, 189-191, 192-195, 199-201, 203-205, 209-211, 212-213, 215</p> <p><b>Life Science Teacher’s Guide:</b> 11, 15, 18, 21, 24, 28, 31, 35, 38, 40A, 41, 45, 48, 52, 53, 55, 59, 65, 69, 73, 77, 83, 86, 95, 99, 102, 105, 109, 111, 115, 119, 122, 125, 129, 137, 140, 143, 147, 151, 154, 156, 159, 163, 167, 170, 173, 179, 183, 186, 189, 192, 199, 203, 209, 212, 215</p> <p><b>Physical Science Student Book:</b> 11-13, 15-17, 21-23, 24-27, 28-29, 31-33, 36-39, 40-41, 43-45, 47-49, 53-54, 57-59, 60-61, 63-65, 66-67, 69-71, 72-73, 75-77, 79-80, 83-85, 86-87, 89-91, 95-97, 99-101, 102-103, 105-106, 109-111, 112-113, 114-115, 117-119, 121-123, 125-127, 128-129, 131-132, 139-141, 143-145, 147, 153-155, 159-160, 163-165, 166-167, 169-171, 173-175, 179-181, 183, 186-187, 193-195, 197, 198-199, 201-203, 205, 209-211, 213-215, 216</p> <p><b>Physical Science Teacher’s Guide:</b> 11, 15, 21, 24, 28, 31, 36, 40, 43, 47, 53, 57, 60, 63, 66, 69, 72, 75, 79, 83, 86, 89, 95, 99, 102, 105, 109, 112, 114, 117, 121, 125, 128, 131, 139, 143, 147, 153, 159, 163, 166, 169, 173, 179, 183, 186, 193, 197, 198, 201, 205, 209, 213, 216</p>

## COMPETENCY GOAL 2

The learner will demonstrate an understanding of technological design.

Competency Objectives, Grade 7	Science Daybooks, Grades 6-8
<p>2.01 Explore evidence that "technology" has many definitions.</p> <ul style="list-style-type: none"> <li>• Artifact or hardware.</li> <li>• Methodology or technique.</li> <li>• System of production.</li> <li>• Social-technical system.</li> </ul>	<p><b>Earth Science Student Book:</b> 12-15, 16-19, 34-37, 38-39, 60-61, 66-69, 70-71, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Earth Science Teacher's Guide:</b> 12, 13, 16-19, 34-37, 38-39, 43, 55, 60-61, 66-69, 70-71, 77, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Life Science Student Book:</b> 18-19, 76-79, 160-169, 172-175, 212-213</p> <p><b>Life Science Teacher's Guide:</b> 18-19, 76-79, 107, 160-169, 172-175, 212-213</p> <p><b>Physical Science Student Book:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 124, 125, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p> <p><b>Physical Science Teacher's Guide:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p>

Competency Objectives, Grade 7	Science Daybooks, Grades 6-8
<p>2.02 Use information systems to:</p> <ul style="list-style-type: none"> <li>• Identify scientific needs, human needs, or problems that are subject to technological solution.</li> <li>• Locate resources to obtain and test ideas</li> </ul>	<p><b>Earth Science Student Book:</b> 12-15, 16-19, 34-37, 38-39, 60-61, 66-69, 70-71, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Earth Science Teacher’s Guide:</b> 12, 13, 16-19, 34-37, 38-39, 43, 55, 60-61, 66-69, 70-71, 77, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Life Science Student Book:</b> 18-19, 76-79, 160-169, 172-175, 212-213</p> <p><b>Life Science Teacher’s Guide:</b> 18-19, 76-79, 107, 160-169, 172-175, 212-213</p> <p><b>Physical Science Student Book:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 124, 125, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p> <p><b>Physical Science Teacher’s Guide:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 142-145, 149, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p>

Competency Objectives, Grade 7	Science Daybooks, Grades 6-8
<p>2.03 Evaluate technological designs for:</p> <ul style="list-style-type: none"> <li>• Application of scientific principles.</li> <li>• Risks and benefits.</li> <li>• Constraints of design.</li> <li>• Consistent testing protocols.</li> </ul>	<p><b>Earth Science Student Book:</b> 12-15, 16-19, 34-37, 38-39, 60-61, 66-69, 70-71, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Earth Science Teacher’s Guide:</b> 12, 13, 16-19, 34-37, 38-39, 43, 55, 60-61, 66-69, 70-71, 77, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Life Science Student Book:</b> 18-19, 76-79, 160-169, 172-175, 212-213</p> <p><b>Life Science Teacher’s Guide:</b> 18-19, 76-79, 107, 160-169, 172-175, 212-213</p> <p><b>Physical Science Student Book:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 124, 125, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p> <p><b>Physical Science Teacher’s Guide:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p>

Competency Objectives, Grade 7	Science Daybooks, Grades 6-8
<p>2.04 Apply tenets of technological design to make informed consumer decisions about:</p> <ul style="list-style-type: none"> <li>• Products.</li> <li>• Processes.</li> <li>• Systems.</li> </ul>	<p><b>Earth Science Student Book:</b> 12-15, 16-19, 34-37, 38-39, 60-61, 66-69, 70-71, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Earth Science Teacher’s Guide:</b> 12, 13, 16-19, 34-37, 38-39, 43, 55, 60-61, 66-69, 70-71, 77, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Life Science Student Book:</b> 18-19, 76-79, 160-169, 172-175, 212-213</p> <p><b>Life Science Teacher’s Guide:</b> 18-19, 76-79, 107, 160-169, 172-175, 212-213</p> <p><b>Physical Science Student Book:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 124, 125, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p> <p><b>Physical Science Teacher’s Guide:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p>

**COMPETENCY GOAL 3**

**The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of the atmosphere.**

Competency Objectives, Grade 7	Science Daybooks, Grades 6-8
<p>3.01 Explain the composition, properties and structure of the atmosphere:</p> <ul style="list-style-type: none"> <li>• Mixture of gases.</li> <li>• Stratified layers.</li> <li>• Each layer has distinct properties.</li> <li>• As altitude increases, air pressure decreases.</li> <li>• Equilibrium.</li> </ul>	<p><b>Earth Science Student Book:</b> 88, 94, 95, 136, 137, 138, 139, 142, 143, 144, 145</p> <p><b>Earth Science Teacher’s Guide:</b> 88, 94, 95, 136, 137, 138, 139, 142, 143, 144, 145</p>
<p>3.02 Describe properties that can be observed and measured to predict air quality:</p> <ul style="list-style-type: none"> <li>• Particulate matter.</li> <li>• Ozone.</li> </ul>	<p><b>Earth Science Student Book:</b> 39</p> <p>Also see <i>ScienceSaurus</i>.</p>

