Science 2 5ed   
Lesson Plan Overview

Unit 1: Let’s Explore Matter and Motion

Chapter 1: What Science Is

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| Lesson | Teacher Edition | Student Edition | Activities | Objectives |
| 1 | 1–9 | 1–9 | 1–4 | * Identify and locate the key text features * Infer from key text features the topics for Chapter 1 * Identify that students and scientists can use their minds to solve problems and study God’s world BWS * Explain, using biblical truth, the purposes for what scientists do (Genesis 1:28; Mark 12:30–31) BWS * Explain what a worldview is and that all scientists have a worldview BWS |
| 2 | 10–14 | 10–14 | 5–8 | * Demonstrate observing, classifying, measuring, inferring, predicting, and communicating as science inquiry skills * Explain from Genesis 1:28 why accurate measurement is important BWS * Demonstrate proper use of a hand lens, ruler, meter stick, beaker, balance, and thermometer as science tools |
| 3 | 15–18 | 15–18 | 9–15 | Investigation: Keeping Cool   * Demonstrate safety skills for Explorations and Investigations * Identify the purpose of investigations * Apply the steps of the scientific method to an investigation BWS * Judge whether or not the design of an investigation presents a controlled investigation |
| 4 | 19–23 | 19–21 | 16–18 | * Recall what an engineer does * Relate the work of engineering to the command of  Genesis 1:28 BWS * Identify the steps of the engineering design process   STEM: Bugged!   * Apply the engineering design process to solve a real-life problem * Communicate to others how the design solves the problem |

Chapter 2: What Matter Is

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| Lesson | Teacher Edition | Student Edition | Activities | Objectives |
| 5 | 24–27 | 22–25 | 19–22 | * Define matter * Explain from Genesis 1 where matter came from BWS * Identify the mass of an object * Observe that matter takes up space |
| 6 | 28–32 | 26–30 | 20, 23–28 | * Identify seven properties of matter * Classify objects based on the properties of matter * Explain from Genesis 1:11−13 that God created plants with different properties of matter BWS |
| 7 | 33–35 | 31 | 29–31 | Exploration: Classifying by Property   * Observe properties of common objects * Collaborate to choose two properties of matter for comparison * Compare and contrast common objects using two properties of matter * Classify objects by using two properties of matter |
| 8 | 36–38 | 32–34 | 33–38 | * Identify the states of matter * Classify objects as solid, liquid, or gas * Observe the shapes of solids, liquids, and gases * Compare and contrast states of matter |
| 9 | 39–41 | 35 | 39–40 | Investigation: How Slow Is the Flow?   * Create a hypothesis to predict the rate at which thin and thick liquids flow * Record observations * Draw conclusions about the texture and flow of liquids |
| 10 | 42 | 22–35 | 19–40 | Review   * Recall terms and concepts from Chapter 2 |
| 11 | 43 |  |  | Assessment   * Apply terms and concepts from Chapter 2 |

Chapter 3: How Matter Changes

| Lesson | Teacher Edition | Student Edition | Activities | Objectives |
| --- | --- | --- | --- | --- |
| 12 | 44–48 | 36–40 | 41–44 | * Explain the origin of matter by using Genesis 1 BWS * Recall the three states of matter * Explain what happens to the temperature of matter when it is heated and when it is cooled * Explain the changes to the solid state of matter when heat is added |
| 13 | 49–51 | 41 | 45–46 | Investigation: Changing a Solid   * Create a hypothesis to predict which solid will change to a liquid the fastest when it is heated * Measure time using a timing device, such as a stopwatch * Observe and record the rates at which different solids melt * Draw conclusions from data collected |
| 14 | 52–56 | 42–46 | 42, 47–50 | * Identify changes to the state of water when it is heated * Explain why the water level in an open container drops * Identify the changes to water vapor when it is cooled * Identify the changes to the state of matter when heat is removed from a liquid * Identify the state of water in the water cycle using the terms evaporation, condensation, and precipitation * Develop a biblical response to a rainy day by using Psalm 147:7–8 BWS |
| 15 | 57–61 | 47 | 51–55 | Investigation: Reversible or Irreversible Changes?   * Identify the states of matter and properties of a crayon and an uncooked egg * Formulate a hypothesis to determine the effects of heating and cooling on the state and properties of a crayon * Formulate a hypothesis to determine the effects of heating and cooling on the state and properties of an egg * Record observations * Draw conclusions about reversible and irreversible changes caused by heating and cooling crayons and an egg |
| 16–17 | 62–68 | 48–54 | 57–58 | * Identify changes to matter * Identify changes to matter as either reversible or irreversible * Manipulate paper to illustrate reversible and irreversible changes * Identify the characteristics of a mixture * Observe that matter can be combined in different ways to make a new object |
| 18 | 69–71 | 55 | 42, 59–60 | STEM: Built to Last   * Design a structure that will stand up on its own by combining materials * Create a model of a structure that will stand on its own * Evaluate designs to determine which structures are best able to stand up on their own * Redesign models to make the structures better able to stand up on their own * Communicate to others how the redesign solves the problem * Explain by using biblical truth why it is important to build structures that will stand up on their own BWS |
| 19 | 72 | 36–55 | 41–60 | Review   * Recall terms and concepts from Chapter 3 |
| 20 | 73 |  |  | Assessment   * Apply terms and concepts from Chapter 3 |

