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, andcommunicating 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
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Chapter 2: What Matter Is

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 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
 |