Competency Objectives, Grade 7	Science Daybooks, Grades 6-8
<p>3.03 Conclude that the good health of environments and organisms requires:</p> <ul style="list-style-type: none"> <li>• The monitoring of air quality.</li> <li>• Taking steps to maintain healthy air quality.</li> <li>• Stewardship.</li> </ul>	<p><b>Earth Science Student Book:</b> 38-39 Also see <i>ScienceSaurus</i>.</p>
<p>3.04 Evaluate how humans impact air quality including:</p> <ul style="list-style-type: none"> <li>• Air quality standards.</li> <li>• Point and non-point sources of air pollution in North Carolina.</li> <li>• Financial and economic trade-offs.</li> <li>• Local air quality issues.</li> </ul>	<p><b>Earth Science Student Book:</b> 39 Also see <i>ScienceSaurus</i>.</p>
<p>3.05 Examine evidence that atmospheric properties can be studied to predict atmospheric conditions and weather hazards:</p> <ul style="list-style-type: none"> <li>• Humidity.</li> <li>• Temperature.</li> <li>• Wind speed and direction.</li> <li>• Air pressure.</li> <li>• Precipitation.</li> <li>• Tornados.</li> <li>• Hurricanes.</li> <li>• Floods.</li> <li>• Storms.</li> </ul>	<p><b>Earth Science Student Book:</b> 86, 87, 94, 95, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 152, 153, 164, 172</p> <p><b>Earth Science Teacher’s Guide:</b> 86, 87, 94, 95, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 152, 153, 164, 172</p>
<p>3.06 Assess the use of technology in studying atmospheric phenomena and weather hazards:</p> <ul style="list-style-type: none"> <li>• Satellites.</li> <li>• Weather maps.</li> <li>• Predicting.</li> <li>• Recording.</li> <li>• Communicating information about conditions.</li> </ul>	<p><b>Earth Science Student Book:</b> 80, 142, 145, 146, 147, 148, 149, 152, 165</p> <p><b>Earth Science Teacher’s Guide:</b> 80, 142, 145, 146, 147, 148, 149, 152, 165</p>

## COMPETENCY GOAL 4

**The learner will conduct investigations, use models, simulations, and appropriate technologies and information systems to build an understanding of the complementary nature of the human body system.**

Competency Objectives, Grade 7	Science Daybooks, Grades 6-8
<p>4.01 Analyze how human body systems interact to provide for the needs of the human organism:</p> <ul style="list-style-type: none"> <li>• Musculoskeletal.</li> <li>• Cardiovascular.</li> <li>• Endocrine and Nervous.</li> <li>• Digestive and Circulatory.</li> <li>• Excretory.</li> <li>• Reproductive.</li> <li>• Respiratory.</li> <li>• Immune.</li> <li>• Nervous system.</li> </ul>	<p><b>Life Science Student Book:</b> 48, 146, 147, 150, 154, 156, 166</p> <p><b>Life Science Teacher’s Guide:</b> 48, 49, 146, 147, 150, 154, 156, 166</p>
<p>4.02 Describe how systems within the human body are defined by the functions it performs.</p>	<p><b>Life Science Student Book:</b> 146, 147, 154</p> <p><b>Life Science Teacher’s Guide:</b> 146, 154</p>
<p>4.03 Explain how the structure of an organ is adapted to perform specific functions within one or more systems.</p> <ul style="list-style-type: none"> <li>• Liver.</li> <li>• Heart.</li> <li>• Lung.</li> <li>• Brain</li> <li>• Stomach.</li> <li>• Kidney.</li> </ul>	<p><b>Life Science Student Book:</b> 147, 148-149, 150, 151, 156</p> <p><b>Life Science Teacher’s Guide:</b> 146, 148, 149, 150, 156</p>
<p>4.04 Evaluate how systems in the human body help regulate the internal environment.</p>	<p><b>Life Science Student Book:</b> 48, 150, 156</p> <p><b>Life Science Teacher’s Guide:</b> 48, 156</p>
<p>4.05 Analyze how an imbalance in homeostasis may result from a disruption in any human system.</p>	<p><b>Life Science Student Book:</b> 48-49</p> <p><b>Life Science Teacher’s Guide:</b> 48</p>
<p>4.06 Describe growth and development of the human organism.</p>	<p>No specific lesson addresses this objective. (See <i>ScienceSaurus</i>.)</p>

<b>Competency Objectives, Grade 7</b>	<b>Science Daybooks, Grades 6-8</b>
4.07 Explain the effects of environmental influences on human embryo development and human health including: <ul style="list-style-type: none"> <li>• Smoking.</li> <li>• Alcohol.</li> <li>• Drugs.</li> <li>• Diet.</li> </ul>	<b>Life Science Student Book:</b> 152-153 <b>Life Science Teacher's Guide:</b> 152, 153
4.08 Explain how understanding human body systems can help make informed decisions regarding health.	<b>Life Science Student Book:</b> 151, 152, 153 <b>Life Science Teacher's Guide:</b> 150, 151, 152

## **COMPETENCY GOAL 5**

**The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of heredity and genetics.**

<b>Competency Objectives, Grade 7</b>	<b>Science Daybooks, Grades 6-8</b>
5.01 Explain the significance of genes to inherited characteristics: <ul style="list-style-type: none"> <li>• Genes are the units of information.</li> <li>• Parents transmit genes to their offspring.</li> <li>• Some medical conditions and diseases are genetic.</li> </ul>	<b>Life Science Student Book:</b> 52, 54, 56, 57, 62, 63, 64,65 <b>Life Science Teacher's Guide:</b> 52, 53, 54, 56, 57, 62, 63, 65
5.02 Explain the significance of reproduction: <ul style="list-style-type: none"> <li>• Sorting and recombination of parents' genetic material.</li> <li>• Potential variation among offspring.</li> </ul>	<b>Life Science Student Book:</b> 56, 62-63 <b>Life Science Teacher's Guide:</b> 62
5.03 Identify examples and patterns of human genetic traits: <ul style="list-style-type: none"> <li>• Dominant and recessive.</li> <li>• Incomplete dominance.</li> </ul>	<b>Life Science Student Book:</b> 57, 62, 63, 64, 66 <b>Life Science Teacher's Guide:</b> 57, 62, 64
5.04 Analyze the role of probability in the study of heredity: <ul style="list-style-type: none"> <li>• Role of each parent in transfer of genetic traits.</li> <li>• Analysis of pedigrees.</li> </ul>	<b>Life Science Student Book:</b> 56, 62, 63, 66 <b>Life Science Teacher's Guide:</b> 62, 63
5.05 Summarize the genetic transmittance of disease.	<b>Life Science Student Book:</b> 64, 65, 66, 67 <b>Life Science Teacher's Guide:</b> 65

Competency Objectives, Grade 7	Science Daybooks, Grades 6-8
5.06 Evaluate evidence that human characteristics are a product of: <ul style="list-style-type: none"> <li>• Inheritance.</li> <li>• Environmental factors, and</li> <li>• Lifestyle choices.</li> </ul>	<b>Life Science Student Book:</b> 56, 57, 62, 63, 64, 68, 69, 70  <b>Life Science Teacher’s Guide:</b> 56, 57, 62, 68, 69, 70

## COMPETENCY GOAL 6

**The learner will conduct investigations, use models, simulations, and appropriate technologies and information systems to build an understanding of motion and forces.**

