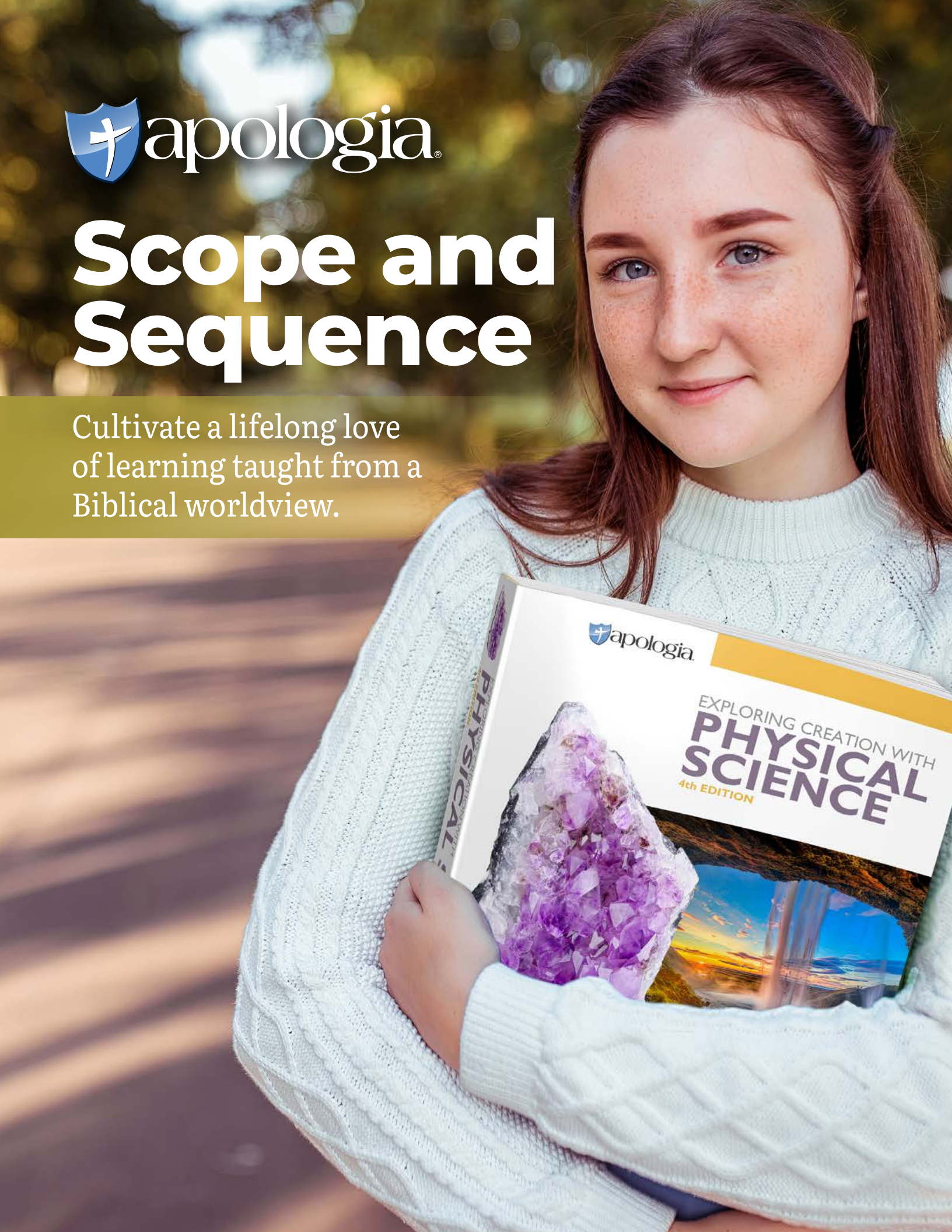
apologia®

Scope and Sequence

Cultivate a lifelong love of learning taught from a Biblical worldview.



Scope and Sequence

TABLE OF CONTENTS

Scope & Sequence

Preschool Science: Exploring Creation Together

GRADE LEVEL: Pre-K

TEXT SUMMARY: ***Preschool Science*** offers both a written and a hands-on approach to teaching. The colorful and simple details of the text allow the preschooler to grasp complex concepts in a very relatable way. In addition, the curriculum is designed for the parent to teach at a pace that is best for the family. Activities are included to further explore ideas and develop a deeper understanding of science concepts.

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 1 *God in Creation*	Lesson 1 explores the meaning of being alive by looking for growth and change.	· God's Love · God's Plan · God's Creation of Life · What Is Alive · Growing and Changing · What Are Nonliving Things · Ways to Sort Information · Exploring Creation	· What's Alive in Your House? · Living Things Grow and Change · Take a Walk Together—Science Starts with Observation · Learning to Sort · **Project 1: My Window to the World**
LESSON 2 *Our Home Planet Earth*	Lesson 2 introduces the topics of land, air, and water. Landforms and the unique properties of water are included in the discussion.	· Defining "Home" · Air: Wind, Atmosphere, Weather · Land: Continents, Dirt, Land Shapes, Dry and Wet Land · Water: Oceans, Lakes, Rivers, Waterfalls, Trenches, Precipitation · Different States of Water: Solid, Liquid, Gas · Water Cycle	· What's the Weather? · Digging in the Dirt · What Is Flat? · The Water Cycle · **Project 2: Add Air, Land, and Water**
LESSON 3 *Our Solar System*	Lesson 3 introduces the concepts of outer space including the sun, moon, stars, and planets.	· The Start of the Day · The Solar System · Orbits · The Planets · The Sun · Light · Daytime and Nighttime · Rotation · Moon · Seasons	· Solar System "Go to Space" Card Game · Make a Rocket · Attention to Patterns · Memory Matching the Solar System · Visualize a Hot Gaseous Sun · Creating Day and Night · Understanding the Moon Parts A and B · Find the Differences · **Project 3: Here Comes the Sun**

Scope & Sequence

Preschool Science: Exploring Creation Together

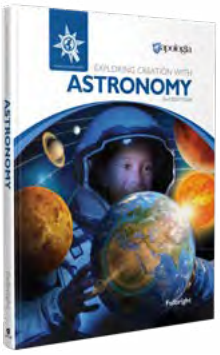
Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 4 *God's Garden*	Lesson 4 focuses on plants including the parts of a plant and varieties of plants. The preschooler will learn the import role that plants play in all of God's Creation.	· What is a Plant? · The Purpose and Functions of Seeds · Seed Varieties · How Seeds Travel · Harvest · 3 Basic Parts of a Plant and Their Purposes · Plants and the Air · Flowering Plants and Pollinators · Plants and Food · Plants in Different Climates	· Nature Detective on a Color Safari · Parts of a Seed · Examine Some Seeds · Walk in a Seed Sock · Growing Plants from Seeds · Harvest Time · Apple Tasting · Garden of Eating · What Comes Next · Making Things Grow · Studying Roots · **Project 4A: Add More Roots and Minerals** · Studying Stems · Looking at Leaves · Parts of a Flower · Let's Compare Living and Nonliving Plants · Creating an Alphabet Flower Garden · Roomful of Colorful Pollinators · **Project 4B: Add Pollinators** · A Plate Full of Plants · **Project 4C: Add Plants**
LESSON 5 *All God's Creatures*	Lesson 5 dives into the world of animals and discusses some of the basic characteristics of a variety of animal groups.	· How are Animals Grouped · Domesticated vs. Wild Animals · Land Animals: Mammals, Reptiles, Amphibians, Insects, Spiders, Worms · Water Animals: Fish, Mammals, Crustaceans, Mollusks, Jellyfish · Sky Animals: Birds · Differences Among the Animals	· Which One is the Mammal · Cold-Blooded Reptile · Match the Baby Reptiles to Their Mothers · Amphibian Life Cycle Review · Count the Legs · Make a Spider Web · Fish Scales · Flying High · **Project 5: Add Animals**

Scope & Sequence

Preschool Science: Exploring Creation Together

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 6 *Created in God's Image*	Lesson 6 reinforces that we are created in God's image. The lesson places emphasis on the five senses, the parts of the human body, and the systems of the human body.	· Discovering Your Senses: Sight, Hearing, Smell, Taste, Touch · Common Sense · Parts of the Body (General) · Systems of the Body · Caring for Your Body · Being Able to Love	· Look at a Family Photo Album · Sensational Senses · Parts of Your Body · Proper Handwashing · Parts of Your Body Continued · **Project 6: Add People**
LESSON 7 *God's Toolbox*	God's Toolbox offers a way for preschoolers to begin to recognize the abstract concepts of science.	· Sharing Science · Numbers and Measurement · Using Descriptions · Comparing · Motion · Energy · Gravity · Buoyancy · Flight · Waves · Light	· Talking Like a Scientist · Measuring · Recording Descriptions · Looking for Energy · Connect the Fuel · Buoyancy (Parts I and II) · Making Waves (Parts A and B) · Talking Waves · Lightning and Thunder Waves · Wave Size · Make a Rainbow · Learning About Rainbows · **Project 7: Motion**

ADDITIONAL INFORMATION: Additional websites for further exploration of the topics in the text are provided at the Book Extras link for this title. You can learn more about this title at apologia.com.



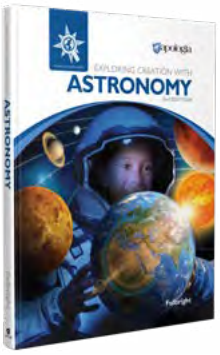
Scope & Sequence

Exploring Creation with Astronomy, 2nd Edition

GRADE LEVEL: K–6

TEXT SUMMARY: An introduction to astronomy that covers the major structures of our solar system: details about each planet, the Earth's Moon, the asteroid belt, and the Kuiper Belt and dwarf planets. Also includes the stars and galaxies outside our solar system, space travel, astronauts, and more!

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 1 *What is Astronomy?*	Lesson 1 provides an introduction to astronomy and how it is a part of our everyday lives.	· Why Did God Create the Universe? · Clocks, Calendars, & Seasons · Navigation · Stars and Planets · Solar Systems · Astronomers, Astronauts, and Satellites	· Create Your Own Mnemonic · Build Model Solar System
LESSON 2 *The Sun*	Lesson 2 provides an introduction to the closest star (the sun) and how it is observed from Earth.	· Star of Stars · 92,935,700 · Don't Stare! · Revolve and Rotate · Take a Walk around the Sun · Solar Flares and Sun Spots · The Color of God's Love · Solar Eclipse · Spacecraft	· Understanding Distance and Size · Focus Heat · Speech on Sun · Revolving/Rotating · Model a Solar Eclipse · Make a Pinhole Viewing Box
LESSON 3 *Mercury*	Lesson 3 provides an introduction to the planet Mercury.	· The Planet Closest to the Sun · Rotation and Revolution · Features of the Planet Mercury · Spacecraft to Mercury · A Trip Across the Sun · Who Named Mercury? · How to Find Mercury in the Sky	· Model Craters · Model of Mercury
LESSON 4 *Venus*	Lesson 4 provides an introduction to the planet Venus.	· Too Much Atmosphere · Rotation and Revolution · Not a Twin · Spacecraft to Venus · The Phases of Venus · Finding Venus in the Sky · Understanding Radar	· Make Some "Lava" · How Radar is Used

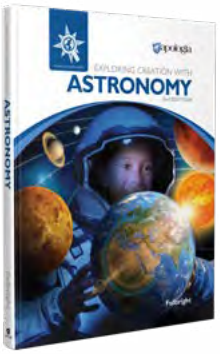


Scope & Sequence

Exploring Creation with Astronomy, 2nd Edition

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 5 *Earth*	Lesson 5 provides an introduction to the planet Earth.	· Perfect Design by a Perfect Designer · Perfect Distance · Perfect Mass · Perfect Rotation · Perfect Atmosphere · Perfect Tilt · Perfect Land · Perfect Magnetosphere · Spacecraft	· Understanding Seasons · Make a Compass · Create an Advertisement
LESSON 6 *The Moon*	Lesson 6 provides an introduction to the only natural satellite of Earth, the Moon.	· The Moon's Phases · Lunar Eclipse · Lunar Atmosphere · Walking on the Moon · The Moon's Gravity · Spacecraft	· Light Reflection · Chart the Moon Phases · Make a Telescope
LESSON 7 *Mars*	Lesson 7 provides an introduction to the planet Mars.	· Martian Gravity · Martian Atmosphere · Moons · Martian Orbit · Martian Rotation · Liquid Water on Mars? · Finding Mars in the Sky · Spacecraft	· Build Olympus Mons · Design a Mars Community
LESSON 8 *Space Rocks*	Lesson 8 provides an introduction to rocks that orbit the sun and how we observe them from Earth.	· Comets · The Coma · A Comet's Orbit · Famous Comets · Meteorites · Asteroids · Asteroid Belt · Spacecraft	· Watch a Meteor Shower · Solar System Distances

Continued on next page.

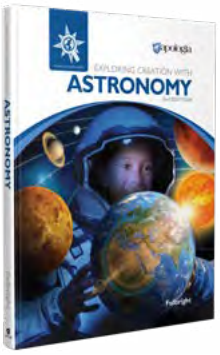


Scope & Sequence

Exploring Creation with Astronomy, 2nd Edition

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 9 *Jupiter*	Lesson 9 provides an introduction to the planet Jupiter.	· Protective Mother · Going to Jupiter · Little Sun · Stormy Skies · Jupiter's Rings · Spacecraft · Rotation and Revolution · Many Moons · Spacecraft Galileo · Finding Jupiter in the Night Sky	· Make a Hurricane Tube · Create a Newspaper
LESSON 10 *Saturn*	Lesson 10 provides an introduction to the planet Saturn.	· Twins · Ring System · Fast Rotation · Saturn's Moons · Cassini Mission	· Use a Venn Diagram · Launch a Rocket
LESSON 11 *Uranus*	Lesson 11 provides an introduction to the planet Uranus.	· Discovery · Moons · Orbit and Rotation · Atmosphere	· Write a Play about the Discovery of Uranus · Make Clouds
LESSON 12 *Neptune*	Lesson 12 provides an introduction to the planet Neptune.	· Discovery · Orbit and Rotation · Atmosphere · Moons	· Make Ice Cream · Create a Cartoon
LESSON 13 *Kuiper Belt and the Dwarf Planets*	Lesson 13 provides an introduction to the Kuiper Belt and dwarf planets.	· What is a planet? · Kuiper Belt · Dwarf Planets · Ceres · Pluto · Strange Orbit · Moons	· Model Dwarf Planets · The Earth vs. Dwarf Planets

Continued on next page.

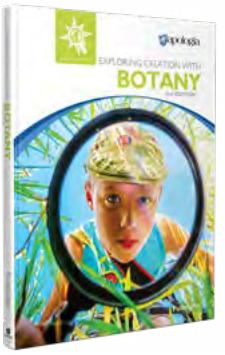


Scope & Sequence

Exploring Creation with Astronomy, 2nd Edition

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 14 Stars, Galaxies, and Space Travel	Lesson 14 provides an introduction to stars, galaxies, and the history of space travel.	· Stars · Black Holes · Supernovas · Variable Stars · Categorizing Stars · Light Years · Galaxies · Constellations · Let's Go to Space · Sputnik Sensation · The 1960s · The International Space Station · Becoming a NASA Astronaut	· Understand the Night Sky · Understand the Expanding Universe · Make a Mnemonic · Make and Astrometer · Locating Constellations · Visiting the Planets · Build a Model Space Station

ADDITIONAL INFORMATION: This textbook also has a corresponding notebooking journal. An audio book version is available. Additional websites for further exploration of the topics in the text are provided at the Book Extras link for this title. You can learn more about this title at apologia.com.



Scope & Sequence

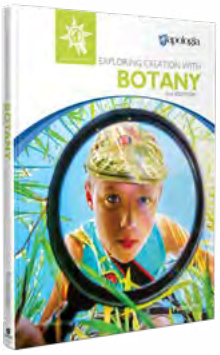
Exploring Creation with Botany, 2nd Edition

GRADE LEVEL: K–6

TEXT SUMMARY: The content covered in this text includes the basics of plant biology. The student will learn about the structures, properties and processes of plants along with the classification of plants. In addition, the text communicates the importance and purpose of plants in creation.

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 1 *Why Botany Matters*	Students learn about the importance of botany along with taxonomy basics and an initial overview of different types of plants.	· Botany Overview · 3rd Day of Creation · Nature Journaling · Understanding Botany Vocabulary · The Science of Botany · Taxonomy · Vascular and Nonvascular Plants · Seed and Seedless Plants	· Think Like a Scientist · Make a Nature Journal · Journal about Nature · Observe Leaf Veins · Observe Absorption · Walking Water Without a Vascular System · Go on a Nature Hunt · Grouping Plants · Make a Light Hut · Grow Edible Plants
LESSON 2 *Seeds*	This lesson focuses on the function and anatomy of a seed; and, it compares different types of seeds.	· Dormant Seeds · Testa · Seed Anatomy · Monocotyledons · Dicotyledons · Germination · Consumers and Producers	· Design a Seed · Examine Your Seeds · Identify Dicots and Monocots · Label the Parts of a Seed · Compare Germination Conditions
LESSON 3 *Angiosperms*	Flowers are examined including their many functions and anatomy. Carnivorous plants are also discussed.	· Flowering Plants Flower · Anatomy · Flower Families · Symbiosis · Bilateral Symmetry · Carnivorous Plant	· Dissect a Flower · Label a Flower · Walk in Nature · Plant a Sunflower · Label an Orchid · Design a Flower · Preserve a Fresh Flower

Continued on next page.

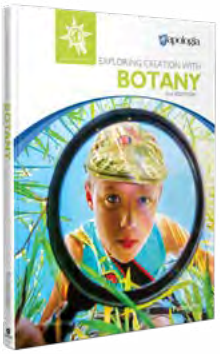


Scope & Sequence

Exploring Creation with Botany, 2nd Edition

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 4 *Pollination*	This lesson looks at the process of pollination including the types of pollination, other aspects of nature that are involved and the necessity of pollination.	· Types of Pollination · Bees · Flower Attraction: Shape, Smell, Color · Nectar · Insect Pollination · Bird Pollination · Mammal Pollination · Wind Pollination · Imperfect Flowers · Self-Pollination · Pollinated Flowers	· Explore Flower Pollination · Build a Hummingbird Feeder · Illustrate Animal Pollinators · Illustrate What You Learned · Create a Comic Strip · Make a Butterfly Garden
LESSON 5 *Fruits*	This lesson examines fruit, the part it plays in the life cycle of a plant, and its relationship with nature.	· A Flower's Fruit · Fruits and Vegetables · Types of Fruit · Seed Scattering: Human, Wind, Animal, Water, Mechanical	· Observe Insects on a Banana · Categorize Fleshy Fruits · Split a Squash · Find and Illustrate Fruits · Examine Burrs · Describe Seed Dispersal · Preserve the Color of Fruit
LESSON 6 *Leaves*	This lesson educates the student about leaves starting from the molecular functions inside the leaf all the way through the shape and arrangement of the leaf itself.	· Stomata · Guard Cells · Carbon Dioxide and Oxygen · Photosynthesis · Energy from the Sun · Chlorophyll · Transpiration · Leaves in Autumn · Anatomy of a Leaf · Simple and Compound Leaves · Leaf Arrangement, Venation, Shape, and Margins	· Burn a Candle in a Jar · Block the Sun · Sprout Potatoes · Test Transpiration · Preserve Leaf Color · Illustrate the Anatomy of a Leaf · Make a Leaf Storybook · Collect Leaves

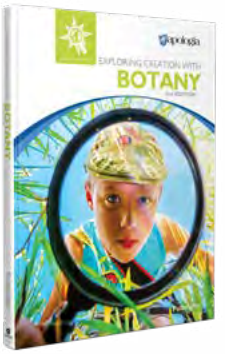
Continued on next page.