Chapter 4: How Matter Moves

| Lesson | Teacher Edition | Student Edition | Activities | Objectives |
| --- | --- | --- | --- | --- |
| 21–22 | 74–83 | 56–65 | 61–66 | * Demonstrate an understanding of force * Determine that a stronger force makes an object go faster and farther * Determine what force is needed to move heavier objects * Illustrate ways objects can move in terms of direction * Determine what happens to objects when they touch or collide * Identify what speed is * Explain how we know that God made force BWS |
| 23 | 84–88 | 66 | 67–70 | Investigation: Speed and Force   * Conduct an investigation using the science inquiry skills of measure,  predict, and observe * Compare and contrast the effects of ramps on the speed of a ball * Determine the effect of force on an object * Determine that a ramp increases the speed of a ball |
| 24 | 89–91 | 67 | 62, 71–72 | STEM: Send Off!   * Design and create a model of a ball launcher to increase the strength of force to move or knock over an object * Demonstrate that the greater the amount of force applied to an object, the greater the change in motion of the object * Analyze data from tests of the ball launcher to determine if it works as intended * Redesign the ball launcher to make it better able to solve the problem * Communicate to others how the design solves the problem * Explain why it is important to know how to change the strength of force BWS |
| 25 | 92–94 | 68–70 | 62,  73–76 | * Identify what friction is * Describe the kinds of surfaces that have more or less friction * Explain that sometimes more friction is needed and other times less friction is needed * Explain that learning about friction can help us use it in better ways to help others BWS |
| 26 | 95–99 | 71–73 | 73, 77–80 | * Identify what gravity is * Identify what weight is * Identify the tool used to measure weight   Exploration: All Fall Down   * Determine effects of gravity on various objects when dropped in an Exploration * Apply science inquiry skills to an Exploration |
| 27 | 100–102 | 74 | 81–82 | Investigation: Magnetic Attraction   * Write a hypothesis predicting whether items will be attracted to a magnet * Observe items that are attracted to a magnet * Summarize why some objects are more attracted to a magnet than others are * Classify the objects in the paper bag |
| 28 | 103–5 | 75–77 | 73,  83–85 | * Describe the kinds of things that are attracted to a magnet * Identify the areas on a magnet that have the strongest magnetism * Identify which poles of magnets attract each other and which ones repel each other * Explain why we learn about force BWS * Write an explanation about what force causes a scooter to roll down a hill |
| 29 | 106 | 56–77 | 61–85 | Review   * Recall terms and concepts from Chapter 4 |
| 30 | 107 |  |  | Assessment   * Apply terms and concepts from Chapter 4 |