Competency Objectives, Grade 7	Science Daybooks, Grades 6-8
6.01 Demonstrate ways that simple machines can change force.	<b>Physical Science Student Book:</b> 30, 34, 35  <b>Physical Science Teacher’s Guide:</b> 30, 31, 35
6.02 Analyze simple machines for mechanical advantage and efficiency.	<b>Physical Science Student Book:</b> 30, 34, 35  <b>Physical Science Teacher’s Guide:</b> 30, 31, 34, 35
6.03 Evaluate motion in terms of Newton's Laws: <ul style="list-style-type: none"> <li>• The force of friction retards motion.</li> <li>• For every action there is an equal and opposite reaction.</li> <li>• The greater the force, the greater the change in motion.</li> <li>• An object's motion is the result of the combined effect of all forces acting on the object.</li> <li>• A moving object that is not subjected to a force will continue to move at a constant speed in a straight line.</li> <li>• An object at rest will remain at rest.</li> </ul>	<b>Physical Science Student Book:</b> 11, 12, 13, 15, 21, 22, 25, 28, 29  <b>Physical Science Teacher’s Guide:</b> 10, 11, 12, 13, 15, 20, 21, 22, 23, 24, 25, 26, 28, 29
6.04 Analyze that an object's motion is always judged relative to some other object or point.	<b>Earth Science Teacher’s Guide:</b> 124  <b>Physical Science Student Book:</b> 14, 15  <b>Physical Science Teacher’s Guide:</b> 13, 14 Also see <i>ScienceSaurus</i> .

Competency Objectives, Grade 7	Science Daybooks, Grades 6-8
<p>6.05 Describe and measure quantities that characterize moving objects and their interactions within a system:</p> <ul style="list-style-type: none"> <li>• Time.</li> <li>• Distance.</li> <li>• Mass.</li> <li>• Force.</li> <li>• Velocity.</li> <li>• Center of mass.</li> <li>• Acceleration.</li> </ul>	<p><b>Physical Science Student Book:</b> 18-19, 25</p> <p><b>Physical Science Teacher’s Guide:</b> 18, 21, 25</p>
<p>6.06 Investigate and analyze the real world interactions of balanced and unbalanced forces:</p> <ul style="list-style-type: none"> <li>• Sports and recreation.</li> <li>• Transportation.</li> <li>• The human body.</li> </ul>	<p><b>Physical Science Student Book:</b> 12, 13, 20, 21, 22-23</p> <p><b>Physical Science Teacher’s Guide:</b> 12, 13, 20B, 20, 21, 22, 23</p>



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 correlated to  
**North Carolina Science Standard Course of Study**  
**and Grade Level Competencies**  
**Grade 8**

**COMPETENCY GOAL 1**

The learner will design and conduct investigations to demonstrate an understanding of scientific inquiry.

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
1.01 Identify and create questions and hypotheses that can be answered through scientific investigations.	<p><b>Earth Science Student Book:</b> 27, 72-73, 91, 113, 127, 153, 163, 175, 205</p> <p><b>Earth Science Teacher's Guide:</b> 27, 72B, 72, 91, 153, 163, 175, 204</p> <p><b>Life Science Student Book:</b> 24, 26, 94, 95, 96, 102, 103, 124, 126, 127, 129, 144, 145, 173, 188, 190, 191</p> <p><b>Life Science Teacher's Guide:</b> 24, 26, 94, 95, 96, 102, 103, 124, 126, 127, 129, 144, 145, 173, 188, 190, 191</p> <p><b>Physical Science Student Book:</b> 18, 76, 119, 150</p> <p><b>Physical Science Teacher's Guide:</b> 119, 124, 150, 151, 181</p>

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
1.02 Develop appropriate experimental procedures for: <ul style="list-style-type: none"> <li>• Given questions.</li> <li>• Student generated questions.</li> </ul>	<p><b>Earth Science Student Book:</b> 27, 29, 84, 95, 103, 105, 120-121, 127, 175</p> <p><b>Earth Science Teacher’s Guide:</b> 20B, 21, 29, 30B, 31, 27, 63, 67, 77, 78, 84, 95, 99, 103, 105, 113, 120-121, 123, 124B, 125, 127, 166B, 172, 173, 174, 175</p> <p><b>Life Science Student Book:</b> 12-13, 36-37, 78-79, 141, 144-145, 148-149</p> <p><b>Life Science Teacher’s Guide:</b> 12-13, 36-37, 78-79, 141, 144, 148-149</p> <p><b>Physical Science Student Book:</b> 18-19, 29, 55, 81, 107, 119, 133, 136-137, 148-149, 150-151, 156-157, 161, 184-185, 190-191, 197, 206-207, 217</p> <p><b>Physical Science Teacher’s Guide:</b> 18-19, 29, 55, 81, 103, 107, 119, 133, 136-137, 148-149, 150-151, 156-157, 161, 181, 184-185, 190-191, 197, 206-207, 217</p>

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
<p>1.03 Apply safety procedures in the laboratory and in field studies:</p> <ul style="list-style-type: none"> <li>• Recognize potential hazards.</li> <li>• Safely manipulate materials and equipment.</li> <li>• Conduct appropriate procedures.</li> </ul>	<p><b>Earth Science Student Book:</b> 24, 29, 84, 95, 102</p> <p><b>Earth Science Teacher’s Guide:</b> 20A, 24, 25, 29, 30A, 30B, 31, 35, 40A, 45, 52A, 52B, 53, 57, 61, 62A, 63, 67, 72A, 82A, 84, 94A, 95, 99, 102, 103, 114A, 114B, 115, 119, 123, 120, 124A, 124B, 125, 126, 131, 136A, 143, 156A, 156B, 157, 162, 166A, 166B, 173, 198A, 204</p> <p><b>Life Science Student Book:</b> 26, 32, 60, 78, 96, 132, 141, 144, 145, 148, 216, 217</p> <p><b>Life Science Teacher’s Guide:</b> 10A, 12, 20A, 20B, 25, 26, 30A, 32, 52A, 54, 55, 58, 59, 60, 72A, 78, 94A, 94B, 95, 96, 124A, 129, 132, 136A, 136B, 137, 139, 140, 141, 144, 145, 146A, 146, 147, 148, 149, 150, 151, 156A, 156B, 159, 163, 164, 166A, 167, 173, 175, 198A, 198B, 199, 203, 208A, 209, 215, 216, 217</p> <p><b>Physical Science Student Book:</b> 11, 29, 34, 35, 80, 81, 107, 110, 111, 133, 136, 145, 148, 150, 151, 156, 161, 164, 165, 184, 190, 197, 203, 206, 207, 214, 217</p> <p><b>Physical Science Teacher’s Guide:</b> 10A, 10B, 11, 15, 18, 20A, 21, 23, 25, 29, 30A, 30B, 31, 34, 35, 37, 72A, 75, 76, 79, 80, 81, 104A, 104B, 105, 107, 109, 110, 111, 114A, 114B, 117, 121, 123, 124A, 124B, 124, 125, 127, 128, 131, 133, 136A, 136B, 136, 139, 142, 143, 145, 146A, 147, 148, 149, 150, 151, 153, 155, 156A, 156, 159, 160, 161, 162, 163, 164, 165, 178A, 178B, 178, 179, 183, 184, 188A, 189, 190, 193, 196, 197, 198A, 198B, 201, 203, 205, 206, 207, 208A, 209, 210, 213, 214, 217</p>
<p>1.04 Analyze variables in scientific investigations:</p> <ul style="list-style-type: none"> <li>• Identify dependent and independent.</li> <li>• Use of a control.</li> <li>• Manipulate.</li> <li>• Describe relationships between.</li> <li>• Define operationally.</li> </ul>	<p><b>Earth Science Student Book:</b> 174</p> <p><b>Earth Science Teacher’s Guide:</b> 166B, 174</p> <p><b>Life Science Student Book:</b> 132, 133, 138, 158, 188, 191</p> <p><b>Life Science Teacher’s Guide:</b> 27, 95, 132, 133, 138, 139, 158, 188, 191</p> <p><b>Physical Science Teacher’s Guide:</b> 103, 129, 133, 151, 174, 191</p>