Scope & Sequence

Exploring Creation with Botany, 2nd Edition

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 7 *Roots*	Lesson 7 explores the root systems of plants. It discusses the importance of roots, not only for the plant, itself, but for all of nature.	· Soil · Root Hairs · Root Growth · Preventing Erosion · Floating Roots · Geotropism · Root Systems · Geophytes · Rooting	· Make a Quick Compost · Discover Geotropism · Illustrate Roots · Classify Roots · Clone Vegetables Through Rooting
LESSON 8 *Stems*	Plant structure and the functions of stems are discussed in this lesson.	· Plant Structure · Woody and Herbaceous Stems · Succulent Plants · Auxins · Phototropism	· Explore Xylem · Draw Woody and Herbaceous Stemmed Plants · Imitate Phototropism · Color a Flower · See Auxins in Action
LESSON 9 *Gardening*	Students will be taught the basics of gardening including the importance of gardening and planning a garden all the way to building an actual garden and seeing it through the seasons.	· Edible Foods · History of Gardening · Healthier Foods · Garden Tools · Designing Your Garden · Soil Mixture · Growing Seasons · Planting a Garden · Watering a Garden · Maintaining a Garden · Pests, Disease, and Animals in Your Garden · Off Season Ideas	· Create a Garden Journal · Plan Your Garden · Build Your Raised Bed · Journal Your Plan · Map Your Garden · Make and Irrigation System · Draw Your Garden
LESSON 10 *Trees*	The importance of trees is discussed in this lesson along with tree anatomy and function.	· Importance of Trees · Tree Facts · Seed Making · Tree Growth · Twig Anatomy · Trunk Anatomy and Growth · Water Supply	· Identify Things Made from Trees · Plant Some Trees · Measure Twig Growth · Estimate the Height of a Tree · Make a Bark Rubbing · Diagram a Tree's Layers · Make a Tree Field Guide

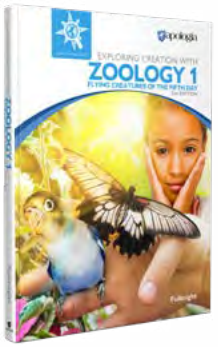


Scope & Sequence

Exploring Creation with Botany, 2nd Edition

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 11 *Gymnosperms*	Lesson 11 compares gymnosperms to other types of plants and discusses the parts of the plants that are different.	· Word Meaning · Conifers: Types, Leaves, Shapes, Cones · Conifers that Do Not Make Cones · Cycads · Ginkgo Biloba · Types of Forests · Forest Fires	· Measure General Sherman · Compare Transpiration · Identify and Illustrate Leaves · Write a Bristle Cone Pine Story · Opening and Closing Pinecones
LESSON 12 *Seedless Vascular Plants*	Lesson 12 explores plants that do not produce seeds and the part they played in cultural history.	· Sporangium · Fern Anatomy · Fern Life Cycle · Pteridomania · Types of Ferns	· Create Fern Artwork · Illustrate a Fern · Build a Small Terrarium
LESSON 13 *Nonvascular Plants*	The student will learn about different types of nonvascular plants in this lesson.	· Bryophytes · Mosses · Moss Reproduction · Liverworts · Lichens	· Hunt for Moss and Liverworts · Illustrate the Moss Lifecycle · Build a Lichen Meter · Create Moss Graffiti
LESSON 14 *Mycology*	Lesson 14 focuses on fungi and the study of mycology. It examines different aspects of yeast, molds, and mushrooms.	· Fungi · Consumers · Yeast · Molds · Mushrooms · Spore Dispersal · Types of Mushrooms	· Experiment with Sugar and Yeast · Test Mold Environments · Mycorrhizal Mission Story · Hunt Mushrooms · Grow Edible Mushrooms

ADDITIONAL INFORMATION: This textbook also has a corresponding notebooking journal. An audio book version is available. Additional websites for further exploration of the topics in the text are provided at the Book Extras link for this title. You can learn more about this title at apologia.com.



Scope & Sequence

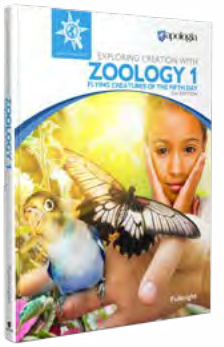
Exploring Creation with Zoology 1: Flying Creatures of the Fifth Day, 2nd Edition

GRADE LEVEL: K–6

TEXT SUMMARY: This Apologia course was written to help you understand and enjoy the beauty and wonder of creation. This year, we are going to make time to be mesmerized and captivated by a wonder that goes beyond scientific description. The content in this course covers zoology, entomology, the amazing design of birds and insects, and the integral role they play in our world.

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 1 *What is Zoology?*	In this lesson students are introduced to zoology, and taught the importance of observing nature and learning how animals use their instincts to survive.	· What is Zoology · Observing Nature · Animal Classification · Flight · Habitats · Creature Features · Extinction · Endangered Species	· Nature Journaling · Go on a Nature Scavenger Hunt · Count the Swallowtails · Name Your Butterfly · Make a Mnemonic · Experiment with Air · Experiment with Air Pressure · Make a Paper Airplane · Match Animals to Their Habitat · Spot the Camouflage · Mobile Menagerie
LESSON 2 *Entomology*	In this lesson students will learn all about insects. This lesson contains information on how to identify an insect, determine if it is beneficial or bothersome, and understand the intricate design of an insect's anatomy.	· Exciting Entomology · Identifying Insects · Beneficial or Bothersome? · Cold-Blooded Critters · Insect Anatomy · Led by the Head · Munching or Mopping Mouths? · Thorax in the Middle · The Abdomen	· Find the Insects · Observe a Cold Blooded Insect · Molt Like an Insect · See With Simple Eyes · Resurrect an Insect · Label an Insect · Make a Moth for Your Mobile Menagerie

Continued on next page.

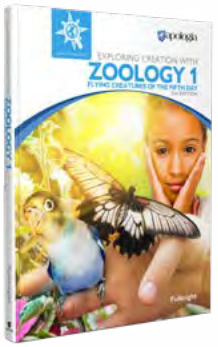


Scope & Sequence

Exploring Creation with Zoology 1: Flying Creatures of the Fifth Day, 2nd Edition

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 3 *Butterflies and Friends*	This lesson focuses on butterflies and moths including their metamorphosis, anatomy and lifespan.	· Lovely Lepidoptera · Masterful Metamorphosis · Packed-in Pupa Stage · Awesome Anatomy · Mass Migration · A Lep's Lifespan	· Make Your Yard a Home Sweet Home for Butterflies · Label a Caterpillar · Compare Fabrics · Raise Painted Lady Butterflies · Identify the Lep · Make a Butterfly Poster · Mobile Menagerie
LESSON 4 *Supremely Social*	In this lesson students will learn about ants and termites, life in their colonies, and the jobs that keep them busy.	· Ants and Termites: Colony Creatures · Happy Hymenoptera · Troublesome Termites	· Identify the Ants · Experiment with Ants and Make an Ant Farm · Add an Ant to Your Mobile Menagerie · Create a Comic Strip · Add a Termite to Your Menagerie Zoo

Continued on next page.

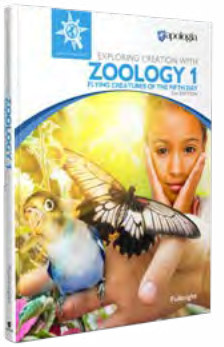


Scope & Sequence

Exploring Creation with Zoology 1: Flying Creatures of the Fifth Day, 2nd Edition

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 5 *Bee Happy*	In this lesson students will learn about the three main types of bees: solitary, social and parasitic. Life in the hive and the job of each type of bee is also discussed.	· Busy Bees · Hardworking Honeybees · Bees Around · Wary of Wasps	· Make An Interpretive Dance · Make a Bee for Your Mobile Menagerie · Make Honey Taffy · Make a Buzzing Board Game
LESSON 6 *Battling Beetles, Filthy Flies, and Bona Fide Bugs*	This lesson is crawling with bugs. Students will learn all about the many species of beetles, why fireflies light up, how dirty flies really are, what a mosquito's life cycle looks like, and many more fascinating bug facts.	· Bountiful Beetles · Fantastical Fireflies · Daring Diptera · Filthy Flies · Menacing Mosquitoes · Basic Bugs	· Spot the Beetles · Firefly Watch · Firefly Art · Raise Ladybugs from Larvae to Adult · Identify Robber Flies · Discover How a Water Strider Walks on Water · Attract and Observe Fruit Flies · Mobile Menagerie Ladybug
LESSON 7 *Interesting Insects*	In this lesson students will learn about praying mantises and how they catch their prey, dragonflies, and chirping critters such as crickets, katydids and grasshoppers.	· Praying Mantises · Daring Dragonflies · Chirping Critters · Orthoptera Life Cycle · Dangers and defense	· Catch Like a Mantid · Raise Mantids · Name the Creature · Dragonfly for Mobile Menagerie · Make Wearable Dragonfly Wings · Sound it Out · Jumping Contest · Identify Which is Which · Net and Hunt an Insect · Find Out Which Environment a Cricket Prefers · Research Insects

Continued on next page.

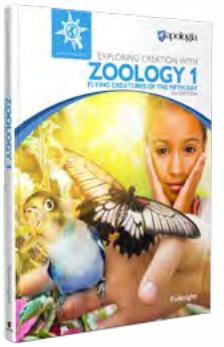


Scope & Sequence

Exploring Creation with Zoology 1: Flying Creatures of the Fifth Day, 2nd Edition

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 8 *Tyrannical Pterosaurs*	In this lesson students will dig deep into the world of Paleontology. They will learn how paleontologists gather information about extinct animals by studying fossils, historical documentation and studying living animals that are alive and similar to the extinct animals.	· Probing Paleontology · Terrific Pterosaurs · Types of Pterosaurs	· Draw an Animal From a Skeleton · Think Like a Paleontologist · Create a Fossil Factory · Make Amber Slime · Dig for Faux Fossils · Identify the Pterodactyl · Measure Pterodactyloids · Test the Strength of a Pterosaur's Wings · Make a Paper-mache Pterosaur
LESSON 9 *Birds in Abundance*	This lesson introduces your student to the wonderful world of Aves. They will learn all about the many characteristics of birds and how to identify them. Students will also learn how to observe and identify birds in their own backyard.	· What Makes a Bird a Bird? · Waiting and Watching · Beneficial Birds · Identifying Birds · What's In a Name · Bird Banter · Bird Banding	· Sign Up to be a Bird-Watcher · How Quickly Can You Identify a Bird? · Identify the Hummingbird · Notice the Small Differences · Map a Bird · Make a Seed Feeder & Suet Feeder · Listen to Bird Sounds · Add a Flamingo to Your Mobile Menagerie · Find Out Which Food the Birds in Your Yard Prefer
LESSON 10 *Fascinating Feathers*	This lesson contains many fascinating facts about feathers. Students will learn about the different types of feathers and how those feathers help birds fly, find a mate, and survive in different climates.	· Birds of a Feather · Feather Facts · Feather Features · Contour Feathers · Wing and Tail Feathers · Down Feathers · Semiplume Feathers · Filoplume Feathers · Bristle Feathers · Pretty and Preening · Captivating Color · Birds in a Bath · Soaking in the Sun	· Unbalanced Wings · Study of a Feather Up Close · Identify Feathers · Explore How Birds Land · Make a Quill Pen and Ink · Waterproof a Feather · Add a Penguin to Your Menagerie · Make a Bird Guide · Begin a Bird Life List · Make a Bird Bath

Continued on next page.

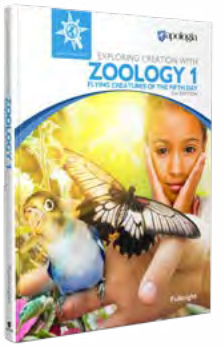


Scope & Sequence

Exploring Creation with Zoology 1: Flying Creatures of the Fifth Day, 2nd Edition

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 11 *Fabricated for Flying*	In this lesson students will learn all about how God designed birds for flight. From their hollow bones, magnificent wingspans, and ability to migrate, students will learn that everything about birds points to a magnificent Creator.	· Bone Basics · Mighty Muscles · Thundering Takeoffs · Steering · Flapping and Gliding · Soaring · Seabirds · Masterful Migration · Spotlight: Albatross	· Weigh Yourself and Measure Your Height · Measure Bird Wingspans · Bone Comparison · See Landmarks From the Sky · Find the Constellations · Hunt for Treasure · Add an Albatross to your Menagerie
LESSON 12 *Nature's Nifty Nests*	This lesson gives students a blueprint on how birds construct their nests and the many different aspects of nesting.	· Nest Nurseries · Home Builders · Spotlight: Owls	· Tune in to Bird Cams · Building a Nesting Material Station · Make an Advertisement · Make a Cup Nest · Make a Snowy Owl for your Mobile Menagerie · Dissect an Owl Pellet · Build a Birdhouse
LESSON 13 *Matching and Hatching*	In this lesson students will learn all about a bird's family life and the developmental stages of an egg.	· Mating Rituals · Spotlight: Hummingbirds · Exceptional Eggs · Baby Birds	· Compare Beats · Make a Hummingbird for Your Mobile Menagerie · Create a Hummingbird Habitat · Make Your Outdoor Space a Wildlife Habitat · Study an Egg Membrane · Study an Air Cell · Eggs-cellent Comparison · Test an Egg's Freshness · Study Juvenile Birds · Add a Baby Chick to Your Menagerie · Candling Eggs

Continued on next page.



Scope & Sequence

Exploring Creation with Zoology 1: Flying Creatures of the Fifth Day, 2nd Edition

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 14 *Beloved Bats*	This lesson provides students with an overview of how bats are classified, their anatomy, habits, habitats, and family life.	· A Most Misunderstood Mammal · Amazing Anatomy · Easy Echolocation · Mini Microbats · Megabats · Habits, Habitats, and Homes	· How Many Insects Do Bats Eat? · Make a Bat Poster · Hear Like a Bat · Compare Bats with a Venn Diagram · Write a Play · Count a Group of Bats · Add a Microbat to your Backyard Menagerie · Make a Flying Fox Stuffed Animal · Find Your Pup

ADDITIONAL INFORMATION: This textbook also has a corresponding notebooking journal. An audio book version is available. Additional websites for further exploration of the topics in the text are provided at the Book Extras link for this title. You can learn more about this title at apologia.com.

Scope & Sequence

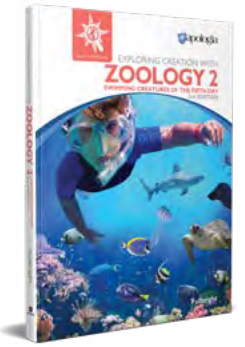
Exploring Creation with Zoology 2: Swimming Creatures of the Fifth Day, 2nd Edition

GRADE LEVEL: K–6

TEXT SUMMARY: God filled the Earth's waters with animals great and small. This text covers swimming creatures from the microscopic to the massive.

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 1 *Amazing Aquatic Animals*	Lesson 1 provides an introduction to the ocean and other bodies of water as well as the amazing animals that live in the water.	· Watery World · Ocean Anatomy · See the Sea · Rushing Rivers · Salt Solutions · Current Events · Surfing the Surface · Deep Ocean Currents · Tides	· Draw a Map · Water Pressure Experiment · Finding the Seas · Finding the Rivers · Gyre Simulation · Nature Journaling · Density Experiment
LESSON 2 *Habits & Habitats*	Lesson 2 provides an introduction to how swimming creatures move and live and where each kind of sea creature can be found.	· Mobility to Move · Filter Feeders · Aquatic Habitats	· Spot the Mover · Speedy Plankton Race · Make a Mnemonic · Classify the Family Shoes · Notebooking Activity · Ocean Box
LESSON 3 *Cetaceans of the Sea Part 1*	In this lesson students are introduced to several species of whales, the anatomy of whales and the behavior of whales.	· A Whale of a Tale · Massive Mammal · Awesome Anatomy and Fantastic Physiology · A Spiracle Miracle · Just Right Respiratory Systems · A Fluke of a Tail · Dynamic Dorsals · Peaky Pectorals · Let's Hear It for the Ear · Mostly Skin and Blubber · Righty or Lefty · Ready Rostrum · Magnificent Mouths · Flubbery Blubber · Whale Habits · Two Kinds of Whales	· Jonah · What Makes a Mammal a Mammal? · Whale Diagram · How Long Can You Hold Your Breath? · Google Earth the Distance · See the Sound Waves · Experiment with Sound Vibrations · Blubber Simulation · Ocean Box · How Do Whales Eat?

Continued on next page.

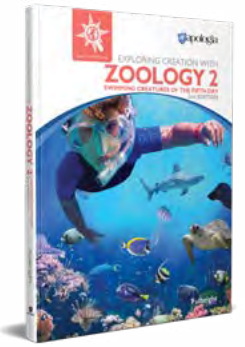


Scope & Sequence

Exploring Creation with Zoology 2: Swimming Creatures of the Fifth Day, 2nd Edition

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 4 *Cetaceans of the Sea Part 2*	In this lesson students will dive deep and discover the history of man's encounters with whales as well as why so many whales are endangered animals.	· Cetaceans Matter · Whale Woes · Deep Dive Whales · Baleen Whales	· Letter to a Whaler · Make a Toothed Whale Grid · Experiment With a Fusiform Shape · What's a Fin For? · Baleen Whale Grid · Chart the Whales Migration Path · Create Another Whale for Your Ocean Box · Create a Whale Guess Who Game
LESSON 5 *Sweet Sirenians & Playful Pinnipeds*	Lesson 5 provides an in-depth look at manatees, seals, sea lions and walruses.	· Mermaids of the Sea · Manatee Menaces · Playful Pinnipeds · Walrus Family	· Identify the Sirenian · Make a Manatee Warning Sign · Create a Manatee for Your Ocean Box · Watch a Haul Out · Thumbs Up for Seals! · Triple Venn Diagram the Difference · Identify the Pinniped · Create a Sea Lion and a True Seal for Your Ocean Box · Create a Walrus for Your Ocean Box

Continued on next page.



Scope & Sequence

Exploring Creation with Zoology 2: Swimming Creatures of the Fifth Day, 2nd Edition

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 6 *Fishing for Bones*	This lesson provides an introduction to bony fish: their differences, anatomy, survival, and life stages.	· Three of a Kind · Anatomy Academy · Fabulous Fins · Shaping Up · Bouncing Buoyancy · Daring Defenses · Spawning · No Fish on the Ark	· Cold and Hot Air Experiment · Diagram a Fish · Fish Shape Search · See Like a Fish · Design a Fish · Make a Puffer Fish · Notebook Story Time · Ocean Box · Gyotaku · Start an Aquarium
LESSON 7 *Super Sharks & Racing Rays*	Lesson 7 provides an introduction to cartilaginous fish and an in-depth look at sharks, rays and jawless fish.	· Surprised by Sharks · Definitely Different · Specialized Senses · Shark Pups · Ordering Sharks · Avoiding Shark Bites · Racing Rays · Jell-O and Jaws	· Diagram a Shark's Senses · Measure the Shark Size · Go Shark Fishing · Discover the Mythology Behind the Bermuda Triangle · Create a Shark for Your Ocean Box · Identify the Ray · Create a Comic Strip · Make Hagfish Slime · Ocean Box

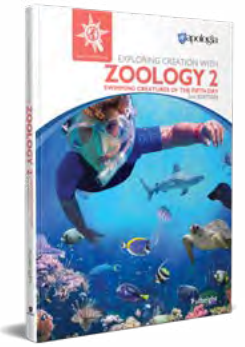
Continued on next page.