Unit 2: Let’s Explore Earth and Space

Chapter 5: How the Earth Moves

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| Lesson | Teacher Edition | Student Edition | Activities | Objectives |
| 31 | 108–14 | 78–84 | 87–92 | * Identify the location of the sun in the solar system * Explain by using Genesis 1 that the solar system was created by God BWS * Evaluate different worldviews of the origins of the solar system BWS * Formulate a biblical worldview of origins BWS * Identify how many planets are in the solar system * Identify the location of the earth in the solar system |
| 32 | 115–19 | 85–89 | 93–94 | * Describe the earth’s shape * Identify three ways a globe is a model of the earth * Identify that the earth tilts on its axis * Explain the importance of the rotation of the earth |
| 33 | 120–22 | 90 | 95–96 | Exploration: Day and Night Around the World   * Observe how the earth’s rotation causes daytime and nighttime * Collaborate to model the rotation of the earth * Explain the cause of daytime and nighttime on the earth |
| 34 | 123–25 | 91–93 | 88, 97–99 | * Demonstrate the orbit of the earth around the sun * Identify the length of time the earth takes to orbit the sun * Explain how the earth’s revolution and tilt on its axis provide us with seasons * Explain by using Genesis 8:22 that God created the seasons BWS |
| 35 | 126 | 80–93 | 87–99 | Review   * Recall terms and concepts from Chapter 5 |
| 36 | 127 |  |  | Assessment   * Apply terms and concepts from Chapter 5 |

Chapter 6: What Makes Up the Earth

| Lesson | Teacher Edition | Student Edition | Activities | Objectives |
| --- | --- | --- | --- | --- |
| 37 | 128–35 | 94–101 | 101–4 | * Explain from Genesis 1 the origin of water on the earth BWS * Identify that water, in liquid or solid state, covers most of the earth’s surface * Classify bodies of water as having either salt water or fresh water * Identify the seven continents and some of their characteristics * Identify various landforms and their characteristics |
| 38 | 136 | 102 | 105 | Exploration: Shape of the Land   * Create a model depicting landforms and bodies of water on the earth’s surface * Classify bodies of water as having either fresh water or salt water * Explain how the model accurately represents landforms and water on the earth’s surface |
| 39 | 137–41 | 103–7 | 107–9 | * Identify ways that scientists learn about the earth’s crust * Explain how scientists can infer what layers are inside the earth * Explain why scientists can only infer what layers are inside the earth BWS * Identify characteristics of each layer of the earth * Label a diagram showing the layers of the earth |
| 40 | 142–44 | 108 | 111–12 | Exploration: The Earth’s Layers   * Create a model of the earth’s layers * Measure each layer of the model to represent what scientists believe about the thickness of the earth’s layers * Infer, using the model, information about the earth’s layers |
| 41 | 145–48 | 109–12 | 113–14 | * Identify four causes of weathering * Identify two causes of erosion * Compare and contrast weathering and erosion * Evaluate using biblical truth the statement that all weathering and erosion occur slowly BWS |
| 42 | 149–51 | 113 | 102, 115–16 | STEM: Erosion Control   * Design a solution to slow or prevent wind erosion by using the engineering design process * Construct a model to slow or prevent wind erosion * Test and compare models to improve the original design * Communicate how the design slows or prevents wind erosion * Explain from Genesis 1:27–28 and Matthew 22:37–39 why slowing or preventing erosion is important BWS |
| 43 | 152–55 | 114–17 | 117–19 | * Compare and contrast volcanoes and earthquakes * Identify what lava is and where it comes from * Describe ways that volcanoes and earthquakes change the earth’s surface * Explain why learning about the movement of the earth’s surface helps people to live safely BWS |
| 44 | 156 | 94–117 | 101–19 | Review   * Recall terms and concepts from Chapter 6 |
| 45 | 157 |  |  | Assessment   * Apply terms and concepts from Chapter 6 |

Chapter 7: What Natural Resources Are

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| Lesson | Teacher Edition | Student Edition | Activities | Objectives |
| 46–47 | 158–67 | 118–27 | 121–29 | * Identify what a natural resource is BWS * Explain why people should conserve natural resources BWS * Identify examples of natural resources * Describe how natural resources can be conserved * Explain how plants can help prevent erosion * Identify how fossil fuels are used as natural resources * Identify three kinds of fossil fuels * Evaluate the use of fossil fuels |
| 48 | 168–70 | 128–30 | 131–32 | * Identify what a product is * Identify common products that come from natural resources |
| 49 | 171–74 | 131–34 | 122,  133–35 | * Describe the three Rs of conservation * Formulate a statement explaining how conserving natural resources is obeying God BWS |
| 50 | 175–77 | 135 | 137–38 | Exploration: Recycled Paper   * Measure and record accurately * Recycle old newspapers to make new paper * Compare and contrast old newspaper to recycled paper * Infer what the new recycled paper can be used for * Formulate a statement from Matthew 22:37–39 to explain how recycling helps people obey God’s commands BWS |
| 51 | 178 | 118–35 | 121–38 | Review   * Recall terms and concepts from Chapter 7 |
| 52 | 179 |  |  | Assessment   * Apply terms and concepts from Chapter 7 |