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
<p>1.05 Analyze evidence to:</p> <ul style="list-style-type: none"> <li>• explain observations.</li> <li>• make inferences and predictions.</li> <li>• develop the relationship between evidence and explanation</li> </ul>	<p><b>Earth Science Student Book:</b> 33, 47, 61, 85, 103, 121, 126, 132-133, 140-141, 149, 153, 168-169, 171, 174-175, 187, 195, 197, 200-201, 207</p> <p><b>Earth Science Teacher’s Guide:</b> 47, 85, 103, 116-117, 126, 132, 149, 171, 174, 187, 195, 201, 207</p> <p><b>Life Science Student Book:</b> 10, 11, 12, 13, 14, 18, 20, 22, 23, 24, 25, 26, 27, 34, 35, 36, 37, 40, 43, 44, 47, 48, 49, 54, 55, 58, 60, 63, 64, 67, 68, 71, 72, 75, 77, 79, 82, 85, 87, 91, 94, 97, 101, 104, 105, 108, 109, 110, 112, 114, 116, 117, 118, 119, 121, 128, 120, 121, 122, 123, 124, 127, 128, 130, 132, 133, 136, 137, 138, 139, 140, 141, 142, 143, 145, 146, 147, 148, 149, 150, 153, 154, 155, 156, 157, 162, 163, 164, 165, 166, 167, 168, 169, 178, 180, 182, 186, 187, 188, 191, 192, 194, 195, 196, 197, 198, 200, 202, 204, 205, 206, 208, 210, 212, 214, 216, 217</p> <p><b>Life Science Teacher’s Guide:</b> 9B, 10, 11, 12, 13, 14, 18, 20, 22, 23, 24, 25, 26, 27, 34, 35, 36, 37, 40, 43, 44, 47, 48, 49, 54, 55, 58, 60, 63, 64, 67, 68, 71, 72, 75, 77, 79, 82, 85, 87, 91, 94, 97, 101, 104, 105, 108, 109, 110, 112, 114, 116, 117, 118, 119, 121, 128, 120, 121, 122, 123, 124, 127, 128, 130, 132, 133, 136, 137, 138, 139, 140, 141, 142, 143, 145, 146, 147, 148, 149, 150, 153, 154, 155, 156, 157, 162, 163, 164, 165, 166, 167, 168, 169, 178, 180, 182, 186, 187, 188, 191, 192, 194, 195, 196, 197, 198, 200, 202, 204, 205, 206, 208, 210, 212, 214, 216, 217</p> <p><b>Physical Science Student Book:</b> 18-19, 55, 81, 107, 119, 133, 136-137, 148-149, 150-151, 156-157, 161, 164, 184-185, 190-191, 197, 206-207, 217</p> <p><b>Physical Science Teacher’s Guide:</b> 11, 18-19, 21, 23, 25, 31, 37, 53, 55, 81, 89, 95, 99, 105, 107, 117, 119, 121, 125, 128, 133, 136-137, 148-149, 150-151, 156-157, 159, 161, 163, 164, 179, 184, 190, 191, 197, 201, 206-207</p>

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
<p>1.06 Use mathematics to gather, organize, and present quantitative data resulting from scientific investigations:</p> <ul style="list-style-type: none"> <li>• Measurement.</li> <li>• Analysis of data.</li> <li>• Graphing.</li> <li>• Prediction models.</li> </ul>	<p><b>Earth Science Student Book:</b> 116-117, 139, 140-141, 149, 152, 162, 168, 181, 196-197, 200</p> <p><b>Earth Science Teacher’s Guide:</b> 30B, 78-79, 116-117, 139, 140, 149, 152, 162, 168, 173B, 174-175, 181, 196, 197, 200</p> <p><b>Life Science Student Book:</b> 167</p> <p><b>Life Science Teacher’s Guide:</b> 167</p> <p><b>Physical Science Student Book:</b> 18-19, 150-151, 206-207</p> <p><b>Physical Science Teacher’s Guide:</b> 18, 25, 26-27, 37, 63, 150-151, 163, 179, 206, 207</p>
<p>1.07 Prepare models and/or computer simulations to:</p> <ul style="list-style-type: none"> <li>• Test hypotheses.</li> <li>• Evaluate how data fit.</li> <li>• Make predictions.</li> </ul>	<p><b>Earth Science Student Book:</b> 10, 11, 12, 84-85, 95, 103, 105, 120, 137</p> <p><b>Earth Science Teacher’s Guide:</b> 10, 11, 12, 57, 63, 67, 73, 82, 83, 84, 95, 100, 102-103, 104, 105, 111, 118, 120-121, 123, 125, 136, 137, 157, 166B, 173, 202, 206</p> <p><b>Life Science Student Book:</b> 13, 32, 36-37, 78-79, 100, 104-107, 148-149, 188</p> <p><b>Life Science Teacher’s Guide:</b> 10B, 11, 21, 25, 30, 32, 36-37, 53, 78-79, 100, 104B, 104-107, 132-133, 140, 148-149, 188</p> <p><b>Physical Science Student Book:</b> 18-19, 29, 34, 35, 107, 136-137, 138-141, 150-151</p> <p><b>Physical Science Teacher’s Guide:</b> 19, 28, 29, 34, 35, 104, 105, 107, 119, 136-137, 138-141, 151, 183</p>