Scope & Sequence

Exploring Creation with Zoology 2: Swimming Creatures of the Fifth Day, 2nd Edition

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 8 *Stupendous Turtles of the Sea*	In this lesson students will put on their scuba gear and take a tour of the watery world of sea turtles, sea snakes and aquatic amphibians.	· Testy Testudines · Magnificent Mamas · Where Oh Where? · Seven Turtles of the Sea · Saving Sea Turtles · Sea Snakes · Aquatic Amphibians	· Scute Examination · Sketch the Tracks · Crawl Like a Turtle · See Sea Turtles Nesting and Hatching · Turtle Illustrations · Ocean Box · Create Sea Snakes for Your Ocean Box · Understanding Absorption
LESSON 9 *Ancient Aquatic Animals*	This lesson provides an introduction to the fossils of extinct reptiles that roamed our oceans and rivers long ago.	· Bible Behemoths · Eureka! · Fossil Formation · Monitor Mosasaurs · Powerful Plesiosaurs · The Pliosaurs	· Make a Guess · Make an Ostrich Egg Map: Here Are Dragons · Noah's Flood Picture Book · Fossil Dig · Create a Diorama of the Deluge · Think Like a Scientist · See What Happens · Finger Joint Find · Explore Plesiosaur Problems · Venn Diagram · Sediment Sleuth

Continued on next page.

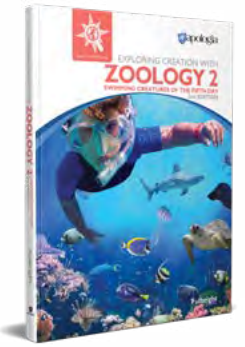


Scope & Sequence

Exploring Creation with Zoology 2: Swimming Creatures of the Fifth Day, 2nd Edition

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 10 *Armored Arthropods*	In this lesson students will be introduced to the different types of crustaceans.	· Crusty Crustaceans · Exoskeleton · Amazing Anatomy · Long-Lived Lobsters · Captivating Crabs · Shimmering Shrimp · Crops of Krill · Bunches of Barnacles · Horseshoe Heroes · Tough Trilobites	· Label a Lobster · Crab Claw Simulation · Admire God's Creativity · Create a Lobster for Your Ocean Box · Create a Crab for Your Ocean Box · Buying and Selling Advertisement · Focus Like a Trilobite · Create an Underwater Arthropod Collage · Paint a Plankton Bloom · Raise Sea Monkeys or Triops
LESSON 11 *Mighty Mollusks*	Lesson 11 provides an introduction to several different species of mollusks.	· She Sells Seashells · Mighty Mantle · Bountiful Bivalves · Curious Clams · Mussel Madness · Gorgeous Gastropods · Gastropod Conchology	· Label Bivalve Shells · How Old is the Clam? · Create a Bivalve for Your Ocean Box · Mussel Fish Game · Pearl Simulation · Label a Gastropod Shell · Shell Field Guide · Create a Gastropod and a Nudibranch for Your Ocean Box · Experiment: Resonance
LESSON 12 *Sensational Cephalopods*	Lesson 12 provides an introduction to four different types of cephalopods: how they move, reproduce, and see.	· Octopus Rescue · Propulsion Power · Analytical Octopus · Cutting Cuttlefish · Speedy Squids · Nautilus Nobility · Chunky Chitons	· Spot the Cephalopod · Octopus Arm Minibook · Simulate an Octopus' Flexible Shape · Watch Your Iris change Size · See Your Blindspot · Ocean Box · Measuring Out a Giant Squid · Ocean Box Squid and Chambered Nautilus · Jet Propulsion Simulation

Continued on next page.

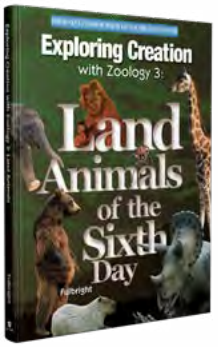


Scope & Sequence

Exploring Creation with Zoology 2: Swimming Creatures of the Fifth Day, 2nd Edition

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 13 *Notable Cnidarians*	Lesson 13 provides an introduction to the phylum Cnidaria including jellyfish, sea anemones and corals.	· Stinging Nettle · Polyp vs. Medusa · Nestled Nematocysts · Jarring Jellyfish · Non-Nettle Jellies · Warlike Wonders · Purposeful Polyps · Comely Coral · Soft Swayers · Stonewall Spawns · Assisting Algae · Reverent Reefs	· Identify the Cnidarian · Illustrate Polyps and Medusae · Diagram a Nematocyst · Illustrate a Jellyfish · Make a Jellyfish Mobile · Create a Man-Of-War for Your Ocean Box · Create a Sea Anemone for Your Ocean Box · Make Edible Coral Polyps · Create a Protect the Reef Infographic · Study Deep Ocean Currents
LESSON 14 *Enchanting Echinoderms & Purposeful Porifera*	Lesson 14 provides an introduction to echinoderms as well as a closer look at echinoderms that lack eyes or brain. It concludes with a look at sea sponges.	· Spiny Skins · Stunning Stars of the Sea · Rapid Regeneration · Sneaky Snakey Stars · Kelp Us! Urchins are Coming! · Dollars and Cents · Spider-man of the Sea · Purposeful Porifera	· Star Gazing · Diagram a Sea Star · Create a True Star for Your Ocean Box · Create a Brittle Star and a Crinoid for Your Ocean Box · Write a Story About a Crinoid in the Flood · Salt Crystal Brittle Star · Estimate Urchin Population · Make an Animal Quiz Game · Create the Last Creatures for Your Ocean Box · Simulate Sea Cucumber Defense Mechanisms

ADDITIONAL INFORMATION: This course requires the textbook and student notebook. A password to access Book Extras online along with additional websites related to the topics covered is included in the textbook.



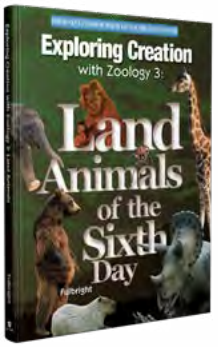
Scope & Sequence

Exploring Creation with Zoology 3: Land Animals of the Sixth Day

GRADE LEVEL: K-6

TEXT SUMMARY: This third book in the zoology series takes students on a safari through jungles, deserts, forests, farms, and even their own backyard to explore, examine and enjoy the enchanting creatures God designed to inhabit the terrain. ***Exploring Creation with Zoology 3: Land Creatures of the Sixth Day*** will have your family snuggling together as you discover amazing animals from primates to parasites, kangaroos to caimans, and turtles to the terrifying T-Rex!

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 1 *Introduction to the Animals of Day 6*	The young scientist will begin his/her safari into the world of land animals and will be introduced to the ways scientists study the animals and the different careers with animals.	· God Made the Animals · Predators and Prey · Studying Animals · Habituation · Animal Careers · Zoologist · Pet Careers	· Map It! · Track It! · Experiment: Predator or Prey?
LESSON 2 *Carnivorous Mammals*	The young scientist is introduced to the features of mammals. The first to be explored in all its variety is the family of Canines.	· Creature Features · Order Carnivora · Family Canidae · What are Dogs Like? · Canine Communication · Canine Construction · Canine Senses · Hunting · Wolves · Coyotes · Foxes · Jackals · Dingoes · Raccoon Dogs · African Wild Dogs	· Map It! · Track It! · Experiment: Sense of Smell
LESSON 3 *Caniforms Continued*	The study of the animals in the order of Caniform is continued. The young scientist is introduced to the diverse animals that are in the families of Ursidae and Mustelidae.	· Unparalleled Ursidae · Do Not Feed the Bears · If You See a Bear · Brown Bears · American Black Bears · Polar Bears · Sun Bears · Giant Pandas · Musky Mustelidae · Otters · The Great Hunt · Mephitidae Stink · Prying Procyonidae · Raccoon Rabies	· Map It! · Track It! · Experiment: Skin Color Effect On Keeping Warm

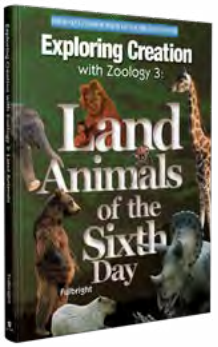


Scope & Sequence

Exploring Creation with Zoology 3: Land Animals of the Sixth Day

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 4 *Feliform Carnivores*	The families of feliform are explored in this chapter. Mutation is introduced.	· Family Felidae · Proficient Predators · Specific Spots and Stripes · Family Names · The Top of the Food Chain · Lions · Tiger · North America's Three · Hyaenidae · Aardwolves · Viverriadae · Herpestidae · Meerkats	· Map It! · Track It! · Experiment: Cougar Eats Deer
LESSON 5 *Marsupials*	The diverse animals that are in the marsupial order are explored. The theory of Pangaea is introduced.	· Marsupial Migration · Order Diprotodontia · Suborder Macropodiformes · Wallabies · Bettongs and Potoroos · Suborder Vombatiformes · Suborder Phalangeriformes · Order Peramelemorphia · Order Notoryctemorphia · Order Dasyuromorphia · Order Microbiotheria · Order Didelphimorphia · Virginia Opossums	· Map It! · Track It! · Experiment: Capture Animal Tracks

Continued on next page.

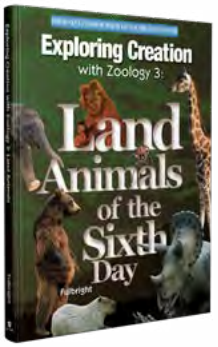


Scope & Sequence

Exploring Creation with Zoology 3: Land Animals of the Sixth Day

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 6 *Primarily Primates*	Primates are introduced in this lesson and differences in variety of animals are explored.	· Monkeys and Man · Primate Classification · Suborder Strepsirrhini · Aye-Ayes · Suborder Haplorrhini · Tarsiiformes · Platyrrhini: The New World · Monkeys · Catarrhini: The Old World · Monkeys and Apes · Baboons and Madrills · Apes · Gibbons · Chimpanzees and Bonobos · Gorillas · Orangutans	· Map It! · Track It! · Experiment: Depth Perception
LESSON 7 *Rodentia and the Rest*	The remaining seven orders are defined and some of their amazing creatures introduced.	· Rodentia · Mouse-Like Rodents · Special Squirrels · Flying Squirrels · Beavers · Order Insectivora · Order Lagomorpha · Order Demoptera · Order Monotremata · Platypuses · Echidnas · Order Edentata · Sloths · Anteaters · Armadillos · Order Tubulidentata	· Map It! · Track It! · Experiment: Owl Pellets

Continued on next page.

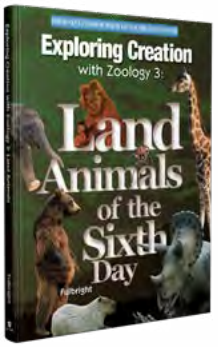


Scope & Sequence

Exploring Creation with Zoology 3: Land Animals of the Sixth Day

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 8 *Ungulates*	Hoofed creatures are introduced in this lesson. Elephants, mammoths, horses and others are explored.	· Order Proboscidea · Wooly Mammoths · Mastodos · Order Perissodactyla · Horse History · Horse Care · Horse Sense · Horse Breeds · The Gait · Growing Horses · Donkeys · Zebras · Rhinos · Tapirs	· Map It! · Track It!
LESSON 9 *Order Artiodactyla*	More hooved animals are explored in this lesson. Rumination is defined and explained.	· Family Bovidae · Antelopes, Gazelles, and Impalas · Wildebeests · Bovines · Bison And Buffalo · Caprines · Family Camelidae · Deer · Family Giraffidae · Leaf Lovers · Puzzling Spots · Okapis · Family Suidae · Family Tayassuidae · Family Hippoptamidae	· Map It! · Track It! · Experiment: High Blood Pressure

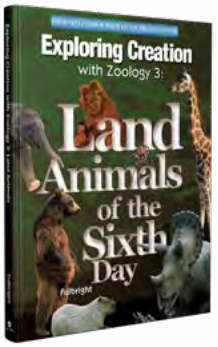
Continued on next page.



Scope & Sequence

Exploring Creation with Zoology 3: Land Animals of the Sixth Day

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 10 *Orders Squamata and Rhynchoecphalia*	Two orders of reptiles that live on the land are explored in this lesson.	· Reptiles · Snakes · Snake Defense · Baby Snakes · Slithering Snakes · Harmless or Venomous? · Snake Habitats and Families · Lizards · The Iguania · Geckos · Skinks · The Large Lizards · Worm Lizards · Tuataras · Living Fossils	· Map It! · Track It!
LESSON 11 *The Rest of the Reptiles and Amphibians*	The last two orders of reptiles that live on the land are introduced, along with amphibians.	· Order Testudines · Turtle, Tortoise, or Terrapin? · Finding Food · Snapping Turtles · Soft-Shelled Turtles · Mud Turtles and Musk Turtles · Family Emydidea · Side-Necked Turtles · Tortoises · Order Crocodilia · Crocodilian Conventions · Crocodilian Chow · Crocodiles · Gavials · Caimans · Alligators · Gator Farms · Amphibians · Frogs and Toads · Frog Food · Frog Defense · Deformed Frogs · Frog Foe · Salamanders and Newts	· Map It! · Track It! · Project: Raise a Turtle



Scope & Sequence

Exploring Creation with Zoology 3: Land Animals of the Sixth Day

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 12 *Dinosaurs*	This lesson focus is on the extinct creatures known as dinosaurs. The historical and fossil evidence is discussed.	· What's in a Name? · Bone Basics · What's Your Stance? · Name Game · Sauropods · Common Sauropods · Theropods · Common Theropods · Ornithischia · What Happened to Them?	· Map It! · Track It! · Experiment: Stances
LESSON 13 *Arthropods of the Land*	The young scientist will crawl into the world of arthropods, such as spiders, harvestmen, scorpions, mites, centipedes, and millipedes.	· Arachnids · Spiders · Spider Friends and Foes · Spider Silk and Spiderlings · Creation Confirmation · Wondrous Web · Hunting Spiders · Harvestmen · Scorpions · False and Whip Scorpions · Acarina · Centipedes and Millipeds · Isopods	· Project: Create a Web Frame · Experiment: Woodlouse Population Study
LESSON 14 *Gastropods and Worms*	In this final lesson the world of slugs, snails, and worms is explored.	· Slugs and Snails · Special Slime · Gastropod Anatomy · Snail Stowaways · Worms · Flatworms · Land Planarians · Roundworms · Ascaris and Whipworms · Hookworm · Guinea Worm · Filarial Worm · Trichinella · Pinworm · Toxocara · Annelids · Annelid Anatomy	· Experiment: Worm Temperature Preference

ADDITIONAL INFORMATION: This textbook also has a corresponding notebooking journal. An audio book version is available. Additional websites for further exploration of the topics in the text are provided at the Book Extras link for this title. You can learn more about this title at apologia.com.

Scope & Sequence

Exploring Creation with Earth Science

GRADE LEVEL: K–6

TEXT SUMMARY: Explore life and all Creation through the ever changing and continuously moving planet we call Earth. ***Exploring Creation with Earth Science*** focuses on God's unique placement and incredible construction of our planet. Students will investigate the complex systems that enable life to exist and explore the uniqueness that only our planet can offer.

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 1 *The Observable Universe*	Lesson 1 explores the known universe, incorporating galaxies, the solar system, and our cosmic address.	· The Observable Universe · Expanding Our Minds · Astronomy Basics · Galaxies · The Solar System · Your Cosmic Address	· Expanding Universe Putty · Understanding Frame of Reference · Create a Galaxy Mobile
LESSON 2 *Life in the Habitable Zone*	Lesson 2 focuses on the earth and its ability to sustain life.	· Our Planet is Special · Habitable Zone · Magnetosphere and Aurora · Rotation of the Earth · Seasons · Hemispheres	· Create a Goldilocks Zone · Understanding an Invisible Force
LESSON 3 *Spheres of the Earth*	Lesson 3 discusses four of Earth's "spheres" including the geosphere, hydrosphere, atmosphere, and biosphere.	· Geosphere · Layers of the Earth · Hydrosphere · Cryosphere · Atmosphere Layers · Self-Cleaning Atmosphere · Air Pressure · Biosphere	· Build the Geosphere · Understanding the Hydrosphere · Demonstrate Air Pressure Changes
LESSON 4 *Mapping Your World*	Lesson 4 teaches the importance of maps, how to read them, and how they are created.	· Maps · Map Key · Cartography · Your Global Address · Grid Coordinates · Latitude and Longitude · Time Zones	· Creating a Map · Round Earth—Flat Map · Flat Map—Round Earth · Equator Locator · GAME: Learning About Coordinates · Lines of Latitude · Lines of Longitude · Adding Lines of Longitude

Continued on next page.

Scope & Sequence

Exploring Creation with Earth Science

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 5 *The Geosphere*	Lesson 5 takes a closer look at the geosphere, exploring continents and their shapes along with rock formation.	· Earth's Crust · Continents · Continental Drift Theory · Lithosphere · Types of Tectonic Plate Movement · Rocks and Minerals · Types of Rocks	· Mapping Continents · Understanding Tectonic Plate Movement · Make a Mountain · Understanding Transform Motion · Creating Crystals · Identifying Igneous Rocks · Make Edible Rocks Parts A & B (Igneous Rocks) · Visualizing Sedimentary Rocks · Making Edible Rocks (Metamorphic Process)
LESSON 6 *Making and Shaping the Land*	Lesson 6 continues to discuss the geosphere. It focuses attention on the changing shape of the land and discusses soil and landforms.	· Dirt vs. Soil · How Soil Is Made · Physical Weathering · Chemical Weathering · Biological Weathering · Layers of Soil · Types of Soil · Erosion · Landforms	· VIRTUAL ACTIVITY: Understanding the Power of Freeze-Thaw · Seeing the Power of Freeze-Thaw in Your Neighborhood · Seeing the Power of Exfoliation in Your Neighborhood · Investigating Soil · Add Mountain Ranges to Your Globe · Understanding How Volcanoes Make New Land · Add Islands to Your Globe
LESSON 7 *The Hydrosphere*	Lesson 7 explores the importance of the hydrosphere including the properties of water, types of water bodies, and the water cycle.	· Phases of Water · Oceans · Inland Water · Frozen Water · Water Cycle	· Record Observations on Water's Many Colors · Label the Oceans on Your Globe · Paint and Label Other Water Bodies on Your Globe · Paint and Label Major Rivers on Your Globe

Continued on next page.

Scope & Sequence

Exploring Creation with Earth Science

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 8 *The Atmosphere*	Lesson 8 investigates the atmosphere focusing on light and air, including its composition, movement, water content, and energy.	· White Light · Visible Light · The Air and Your Senses · Air Expansion, Density, and Pressure · Composition of Air · Motion in the Atmosphere · Humidity and Moisture · Energy Transfer · Importance of the Atmosphere to Life on Earth	· Experiencing Pressure · Power of Air Pressure · Understanding Pressure and Temperature · Understanding the Difference Between Humidity and Relative Humidity · Make a Cloud
LESSON 9 *Climate and Weather*	Lesson 9 examines the movement of the Earth and how this movement relates to the seasons, climate, and weather.	· Climate Versus Weather · Temperature · Summer and Winter Solstice · Analemma · The Tropics · The Arctic and Antarctic Circles · Oceans · Humidity and Precipitation · Pressure Systems · Earth's Rotation · Changes in Weather · Storms	· Understanding Sunlight During Equinox · Understanding Sunlight During Summer Solstice · Understanding Sunlight During Winter Solstice · Adding Lines of Interest to Your Globe · Describe Your Climate · Your City's Average Temperatures · Compare Landforms and Precipitation · Under Pressure · Track the Clouds and Local Weather · Tomorrow's Weather
LESSON 10 *Weather Forecasting*	Lesson 10 guides the student through the steps of forecasting the weather. It discusses tools used and parts of a forecast.	· Weather Forecast · Tools of the Trade · Anatomy of a Forecast · Sky Conditions · Wind Chill Factor · Lake Effect Snow · Fog	· Evaluating a Forecast · Weather Words · Track Your Pressure · Which Way the Weather · Chill Out · Weather Balloon Modeling · Reporting Sky Conditions · Map the World's Weather Today

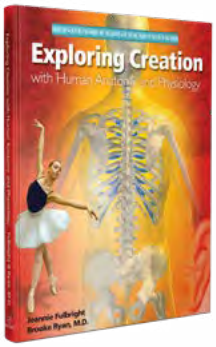
Continued on next page.