Unit 3: Let’s Explore Living Things

Chapter 8: How Plants Grow and Change

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| Lesson | Teacher Edition | Student Edition | Activities | Objectives |
| 53 | 180–89 | 136–45 | 139–45 | * Identify the characteristics of living and nonliving things * Classify items as living or nonliving * Identify the needs of plants to survive and grow * Explain from Genesis 3:17–18a how the Fall affected plants BWS * Identify each part of a plant and its function * Create a model of a flower |
| 54 | 190–92 | 146–48 | 140,  147–48 | * Explain that God created plants to reproduce “after their own kind” BWS * Identify the parts of a seed * Describe what a seed needs to sprout * Identify the three stages of the life cycle of a plant * Explain why plants have seeds |
| 55 | 193–94 | 149–50 | 149–50 | * Identify ways that seeds travel * Describe how plants depend on animals to scatter seeds |
| 56 | 195–99 | 151 | 151–54 | Investigation: Traveling Seeds   * Predict how seeds can be scattered * Observe how seeds are scattered * Classify seeds based on the way they travel |
| 57 | 200 | 138–51 | 139–54 | Review   * Recall terms and concepts from Chapter 8 |
| 58 | 201 |  |  | Assessment   * Apply terms and concepts from Chapter 8 |

Chapter 9: How Animals Grow and Change

| Lesson | Teacher Edition | Student Edition | Activities | Objectives |
| --- | --- | --- | --- | --- |
| 59 | 202–8 | 152–58 | 155–56 | * Differentiate between living things and nonliving things * Identify needs of animals * Describe the relationship between what an animal needs to survive and where it lives * Describe how animals can change where they live to meet their needs * Formulate a biblical statement that God designed animals and where they live to work together so they can survive and grow BWS |
| 60 | 209–14 | 159–64 | 157–62 | * Classify animals with backbones according to physical characteristics * Identify how animals with backbones use different external body parts |
| 61 | 215–19 | 165–69 | 163–66 | * Classify animals without backbones according to physical characteristics * Identify how animals without backbones use different external body parts |
| 62 | 220–23 | 170–73 | 167–68 | * Describe how animals grow and change * Identify that offspring resemble their parents * Describe how parents and offspring have body parts and behaviors that help them survive * Compare and contrast characteristics of offspring and their parents |
| 63 | 224–26 | 174–76 | 169–73 | * Sequence the steps of a life cycle for a butterfly and a frog * Identify body parts within the life cycle of animals |
| 64 | 227–28 | 177–78 | 175–78 | * Describe the transfer of energy from one organism to another * Read a food chain to understand how energy moves through where an animal lives * Identify the predators and prey in a food chain * Construct an explanation from Scripture of why there are predators and prey BWS |
| 65 | 229–31 | 179 | 179–80 | STEM: Trapped!   * Research the characteristics of an insect * Apply the engineering design process to trap an insect without harming it * Communicate to others how the design solves the problem |
| 66 | 232 | 152–79 | 155–80 | Review   * Recall terms and concepts from Chapter 9 |
| 67 | 233 |  |  | Assessment   * Apply terms and concepts from Chapter 9 |

Chapter 10: Where Things Live

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| --- | --- | --- | --- | --- |
| Lesson | Teacher Edition | Student Edition | Activities | Objectives |
| 68 | 234–39 | 180–85 | 181–84 | * Explain why it is important to learn and care about living things BWS * Compare and contrast a population and a community of living things * Explain how living things depend on each other * Explain how a habitat provides for the needs of plants and animals * Infer whether plants and animals can survive in habitats that do not meet their needs |
| 69 | 240–44 | 186–90 | 185–88 | * Identify plants and animals living in a water habitat * Explain how water habitats meet the needs of living things |
| 70 | 245–51 | 191–97 | 189 | * Identify plants and animals living in a land habitat * Explain how land habitats meet the needs of living things * Compare and contrast water and land habitats |
| 71 | 252–56 | 198–202 | 182,  191–96 | * Identify ways animals and plants change their habitats * Identify the impacts of a wildfire on a habitat * Evaluate how people impact habitats BWS |
| 72 | 257–59 | 203 | 197–201 | Exploration: Home Sweet Home   * Research a habitat * Build a model of a habitat * Communicate information about a habitat and the things living there * Evaluate the researched habitat to determine if it could meet human needs |
| 73 | 260 | 180–203 | 181–201 | Review   * Recall terms and concepts from Chapter 10 |
| 74 | 261 |  |  | Assessment   * Apply terms and concepts from Chapter 10 |