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
<p>1.08 Use oral and written language to:</p> <ul style="list-style-type: none"> <li>• Communicate findings.</li> <li>• Defend conclusions of scientific investigations.</li> <li>• Describe strengths and weaknesses of claims, arguments, and/or data.</li> </ul>	<p><b>Earth Science Student Book:</b> 10, 11, 16, 18, 19, 22, 23, 26, 27, 29, 32, 33, 34, 36, 37, 39, 40, 42, 43, 44, 46, 47, 49, 52, 54, 55, 56, 58, 59, 61, 64, 65, 69, 71, 72, 74, 75, 77, 79, 81, 82, 84, 85, 87, 90, 91, 95, 97, 98, 99, 100, 102, 103, 105, 106, 108, 109, 110, 112, 113, 114, 116, 117, 119, 121, 123, 124, 126, 127, 128, 129, 130, 132, 133, 137, 138, 139, 140, 141, 142, 144, 145, 146, 148, 149, 150, 152, 153, 155, 156, 158, 160, 162, 163, 165, 168, 169, 171, 172, 174, 175, 180, 181, 183, 184, 186, 187, 188, 191, 192, 194, 195, 197, 200, 201, 202, 204, 205, 207, 208, 210, 211, 213, 215, 216, 217</p> <p><b>Earth Science Teacher’s Guide:</b> 10-19, 20-29, 30-39, 40-51, 52-71, 72-81, 82-93, 94-103, 104-113, 114-123, 124-135, 136-145, 146-155, 156-165, 166-177, 178-187, 188-197, 198-207, 208-217</p> <p><b>Life Science Student Book:</b> 10, 12, 13, 14, 16, 17, 19, 22, 23, 24, 25, 26, 27, 29, 30, 32, 33, 34, 36, 37, 39, 40, 42, 43, 44, 46, 47, 49, 53, 56, 57, 60, 61, 62, 63, 64, 66, 67, 68, 70, 71, 72, 74, 75, 79, 81, 82, 84, 85, 88, 89, 94, 96, 97, 98, 100, 101, 103, 104, 105, 106, 107, 108, 109, 110, 112, 113, 114, 116, 117, 120, 121, 123, 124, 126, 127, 128, 130, 131, 133, 136, 138, 139, 141, 142, 144, 145, 146, 148, 149, 152, 153, 155, 157, 158, 160, 161, 162, 165, 166, 168, 169, 171, 172, 174, 175, 178, 180, 181, 182, 184, 185, 187, 188, 194, 195, 197, 198, 200, 201, 202, 204, 205, 208, 210, 211, 213, 214, 216, 217</p> <p><b>Life Science Teacher’s Guide:</b> 10-19, 20-29, 30-39, 40-51, 52-61, 62-71, 72-81, 82-91, 94-103, 104-113, 114-123, 124-133, 136-145, 146-155, 156-165, 166-175, 178-187, 188-197, 198-207, 208-217</p> <p><b>Physical Science Student Book:</b> 10, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 26, 27, 29, 30, 32, 33, 35, 38, 39, 41, 42, 44, 45, 46, 48, 49, 52, 54, 55, 56, 58, 59, 61, 62, 64, 65, 67, 68, 70, 71, 73, 74, 76, 77, 78, 80, 81, 82, 84, 85, 87, 88, 90, 91, 94, 96, 97, 98, 100, 101, 103, 104, 106, 107, 110, 111, 113, 115, 116, 118, 119, 120, 122, 123, 124, 127, 129, 130, 132, 133, 136, 137, 138, 140, 141, 142, 144, 145, 146, 148, 149, 150, 151, 152, 154, 155, 157, 158, 160, 161, 162, 164, 165, 167, 168, 170, 171, 172, 174, 175, 178, 180, 181, 182, 184, 185, 187, 188, 190, 191, 194, 195, 197, 199, 200, 203, 204, 206, 207, 208, 210, 211, 212, 214, 215, 217</p> <p><b>Physical Science Teacher’s Guide:</b> 10-19, 20-29, 30-39, 40-49, 52-61, 62-71, 72-81, 82-91, 94-103, 104-113, 114-123, 124-133, 136-145, 146-155, 156-165, 166-175, 178-187, 188-197, 198-207, 208-217</p>

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
<p>1.09 Use technologies and information systems to:</p> <ul style="list-style-type: none"> <li>• Research.</li> <li>• Gather and analyze data.</li> <li>• Visualize data.</li> <li>• Disseminate findings to others.</li> </ul>	<p><b>Earth Science Student Book:</b> 11, 14-15, 18-19, 21-23, 26-27, 29, 31-33, 36-37, 42-43, 46-47, 49, 54-55, 58-59, 61, 64-65, 68-69, 71, 74-75, 77-79, 81, 84-85, 87, 90-91, 95, 98-99, 102-103, 105, 108-109, 112-113, 116-117, 119-121, 123, 126-127, 129, 132-133, 137, 140-141, 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><b>Earth Science Teacher’s Guide:</b> 17, 20, 24, 25, 27, 28, 29, 45, 52, 53, 55, 56, 59, 60, 61, 62, 63, 64, 66, 70, 71, 79, 82, 83, 85, 86, 87, 89, 97, 99, 100, 103, 106, 107, 109, 113, 118, 119, 123, 133, 137, 142, 145, 147, 150, 151, 153, 155, 159, 164, 169, 170, 171, 174, 182, 183, 187, 189, 192, 195, 196, 197, 203, 205, 207, 208, 209, 212, 213</p> <p><b>Life Science Student Book:</b> 12-13, 16-17, 19, 22-23, 25-27, 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, 120-121, 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><b>Life Science Teacher’s Guide:</b> 10, 12-13, 24, 26-27, 30A, 33, 39, 54, 56, 61, 65, 67, 77, 81, 95, 120, 124, 126-127, 132-133, 136, 139, 142, 144-145, 150, 152, 159-161, 188, 190-191, 192, 193, 208, 217</p> <p><b>Physical Science Student Book:</b> 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, 217</p> <p><b>Physical Science Teacher’s Guide:</b> 17, 18, 19, 24, 38-39, 47, 57, 62, 65, 66, 67, 68, 71, 75, 77, 81, 108, 110, 113, 121, 128, 129, 131, 133, 143, 145, 146, 149, 150, 151, 153, 155, 156, 157, 159, 166B, 168, 169, 187, 189, 190-191, 193, 197, 199, 204, 206-207, 212, 215, 216, 217</p>

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
<p>1.10 Analyze and evaluate information from a scientifically literate viewpoint by reading, hearing, and/or viewing:</p> <ul style="list-style-type: none"> <li>• Scientific text.</li> <li>• Articles.</li> <li>• Events in the popular press.</li> </ul>	<p><b>Earth Science Student Book:</b> 13, 17, 20-21, 25-26, 28, 30-32, 35-36, 41-43, 45-47, 48-49, 53-55, 57-59, 63-65, 67-69, 70-71, 73-75, 76-79, 80-81, 83, 86-87, 89-91, 97-99, 101-102, 111-113, 115-117, 118-119, 122-123, 125-127, 129, 131-133, 136, 138-139, 143-145, 147-149, 151-153, 154-155, 157-159, 161-163, 164-165, 167-169, 170-171, 173-175, 179-181, 182-183, 185-187, 189-191, 193-195, 198-201, 203-205, 209-211, 212-213, 214-217</p> <p><b>Earth Science Teacher’s Guide:</b> 13, 17, 20, 25, 28, 30, 35, 41, 45, 48, 53, 57, 63, 67, 70, 73, 76, 80, 83, 86, 89, 97, 101, 111, 115, 118, 122, 125, 129, 131, 136, 138, 143, 147, 151, 154, 157, 161, 164, 167, 170, 173, 179, 182, 185, 189, 193, 198, 203, 209, 212, 214</p> <p><b>Life Science Student Book:</b> 11, 15-17, 18-19, 21-23, 24-25, 28-29, 31-33, 35, 38-39, 41-43, 45-47, 48-49, 52, 53, 55-57, 59-61, 65-67, 69-71, 73-75, 77, 83-85, 86-89, 95-97, 99-101, 102-103, 105-107, 109, 111-113, 115-117, 119-121, 122, 125-127, 129-131, 137-139, 140-141, 143, 147-149, 151-153, 154-155, 156-157, 159-161, 163-165, 167-169, 170-171, 173-175, 179-181, 183-185, 186-187, 189-191, 192-195, 199-201, 203-205, 209-211, 212-213, 215</p> <p><b>Life Science Teacher’s Guide:</b> 11, 15, 18, 21, 24, 28, 31, 35, 38, 40A, 41, 45, 48, 52, 53, 55, 59, 65, 69, 73, 77, 83, 86, 95, 99, 102, 105, 109, 111, 115, 119, 122, 125, 129, 137, 140, 143, 147, 151, 154, 156, 159, 163, 167, 170, 173, 179, 183, 186, 189, 192, 199, 203, 209, 212, 215</p> <p><b>Physical Science Student Book:</b> 11-13, 15-17, 21-23, 24-27, 28-29, 31-33, 36-39, 40-41, 43-45, 47-49, 53-54, 57-59, 60-61, 63-65, 66-67, 69-71, 72-73, 75-77, 79-80, 83-85, 86-87, 89-91, 95-97, 99-101, 102-103, 105-106, 109-111, 112-113, 114-115, 117-119, 121-123, 125-127, 128-129, 131-132, 139-141, 143-145, 147, 153-155, 159-160, 163-165, 166-167, 169-171, 173-175, 179-181, 183, 186-187, 193-195, 197, 198-199, 201-203, 205, 209-211, 213-215, 216</p> <p><b>Physical Science Teacher’s Guide:</b> 11, 15, 21, 24, 28, 31, 36, 40, 43, 47, 53, 57, 60, 63, 66, 69, 72, 75, 79, 83, 86, 89, 95, 99, 102, 105, 109, 112, 114, 117, 121, 125, 128, 131, 139, 143, 147, 153, 159, 163, 166, 169, 173, 179, 183, 186, 193, 197, 198, 201, 205, 209, 213, 216</p>