Scope & Sequence

Exploring Creation with Earth Science

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 11 *The Biosphere*	Lesson 11 connects the biosphere to all the other spheres. It investigates the biomes and ecosystems of the Earth and discusses this special gift from God.	· Life on Earth · Ecological Organization · Rainforests · Taiga · Temperate Deciduous Forests · Grasslands and Shrublands · Deserts · Tundra · Oceans · Freshwater · Ecosystems	· Organizing Your Life · Add Rainforests to Your Globe · Add Taiga to Your Globe · Add Temperate Deciduous Forests to Your Globe · Add Grasslands and Shrublands to Your Globe · Add Deserts to Your Globe · Add Tundra to Your Globe · Add Ocean Details to Your Globe · Add Freshwater Biomes to Your Globe
LESSON 12 *Cycles of Life*	Lesson 12 guides the student through the many cycles occurring on Earth that allow the Earth to sustain and renew the essentials needed for life.	· The Rock Cycle · The Mineral Cycle · The Water Cycle · The Carbon Cycle · The Nitrogen Cycle · Recycling	· Your Daily Cycle · Careers in Earth Science · Make a Poster on Essential Minerals
LESSON 13 *Unique Places on Earth*	Lesson 13 focuses on the beauty and uniqueness of Earth.	· Salt Outside the Ocean · Water · Ice · Colored Layers · Caves · Geysers and Springs · Volcanoes · Unique Places	· No extra activities for this lesson
LESSON 14 *God in Creation*	Lesson 14 explains the science process and its purpose in exploring Creation along with our responsibility in taking care of the Earth.	· God, Creation, and Science · The Scientific Method · Why is Science Possible? · Stewards of the Earth	· Journal Your Thoughts on Your Place in the Universe

ADDITIONAL INFORMATION: This textbook also has a corresponding notebooking journal. An audio book version is available. Additional websites for further exploration of the topics in the text are provided at the Book Extras link for this title. You can learn more about this title at apologia.com.



Scope & Sequence

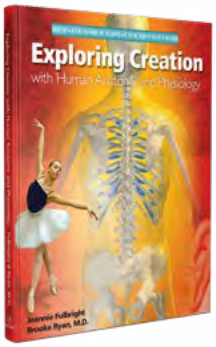
Exploring Creation with Human Anatomy and Physiology

GRADE LEVEL: K–6

TEXT SUMMARY: An elementary level anatomy and physiology book that gives glory to God as children discover all that goes on in their bodies from their heads to the nails on their toes! Beginning with a brief history of medicine and a peek into cells and DNA, your students will voyage through fourteen lessons covering many subjects, such as the body systems: skeletal, muscular, respiratory, digestive, cardiovascular, nervous and more!

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 1 *Introduction to Anatomy and Physiology*	Lesson 1 provides an overview of the history of anatomy and physiology. Lesson 1 also provides an introduction to the cell.	· History of Anatomy and Physiology · Ancient Egyptians · Ancient Hebrews · Ancient Greeks · Aristotle · Creation confirmation · Ancient Rome · European Scientists · Cells · Cell Anatomy · Cell Membrane · Mighty Mitochondria · Lysosome Patrols · Grocer Golgi · ER Delivery and Pick Up · Centrioles: Mothers of the City · The Nucleus Government · Inside the Nucleus · DNA · RNA · Cell creation	· Mummify an apple · Personality test · Magnifying with water · Personal Person Project · Edible Cell · Personal Person Project · Edible Cell

Continued on next page.

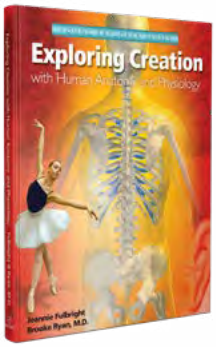


Scope & Sequence

Exploring Creation with Human Anatomy and Physiology

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 2 *The Skeletal System*	Lesson 2 provides an introduction to the skeletal system: its anatomy and physiology.	· What Do Bones Do? · Got Blood? · Warehouse Wonder · Bone Brawn · Let's Get Moving · Bone Anatomy · On the Outside · Made to Last · Bouncy Bone · In the Marrow · Bone's A-Growing · Deep and Wide · Broken Basics · Shapin Up · Connect the Bones · Ligaments · A Head of the Game · Let's Face It · Shivers Down Your Spine · Baby Back Ribs · A Peck of Peppers · Armed and Dangerous · Girdles Around · The Last Leg · Joint Venture · Kinds of Joints	· Make a clay figure · Brain protection · Explore cushioning · As tall as wide · Counting bones · Stiff fingers · Name those bones · Warming friction · Personal Person Project · Analyzing a Chicken Bone
LESSON 3 *The Muscular System*	Lesson 3 provides an introduction to the different types of muscles, how they work and how they move the skeletal system.	· Skeletal Muscles · Tendons · Moving Skeletons · Muscle Cells · Get a Move On · Let's Face It · Contracting Muscles · Mighty Muscle Mitochondria · Growing Muscles · Pack the Protein · Cardiac Muscles · Smooth Muscles	· Weighing muscles · Body reflexes · Examine muscle fibers · Facial expressions · Timing muscles · Make intestines · Personal Person Project · Growing muscles

Continued on next page.

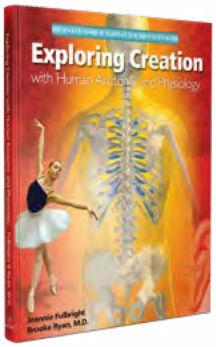


Scope & Sequence

Exploring Creation with Human Anatomy and Physiology

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 4 *The Digestive and Renal Systems*	Lesson 4 teaches how the digestive system converts food into materials the body needs to live, repair itself, and grow.	· Down the Hatch · Grand Opening Mouth · Terrific Teeth · Super saliva · Terrific Tongue · Stirring Stomach · Stomach Stories · Chyme to Go · Living Liver · Pancreas Potential · Large Intestine · The Renal System	· Acid and teeth · Digestive enzymes · Stomach in action · Measuring intestines · Bile and oil · Personal Person Project · Design a Digestion Theme Park
LESSON 5 *Health and Nutrition*	Lesson 5 teaches the importance of fruits, vegetables, protein, sugar, and fat in the diet.	· Necessary Nutrients · Win with Water · Carb Control · Simply Energetic · Complex Carbohydrates · Carbohydrates: The inside Story · Power Packed Protein · Getting the Essentials · Protein: The Inside Story · The Skinny on Fats · Fundamental Fatty Acids · Counting Calories · Victorious Vitamins · Vitamin A · Vitamin C · Where's the C at Sea? · Vitamins D and K · B Vitamins · Vitamins: The Inside Story · Minerals	· Water vapor · Finding starch · Calculating Protein · Fat in your house · Pantry examination · Oxidation · Create a food pyramid · Testing for Vitamin C

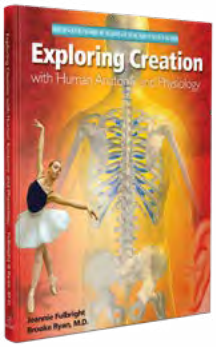
Continued on next page.



Scope & Sequence

Exploring Creation with Human Anatomy and Physiology

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 6 *The Respiratory System*	Lesson 6 provides an introduction to the respiratory system: how all the parts work together and what happens when they are impaired.	· Hairy Catchers · Musky Mucus · Slashing Cilia · Crazy Conchae · Holes in Your Head · Speaking Strings · Tranchea Track · Bronchi Branches · Baby Bronchioles · Alveoli Alley · Catching Cold · Asthma Attack · Smoking Insanity · The Great Exchange · Filled to Capacity · Diaphragm Design · Heimlich Maneuver · Tasty Diaphragms	· Humidity · Honey mucus · Breath · Uvula · Examining pitches · Vocal cords · Trachea straw · Tape a breath · Abdominal muscles · Personal Person Project · Diaphragm Model · Vital Lung Capacity
LESSON 7 *Life in the Blood*	Lesson 7 provides an introduction to blood: its make-up and how it moves through the body.	· Super Highway · Artery Highways & Capillary Byways · Capillaries · Transporter · Protector · Message Carrier · Thermostat · Blood Basics · Plasma · Red Blood Cells · White Blood Cells · Platelets · Wound Care · Making Blood · Need Blood? · Blood Types	· Light your circulatory system · Finding iron in cereal · Type your blood

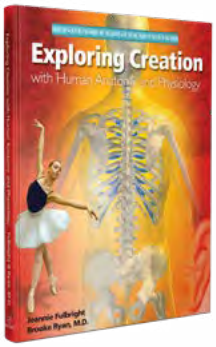


Scope & Sequence

Exploring Creation with Human Anatomy and Physiology

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 8 *The Cardiovascular System*	Lesson 8 provides an introduction to the heart, how it works, and how we can observe its function externally.	· Heart Matters · Heart Anatomy · Pumping Iron · Heart Health · Signs of a Heart Attack · Capillary Switch · Cardiac Components · Open Sesame · Beating Heart · Vascular Vehicles · Zoe's Life	· Build a heart · Color a heart · Find your pulse · Personal Person Project · Make a Stethoscope
LESSON 9 *The Nervous and Endocrine Systems*	Lesson 9 provides an introduction to the nervous system and how it works with the endocrine system to control the different functions in the body.	· The Central Highway · Peripheral Points · On My Nerves · Sense and Do · Between It All · Integration Sensation · Sending the SNS · ANS Unaware · Ending with Endocrine	· Build a brain · Create neurons · Trick your SNS · Calming techniques · Personal Person Project · Anatomy Trivia Game
LESSON 10 *The Nervous System Extended*	Lesson 10 provides an overview of how the brain functions and works with the nervous system.	· Half a Brain · Shapely Cerebrum · Frontal Fractions · Temporal Tones · Occipital Optics · Parietal Position · What's the Matter? · My Myelin · Swinging Cerebellum · Bossy Brainstem · Sorting Stimuli · The Spinal Cord · The Reflex Arc · Packaged and Protected · Bigger Brains · My Brain	· Making connections · Right-left handed · Build brain hemisphere · Stacking pennies · Quick connections · Brain connections · Eye dominance · Mapping pain · Skull protection · Design a Science Fair Project

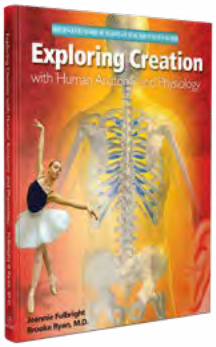
Continued on next page.



Scope & Sequence

Exploring Creation with Human Anatomy and Physiology

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 11 *Your Senses*	Lesson 11 provides an introduction to the five senses and the specific organs on which they are dependent.	· Old Fashioned Olfaction · Tasty Taste Buds · Dissolving Donuts · Get It While It's Hot · Now Hear This · External Ear · Middle Ear · Inner Ear · Hearing in a Nutshell · Sound off · All Fall Down · Seeing is Believing · Eyeball to Eyeball · Color My World · Cornea Control · Glass Helpers · Upside Down World · Double Vision · Eye Will Protect You · Eye will Understand	· Smell and taste · Smell and air · Smell and memories · Examine your mouth · Investigate taste buds · Sweet and salty · Smell, taste, texture · Sound waves · Locating sound · Spinning · Examining Irises · Night and color vision · Magnifying light · Test your vision · Create action figures · Blind spot · Follow the mark · Testing Taste
LESSON 12 *The Integumentary System*	Lesson 12 provides an introduction to the skin.	· Stretch and Grow · Dearly Departed Hair · Skin Stories · Thick Skin · Your Epidermis is Showing · Skin Deep · Carrots Please · Melanin Melody · The Dermis · Bruising · Bursting Blisters · Don't Sweat It · Heat Exhaustion · Thermostat · Hair Controls · Very Hairy · Layered Hair · Straight or Curly · Dermal Indentions · Happy Hypodermis · Sensing General Senses · Nails	· Elbow skin · Evaporation · Hairy face · Dead hair · Feel hairs move · Stretching hair · Sliding skin · Heat sensing · Detecting vibrations · Personal Person Project · Fingerprints · Braille Challenge · Sensing Sensitivity

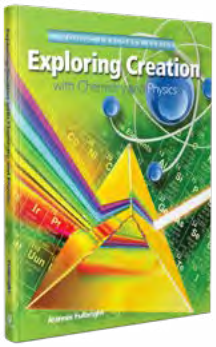


Scope & Sequence

Exploring Creation with Human Anatomy and Physiology

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 13 *The Lymphatic and Immune Systems*	Lesson 13 provides a basic understanding of how the body protects, communicates, and responds to viruses, bacteria, and parasites.	· The Bad Guys · Pathological Parasites · Bad Bacteria · Freaky Fungi · Wonky Worms · Viral Villains · Cursed Cancer · Dastardly Disease · Our Faithful Father · The Lymphatic System · The Spleen · Immunity · Special Agents B and T · Antibodies and Antigens · Antibody Antics · Immunity Modes · Acquired immunity · Vaccinations · Amazing Antibiotics	· Experiment: Testing for Bacteria and Fungi
LESSON 14 *Growth and Development*	Lesson 14 provides an overview of the total body, including how it grows and changes. Lesson 14 also provides an explanation of how genes work and the differences between humans and all other creatures created.	· Diving Cells · Development in the Womb · Development Outside the Womb · Genetics · Chromosome Commotion · Merry Mitosis · Magnificent Meiosis · Time for Twins? · Redhead Revelation · Gregor Mendel · Personhood · In His Image · Apes and Apemen · What about Cavemen? · Why Did God create Me? · Grow in Wisdom	· Change through life · Predicting height · Study traits · Hidden genes · Possible Purpose Page · Prayer Journal Activity · Bible Reading Plan · Dominant and Recessive Traits

ADDITIONAL INFORMATION: This textbook also has a corresponding notebooking journal. An audio book version is available. Additional websites for further exploration of the topics in the text are provided at the Book Extras link for this title. You can learn more about this title at apologia.com.



Scope & Sequence

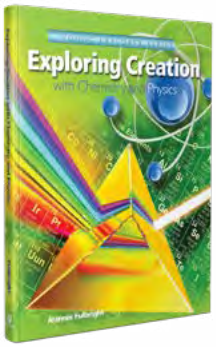
Exploring Creation with Chemistry and Physics

GRADE LEVEL: K–6

TEXT SUMMARY: ***Exploring Creation Using Chemistry and Physics*** helps us to understand our surroundings and our interaction with the physical world God created. This course investigates the chemistry of matter from the smallest atom to a multitude of mixtures. The lessons examine the mechanics and dynamics of motion; explain how energy works; explore sound, light, heat, electricity, and magnetism; and demonstrate the principles of simple machines.

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 1 *Chemistry and Physics Matter*	Lesson 1 provides an introduction to the studies of chemistry and physics. Lesson 1 also provides an overview of God's creation of matter, it's general characteristics and its properties.	· Formation of the World · Importance of Matter · Volume · Mass · Density · Buoyancy · The Golden Rule · Properties of Matter: Luster, Color, Shape, Hardness, Smell, and Other Properties	· "I Spy" · Volume Measurement · Egg Drop · Salt Density · Comparing Liquid Densities · Sink or Float? · How Much Treasure Can You Carry on Your Boat? · Create a Rock Journal · Compare Common Metals Through Smell · Magnetism · Project: Lava Lamp
LESSON 2 *Moving Matter*	Lesson 2 provides an introduction to the different states of matter: solid, liquid, and gas.	· Moving Atoms · Solid Matter · Liquid Matter · Viscosity Values · Gas Matter · Expanding and Escaping Air · Gas to Liquid to Solid to Liquid to Gas	· Compare Freezing Points · Liquid or Solid? · Separate Water Drops · Examine Surface Tension · Make Sorbet · Gas Takes Up Space · Blow Up a Balloon with Soda Pop · Learn How to Blow a Bubble · Examine Your Breath on a Mirror · Experiment: Earth's Water Cycle

Continued on next page.

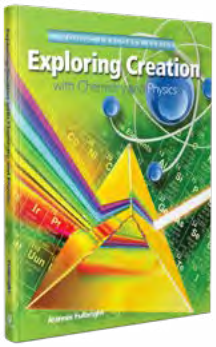


Scope & Sequence

Exploring Creation with Chemistry and Physics

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 3 *Building Blocks of Creation*	Lesson 3 provides an introduction to atoms, elements, and bonding.	· Overview of Atoms · Variety of Atoms · Attaching Atoms · Atom Anatomy · Charge · Protons, Neutrons, Electrons · Electron Energy · Clouds, Shells, and Orbitals · Valence Valor · The Periodic Table of Elements · Bonding Basics	· Create a Chemical Reaction · Build an Atom Model · Build Two Atom Models to Represent Hydrogen Atoms · Build an Atom Model to Represent Oxygen · Legos for Elements and Bonding · Periodic Table Seek and Find · Be the Atom · Simulated Sodium Chloride Bond · Project: Sugar Cookie Periodic Table
LESSON 4 *Compound Chemistry*	Lesson 4 provides an introduction to compounds: explanations, creations, and properties.	· Compound Basics · Crystallized Creations · Putty, Plastics, and Pencil Erasers · Laboratory Creations: Positives and Negatives · Recycling · Acidic Acid · Chemical Chaos	· Crystal Formation · Make Your Own Bouncy Ball · Properties of a Polymer · Don't Pop the Balloon · Comparing Breakdown Times · Styrofoam/Acetone Chemical Reaction · Cooper/Vinegar Reaction · Acidic vs. Basic Litmus Test · Physical Reaction of Mentos and Diet Coke · Steel Wool Chemical Reaction · Experiment: Make a Smoke Bomb · Project: Grow Crystals

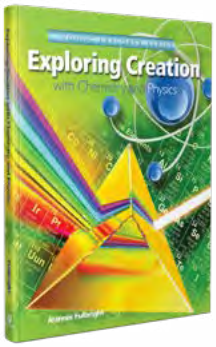
Continued on next page.



Scope & Sequence

Exploring Creation with Chemistry and Physics

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 5 *Multitude of Mixtures*	Lesson 5 provides an introduction to the properties and types of mixtures.	· Mixtures Overview · Heterogeneous Mixtures · Homogeneous Mixtures · Separating Mixtures	· Cookie Mixture · Investigate Carbonated Mixtures · Oil vs. Water · How Dishwashing Liquid Works · Aluminum-Foil Ring · Separate a Homogeneous Mixture · Chocolate, Chocolate Milk! · Chromatography Enactment · Experiment: Filter Water
LESSON 6 *Mechanics in Motion*	Lesson 6 provides an introduction to mechanics and the laws of motion.	· Mechanical Mechanics · Always in Motion · Newton's First Law of Motion · Newton's Second Law of Motion · Newton's Third Law of Motion	· Explore Inertia Using a Stack of Pennies · Explore Inertia Using Pennies, Water, and an Index Card · An Eggcellent Illustration of Mass's Relation to Inertia · Create a "Newton's Cradle" · Make a Straw Rocket · Game: Ringers
LESSON 7 *Dynamics of Motion*	Lesson 7 provides an introduction to the forces that affect motion and how these forces work together.	· Feeling Friction · Increasing Friction · Adhesion · Reducing Friction · Air and Water Friction · Gravity · Distance Dynamics · Accelerating Action · Free Falling · Diving from the Sky · Centripetal Force · David and Goliath	· Understand Bicycle Brakes · Compare How Different Surfaces Affect Friction · Explore van der Waals forces · Reduce Friction for Easier Movement · Air Friction · Same Shape, Different Weight, What's the Speed? · Create Centripetal Force with a Balloon and Penny · Create Centripetal Force with a Pail of Water · Project: Paper Airplane Design

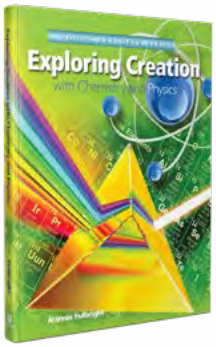


Scope & Sequence

Exploring Creation with Chemistry and Physics

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 8 *Work in the World*	Lesson 8 provides an introduction to energy, where it is found and how it is used.	· Finding Energy · Kinds of Energy: Kinetic and Potential · Conserving Energy · Forms of Energy	· Energy in a Rubber Band · Energy Transfer Using a Drum · Create Your Own Spin Top · Energy and Energy Transfer in Bouncy Balls · How Pressure Affects the Release of Oil From the Ground · How Colors Affect the Absorption of Energy from Light · Experiment: Strike It Rich!
LESSON 9 *Sound of Energy*	Lesson 9 provides an introduction to sound, its characteristics, and its uses.	· Sound Essentials · Conductors of Sound · Speed of Sound · Frequency of Sound · Sound Quality · Technology and Sound · Defining Sound · Sounds in Space	· What Sound Waves Look Like · Dominoes · Make Water Move with Your Voice · Directing Sound Through a Tube · Make Your Own Megaphone · Sound Conduction of Different Materials · Experimenting with Frequency Using Water · Experimenting with Frequency Using Cans · Project: Soundproof Box

Continued on next page.