Chapter 11: What Fossils Show Us

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| Lesson | Teacher Edition | Student Edition | Activities | Objectives |
| 75 | 262–65 | 204–7 | 203–6 | * Identify prior knowledge of fossils by using a K-W-L chart * Compare and contrast the worldviews of Creation and evolution BWS * Infer how a person’s worldview affects how he interprets his  observations BWS |
| 76 | 266–68 | 208 | 207–9 | Exploration: Following Clues   * Observe clues like a scientist does * Infer facts about an animal from its footprint clues * Draw conclusions from data collected * Relate conclusions from the collected data to what science can and cannot do BWS |
| 77 | 269–73 | 209–13 | 205, 211–12 | * Explain how fossils form * Compare and contrast different views of how most fossils formed BWS * Identify six different types of fossils * Differentiate between a mold fossil and a cast fossil |
| 78 | 274–75 | 214–15 | 213–14 | * Explain what plant and insect fossils tell us about life on Earth at the time of the Flood BWS * Explain why some plants and insects are found only as fossils * Create a model of a leaf mold fossil |
| 79–80 | 276–82 | 216–22 | 203–4, 215–18 | * Explain what dinosaur fossils can and cannot tell us * Identify characteristics of the Stegosaurus and the Tyrannosaurus rex * Defend with biblical truth the claim that Noah took dinosaurs on the ark BWS * Name one possible reason that dinosaurs became extinct |
| 81 | 283–85 | 223 | 219–21 | Exploration: Bag of Bones   * Conduct a keyword search of a specific dinosaur * Create a model of a dinosaur skeleton * Explain how scientists infer what dinosaurs looked like * Communicate facts about the researched and modeled dinosaur * Evaluate the conclusions some people draw from fossils BWS |
| 82 | 286 | 204–23 | 203–21 | Review   * Recall terms and concepts from Chapter 11 |
| 83 | 287 |  |  | Assessment   * Apply terms and concepts from Chapter 11 |

Chapter 12: How the Human Body Works

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| Lesson | Teacher  Edition | Student Edition | Activities | Objectives |
| 84 | 288–93 | 224–29 | 223–28 | * Defend the statement that humans are the most important part of God’s creation BWS * Explain what a body system is * Identify the parts of the skeletal system * Identify the parts of the muscular system * Demonstrate how the skeletal system and the muscular system work together according to God’s design BWS |
| 85 | 294–97 | 230–33 | 225, 229–31 | * Identify the parts of the circulatory and respiratory systems * Relate the size of the heart to the size of a person’s fist * Explain how the lungs work * Explain how the circulatory system and the respiratory system work together according to God’s design BWS |
| 86 | 298–301 | 234–37 | 225, 233–34 | * Identify the parts of the nervous system * Explain how the skeletal system protects parts of the nervous system according to God’s design BWS * Identify the parts of the digestive system * Sequence the path that food travels through the digestive system |
| 87 | 302–4 | 238–40 | 235–43 | * Identify foods needed to keep the body healthy * Classify healthy foods by food groups * Plan one day of healthy eating BWS * Explain why healthy eating and exercise are important BWS * Select ways for the body to get exercise every day BWS * Compose a prayer of praise to God for His design of the human body systems BWS |
| 88 | 305–7 | 241 | 245–51 | Exploration: Mapping My Body   * Create a life-size model of the human body * Create a life-size model of the heart * Organize body parts in their correct locations on the model of the human body * Formulate a statement to explain how the body model illustrates the teaching of Psalm 139:14 BWS |
| 89 | 308 | 224–41 | 223–51 | Review   * Recall terms and concepts from Chapter 12 |
| 90 | 309 |  |  | Assessment   * Apply terms and concepts from Chapter 12 |