## COMPETENCY GOAL 2

The learner will demonstrate an understanding of technological design.

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
<p>2.01 Explore evidence that "technology" has many definitions.</p> <ul style="list-style-type: none"> <li>• Artifact or hardware.</li> <li>• Methodology or technique.</li> <li>• System of production.</li> <li>• Social-technical system.</li> </ul>	<p><b>Earth Science Student Book:</b> 12-15, 16-19, 34-37, 38-39, 60-61, 66-69, 70-71, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Earth Science Teacher's Guide:</b> 12, 13, 16-19, 34-37, 38-39, 43, 55, 60-61, 66-69, 70-71, 77, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Life Science Student Book:</b> 18-19, 76-79, 160-169, 172-175, 212-213</p> <p><b>Life Science Teacher's Guide:</b> 18-19, 76-79, 107, 160-169, 172-175, 212-213</p> <p><b>Physical Science Student Book:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 124, 125, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p> <p><b>Physical Science Teacher's Guide:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p>

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
<p>2.02 Use information systems to:</p> <ul style="list-style-type: none"> <li>• Identify scientific needs, human needs, or problems that are subject to technological solution.</li> <li>• Locate resources to obtain and test ideas.</li> </ul>	<p><b>Earth Science Student Book:</b> 12-15, 16-19, 34-37, 38-39, 60-61, 66-69, 70-71, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Earth Science Teacher’s Guide:</b> 12, 13, 16-19, 34-37, 38-39, 43, 55, 60-61, 66-69, 70-71, 77, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Life Science Student Book:</b> 18-19, 76-79, 160-169, 172-175, 212-213</p> <p><b>Life Science Teacher’s Guide:</b> 18-19, 76-79, 107, 160-169, 172-175, 212-213</p> <p><b>Physical Science Student Book:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 124, 125, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p> <p><b>Physical Science Teacher’s Guide:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 142-145, 149, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p>

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
<p>2.03 Evaluate technological designs for:</p> <ul style="list-style-type: none"> <li>• Application of scientific principles.</li> <li>• Risks and benefits.</li> <li>• Constraints of design.</li> <li>• Consistent testing protocols.</li> </ul>	<p><b>Earth Science Student Book:</b> 12-15, 16-19, 34-37, 38-39, 60-61, 66-69, 70-71, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Earth Science Teacher’s Guide:</b> 12, 13, 16-19, 34-37, 38-39, 43, 55, 60-61, 66-69, 70-71, 77, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Life Science Student Book:</b> 18-19, 76-79, 160-169, 172-175, 212-213</p> <p><b>Life Science Teacher’s Guide:</b> 18-19, 76-79, 107, 160-169, 172-175, 212-213</p> <p><b>Physical Science Student Book:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 124, 125, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p> <p><b>Physical Science Teacher’s Guide:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p>

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
<p>2.04 Apply tenets of technological design to make informed consumer decisions about:</p> <ul style="list-style-type: none"> <li>• Products.</li> <li>• Processes.</li> <li>• Systems.</li> </ul>	<p><b>Earth Science Student Book:</b> 12-15, 16-19, 34-37, 38-39, 60-61, 66-69, 70-71, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Earth Science Teacher’s Guide:</b> 12, 13, 16-19, 34-37, 38-39, 43, 55, 60-61, 66-69, 70-71, 77, 80-81, 96-99, 100-103, 106-109, 110-113, 118-121, 122-123, 130-133, 138-141, 142-145, 146-149, 150-153, 164-165, 184-187, 202-205, 206-207, 208-211, 214-217</p> <p><b>Life Science Student Book:</b> 18-19, 76-79, 160-169, 172-175, 212-213</p> <p><b>Life Science Teacher’s Guide:</b> 18-19, 76-79, 107, 160-169, 172-175, 212-213</p> <p><b>Physical Science Student Book:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 124, 125, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p> <p><b>Physical Science Teacher’s Guide:</b> 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207</p>

**COMPETENCY GOAL 3**

**The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of the hydrosphere.**

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
<p>3.01 Analyze the unique properties of water including:</p> <ul style="list-style-type: none"> <li>• Universal solvent.</li> <li>• Cohesion and adhesion.</li> <li>• Polarity.</li> <li>• Density and buoyancy.</li> <li>• Specific heat.</li> </ul>	<p><b>Earth Science Teacher’s Guide:</b> 94</p> <p><b>Physical Science Student Book:</b> 128, 216-217</p> <p><b>Physical Science Teacher’s Guide:</b> 128, 216-217 Also see <i>ScienceSaurus</i>.</p>
<p>3.02 Explain the structure of the hydrosphere including:</p> <ul style="list-style-type: none"> <li>• Water distribution on earth.</li> <li>• Local river basin.</li> <li>• Local water availability.</li> </ul>	<p><b>Earth Science Student Book:</b> 94, 104, 105, 106, 107, 110, 114, 116, 122</p> <p><b>Earth Science Teacher’s Guide:</b> 94, 104, 105, 110, 114, 117</p>