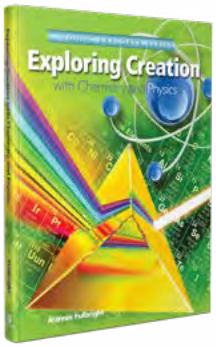


Scope & Sequence

Exploring Creation with Chemistry and Physics

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 10 *Light of the World*	Lesson 10 provides an introduction to light: how it is made, its sources, and its characteristics.	· Let There Be Light · The Sun and Nuclear Fusion · Radiant Energy · Sources of Light · Shadows · Beams and Waves · Spectrum of Colors · Wavelength · "Eye See" · Bouncing Light · Bending Light	· Make Your Own Prism Using Water · Separate Light and Put It Back Together · Why the Sun Appears Orange · Investigation of the Primary Colors of Light · Investigation of the Primary Colors of Paint · Use Your TV Remote to Investigate the Invisible Spectrum · Understanding Reflection Using a Bouncy Ball · Reflection of Light: Paper vs. Foil · Reflection of Light: Smooth vs. Unsmooth · Reflection of Light: Using Different Angles · Infinite Images Using Mirrors · The Bending of Light in Water Using a Pencil · The Bending of Light in Water Using a Penny · Experiment: Build a Periscope

Continued on next page.

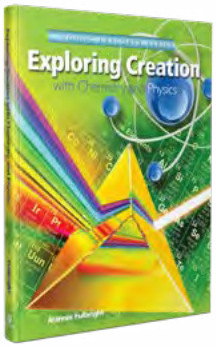


Scope & Sequence

Exploring Creation with Chemistry and Physics

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 11 *Thermal Energy*	Lesson 11 provides an introduction to the four laws of thermodynamics. Lesson 11 also provides an overview of heat, how it affects us, and its characteristics.	· Thermodynamics Overview · The Zeroth Law of Thermodynamics · The First Law of Thermodynamics · The Second Law of Thermodynamics · The Third Law of Thermodynamics · Heat · Traveling Heat · Fire · Measuring Heat · Thermal Expansion · Ways of Wonderful Water	· Radiant Heat Using a Light Bulb · Hot Water: Does It Rise or Fall · Balloon Expansion with Steam · Conduction with Different Materials · Compare Insulation Materials · Use a Magnifying Glass to Start a Fire · Eliminate Oxygen with a Jar Lid · Eliminating Oxygen with a Chemical Reaction · Make Your Own Thermometer · Compare How Different Materials Freeze · The Properties of Water When It Freezes · Experiment: Build a Solar Oven

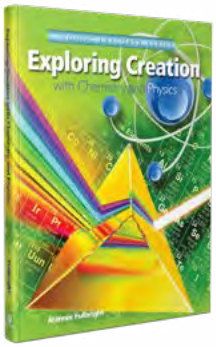
Continued on next page.



Scope & Sequence

Exploring Creation with Chemistry and Physics

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 12 *Electrifying Our World*	Lesson 12 provides an introduction to the properties of electricity and how electricity is stored, transferred, and used.	· All Charged Up · Static Electricity · Currents · Lines of Power · Loading the Circuit · Battery Power · Circuit Central · Series Circuits · Parallel Circuits · Circuit Symbols	· Investigate Charges Using a Balloon · Create Electron Transfer With Your Feet · Making "Mouth Lightning" · Power Use in Your Home · Label Your Circuit Breakers · Make Your Own Battery · Build a Simple Circuit · Test the Ability of Solid Materials to Conduct Electricity · Test the Ability of Liquid Materials to Conduct Electricity · Create Your Own Switch · Increase Light Bulbs: Decrease Power · Create a Parallel Circuit · Experiment: Make a Flashlight
LESSON 13 *Mysterious Magnetism*	Lesson 13 provides an introduction to magnetism: what it is, how it works, and how it is used.	· Magnetic History · Magnets Everywhere · North and South · Magnetic Materials · Compass Points · Northward Facing · Electrifying Magnet · Motor Effect	· The North and South Poles of a Magnet · Characteristics of Magnetism Using Different Shaped Magnets · The Power of the Magnetic Field · Magnetism of Household Objects · Transferring Magnetism · Magnetizing a Nail · Magnetizing a Needle with · Heat · Magnetism of a Compass · Needle · Create an Electromagnet · How Electromagnetic Motors Work · Project: Magnetic Race Track

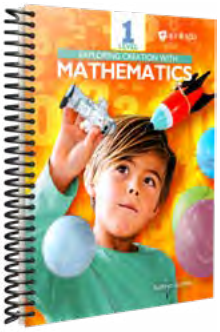


Scope & Sequence

Exploring Creation with Chemistry and Physics

Lesson	Summary	Main Themes	Supporting Activities and Experiments
LESSON 14 *Simple Machines*	Lesson 14 provides an introduction to the six simple machines and the physics behind them.	· Archimedes · Six Simple Machines · Inclined Planes · Twisting Planes (Screw) · Wedges · Levers · Pulleys · Wheels and Axles · Gears	· Test Force on an Incline Plane · Wrapped Incline Plane = Screw · Test the Physics of a Screw · Create a Lever · Test a First-Class Lever · Investigate the Fulcrum Point · Test a Second-Class Lever · Make Your Own Pulley · Test the Mechanics of the Wheels and Axles Machine · Create a Belt Drive · Observe the Gears on Your Bicycle · Experiment: Build a Rube Goldberg Device

ADDITIONAL INFORMATION: This textbook also has a corresponding notebooking journal. An audio book version is available. Additional websites for further exploration of the topics in the text are provided at the Book Extras link for this title. You can learn more about this title at apologia.com.



Scope & Sequence

Exploring Creation with Mathematics, Level 1

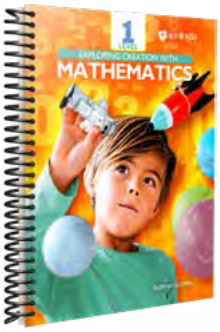
GRADE LEVEL: 1

TEXT SUMMARY: ***Exploring Creation with Mathematics,*** Level 1 is designed to teach students the basics of numbers, counting, addition, subtraction, and geometric shapes. Students will also begin to learn how to apply these concepts to the world around them and practice them in their daily lives.

Unit 1: Introduction to Addition

Lesson	Summary	Main Themes	Supporting Activities
CHAPTER 1 *The Numbers 1–10*	The student will review and use numbers 1–10.	· Writing the Numbers 1–10 · Identifying and Using the Numbers 1–10 · Putting Numbers in Order	· Pipe Cleaner Numbers · Number Making Game (Part 1) · Line Them Up · Number Collage Project
CHAPTER 2 *The Numbers 0–20*	The student will review and use numbers 0–20.	· Introducing the Numbers 11–19 · Counting Groups up to 19 · Ordering the Numbers 0–20	· Model the Teen Numbers · Adding on 10 · Show How Many · Teen Number Matching Game · Number Matching Game (Part 2)
CHAPTER 3 *Addition*	The student will learn how to use addition symbols and techniques on how to add numbers.	· Counting On · Adding by Drawing a Picture · Adding Using Symbols · Adding Zero · Practicing Addition · Adding in Any Order	· Counting on Cards (Part 1) · Addition Strike Out Game · Counting on Cards (Part 2) · Stack 'Em · Linking Cube Towers
CHAPTER 4 *Finding Different Ways to Make Sums*	The student will practice making sums in different ways and solve addition word problems.	· Add to Make 5 · Add to Make 1, 2, 3, 4, and 5 · Add to Make 6, 7, 8, and 9 · Making Tens · Practicing Number Bonds · Addition Word Problems	· Build to Make 5 · Candy Today or Tomorrow · Fill in Facts · Using Counters to Add to Make 6, 7, 8, and 9 · Number Facts · Fishing for 10's · Creating a Number Book

Continued on next page.

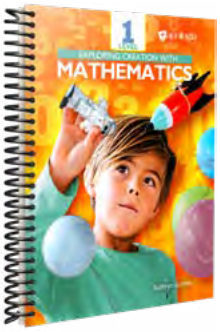


Scope & Sequence

Exploring Creation with Mathematics, Level 1

UNIT 2: Addition and Subtraction

Lesson	Summary	Main Themes	Supporting Activities
CHAPTER 5 *Subtraction*	The student will learn how to use subtraction symbols, and techniques on how to subtract numbers. The student will also practice subtraction word problems.	· Taking Away · Subtracting by Crossing Out · Subtracting Using Symbols · Subtracting All or 0 · Practicing Subtraction · Subtraction Word Problems	· Squash It · Linking Cube Subtraction · Subtraction Bowling · Squash It (Continued) · Subtraction Board Game · Toppling Towers of 10
CHAPTER 6 *Addition up to 20*	The student will use doubles facts, solve addition problems up to the number 20, and practice adding three numbers.	· Adding Doubles · Practicing Doubles · Doubles and 1 More or 1 Less · Fact Fluency · Adding to 10 · Adding to 9 · Making a 10 to Add · Adding 3 Numbers · Making a 10 to Add 3 Numbers	· Towering Twins · Playdough Doubles · Doubles Facts Snakes and Ladders · Tower Totals · Doubles Plus or Minus One Game · Sticker Facts · Adding to 9 with Ten Frames · Adding to Anything with Ten Frames · Adding 3 Numbers with Ten Frames · Dice Bingo
CHAPTER 7 *Subtraction up to 20*	The student will practice counting backwards and learn different subtraction strategies. The student will also compare numbers using subtraction.	· Counter Back · Count Back to Subtract · Using Addition to Subtract · Subtracting to 10 First · Subtraction Strategies · Which is Larger? · Comparing Groups · Subtraction Word Problems	· Ordering Mini Cups · Rocket Countdown · Using Ten Frames to Subtract · War Card Games · Grow It Up · Subtraction and Word Problem Match-up
CHAPTER 8 *Addition and Subtraction are Related*	The student will learn how to identify related facts and group facts into fact families. The student will also practice solving addition and subtraction word problems.	· Related Facts · Fact Families · Find the Missing Number · Fact Practice up to 20 · Addition and Subtraction Word Problems	· How Many Hiding · Make That Number...One Way or Another! Game · Target Number · Flash Card Match-up · Manage Your Own Store



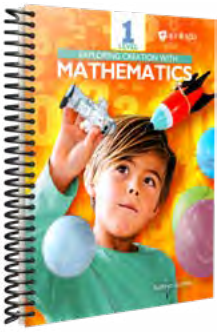
Scope & Sequence

Exploring Creation with Mathematics, Level 1

UNIT 3: Place Value

Lesson	Summary	Main Themes	Supporting Activities
CHAPTER 9 *Numbers to 120*	The student will practice counting to 120 and find patterns in the hundreds chart along with breaking numbers into tens and ones.	· Count to 120 · Skip Counting by Twos · Skip Counting by Tens · Counting Review and Patterns on the 120 Chart · Counting Up Objects · Teen Numbers and Multiples of 10 · Breaking Numbers into Tens and Ones	· Count to 120 · Counting Hot Potato · Counting up by Twos · Hundred's Chart Puzzle · Counting with a Counting Mat · Teen Number Matching Game · Counting by Groups of Ten · Tens and Ones · Cash In! Game
CHAPTER 10 *Comparing Numbers*	The student will use base ten blocks and place value to compare numbers. The student will also be introduced to inequality symbols including greater than, less than, and equal to.	· 10 More and 10 Less · Comparing Base Ten Blocks · Comparing Using Place Value · Math Symbols for Equal To, Greater Than, and Less Than	· More Than, Less Than, and the Same as Me · Comparing Tens and Ones · Lesser Greater, and Same · Two-Digit War · Guess My Number
CHAPTER 11 *Adding Two-Digit Numbers*	The student will practice adding and subtracting multiples of 10 and learn techniques on adding two-digit numbers.	· Adding Tens · Subtracting Tens · Adding Using the Hundreds Chart · Adding Using Base Ten Blocks · Regrouping with Base Ten Blocks · Make a 10 to Add Two-Digit Numbers · Vertical Addition · Word Problem Workshop	· Target Number · Hundred Chart Puzzle (Part 1) · Hundred Chart Puzzle (Part 2) · Cash In! Game · Bump It Up! · Scrambled Steps · The Most Expensive Name

Continued on next page.



Scope & Sequence

Exploring Creation with Mathematics, Level 1

UNIT 4: Measurement and Data

Lesson	Summary	Main Themes	Supporting Activities
CHAPTER 12 *Measurement*	The student will practice measuring length and capacity and will begin to learn how to measure time.	· Ordering Lengths · Measuring Length with a Nonstandard Unit · Estimating Length · Ordering Capacity · Measuring Capacity · Telling Time · Telling Time to the Hour · Telling Time to the Half Hour	· Ordering Objects · Tools for Measuring · The Tallest Tower · Comparing Containers · Comparing Cups · Making a Clock · Using the Minute Hand
CHAPTER 13 *Data and Graphs*	The student will collect data with tally marks and surveys and then use the data to create graphs.	· Tally Marks · Collecting Data · Picture Graphs · Bar Graphs · Graphing Our Family	· Recording the Weather · Breakfast Food Survey · Coin Picture Graph · Linking Cube Bar Graph · Graphing Our Family Data Collection · M&M's Experiment · Wonderous Weather

UNIT 5: Geometric Shapes

Lesson	Summary	Main Themes	Supporting Activities
CHAPTER 14 *Shapes*	The student will learn how to identify, describe, and build 3D shapes.	· Introducing 3D Shapes · Describing 3D Shapes · Building with 3D Shapes	· Finding 3D Shapes · Flat or Round · Identify 3D Shapes · Stamping with 3D Shapes · 3D Shapes Project

ADDITIONAL INFORMATION: All consumable materials found in the Answer Key are also available as a PDF on the title's Book Extras site. There are also additional PDF worksheets available for struggling students.

Scope & Sequence

Exploring Creation with Mathematics, Level 2

GRADE LEVEL: 2

TEXT SUMMARY: ***Exploring Creation with Mathematics,*** Level 2 is designed to expand students' knowledge of larger numbers and challenge students in their addition and subtraction skills. This text also begins to develop students' understanding of time, money, measurement, and geometry.

Unit 1: Number Sense and Place Value

Lesson	Summary	Main Themes	Supporting Activities
CHAPTER 1 *Numbers and Patterns*	The student will review place value and be able to represent two-digit numbers in standard and expanded form. The student will also be able to determine if a number is even or odd.	· Place Value · Expanded Form · Number Word Names · Comparing Numbers · Putting Numbers in Order · Even and Odd Numbers	· Place Value Exploration · Tens and Ones · Right Digit, Right Place · Number Matching Cards · Build and Compare Base Ten Challenge · Find Your Partner · Tower Pairs · Final Digits
CHAPTER 2 *Numbers to 1000*	The student will practice counting to 1000 and learn to write three-digit numbers in different ways. The student will also learn how to compare three-digit numbers.	· Finding Patterns · Skip Counting · Count to 1,000 · Tens and Hundreds · Three-Digit Numbers · Place Value to 1,000 · Word Names up to 1,000 · 10 More, 10 Less, 100 More, 100 Less · Compare Numbers up to 1,000	· Count to 100 Challenge · Counting up to 50 · The 700's Chart · How Much is 1,000? · Counting Above 100 · Building with Base Ten Blocks · Guess the Number · Make It and Write It · Matching Game · Roll, Build, Draw, Write · Build and Compare · Place Value Yahtzee Unit Review

UNIT 2: Addition and Subtraction with Two-Digit Numbers

Lesson	Summary	Main Themes	Supporting Activities
CHAPTER 3 *Addition and Subtraction within 20*	The student will learn how to use doubles facts, the bar model, and other strategies to solve addition and subtraction problems.	· Doubles Facts Plus or Minus One · Addition Facts · Make a 10 to Add · Add 3 Numbers · Subtraction Facts · Making 10 to Subtract · Addition and Subtraction are Related	· Doubles Bingo · Doubles Plus or Minus One Game · Fishing for Tens · Dice Bingo · Subtraction Flashcard Families · Toppling Towers of 15 · Make That Number... One Way or Another

Scope & Sequence

Exploring Creation with Mathematics, Level 2

UNIT 2: Addition and Subtraction with Two-Digit Numbers (Continued)

Lesson	Summary	Main Themes	Supporting Activities
CHAPTER 4 *Going Deeper with Addition and Subtraction*	The student will learn how to choose the best subtraction strategy when solving a problem. The student will also practice using the bar model and repeated addition.	· Adding Even and Odd Numbers · Choosing the Best Subtraction Strategy · The Bar Model · Repeated Addition · Equal Groups	· Even and Odd Sums · Sort the Facts · Create Your Own Problem · Counting Arrays · Array Matching · Cookie Counter
CHAPTER 5 *Adding Two-Digit Numbers*	The student will learn how to add two-digit numbers using compensation. The student will also learn how to add two-digit numbers in expanded form and using the vertical format. Adding 3 and 4 numbers together will also be practiced.	· Adding One-Digit Numbers to a Two-Digit Number · Adding Two-Digit Numbers by Using Compensation · Adding Two-Digit Numbers in Expanded Form · Regrouping with Base Ten Blocks · Adding Two-Digit Numbers in the Vertical Format · Word Problem Workshop · Adding 3 & 4 Two-Digit Numbers	· Base Ten Block Addition · Bump It Up! · Styrofoam Cup Numbers · Choose Your Method · Flashcard Warmup · Two-Digit Addition Spinners · Make the Greatest · Four in a Row · Roll and Add
CHAPTER 6 *Subtracting Two-Digit Numbers*	The student will subtract two-digit numbers using different strategies and practice using vertical format.	· Subtracting a One-Digit Number from a Two-Digit Number · Two-Digit Subtraction with Number Lines · Subtraction with Base Ten Blocks · Subtraction Using Expanded Form · Subtraction with Regrouping in the Vertical Format · Word Problems	· Foldable Number Line · Subtracting with a Number Line · One Number 2 Ways · To Regroup or Not to Regroup? · Race to Zero · Two Digit Subtraction Spinners · Find What's Missing · Bar Model Matching Activity · Two-Digit Addition and Subtraction Poster

Continued on next page.

