

Science 2 5ed

Lesson Plan Overview

Unit 1: Let's Explore Matter and Motion

Chapter 1: What Science Is

Lesson	Teacher Edition	Student Edition	Activities	Objectives
1	1–9	1–9	1–4	<ul style="list-style-type: none"> 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 <i>BWS</i> Explain, using biblical truth, the purposes for what scientists do (Genesis 1:28; Mark 12:30–31) <i>BWS</i> Explain what a worldview is and that all scientists have a worldview <i>BWS</i>
2	10–14	10–14	5–8	<ul style="list-style-type: none"> Demonstrate observing, classifying, measuring, inferring, predicting, and communicating as science inquiry skills Explain from Genesis 1:28 why accurate measurement is important <i>BWS</i> Demonstrate proper use of a hand lens, ruler, meter stick, beaker, balance, and thermometer as science tools
3	15–18	15–18	9–15	<p>Investigation: Keeping Cool</p> <ul style="list-style-type: none"> Demonstrate safety skills for Explorations and Investigations Identify the purpose of investigations Apply the steps of the scientific method to an investigation <i>BWS</i> Judge whether or not the design of an investigation presents a controlled investigation
4	19–23	19–21	16–18	<ul style="list-style-type: none"> Recall what an engineer does Relate the work of engineering to the command of Genesis 1:28 <i>BWS</i> Identify the steps of the engineering design process <p>STEM: Bugged!</p> <ul style="list-style-type: none"> 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

Lesson	Teacher Edition	Student Edition	Activities	Objectives
5	24–27	22–25	19–22	<ul style="list-style-type: none"> Define <i>matter</i> 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	<ul style="list-style-type: none"> 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	<p>Exploration: Classifying by Property</p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<p>Investigation: How Slow Is the Flow?</p> <ul style="list-style-type: none"> 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	<p>Review</p> <ul style="list-style-type: none"> Recall terms and concepts from Chapter 2
11	43			<p>Assessment</p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> • Explain the origin of matter by using Genesis 1 <i>BWS</i> • 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	<p>Investigation: Changing a Solid</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 <i>evaporation</i>, <i>condensation</i>, and <i>precipitation</i> • Develop a biblical response to a rainy day by using Psalm 147:7–8 <i>BWS</i>
15	57–61	47	51–55	<p>Investigation: Reversible or Irreversible Changes?</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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

Lesson	Teacher Edition	Student Edition	Activities	Objectives
18	69–71	55	42, 59–60	<p>STEM: Built to Last</p> <ul style="list-style-type: none"> • 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 <i>BWS</i>
19	72	36–55	41–60	<p>Review</p> <ul style="list-style-type: none"> • Recall terms and concepts from Chapter 3
20	73			<p>Assessment</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<p>Investigation: Speed and Force</p> <ul style="list-style-type: none"> • 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	<p>STEM: Send Off!</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Identify what gravity is • Identify what weight is • Identify the tool used to measure weight <p>Exploration: All Fall Down</p> <ul style="list-style-type: none"> • Determine effects of gravity on various objects when dropped in an Exploration • Apply science inquiry skills to an Exploration

Lesson	Teacher Edition	Student Edition	Activities	Objectives
27	100–102	74	81–82	<p>Investigation: Magnetic Attraction</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 <i>BWS</i> • Write an explanation about what force causes a scooter to roll down a hill
29	106	56–77	61–85	<p>Review</p> <ul style="list-style-type: none"> • Recall terms and concepts from Chapter 4
30	107			<p>Assessment</p> <ul style="list-style-type: none"> • Apply terms and concepts from Chapter 4

Unit 2: Let's Explore Earth and Space

Chapter 5: How the Earth Moves

Lesson	Teacher Edition	Student Edition	Activities	Objectives
31	108–14	78–84	87–92	<ul style="list-style-type: none"> Identify the location of the sun in the solar system Explain by using Genesis 1 that the solar system was created by God <i>BWS</i> Evaluate different worldviews of the origins of the solar system <i>BWS</i> Formulate a biblical worldview of origins <i>BWS</i> 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	<ul style="list-style-type: none"> 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	<p>Exploration: Day and Night Around the World</p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 <i>BWS</i>
35	126	80–93	87–99	<p>Review</p> <ul style="list-style-type: none"> Recall terms and concepts from Chapter 5
36	127			<p>Assessment</p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> • 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	<p>Exploration: Shape of the Land</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<p>Exploration: The Earth’s Layers</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<p>STEM: Erosion Control</p> <ul style="list-style-type: none"> • 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