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
<p>3.03 Evaluate evidence that Earth's oceans are a reservoir of nutrients, minerals, dissolved gases, and life forms:</p> <ul style="list-style-type: none"> <li>• Estuaries.</li> <li>• Marine ecosystems.</li> <li>• Upwelling.</li> <li>• Behavior of gases in the marine environment.</li> <li>• Value and sustainability of marine resources.</li> <li>• Deep ocean technology and understandings gained.</li> </ul>	<p><b>Earth Science Student Book:</b> 94</p> <p><b>Life Science Teacher's Guide:</b> 212 Also see <i>ScienceSaurus</i>.</p>
<p>3.04 Describe how terrestrial and aquatic food webs are interconnected.</p>	<p><b>Life Science Teacher's Guide:</b> 189 Also see <i>ScienceSaurus</i>.</p>
<p>3.05 Analyze hydrospheric data over time to predict the health of a water system including:</p> <ul style="list-style-type: none"> <li>• Temperature.</li> <li>• Dissolved oxygen.</li> <li>• pH.</li> <li>• Nitrates.</li> <li>• Turbidity.</li> <li>• Bio-indicators.</li> </ul>	<p><b>Life Science Teacher's Guide:</b> 213 Also see <i>ScienceSaurus</i>.</p>
<p>3.06 Evaluate technologies and information systems used to monitor the hydrosphere.</p>	<p>No specific lesson addresses this objective. (See <i>ScienceSaurus</i>.)</p>
<p>3.07 Describe how humans affect the quality of water:</p> <ul style="list-style-type: none"> <li>• Point and non-point sources of water pollution in North Carolina.</li> <li>• Possible effects of excess nutrients in North Carolina waters.</li> <li>• Economic trade-offs.</li> <li>• Local water issues.</li> </ul>	<p><b>Earth Science Student Book:</b> 105, 113</p> <p><b>Earth Science Teacher's Guide:</b> 105, 113</p> <p><b>Life Science Student Book:</b> 212-213</p> <p><b>Life Science Teacher's Guide:</b> 212, 213</p>
<p>3.08 Recognize that the good health of environments and organisms requires:</p> <ul style="list-style-type: none"> <li>• Monitoring of the hydrosphere.</li> <li>• Water quality standards.</li> <li>• Methods of water treatment.</li> <li>• Maintaining safe water quality.</li> <li>• Stewardship.</li> </ul>	<p><b>Earth Science Student Book:</b> 113</p> <p><b>Earth Science Teacher's Guide:</b> 113 Also see <i>ScienceSaurus</i>.</p>

## COMPETENCY GOAL 4

**The learner will conduct investigations and utilize technology and information systems to build an understanding of chemistry.**

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
4.01 Understand that both naturally occurring and synthetic substances are chemicals.	<p><b>Physical Science Student Book:</b> 172, 178, 179</p> <p><b>Physical Science Teacher’s Guide:</b> 172, 178, 179</p>
4.02 Evaluate evidence that elements combine in a multitude of ways to produce compounds that account for all living and nonliving substances.	<p><b>Earth Science Teacher’s Guide:</b> 21</p> <p><b>Life Science Student Book:</b> 22, 25</p> <p><b>Life Science Teacher’s Guide:</b> 22, 25</p> <p><b>Physical Science Student Book:</b> 136, 168, 201, 219</p> <p><b>Physical Science Teacher’s Guide:</b> 136, 168, 201, 219</p>
4.03 Explain how the periodic table is a model for: <ul style="list-style-type: none"> <li>• Classifying elements.</li> <li>• Identifying the properties of elements.</li> </ul>	<p><b>Physical Science Student Book:</b> 145, 166, 167, 168, 169, 172, 174</p> <p><b>Physical Science Teacher’s Guide:</b> 145, 166, 167, 168, 169, 172, 174</p>
4.04 Describe the suitability of materials for use in technological design: <ul style="list-style-type: none"> <li>• Electrical Conductivity.</li> <li>• Density.</li> <li>• Magnetism.</li> <li>• Solubility.</li> <li>• Malleability.</li> </ul>	<p><b>Physical Science Student Book:</b> 65, 70, 72, 73, 74, 75, 76, 77, 82, 124, 125, 126, 127, 158, 159, 160, 161</p> <p><b>Physical Science Teacher’s Guide:</b> 65, 70, 72, 73, 74, 75, 76, 77, 82, 124, 125, 126, 127, 158, 159, 160, 161</p>
4.05 Identify substances based on characteristic physical properties: <ul style="list-style-type: none"> <li>• Density.</li> <li>• Boiling/Melting points.</li> <li>• Solubility.</li> <li>• Chemical reactivity.</li> <li>• Specific heat.</li> </ul>	<p><b>Physical Science Student Book:</b> 101, 124, 125, 126, 127, 128, 152, 153, 154, 155, 158, 159, 160, 161, 170, 171, 178, 179, 180, 181, 188, 189, 190, 191, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 218</p> <p><b>Physical Science Teacher’s Guide:</b> 101, 124, 125, 126, 127, 128, 152, 153, 154, 155, 158, 159, 160, 161, 170, 171, 178, 179, 180, 181, 188, 189, 190, 191, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 218</p>

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
<p>4.06 Describe and measure quantities related to chemical/physical changes within a system:</p> <ul style="list-style-type: none"> <li>• Temperature.</li> <li>• Volume.</li> <li>• Mass.</li> <li>• Precipitate.</li> <li>• Gas production.</li> </ul>	<p><b>Earth Science Teacher’s Guide:</b> 94</p> <p><b>Physical Science Student Book:</b> 129, 168, 169, 170, 171, 188, 189, 198, 199, 200, 201, 202, 204, 205</p> <p><b>Physical Science Teacher’s Guide:</b> 129, 168, 169, 170, 171, 188, 189, 198, 199, 200, 201, 202, 204, 205</p>
<p>4.07 Identify evidence supporting the law of conservation of matter.</p> <ul style="list-style-type: none"> <li>• During an ordinary chemical reaction matter cannot be created or destroyed.</li> <li>• In a chemical reaction, the total mass of the reactants equals the total mass of the products mass of the products.</li> </ul>	<p>No specific lesson addresses this objective. (See <i>ScienceSaurus</i>.)</p>
<p>4.08 Identify evidence that some chemicals may contribute to human health conditions including:</p> <ul style="list-style-type: none"> <li>• Cancer.</li> <li>• Autoimmune disease.</li> <li>• Birth defects.</li> <li>• Heart disease.</li> <li>• Diabetes.</li> <li>• Learning and behavioral disorders.</li> <li>• Kidney disease.</li> <li>• Asthma.</li> </ul>	<p><b>Physical Science Student Book:</b> 171</p> <p><b>Physical Science Teacher’s Guide:</b> 171</p>
<p>4.09 Describe factors that determine the effects a chemical has on a living organism including:</p> <ul style="list-style-type: none"> <li>• Exposure.</li> <li>• Potency.</li> <li>• Dose and the resultant concentration of chemical in the organism.</li> <li>• Individual susceptibility.</li> <li>• Possible means to eliminate or reduce effects.</li> </ul>	<p><b>Physical Science Student Book:</b> 178, 179, 180</p> <p><b>Physical Science Teacher’s Guide:</b> 178, 179, 180</p>
<p>4.10 Describe risks and benefits of chemicals including:</p> <ul style="list-style-type: none"> <li>• Medicines.</li> <li>• Food preservatives.</li> <li>• Crop yield.</li> <li>• Sanitation.</li> </ul>	<p><b>Life Science Teacher’s Guide:</b> 172</p> <p>Also see <i>ScienceSaurus</i>.</p>