Scope & Sequence

Exploring Creation with Mathematics, Level 2

UNIT 3: Money and Time

Lesson	Summary	Main Themes	Supporting Activities
CHAPTER 7 *Money*	The student will practice counting coins and amounts over one dollar.	· Coin Exploration · Counting Up Coins · Making Amounts in Different Ways · The Dollar Bill · Amounts Over One Dollar · Shopping with Money	· Coin Exploration · Charlie's Chores · Make 25 Cents · Coin War · Make a Dollar · Spin to a Dollar · Spin Beyond a Dollar
CHAPTER 8 *Time*	The student will learn to tell time to the nearest 5 minutes and be able to use a.m. and p.m.	· Time to the Hour and Half Hour · Time to 5 Minutes · A.M. and P. M.	· Paper Plate Clock · Tell the Time Throughout Your Day · Using Your Paper Plate Clock · Make Your Own Catalog

UNIT 4: Addition and Subtraction with Three-Digit Numbers

Lesson	Summary	Main Themes	Supporting Activities
CHAPTER 9 *Adding Three-Digit Numbers*	The student will practice adding three-digit numbers using base ten blocks and will add three-digit numbers in expanded form and vertical form.	· Review Two-Digit Addition · Adding Three-Digit Numbers by Drawing · Adding Three-Digit Numbers in Expanded Form · Adding Three-Digit Numbers in the Vertical Format	· Addition Poster Review · Building Three-Digit Numbers · Edible Base Ten Blocks · Styrofoam Cup Numbers · Roll and Add in Expanded Form · Roll and Add in Vertical Format
CHAPTER 10 *Subtracting Three-Digit Numbers*	The student will learn how to subtract three-digit numbers using base ten blocks, by drawing, and in vertical format.	· Subtracting Three-Digit Numbers with Base Ten Blocks · Subtracting Three-Digit Numbers by Drawing · Subtracting Three-Digit Numbers in the Vertical Format · Subtracting Three-Digit Numbers with Zeros · Subtracting Three-Digit Numbers Mixed Review	· Subtraction Poster Review · Race to Zero · Smallest Difference · The Biggest Difference · Plan Your Own Party

Scope & Sequence

Exploring Creation with Mathematics, Level 2

UNIT 5: Measurement and Data

Lesson	Summary	Main Themes	Supporting Activities
CHAPTER 11 *Measuring Length*	The student will practice taking measurements in inches and feet using a ruler and tape measure and learn how to estimate and compare measurements.	· Rounding · Inches · Measuring in Inches with a Ruler · Estimating Measurements in Inches · Feet · Estimating Measurements in Feet · Comparing Measurements · Measurement Word Problems	· Measuring Plant Growth · How Many Inches? · Finding a 5 Inch Object · Playdough Worms · Measurement Monsters · How Many Feet? · Exploring the Tape Measure · How Tall Are You? · Write Your Own Word Problem
CHAPTER 12 *Measuring Length with a Different System*	The student will learn how to use metric measurements of centimeters and meters and be able to estimate and compare measurement.	· Centimeters · Measuring in Centimeters with a Ruler · Estimating Measurements in Centimeters · Meters · Comparing Measurements and Word Problems	· How Many Centimeters? · Finding a Ten Centimeter Object · Make a Meter String · Which is Greater?
CHAPTER 13 *Data and Graphs*	The student will learn how to record data on a tally chart and create and analyze picture, bar, and line graphs.	· Collecting Data · Picture Graphs · Bar Graphs · Line Graphs	· Grab and Tally · Make a Picture Graph · A Pop-Up Bar Graph · Expanding Balloon Experiment · Graphing and Analyzing Data

UNIT 6: Addition and Subtraction with Two-Digit Numbers

Lesson	Summary	Main Themes	Supporting Activities
CHAPTER 14 *Shapes*	The student will learn how to describe 3D and 2D shapes and practice identifying angles, symmetry, and equal parts.	· 3D Shape Exploration · 3D Shape Attributes · 2D Shapes · Angles · Symmetry · Equal Parts · Equal Parts Word Problems	· Playdough Models · Paper Shapes · Marshmallow Shapes · Shape Sort · Dot Paper Shape · Mirror Image · Playdough Parts · Pizza Party!

ADDITIONAL INFORMATION: All consumable materials found in the Answer Key are also available as a PDF on the title's Book Extras site. There are also additional PDF worksheets available for struggling students.

Scope & Sequence

Exploring Creation with Mathematics, Level 3

GRADE LEVEL: 3

TEXT SUMMARY: ***Exploring Creation with Mathematics,*** Level 3 is designed to expand students' knowledge of larger numbers and challenge students in their multiplication and division skills. This text also begins to develop students' understanding of fractions and geometry.

Unit 1: Addition and Subtraction Up To 1000

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 1 *Numbers to 1000*	The student will learn to round to the nearest ten, round to the nearest 100, and compare three-digit numbers.	· Place Value · Rounding to Tens · Rounding to Hundreds · Number Lines · Comparing Numbers · Mixed Review	· Right Digit, Right Place · Move to the Nearest Ten · Rounding to Tens · Roll and Round (to the Nearest Ten) · Round Up or Round Down? · Roll and Round (to the Nearest Hundred) · Build and Compare · Skills Check
CHAPTER 2 *Adding and Subtracting within 1000*	The student will practice counting to 1000 and learn to write three-digit numbers in different ways. The student will also learn how to compare three-digit numbers.	· Estimating Sums · Adding Three Digit Numbers in Expanded and Vertical Formats · Double Regrouping · Estimating Differences · Subtracting Three Digit Numbers in Vertical Format · Subtracting Across Zeros · Addition and Subtraction Word Problems · Two Step Word Problems · Mixed Review	· Flying Stars in Little Jars · Estimate and Match (1) · Flip and Add · Race to 1000 · Flip and Plot · Estimate and Match (2) · Subtract with Ten Blocks · Win the Nest Board Game · Act It Out · Skills Check · Unit 1 Project: Setting Up Your Lemonade Stand

Continued on next page.

Scope & Sequence

Exploring Creation with Mathematics, Level 3

Unit 2: Multiplication

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 3 *Introduction to Multiplication*	The student will use repeated addition, skip counting, and number lines to find the total in equal groups. The student will also begin to develop an understanding of multiplication basics including definitions and symbols.	· Equal Groups · Skip Counting · Multiplying Using the Number Line · Arrays · Multiplication · Communitive Property · Multiplying by Ones and Zeros · Reviewing Multiplication · Mixed Review	· Cube Towers · Equal Groups · Bead Necklace · Playdough Arrays · Array of 12 · Arrays Two Ways · Grouping It Up · Multiplication Matching Cards · Skills Check
CHAPTER 4 *Multiplication Facts and Practice*	The student will learn to multiply by 2, 10, 5, 3, and 4. Then the student will practice the multiplication facts that were just learned.	· Using Times Tables · Multiplying by 2 · Multiplying by 10 · Multiplying by 5 · Multiplying by 3 · Multiplying by 4 · Multiplication Fact Practice · Mixed Review	· Double Facts Bingo · Times Table Highlights · Beads and Fives · Times Table Highlighting 5's and 3's · Dot Paper Rectangles · Times Table Highlighting 4's · Battleship · Skills Check · Unit 2 Project: Selling Your Lemonade

Continued on next page.

Scope & Sequence

Exploring Creation with Mathematics, Level 3

Unit 3: Division

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 5 *Introduction to Division*	The student will begin to understand the concept of division by using counters, drawing circles, using repeated subtraction and arrays, and using bar models.	· Dividing · Division by Drawing and Circling Groups · Division by Using Repeated Subtraction · Bar Models · Arrays · Dividing by Zero and One · Mixed Review	· Toys and M&M's · Dealing Cards · Down to Zero · Warm Up: Steven's Stars · The Lewis Lunch · Groups of Ones and Zeros · Division Matching Cards · Skills Check
CHAPTER 6 *Division Facts and Practice*	The student will learn to relate multiplication and division. The student will also learn to divide by 2, 10, 5, 3, and 4 and practice memorizing division facts.	· Multiplication and Division Are Related · Dividing by 2 · Dividing by 10 · Dividing by 5 · Dividing by 3 · Dividing by 4 · Mixed Review	· Split Towers · Fill in the Facts · Count by 10's Warm Up · Dividing by 10 and 5 · Cut and Stick 3's Multiplication Facts · Flashcard Related Facts · Capture the Square · Skills Check · Unit 3 Project: Poster Review

Unit 4: Data and Measurement

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 7 *Data and Measurement*	The student will graph data on picture, bar, and line graphs. The student will also record time to the minute, find time intervals, and measure liquid volume and mass.	· Picture Graphs and Bar Graphs · Line Graphs · Time to the Minute · Time Intervals · Liquid Volume in Liters · Liquid Volume in Standard Units · Weight · Mixed Review	· Survey · Pattern Block Grab · Bouncy Ball Experiment · Make a Clock · Clock Matching Activity · Your Own Time Intervals · How Many Liters · Standard Units · Liquid Measurement Robot · Make a Scale · Skill Check · Unit 4 Project: Birds of My Backyard

Scope & Sequence

Exploring Creation with Mathematics, Level 3

Unit 5: More Multiplication and Division

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 8 *More Multiplication*	The student will begin to multiply by 6, 7, 8, and 9 and will practice memorizing multiplication facts.	· Multiply by 6 · Multiply by 7 · Multiply by 8 · Multiply by 9 · Multiplication Word Problems · Multiplication Review · Two-Step Word Problems · Mixed Review	· Flashcard Minute to Win It · Cut and Stick 6's Multiplication Facts · 8's Maze · 8's Fact Review · Write Your Own Multiplication Word Problem (1) · Battleship Multiplication · Write Your Own Multiplication Word Problem (2) · Skills Check
CHAPTER 9 *More Division*	The student will learn to divide by 6, 7, 8, and 9 and will practice memorizing division facts. The student will also learn to solve division word problems.	· Divide by 6 · Divide by 7 · Divide by 8 · Divide by 9 · Mixed Word Problems · Two Step Word Problems · Division Review · Mixed Review	· Solve, Cut, and Paste · Match the Facts · Times Table Review (8's) · Times Table Review (9's) · Write Your Own Division Word Problem (1) · Write Your Own Division Word Problem (2) · Game—Capture the Square · Skills Check · Unit 5 Project: Sports Program Manager

Unit 6: Fractions

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 10 *Introductions to Fractions*	The student will be introduced to fractions and learn to use fractions to describe parts of a whole or group. Students will also learn to label fractions on a number line and solve fraction word problems.	· Parts of a Whole · Unit Fractions · Fractions · Fractions of a Number Line · Fractions of a Group · Fractions Greater Than 1 · Fraction Word Problems · Mixed Review	· Equal Parts Cut Out · Fraction Measurements · Pattern Block Fractions · Bead Number Line · Fraction Group Sort · Making a Whole · Split It Up! · Skills Check

Scope & Sequence

Exploring Creation with Mathematics, Level 3

Unit 6: Fractions (continued)

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 11 *Compare Fractions*	The student will begin to compare fractions and find equivalent fractions.	· Rounding · Inches · Measuring in Inches with a Ruler · Compare Unit Fractions · Compare Fractions with Like Denominators · Compare Fractions with Like Numerators · Compare and Order Fractions · Equivalent Fractions · Fraction Review · Mixed Review	· Measuring Plant Growth · How Many Inches? · Finding a 5 Inch Object · Fraction Tiles · Graham Cracker Split · Comparing Fraction Circles · Compare to ½ · Fraction Tile Exploration · Fraction Matching Game · Skills Check · Unit 6 Project: Fraction Pizza Box

Unit 7: Geometry

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 12 *Perimeter and Area*	The student will learn how to find the perimeter and area of rectangles and other shapes	· Introduction to Perimeter · Measuring Perimeter · Finding a Missing Side · Perimeter Review · Introduction to Area · Measuring Area · Area of Rectangles · Area of Combined Rectangles · Area and Perimeter Problem Solving · Mixed Review	· Highlight the Perimeter · Make the Perimeter · Measuring Perimeter · Missing Measurements · Same Perimeter · Twelve Squares · Area and Perimeter · Comparing Areas Linking Cube Rectangles · Count or Color · Area and Perimeter Problem Solving · Skills Check

Continued on next page.

Scope & Sequence

Exploring Creation with Mathematics, Level 3

Unit 7: Geometry, (continued)

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 13 *Polygons*	The student will be able to identify polygons and non-polygons, classify polygons according to the number of sides and angles, and identify circles and their different parts.	• Polygons • Angles • Right Angles • Triangles (Part 1) • Triangles (Part 2) • Quadrilaterals (Part 1) • Quadrilaterals (Part 2) • Circles • Mixed Review	• Dot Paper Doodles • Doorway Angles • Straw Angles • Straw Triangles (Part 1 and 2) • Pattern Block Sort • Quadrilateral Matching Activity • Coffee Filter Circles • Skills Check • Unit 7 Project: Bird Sanctuary

ADDITIONAL INFORMATION: All consumable materials found in the Answer Key are also available as a PDF on the title's Book Extras site. There are also additional PDF worksheets available for struggling students.

Scope & Sequence

Exploring Creation with Mathematics, Level 4

GRADE LEVEL: 4

TEXT SUMMARY: ***Exploring Creation with Mathematics,*** Level 4 is designed to take the student's understanding of basic math concepts to the next level. Students learn new concepts in geometry and mathematical operations with fractions. The text is deliberate in providing examples of real-world applications and offers several practice opportunities and activities.

Unit 1: Numbers and Place Value

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 1 *Place Value*	The student will learn how to use place value to write numbers up to one million. The student will also learn how to write numbers in expanded and written forms and practice rounding numbers.	· Numbers to One Million · Numbers in Expanded Form · Numbers in Written Form · Comparing and Ordering · Rounding Numbers · Number Lines · Introduction to Problem Solving	· Math Scavenger Hunt · Expanded Form Flip Book · State Exploration · Place Value Math Search · Roll and Round (to the nearest hundred) · Clothespin Number Line · Skill Check
CHAPTER 2 *Addition, Subtraction, and Estimation*	The student will practice adding and subtracting large numbers. The student will also learn how to estimate sums and differences.	· Adding Large Numbers · Subtracting Large Numbers · Addition and Subtraction Word Problems · Estimation	· Adding Cut and Paste · Win the Fish Bowl · Estimation Sort · Skill Check · Unit 1 Project: Plan a Deep-Sea Exploration

Continued on next page.

Scope & Sequence

Exploring Creation with Mathematics, Level 4

Unit 2: Multiplication

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 3 *Multiplication Fact*	The student will practice multiplication facts and learn square numbers.	· Facts Review 2 to 10 · Square Numbers · Mixed Fact Review · Problem Solving Skills (Make a List or Table)	· Multiplication Fact War ·S kip Counting by 3's · Cut and Stick 6's Multiplication Facts · 7's and 8's Mazes · Square Number Tower · Greatest Area · Skill Check
CHAPTER 4 *Multiply by 1-Digit Numbers*	The student will learn to multiply using base ten blocks. The student will work on estimating products, multiplying in expanded form and multiplying in vertical format.	· Multiplying with Base Ten Blocks · Multiplying 10's, 100's, and 1000's · Estimating Products · Multiply Using Expanded Form · Multiply Vertically · Multiply Vertically with Regrouping ·Multiplication Word Problems	· Base Ten Block Multiplication · Multiply 10's and 100's with Base Ten Blocks · Base Ten Block Multiplication Cut and Paste ·T he Distributive Property qwe3ewith Arrays · Multiplied Money · More Money Multiplication · Skill Check
CHAPTER 5 *Multiply by 2-Digit Numbers*	The student will multiply 2-digit numbers using base ten blocks, using expanded form, and in vertical format.	· Multiplying 2-Digit Numbers with Base Ten Blocks · Multiplying by Tens Numbers · Estimating Products · Multiplying in Expanded Form · Multiplying in Vertical Format · Multiplication Word Problems	· Base Ten Block Multiplication · Ten Block Tens Multiplication · Grid Paper Multiplication · Estimating Two-Digit Products · Two Digit Multiplication Game · Skill Check · Unit 2 Project: Map Measurement

Continued on next page.

Scope & Sequence

Exploring Creation with Mathematics, Level 4

Unit 3: Geometry

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 6 *Plane Figures*	The student will learn how to use the building blocks of geometry. The student will also explore and discover the characteristics of plane figures.	· The Building Blocks of Geometry · Circles · Triangles · Parallel, Perpendicular, and Intersecting Lines · Quadrilaterals · Symmetry · Rotational Symmetry · Problem Solving Skills (Act It Out)	· Geometry Foldable · Drawing Circles · Drawing Triangles · Drawing Lines · Quadrilaterals Mini-Book · Drawing Quadrilaterals · Stingray Symmetry · Symmetry Spinners · Toothpick Puzzles · Skill Check
CHAPTER 7 *Angles*	The student will learn how to classify angles, estimate angle measurements, and measure and draw angles.	· Measuring Turns · Intro to Angles · Estimating Angles · Measuring Angles · Drawing Angles · Angle Word Problems	· Splendid Spinning · Angles in Architecture · Angle Sort · Protractor Exploration · Drawing Angles · Name Angles · Skill Check · Unit 3 Project: Geometric Snowflakes

Unit 4: Division

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 8 *Division Facts*	The student will practice division facts and find square roots.	· Facts Review 2 to10 · Square Roots · Mixed Fact Review · Problem Solving Skills (Guess and Check)	· Division Flashcard War · Flashcard Related Facts · Capture the Square with 6's and 9's · Times Table Division · Find the Side · Capture the Square · Skill Check

Continued on next page.

Scope & Sequence

Exploring Creation with Mathematics, Level 4

Unit 4: Division (Continued)

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 9 *Factors, Multiples, and Patterns*	The student will learn how to find factors and multiples of numbers. The student will also learn to use divisibility rules and patterns.	· Factors · Prime and Composite Numbers · Common Factors · Multiples · Common Multiples · Divisibility Rules and Patterns	· Rectangle Factors · Multiplication Bingo · Factor Pairs Cut and Paste · Multiples on the Hundreds Chart · Number Patters · Skill Check
CHAPTER 10 *Divide by a 1-Digit Number*	The student will explore division with remainders, estimate quotients, and divide using the vertical format.	· Dividing 3-Digit and 4-Digit Numbers · Remainders · Dividing 10's, 100's, and 1000's · Estimating Quotients · Vertical Division · Mixed Word Problems	· Dividing Money (I) · Left Over Snacks · Dividing Money (II) · Division Matching Activity · Estimation Scramble · Division Warmup (I) · Division Warmup (II) · Skill Check · Unit 4 Project: Beach Vacation

Unit 5: Measurement

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 11 *Area and Perimeter*	The student will be able to find the area of rectangles and composite figures. The student will also be able to find the perimeter of rectangles.	· Area of a Rectangle · Area of Composite Figures · Perimeter · Perimeter with Missing Lengths · Problem Solving Skills (Draw a Picture)	· Greatest Area Game · Comparing Areas · Swimming Sidewalk · Comparing Areas and Perimeters · Drawing Rectangles · Skill Check
CHAPTER 12 *Measurement*	The student will learn measure length, weight and volume. The student will also learn to measure time to the second and find elapsed time.	· Measuring Length · Measuring Weight · Liquid Volume · Weight and Liquid Volume in Metric · Time to the Second · Elapsed Time	· Measurement Exploration · Metric Measurement Exploration · Scale Exploration · Liquid Volume Review · Metric Measurements · Stand on One Leg · Skill Check · Unit 5 Project: Homemade Aquarium Exhibit.

Scope & Sequence

Exploring Creation with Mathematics, Level 4

Unit 6: Fractions and Decimals

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 13 *Fractions*	The student will find equivalent fractions and compare fractions.	· Introduction to Fractions · Fractions on the Number Line · Equivalent Fractions with Fraction Tiles and Number Lines · Equivalent Fraction Relationships · Simplify Fractions · Comparing Fractions · Ordering Fractions	· Fraction Roundup · Fraction Number Line Cut and Paste · Fill the Box Fraction Game · Fraction Dominoes · Spitting Fractions · Fraction Flowers · Fraction War · Compare to ½ · Fraction Sort · Skill Check
CHAPTER 14 *Decimals*	The student will use decimals to represent tenths and hundredths. The student will also be able to label decimals on a number line and compare decimals.	· Introduction to Decimals · Tenths and Hundredths · Decimals on Number Lines · Decimals Greater Than 1 · Decimals and Equivalent Fractions · Comparing Decimals	· Money Exploration · Base Ten Block Decimals (Part I) · Base Ten Block Decimals (Part II) · Draw a Number Line · Decimal Review Cut and Paste (I) · Decimals in Real Life · Decimal Review Cut and Paste (II) · Decimal Number Line · Decimal Scavenger Hunt · Skill Check
CHAPTER 15 *Operations with Fractions*	The student will add and subtract fractions with like denominators, add and subtract mixed numbers, and multiply fractions by a whole number.	· Adding and Subtracting Fractions · Mixed Numbers · Improper Fractions and Mixed Numbers · Adding and Subtracting Mixed Numbers · Multiplying Unit Fractions · Multiplying a Fraction by a Whole Number · Problem Solving Skills (Work Backwards)	· Fraction Food Addition · Fraction Tile Exploration · Measuring Mixed Numbers · Pattern Block Mixed Numbers · Pattern Block Addition · Pattern Block Subtraction · Fraction Tile Multiplication · Measuring Cup Fractions · Fraction Maze · Skill Check · Unit 6 Project: Cooking Up Fractions

ADDITIONAL INFORMATION: All consumable materials found in the Answer Key are also available as a PDF on the title's Book Extras site. There are also additional PDF worksheets available for struggling students.