Lesson	Teacher Edition	Student Edition	Activities	Objectives
43	152–55	114–17	117–19	<ul style="list-style-type: none"> • 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 <i>BWS</i>
44	156	94–117	101–19	<p>Review</p> <ul style="list-style-type: none"> • Recall terms and concepts from Chapter 6
45	157			<p>Assessment</p> <ul style="list-style-type: none"> • Apply terms and concepts from Chapter 6

Chapter 7: What Natural Resources Are

Lesson	Teacher Edition	Student Edition	Activities	Objectives
46–47	158–67	118–27	121–29	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Identify what a product is • Identify common products that come from natural resources
49	171–74	131–34	122, 133–35	<ul style="list-style-type: none"> • Describe the three Rs of conservation • Formulate a statement explaining how conserving natural resources is obeying God BWS
50	175–77	135	137–38	<p>Exploration: Recycled Paper</p> <ul style="list-style-type: none"> • 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	<p>Review</p> <ul style="list-style-type: none"> • Recall terms and concepts from Chapter 7
52	179			<p>Assessment</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> 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 <i>BWS</i> Identify each part of a plant and its function Create a model of a flower
54	190–92	146–48	140, 147–48	<ul style="list-style-type: none"> Explain that God created plants to reproduce “after their own kind” <i>BWS</i> 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	<ul style="list-style-type: none"> Identify ways that seeds travel Describe how plants depend on animals to scatter seeds
56	195–99	151	151–54	<p>Investigation: Traveling Seeds</p> <ul style="list-style-type: none"> 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	<p>Review</p> <ul style="list-style-type: none"> Recall terms and concepts from Chapter 8
58	201			<p>Assessment</p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<p>STEM: Trapped!</p> <ul style="list-style-type: none"> • 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	<p>Review</p> <ul style="list-style-type: none"> • Recall terms and concepts from Chapter 9

Lesson	Teacher Edition	Student Edition	Activities	Objectives
67	233			Assessment <ul style="list-style-type: none">• 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<p>Exploration: Home Sweet Home</p> <ul style="list-style-type: none"> • 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	<p>Review</p> <ul style="list-style-type: none"> • Recall terms and concepts from Chapter 10
74	261			<p>Assessment</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> 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	<p>Exploration: Following Clues</p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Explain what dinosaur fossils can and cannot tell us Identify characteristics of the <i>Stegosaurus</i> and the <i>Tyrannosaurus rex</i> 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	<p>Exploration: Bag of Bones</p> <ul style="list-style-type: none"> 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	<p>Review</p> <ul style="list-style-type: none"> Recall terms and concepts from Chapter 11
83	287			<p>Assessment</p> <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Defend the statement that humans are the most important part of God’s creation <i>BWS</i> 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 <i>BWS</i>
85	294–97	230–33	225, 229–31	<ul style="list-style-type: none"> 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 <i>BWS</i>
86	298–301	234–37	225, 233–34	<ul style="list-style-type: none"> Identify the parts of the nervous system Explain how the skeletal system protects parts of the nervous system according to God’s design <i>BWS</i> Identify the parts of the digestive system Sequence the path that food travels through the digestive system
87	302–4	238–40	235–43	<ul style="list-style-type: none"> Identify foods needed to keep the body healthy Classify healthy foods by food groups Plan one day of healthy eating <i>BWS</i> Explain why healthy eating and exercise are important <i>BWS</i> Select ways for the body to get exercise every day <i>BWS</i> Compose a prayer of praise to God for His design of the human body systems <i>BWS</i>
88	305–7	241	245–51	<p>Exploration: Mapping My Body</p> <ul style="list-style-type: none"> 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 <i>BWS</i>
89	308	224–41	223–51	<p>Review</p> <ul style="list-style-type: none"> Recall terms and concepts from Chapter 12
90	309			<p>Assessment</p> <ul style="list-style-type: none"> Apply terms and concepts from Chapter 12