## COMPETENCY GOAL 5

**The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of evidence of evolution in organisms and landforms.**

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
<p>5.01 Interpret ways in which rocks, fossils, and ice cores record Earth's geologic history and the evolution of life including:</p> <ul style="list-style-type: none"> <li>• Geologic Time Scale.</li> <li>• Index Fossils.</li> <li>• Law of Superposition.</li> <li>• Unconformity.</li> <li>• Evidence for climate change.</li> <li>• Extinction of species.</li> <li>• Catastrophic events.</li> </ul>	<p><b>Earth Science Student Book:</b> 24, 47, 72, 74, 78, 166, 167</p> <p><b>Earth Science Teacher's Guide:</b> 47, 74, 78, 167</p> <p><b>Life Science Teacher's Guide:</b> 208B</p>
<p>5.02 Correlate evolutionary theories and processes:</p> <ul style="list-style-type: none"> <li>• Biological.</li> <li>• Geological.</li> <li>• Technological.</li> </ul>	<p><b>Earth Science Student Book:</b> 24, 47, 74, 79</p> <p><b>Earth Science Teacher's Guide:</b> 47, 74, 79</p>
<p>5.03 Examine evidence that the geologic evolution has had significant global impact including:</p> <ul style="list-style-type: none"> <li>• Distribution of living things.</li> <li>• Major geological events.</li> <li>• Mechanical and chemical weathering.</li> </ul>	<p><b>Earth Science Student Book:</b> 47, 72, 74, 78</p> <p><b>Earth Science Teacher's Guide:</b> 47, 74, 78, 81</p>
<p>5.04 Analyze satellite imagery as a method to monitor Earth from space:</p> <ul style="list-style-type: none"> <li>• Spectral analysis.</li> <li>• Reflectance curves.</li> </ul>	<p><b>Earth Science Student Book:</b> 12, 13, 14, 16, 17, 142</p> <p><b>Earth Science Teacher's Guide:</b> 12, 13, 16, 142</p> <p><b>Life Science Student Book:</b> 206</p>
<p>5.05 Use maps, ground truthing and remote sensing to make predictions regarding:</p> <ul style="list-style-type: none"> <li>• Changes over time.</li> <li>• Land use.</li> <li>• Urban sprawl.</li> <li>• Resource management.</li> </ul>	<p><b>Life Science Student Book:</b> 206</p>

## COMPETENCY GOAL 6

**The learner will conduct investigations, use models, simulations, and appropriate technologies and information systems to build an understanding of cell theory.**

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
<p>6.01 Describe cell theory:</p> <ul style="list-style-type: none"> <li>• All living things are composed of cells.</li> <li>• Cells provide structure and carry on major functions to sustain life.</li> <li>• Some organisms are single cell; other organisms, including humans, are multi-cellular.</li> <li>• Cell function is similar in all living things.</li> </ul>	<p><b>Life Science Student Book:</b> 10, 14, 15, 18, 20, 24, 30, 31, 34, 40, 42</p> <p><b>Life Science Teacher’s Guide:</b> 14, 20, 24, 30, 40, 42</p> <p><b>Physical Science Student Book:</b> 146, 149, 198, 199</p> <p><b>Physical Science Teacher’s Guide:</b> 146, 149, 198, 199</p>
<p>6.02 Analyze structures, functions, and processes within animal cells for:</p> <ul style="list-style-type: none"> <li>• Capture and release of energy.</li> <li>• Feedback information.</li> <li>• Dispose of wastes.</li> <li>• Reproduction.</li> <li>• Movement.</li> <li>• Specialized needs.</li> </ul>	<p><b>Life Science Student Book:</b> 10, 11, 14, 15, 16, 18, 20, 22, 30, 31, 40, 42</p> <p><b>Life Science Teacher’s Guide:</b> 10, 11, 14, 17, 18, 20, 22, 30, 40</p> <p><b>Physical Science Student Book:</b> 60, 61, 146, 147, 192, 193, 194, 195</p> <p><b>Physical Science Teacher’s Guide:</b> 60, 61, 146, 147, 192, 193, 194, 195</p>
<p>6.03 Compare life functions of protists:</p> <ul style="list-style-type: none"> <li>• Euglena.</li> <li>• Amoeba.</li> <li>• Paramecium.</li> <li>• Volvox.</li> </ul>	<p>No specific lesson addresses this objective. (See <i>ScienceSaurus</i>.)</p>
<p>6.04 Conclude that animal cells carry on complex chemical processes to balance the needs of the organism.</p> <ul style="list-style-type: none"> <li>• Cells grow and divide to produce more cells.</li> <li>• Cells take in nutrients to make the energy for the work cells do.</li> <li>• Cells take in materials that a cell or an organism needs.</li> </ul>	<p><b>Life Science Student Book:</b> 14, 15, 16, 20, 30, 31</p> <p><b>Life Science Teacher’s Guide:</b> 14, 20, 30</p>

## COMPETENCY GOAL 7

**The learner will conduct investigations, use models, simulations, and appropriate technologies and information systems to build an understanding of microbiology.**

Competency Objectives, Grade 8	Science Daybooks, Grades 6-8
7.01 Compare and contrast microbes: <ul style="list-style-type: none"> <li>• Size, shape, structure.</li> <li>• Whether they are living cells.</li> </ul>	No specific lesson addresses this objective. (See <i>ScienceSaurus</i> .)
7.02 Describe diseases caused by microscopic biological hazards including: <ul style="list-style-type: none"> <li>• Viruses.</li> <li>• Bacteria.</li> <li>• Parasites.</li> <li>• Contagions.</li> <li>• Mutagens.</li> </ul>	<b>Life Science Student Book:</b> 98, 99, 101, 166, 170, 171 <b>Life Science Teacher’s Guide:</b> 98, 167, 171 <b>Physical Science Student Book:</b> 102, 103, 170 <b>Physical Science Teacher’s Guide:</b> 102, 103, 170
7.03 Analyze data to determine trends or patterns to determine how an infectious disease may spread including: <ul style="list-style-type: none"> <li>• Carriers.</li> <li>• Vectors.</li> <li>• Conditions conducive to disease.</li> <li>• Calculate reproductive potential of bacteria.</li> </ul>	<b>Life Science Student Book:</b> 100, 171, 172 <b>Life Science Teacher’s Guide:</b> 100, 171
7.04 Evaluate the human attempt to reduce the risk of and treatments for microbial infections including: <ul style="list-style-type: none"> <li>• Solutions with anti-microbial properties.</li> <li>• Antibiotic treatment.</li> <li>• Research.</li> </ul>	<b>Life Science Student Book:</b> 101, 166, 167, 170, 173, 174 <b>Life Science Teacher’s Guide:</b> 97, 166, 167, 172, 173
7.05 Investigate aspects of biotechnology including: <ul style="list-style-type: none"> <li>• Specific genetic information available.</li> <li>• Careers.</li> <li>• Economic benefits to North Carolina.</li> <li>• Ethical issues.</li> <li>• Impact for agriculture.</li> </ul>	No specific lesson addresses this objective.



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