Scope & Sequence

Exploring Creation with Mathematics, Level 5

GRADE LEVEL: 5

TEXT SUMMARY: ***Exploring Creation with Mathematics,*** Level 5 is designed to launch your mind on an educational journey to learn how numbers help us describe our world and universe. Students will learn new concepts in mathematical operations including multiplication, fractions, decimals, geometry, percents, and graphing. The text is deliberate in providing examples of real-world applications and offers several practice opportunities and activities.

Unit 1: Whole Numbers

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 1 *Place Value* *&* *Powers of Ten*	In this chapter the student will learn how to follow the order of operations. The student will also learn how to write numbers in expanded and written forms and use scientific notation.	· Place Value Review · Order of Operations · Parentheses and Brackets · Powers of Ten · Powers of Ten and Expanded Form · Scientific Notation · Problem Solving	· Place Value Detective · Order Matters · Order Operations Shuffle · Roll, Write, and Expand · Powers of Ten Slider · Powers of Ten Matching Activity · Skills Check
CHAPTER 2 *Multiplication, Factors, and Multiples*	In this chapter, the student will learn to multiply multi-digit numbers, find multiples and factors, and identify prime and composite numbers.	· Multiplying by Powers of Ten · Estimating Products · Multiply by 1-Digit Numbers · Multiply by 2-Digit Numbers · Multiply by Multi-Digit Numbers · Multiples and Factors · Prime and Composite Numbers · Multiplication Word Problems	· Powers of Ten Slider Review · Multiplying with Money · Factors Pairs Cut and Paste · Prime and Composite Rectangles · Skills Check
CHAPTER 3 *Division*	In this chapter the student will learn how to estimate quotients, as well as divide using repeated subtraction and long division.	· Dividing by Powers of Ten · Estimating Quotients · Divide Using Subtraction · Dividing by 1-Digit Numbers in the Vertical Format · Dividing by 2-Digit Numbers in the Vertical Format · Division Review · Division Word Problems	· Powers of Ten Slider Division · Estimation Secret Message · Repeated Subtraction Scramble · Edible Base Ten Block Division · Long Division Flip Book · Long Division Scramble · Skills Check · **Unit 1 Project: Mathematical Clue Game**

Continued on next page.

Scope & Sequence

Exploring Creation with Mathematics, Level 5

Unit 2: Fractions

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 4 *Adding* *And* *Subtracting Fractions*	The student will learn to find equivalent fractions and add and subtract fractions in this chapter.	· Fraction Concepts · Equivalent Fractions · Simplifying Fractions · Adding Fractions with Unlike Denominators · Subtracting Fractions with Unlike Denominators · Adding and Subtracting Fractions Practice · Improper Fractions · Adding and Subtracting Mixed Numbers	· Fraction Recognition Bingo · Fill the Box Fraction Game · Domino Fractions · Fraction Tile Addition · Fraction Tile Subtraction · Edible Mixed Numbers · Making A New Whole · Skills Check
CHAPTER 5 *Multiplying Fractions*	In this chapter the student will learn to multiply fractions and mixed numbers.	· Multiplying Whole Numbers And Fractions · Multiplying By Unit Fractions · Multiplying Fractions · Multiplying Mixed Numbers · Problem Solving Practice	· Pizzas and Graham Crackers · Folded Fractions (Pt. 1) · Folded Fractions (Pt. 2) · Skills Check
CHAPTER 6 *Dividing Fractions*	In this chapter the student will learn to divide fractions and solve multiplication and division word problems.	· Reciprocals · Dividing A Unit Fraction By a Whole Number · Dividing A Fraction By A Whole Number · Dividing a Whole Number By A Unit Fraction · Dividing A Whole Number By A Fraction · Mixed Multiplication And Division Word Problems	· Tile Reciprocals · Pattern Block Fractions · Paper Strip Division · Dividing Fractions Matching Activity · Sharing Equally · Skills Check · **Unit 2 Project: Building A Straw Bridge**

Continued on next page.

Scope & Sequence

Exploring Creation with Mathematics, Level 5

Unit 3: Decimals

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 7 *Adding And Subtracting Decimals*	In this chapter the student will learn how to use decimals to represent amounts as well as add and subtract decimals.	· Decimals To The Thousandths Place · Decimals In Expanded Form · Compare And Order Decimals · Rounding And Estimating Decimals · Adding And Subtracting Decimals · Adding And Subtracting Decimals Additional Practice · Problem Solving Practice	· Ways to Pay · Decimal Coloring · Decimal Matching Cards · Base Ten Decimals · Decimal Bingo · Skills Check
CHAPTER 8 *Multiplying Decimals*	In this chapter the student will learn how to multiply decimals by ten, estimate decimal products, and multiply decimals using place value.	· Multiplying Decimals By Tens · Multiplying Whole Numbers By 0.1 And 0.01 · Multiplying Decimals By Whole Numbers · Multiplying Using A Grid · Multiply Decimals · Field Trip Lunch	· Powers of Ten Slider · Decimal Multiplication with Base Ten Blocks · Multiplying Using An Area Model · Field Trip Lunch · Skills Check
CHAPTER 9 *Dividing Decimals*	In this chapter the student will learn how to divide decimals by tens, estimate decimal quotients, and divide decimals using place value.	· Divide Decimals By Tens · Estimating Decimal Division · Dividing Whole Numbers · Dividing Decimals By Whole Numbers · Dividing Decimals (Part One) · Dividing Decimals (Part Two) · Decimal Word Problems	· Powers of Ten Slider · Estimation Sort · Splitting the Bill · Base Ten Block Division · Souvenir Coins · Skills Check · **Unit 3 Project: Bubbling Balloons**

Continued on next page.

Scope & Sequence

Exploring Creation with Mathematics, Level 5

Unit 4: Geometry and Measurements

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 10 *Geometry*	In this chapter the student will learn to find the volume of rectangular prisms and identify the characteristics of polygons, triangles, and quadrilaterals.	· Area Review · Find Volume Using Unit Cubes · Volume of Rectangular Prisms · Volume Formula For Rectangular Prisms · Volume Of Composite Figures · Polygons · Triangles · Quadrilaterals	· Capacity and Volume Exploration · Cube Sculptures · Box Nets · Sugar Cube Rectangular Prisms · Build a Composite Figure · Polygon Collage · Triangle Foldable · Quadrilaterals Cut and Paste · Skills Check
CHAPTER 11 *Conversions*	The student will learn how to convert units of time as well as convert in the metric and customary systems.	· Elapsed Time · Converting Time · Converting Metric Lengths · Metric Capacity And Weight · Customary Length · Customary Volume And Weight · Two-Step Conversions · Problem Solving Practice	· The Race to 6 0'Clock · Metric Matching · Metric Length Cut and Paste · Activity Title · Age in Days · Skills Check · **Unit 4 Project: Build A Balloon Car**

Continued on next page.

Scope & Sequence

Exploring Creation with Mathematics, Level 5

Unit 5: Percents

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 12 *Introduction To Percents*	In this chapter the student will learn how to represent amounts with percents. The student will also learn to convert between fractions, decimals, and percents	· Percents In The World · Picturing Percents · Percents On A Number Line · Percent To Fraction · Percent To Decimal · Fractions, Decimals And Percents · Compare And Order Percents · Percents Mini-Project	· Percent Collage · Percents in the Refrigerator · Percent Number Line Cut and Paste · Fraction, Decimal, and Percents Dominoes · Fraction, Decimal, and Percents Puzzle · Skills Check
CHAPTER 13 *Percent Operations*	This chapter will teach the student how to find a percent, find the percent of a number, and create circle graphs.	· Finding A Percent (Using Fractions) · Finding A Percent (Using Decimals) · Percent Of A Number · Circle Graphs · Creating A Circle Graph · Problem Solving Practice	· Colorful Candy · Fraction, Decimal, and Percent Dominoes · Edible Percents · Common Fractions and Percents · Make Your Own Circle Graph · Skills Check • **Unit 5 Project: Managing A Million**

Continued on next page.

Scope & Sequence

Exploring Creation with Mathematics, Level 5

Unit 6: Graphing

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 14 *Data* *And* *Graphs*	In this chapter the student will learn how to organize data into tables, create and analyze graphs, and find an average.	· Data and Tables · Picture Graphs And Bar Graphs · Averages Graphically · Averages Algebraically · Create Line Plots · Analyze Line Plots · Averages On Data Displays · Create Line Graphs · Analyze Line Graphs · Wolf Data · Problem Solving Poster	· Snack Mix Data · Create Your Own Survey · Average Towers · Paper Airplane Flights · M&M and Pencil Length Line Plots · Book Measurements · Line Plot Averages · Weather Line Graph · Exploding Marshmallows · Wolf Refuge Data Displays · Skills Check
CHAPTER 15 *Graphing* *on the Coordinate Plane*	In this chapter the student will learn how to draw and label a coordinate plane as well as how to graph points on a coordinate plane.	· Number Lines · Mapping On A Grid · The Coordinate Plane · Points On The Coordinate Plane (Part One) · Points On The Coordinate Plane (Part Two) · Graphing Practice · Coordinate Graph Tic-Tac-Toe	· Magnetic Number Line · Making a Map Grid · Make A Coordinate Plane · Double Number Line Coordinate Plane · Plotting Points · Graphing Points with Zero Coordinates · Coordinate Graph Tic-Tac-Toe · Skills Check · **Unit 6 Project: Favorite Animal Data Poster**

ADDITIONAL INFORMATION: All consumable materials found in the Answer Key are also available as a PDF on the title's Book Extras site. There are also additional PDF worksheets available for struggling students.

Scope & Sequence

Exploring Creation with Mathematics, Level 6

GRADE LEVEL: 6

TEXT SUMMARY: ***Exploring Creation with Mathematics,*** Level 6 is designed to launch your mind on an educational journey to learn how numbers help us describe our world and universe. Students will learn new concepts in mathematical operations including multiplication, fractions, decimals, ratios, probabilities, percents, negative numbers, algebra and geometry. The text is deliberate in providing examples of real-world applications and offers several practice opportunities and activities.

Unit 1: WHOLE NUMBERS, DECIMALS, AND FRACTIONS

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 1 *Whole Numbers*	In this chapter the student will learn how to find multiples and factors. The student will also learn how to evaluate exponents and use the order of operations.	· Multiples · Multiplication · Factors · Prime Factorization · Long Division (Day One) · Long Division (Day Two) · Exponents · Squares and Square Roots · The Order of Operations (Day One) · The Order of Operations (Day Two) · Distributive Property	· The Most Multiples · Fabulous Factors · Long Division Scramble · Exponent Exploration · Square Number Bingo · Order of Operations Foldable · Skills Check
CHAPTER 2 *Decimals*	In this chapter the student will learn to add, subtract, multiply and divide decimals.	· Adding Decimals · Subtracting Decimals · Adding & Subtracting Decimals · Multiplying Decimals · Dividing Whole Numbers with Decimal Answers · Dividing Decimals · Decimal Mixed Review · Problem Solving Practice #1	· Decimals Board Game · Splitting the Bill · Dividing Grids · Takeout Night Money Management · Skills Check

Continued on next page.

Scope & Sequence

Exploring Creation with Mathematics, Level 6

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 3 *Fractions*	In this chapter the student will learn how to convert between fractions and decimals. The student will also learn how to add, subtract, multiply and divide fractions and mixed numbers.	• Fractions and Decimals • Repeating Decimals • Adding and Subtracting Fractions • Add and Subtract Mixed Numbers (Day One) • Add and Subtract Mixed Numbers (Day Two) • Multiply Fractions • Multiply Mixed Numbers • Divide Fractions • Divide Whole Numbers with Fraction Answers • Divide Mixed Numbers • Mixed Fraction Review	• Fraction and Decimal Memory • Calculator Conversions • Improper Domino War • Fill the Squares • Mixed Number Roll • Dividing Fraction Tiles • Splitting a Recipe • Improper Domino War • Skills Check • **Unit 1 Project: Geometric Art**

Unit 2: RATIOS, RATES, AND PERCENTS

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 4 *Ratios & Rates*	In this chapter the student will learn to use ratios to compare amounts. They will also learn how to find unit rates as well as compare rates.	• Ratios (Day One) • Ratios (Day Two) • Equivalent Ratios • Ratio Tables • Rates • Sugar Rates • Unit Prices • Zip Line Rates	• The Most Multiples • Fruit Salad Ratios • Flipping Coins • Acting Out Ratios • Sugar Rates • Comparing Prices • Zip Line Rates • Skills Check
CHAPTER 5 *Percents*	In this chapter the student will learn to convert between fractions, decimals, and percents. They will also learn to find percents as well as find the percent of a number.	• Introduction to Percents • Percent to Decimal • Percent to Fraction • Fractions, Decimals, and Percents (Day One) • Fractions, Decimals, and Percents (Day Two) • Ordering Fractions, Decimals, and Percents • Finding a Percent • Percent of a Number • Problem Solving Practice #2	• Fabulous Fiber • Percents Scavenger Hunt • Fractions, Decimals, and Percents Foldable • Crayon Sort • Paper Clip Number Line • Dice Roll • Skills Check • **Unit 2 Project: Ratios in the Human Body**

Continued on next page.

Scope & Sequence

Exploring Creation with Mathematics, Level 6

Unit 3: MEASUREMENT, DATA, AND PROBABILITY

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 6 *Measurement* *&* *Conversions*	In this chapter the student will learn how to convert units of time as well as convert in the metric and customary systems.	• Elapsed Time • Celsius and Fahrenheit • Measuring and Converting Length • Measuring and Converting Capacity • Measuring and Converting Weight and Mass • Problem Solving Practice #3	• Movie Math • Global Temperatures • Conversion • Skills Check
CHAPTER 7 *Displaying* *&* *Analyzing Data*	In this chapter the student will learn how to display and analyze data. Your student will also learn how to find the mean, median and mode as well as the range of a set of data.	• Bar Graphs and Line Graphs • Circle Graphs • Mean, Median, Mode, and Range • Box Plots • Histograms • Survey Mini-Project	• Measuring Melting • Left-Handed or Right-Handed Circle Graph • How Many Bikes? • Cut and Paste Histogram • Create Your Own Survey • Skills Check
CHAPTER 8 *Probability*	In this chapter the student will learn how to find the experimental and theoretical probability of an event.	• Experimental Probability • Theoretical Probability • Experimental and Theoretical Probability • Probability Word Problems • Probability in Monopoly	• Flipping a Coin • Dominating Dice • Comparing Experimental and Theoretical Probability • Probability with Cards • Winning Monopoly • Skills Check • **Unit 3 Project: Create Your Own Board Game**

Continued on next page.

Scope & Sequence

Exploring Creation with Mathematics, Level 6

Unit 4: NEGATIVE NUMBERS

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 9 *Introduction to Negative Numbers*	In this chapter the student will learn to graph and compare negative numbers. Your student will also learn to find opposites and the absolute value of integers.	· Integers and Opposites · Negative Numbers on the Number line (Part One) · Negative Numbers on the Number line (Part Two) · Comparing Negative Numbers · Absolute Value · Problem Solving Practice #4	· Negative Numbers in Real Life · Walkable Number Line (Part One) · Walkable Number Line (Part Two) · Absolute Value Exploration · Skills Check
CHAPTER 10 *Operations with Negative Numbers*	The student will learn how to add, subtract, multiply, and divide positive and negative integers.	· Adding Integers (Part One) · Adding Integers (Part Two) · Subtracting Integers (Part One) · Subtracting Integers (Part Two) · Multiplying Integers (Part One) · Multiplying Integers (Part Two) · Dividing Integers · Multiplying and Dividing Integers	· Walkable Number Line Addition · Negative and Positive Counting Chips · Walkable Number Line Subtraction · Subtracting a Negative with Counters · Multiplying Counters (Part One) · Dividing Counters (Part One) · Skills Check • **Unit 4 Project: Elevations**

Continued on next page.

Scope & Sequence

Exploring Creation with Mathematics, Level 6

UNIT 5: INTRODUCTION TO ALGEBRA

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 11 *Algebraic Expressions and Equations*	In this chapter the student will learn how to write and evaluate algebraic expressions. Your student will also learn how to write and solve algebraic equations.	• Properties of Numbers • Algebraic Expressions (Part One) • Algebraic Expressions (Part Two) • Simplifying Algebraic Expressions (Part One) • Simplifying Algebraic Expressions (Part Two) • Evaluating Algebraic Expressions (Part One) • Evaluating Algebraic Expressions (Part Two) • Writing Equations • Addition and Subtraction Equations (Part One) • Addition and Subtraction Equations (Part Two) • Multiplication and Division Equations • Mixed Equations	• Properties of Numbers Flipbook • Color the Expressions • Algebraic Expressions Matching Activity • Imaginary Job • Balancing Banana Boxes (Part 1) • Equation Chain • Balancing Banana Boxes (Part 2) • Balancing Banana Boxes (Part 3) • Skills Check
CHAPTER 12 *Inequalities*	This chapter will teach the student how to interpret inequalities with negative numbers as well as graphing inequalities.	• Introduction to Inequalities • Negative Inequalities • Graphing Inequalities • Inequality Word Problems • Mixed Inequality Review	• Inequalities in Real Life • Inequality Matching Activity • Inequalities in Real Life • Skills Check
CHAPTER 13 *Graphing Equations*	In this chapter your student will learn how to graph points on the four quadrants of the coordinate plane. Your student will also learn how to make a table of solutions for an equation as well as graph an equation.	• The Coordinate Plane • Graphing Points • Graphing Points with Zeros • Making Tables for Equations • Tables and Graphs (Part One) • Tables and Graphs (Part Two) • Problem Solving Practice #5	• Coordinate Plane Foldable • Graphing Bingo • Graphing Bingo with Zeros • Age Differences • Tables and Graphs Matching Activity • Skills Check • **Unit 5 Project: Equation Poster**

Continued on next page.

Scope & Sequence

Exploring Creation with Mathematics, Level 6

Unit 6: GEOMETRY

Chapter	Summary	Main Themes	Supporting Activities
CHAPTER 14 *Area and Two- Dimensional Figures*	In this chapter the student will learn how to find the area of figures as well as find distances on the coordinate plane.	• Area of Triangles (Part One) • Area of Triangles (Part Two) • Area of Parallelograms (Part One) • Area of Parallelograms (Part Two) • Composite Figures • Distance on the Coordinate Plane • Graphing Figures • Area and Perimeter on the Coordinate Plane	• Gridded Triangles • Dot Paper Triangles • Cutting Up Parallelograms • Composite Figure Exploration • Guess the Polygon • Skills Check
CHAPTER 15 *Three- Dimensional Figures*	In this chapter the student will learn how to identify 3D shapes and their properties. Your student will also learn how to find the surface area and volume of rectangular solids.	• 3D Shapes and Their Properties • Nets • Surface Area (Part One) • Surface Area (Part Two) • Volume (Part One) • Volume (Part Two)	• Sorting 3D Shapes • Fold-Up Shapes • Gridded Net • Surface Area of a Box • Volume of a Rectangular Prism • Measure Your Refrigerator • Skills Check • **Unit 6 Project: Marshmallow Mansions**

ADDITIONAL INFORMATION: All consumable materials found in the Answer Key are also available as a PDF on the title's Book Extras site. There are also additional PDF worksheets available for struggling students.

Scope & Sequence

Exploring Creation with General Science, 3rd Edition

GRADE LEVEL: 7th

TEXT SUMMARY: ***Exploring Creation with General Science***, 3rd Edition offers a broad range of scientific principles stretching from its ancient beginnings to modern day scientists who continue to seek a better understanding of God through His creation. Students will learn how to build upon a solid foundation by thinking more methodically, recording scientific data, and looking beyond what is already known. Earth sciences, chemistry, physics, life sciences, and environmental sciences are among the topics covered.

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 1 *The History of Science—Search for the Truth*	Human ability to use science to understand God's creation has developed over time. Module 1 journey's from ancient times to modern day understanding and helps us see the importance of having a solid foundation on which to build.	· Earliest Science: Ancient Times–600 BC · True Science Begins: 600 BC–AD 500 · Science Stalls and Gets Moving Again: AD 500–1500 · The "Golden Age" of Science—AD 1500–1660 · The Era of Newton: AD 1660–1735 · The "Enlightenment" and the Industrial Revolution: AD 1735–1820 · The Rest of the 19th Century: AD 1820–1900 · Modern Science: AD 1900–Present	· Density in Nature · A Chemical
MODULE 2 *Scientific Inquiry*	Understanding the objective of science and learning how to conduct research is essential in establishing clear and correct data. Module 2 explains the process of the scientific method. Understanding this method not only provides a means to conduct research but also protects against others who try to manipulate data for other purposes.	· Wrong Science · Systematic Experiments · The Scientific Method · The Limitations and Misuses of Science · Science and Christianity	· How Weight Affects the Speed at Which Objects Fall · More About How Weight Affects the Speed at Which Objects Fall · Surface Tension of Water

Continued on next page.

Scope & Sequence

Exploring Creation with General Science, 3rd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 3 *Documenting and Interpreting Experimental Results*	Designing experiments properly and recording data correctly are important in establishing a reliable scientific conclusion. Module 3 teaches the student how to recognize variables, record data, and interpret findings.	· Experiments and Variables · Recording Experimental Data · Using a Series of Experiments · Recognizing Experimental Variables When They Are Not Obvious · Interpreting and Recording Results of Experiments	· Density and a Floating Egg · Exploring a Flame's Oxygen Use · The Effect a Burning Candle Has on Air
MODULE 4 *Scientific Analysis and History*	Correct science is important for many reasons. Module 4 explains the uses of science including gaining knowledge (pure science), applying the knowledge (applied science), and advancing our abilities (technology).	· Pure Science, Applied Science, and Technology · Archaeology · Historical Records · The Internal, External, and Bibliographic Tests · Age Testing and Dendrochronology · Age Testing and Radiometric Dating · Relative Dating and the Principles of Superposition	· Dendrochronology
MODULE 5 *Earth Science—Astronomy*	Reaching out beyond earth's atmosphere not only widens our understanding of creation but also helps us understand our planet and its uniqueness. Module 5 explores the solar system and beyond.	· What is Astronomy? · Tools to Study the Heavens · Wavelengths of Light · The Sun and Solar Eclipses · Planets · The Moon · Non-Planetary Bodies · Comets and Meteors · Stars and Galaxies · Extrasolar Planets · Exploration of Space	· Make a Sundial · Friction

Continued on next page.

Scope & Sequence

Exploring Creation with General Science, 3rd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 6 *Earth Science—Geology and Paleontology*	Our unique planet provides us the essentials of physical life and offers insight into the beauty of God. Built within its structure is also historical record keeping. Module 6 explores the uniqueness of the earth and everything it has to offer.	· The Earth's Structure · The Lithosphere · Soil, Rocks, and Minerals · The Earth's Surface · Types of Weathering · Sedimentary Rock Strata · The Basic Structure of the Grand Canyon · The Fossil Record and Its Features · Geology and Paleontology Perspectives · Uniformitarianism and Catastrophism	·"Growing" Crystals
MODULE 7 *Earth Science—Meteorology and Oceanography*	The forces acting on the earth help to provide the earth's unique characteristics. Module 7 explores the study of meteorology and oceanography.	· Meteorology · Earth's Atmosphere · Weather · Atmospheric Water · Fronts and Storms · Weather Prediction · Climate · ENSO · Oceanography · Ocean Motion and Geography · Ocean Exploration and Study	· Make Some Clouds · Build Your Own Barometer
MODULE 8 *General Chemistry*	Everything in God's creation is made of the same basic building blocks. Module 8 delves into the study of chemistry and the orderly fashion in which it behaves.	· Matter, Atoms, Elements · The Periodic Table of the Elements · Bonds · Chemical Reactions · Chemical Versus Physical Changes · Types of Molecules	· Exposing Elements to Fire · Separating a Mixture of Sand and Salt

Continued on next page.

Scope & Sequence

Exploring Creation with General Science, 3rd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 9 *General Physics*	The physical universe around us is governed by certain physical principles and laws which determine how it will behave. Module 9 explains these principles of physics.	· Speed, Velocity, and Acceleration · Newton's 3 Laws of Motion · Forces · Simple Machines · Waves and Sound · Light	· Exploring Friction · Building an Electric Circuit · Wavelength, Frequency, and Sound
MODULE 10 *Life Science*	Since everything in the universe is made of the same material, what differentiates the living from the non-living? Module 10 explores the basic building blocks of life, reproduction and growth.	· DNA and Life · The Structure of DNA · Reproduction and Life · Energy and Life · Sensing and Responding to Change · The Cell · Regulation and Life · Growth and Life · Biological Classification · The 3 Domains in Creation · Taxonomy	· Building a Candy Model of DNA · Finding Food in Plants
MODULE 11 *General Biology*	Biology is the study of living organisms, their similarities, differences, and what they offer creation. Module 11 discusses several fields of biology from the smallest cell to the largest organism.	· Molecular Biology and Biochemistry · Cell Biology · Microbiology · Immunology · Mycology · Botany and Plant Physiology · Anatomy and Physiology · Zoology · Genetics · Evolutionary Biology · Other Branches of Biology	· Growing a Yeast Culture · Leaf Collection and Identification

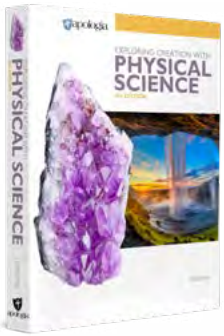
Continued on next page.

Scope & Sequence

Exploring Creation with General Science, 3rd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 12 *Marine Science*	Oceans cover about ¾ of our planet. Module 12 dives into these waters to provide a better understanding of marine environments and how the oceans affect life on land.	· The Oceans of the Earth · Tiny Ocean Organisms · Marine Plants · Ocean Invertebrates · Armored Ocean Invertebrates · Non-Bony and Bony Fishes · Other Marine Vertebrates · Reptiles and Birds · Marine Mammals · Marine Environments · Ocean Conservation	· An Edible Ocean Layer Model · Shark and Fish Buoyancy
MODULE 13 *Environmental Science*	Earth's land, oceans, atmosphere, and life are not each an entity onto themselves but interact and affect each other. Module 13 provides an understanding of environmental science and our responsibility as a part of God's creation.	· Ecosystem Influences · Food Relationships · Symbiosis · Ecological Cycles · Organization in Ecology · Man and the Environment	· Composting · Estimating Population Size
MODULE 14 *Science and Creation*	The quest to understand ourselves and how we came to be started with our ancient ancestors and continues to today. Module 14 highlights today's scientists and their continued desire to explore creation and give witness to God.	· Rube Goldberg Machine · Author's and Editors' Experiences and Thoughts	· Build a Rube Goldberg Machine

ADDITIONAL INFORMATION: This text has several complementary products that can be found at apologia.com. Additional resources and websites for further exploration of the topics in the text are provided at the Book Extras link for this title.



Scope & Sequence

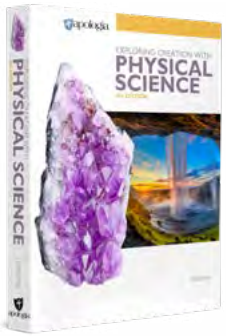
Exploring Creation with Physical Science, 4th Edition

GRADE LEVEL: 8th-9th
PREREQUISITES: 7th grade math

TEXT SUMMARY: This text covers the basic principles of chemistry, physics, and Earth science. Included in the text are many thought provoking and engaging experiments and activities which help to bring new concepts to life and to further spurn the curiosity of the young scientist.

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 1 *Science—The Basics*	Module 1 reviews the basics of science and how science works. Focus is on the scientific process and data obtained using this process.	· What is Science · The Scientific Process · Measuring and Manipulating Data · Organizing, Analyzing, and Presenting Scientific Data	· Making Observations · Qualitative and Quantitative Observations · Advanced Concepts: Testing Hypotheses · Advanced Concepts: Scientific Theories and Laws · Advanced Concepts: Scientific Model · Practice Collecting and Analyzing Data · Advanced Concepts: Graphing
MODULE 2 *Chemistry—Properties and States of Matter*	Module 2 reviews the concept of matter, its properties, and its changing forms.	· Classifying Matter · Properties of Matter · Changes in Matter	· Advanced Concepts: Heterogeneous and Homogeneous Mixtures · Advanced Concepts: States of Matter · Diffusion at Different Temperatures · Advanced Concepts: Metal vs. Nonmetal · Exploring Different Densities · Advanced Concepts: Physical Properties of a Substance · Volume and Density Change Activity · Advanced Concepts: Sublimation and Deposition · Advanced Concepts: Mineral Deposits · Changes in Matter

Continued on next page.

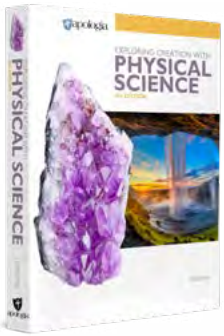


Scope & Sequence

Exploring Creation with Physical Science, 4th Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 3 *Chemistry—Atomic Structure and the Periodic Table*	Module 3 provides an introduction to atoms, elements, and molecules.	· A History of the Atom · Modern Atomic Theory · Organizing Elements: The Periodic Table	· Advanced Concepts: Laws: Conservation of Mass and Constant Composition · Advanced Concepts: Plum Pudding Model · Advanced Concepts: Isotopes · Advanced Concepts: Quantum Mechanical Model · Exploring the Plum Pudding and Bohr Models · Advanced Concepts: Creating a Periodic Table · Advanced Concepts: Element Groups
MODULE 4 *Chemistry—Chemical Bonds*	Module 4 familiarizes the student to the bonds within a molecule. It focuses on the composition of water and water's amazing properties which make it unique.	· A Model for Chemical Changes · Types of Chemical Bonding · The Wonder of Water	· Fruit Skewer "Molecules" · Advanced Concepts: Balancing Equations · Advanced Concepts: Electron Dot Diagrams · Advanced Concepts: Covalent Bonds · Polarity of Water · Comparing Solids · Forces Between Molecules

Continued on next page.

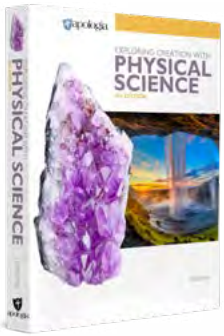


Scope & Sequence

Exploring Creation with Physical Science, 4th Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 5 *Chemistry—Reactions and Energy*	Module 5 discusses the interactions between atoms and molecules through reactions. The student will be introduced to chemical formulas and how to write chemical equations.	· Naming Compounds and Writing Formulas · Types of Reactions · Energy Changes in Reactions	· Advanced Concepts: Polyatomic Ions · Advanced Concepts: Writing Complex Formulas · Decomposition of Water · Advanced Concepts: Single & Double Replacement Reactions · Advanced Concepts: Bond Energy and Moles · Reaction Energy · Elephant Toothpaste
MODULE 6 *Physics—Motion*	Module 6 provides an introduction to motion along with mathematical approaches and applications to real world situations.	· Distance and Displacement · Speed and Velocity · Acceleration	· Advanced Concepts: Speed Calculations · Measuring Average Speed Activity · The Importance of Direction in Velocity · Advanced Concepts: Acceleration
MODULE 7 *Physics—Forces*	Module 7 explains the concept of force. In addition, it offers an in-depth understanding of Newton's three laws of motion.	· Forces · Newton's Laws of Motion · Fundamental Forces	· Acceleration Due to Gravity · Advanced Concepts: Calculating the Distance an Object Falls · Newton's First Law · Advanced Concepts: Calculating Force · Newton's Third Law · Balloon Rockets · Advanced Concepts: What Causes Gravitational Force?

Continued on next page.

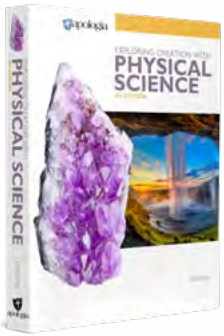


Scope & Sequence

Exploring Creation with Physical Science, 4th Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 8 *Physics—Energy*	Module 8 introduces the concepts of energy, work, power, and machines.	· Energy · Energy, Work, and Power · Work and Machines	· Energy of a Rubber Band · Ball Bounce · Advanced Concepts: Calculating Work and Power · Simple Machine Lever
MODULE 9 *Physics—Waves and Sound*	Module 9 provides an introduction to the structure of waves and their relationship to sound.	· Mechanical Waves · Properties of Waves · Sound	· Advanced Concepts: Surface Waves · Advanced Concepts: Frequency & Hertz Unit · Sound Waves · "Seeing" Sound Waves · Feeling Sound Waves · Amplitude and Loudness · Wavelength and Sound · The Doppler Effect · Advanced Concepts: Uses of Sound Waves
MODULE 10 *Physics—Light*	Module 10 offers an explanation about the makeup, characteristics, and behavior of light along with a scientific look at color.	· Electromagnetic Radiation and Electromagnetic Waves · The Electromagnetic Spectrum · The Behavior of Light	· Advanced Concepts: Electromagnetic Waves · Advanced Concepts: Evidence for the Wave and Particle Models · Visible Light · The Temperature of the Rainbow · The Law of Reflection · The Magical Quarter · Light Absorption and How the Eye Detects Color

Continued on next page.

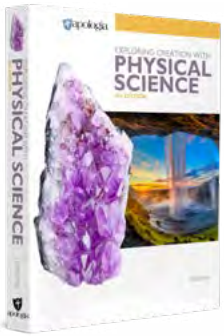


Scope & Sequence

Exploring Creation with Physical Science, 4th Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 11 *Physics—Electricity and Magnetism*	Module 11 discusses details of the electromagnetic force and introduces the study of electricity and magnetism.	· A Detailed Look at the Electromagnetic Force · Electrical Charge · Electrical Circuits · Magnetism	· Electrical Attraction and Repulsion · Advanced Concepts: Science and Math · Making and Using an Electroscope · Advanced Concepts: Charging by Induction · Current and Resistance · Advanced Concepts: Series and Parallel Circuits · Making an Electromagnet
MODULE 12 *Earth Science—Our Earth*	Module 12 provides an in-depth look at the Earth's structure, the lithosphere, and weathering.	· Earth's Structure · Rocks and Minerals · Processes of the Lithosphere	· A Simulation of Plastic Rock · Advanced Concepts: Properties of Minerals · Evaporation, Condensation, and Precipitation · Mechanical Weathering Model · Chemical Weathering Model · Advanced Concepts: Features Formed by Glaciers
MODULE 13 *Earth Science—Our Atmosphere and Beyond*	Module 13 introduces the student to the Earth's atmosphere and the many layers within the atmosphere. It then takes the student beyond the atmosphere, exploring the solar system and discussing space technology.	· Our Atmosphere · Energy in the Atmosphere · Beyond Our Atmosphere	· Carbon Dioxide and the Greenhouse Effect · Atmospheric Pressure · Advanced Concepts: Units of Pressure · Atmospheric Pressure Activity · Seeing the Effect of Changing Temperature

Continued on next page.

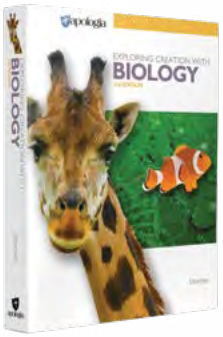


Scope & Sequence

Exploring Creation with Physical Science, 4th Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 14 *Chemistry and Physics in the Life Sciences*	Module 14 takes a closer look at the fundamental relationship between physical science and living organisms.	· Chemistry and Biology · The Chemistry of Life · Physics and Life	· Lipids · Advanced Concepts: Hydrogenation · Comparing Vitamin C in Fruit Juices · Bernoulli's Principle
MODULE 15 *Physical Science Research*	Module 15 presents the process of one way to perform science research. The student will choose a physical science topic studied in this course to investigate something further, following detailed steps to complete a project.	· Conducting Research · Preparing Your Research for Presentation · Your Turn to Research	· Advanced Concepts: Scientific Journals

ADDITIONAL INFORMATION: This text has several complementary products that can be found at apologia.com. Additional resources and websites for further exploration of the topics in the text are provided at the Book Extras link for this title.



Scope & Sequence

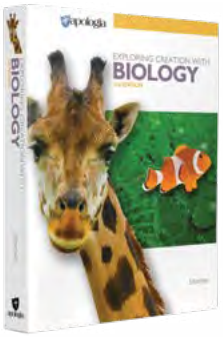
Exploring Creation with Biology, 3rd Edition

GRADE LEVEL: 9th

TEXT SUMMARY: This text is designed to introduce the study of biology and support the student as they explore both the broad and the detailed aspects of the discipline. The student will begin the journey with first understanding the smallest building blocks of life in chemistry and progress through the design of cells, cell processes, energy transfer, and cellular reproduction. Once the student has a solid understanding of the complexities in Creation, the text presents the broader understanding of life including the biological kingdoms and their interaction in our world.

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 1 *The Science of Life*	Module 1 introduces the characteristics used to define life, the scientific method, limitations of science and some of the tools use to study biology including the microscope.	· Scientific Method · Scientific Theory · Scientific Law · Limitations of Science · Discovery of Microorganisms · 6 Criteria for Life · Measurement · Microscope · Safety	· Introduction to the Microscope
MODULE 2 *The Chemistry of Life*	Module 2 presents the chemical building blocks of life beginning with the composition of matter and the elements and the importance of water to the organic chemical structures important to life.	· Atoms · Elements · The Periodic Table · Molecules and Compounds · Types of Bonds · Structure of Water · Properties of Water · Organic Molecules	· Investigating Water's Properties · How Effective is Your Antacid? · The Fragility of an Enzyme
MODULE 3 *Ecology*	Module 3 provides the framework in which organisms live. It discusses how energy is captured and transferred between organisms and how all living creatures exist with each other on the planet.	· Energy and Life · Producers, Consumers, Decomposers · Food Chain, Food Web, and Trophic Life · Ecological Pyramids · The Water Cycle · Global Climate · The Oxygen Cycle · The Nitrogen Cycle · The Phosphorus Cycle · Ecosystems and Biomes · Symbiosis · Measurement of Growth	· Carbon Dioxide and the Greenhouse Effect · How Does Competition Affect Plant Growth?

Continued on next page.

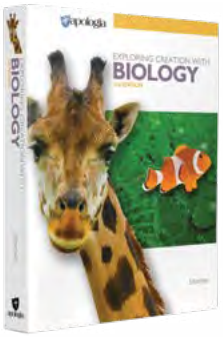


Scope & Sequence

Exploring Creation with Biology, 3rd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 4 *Cell Structure and Function*	Module 4 introduces the cell and all of its complexities. The module presents the study of cell structure, membranes, and movement through membranes.	· Cell Theory · Cell Structure and Organelles · Prokaryotic and Eukaryotic Cells · Membrane Function and Structure · Diffusion and Osmosis · Transport Systems	· Plant and Animal Cell Structure · Osmosis in Animal Cells · Plasmolysis in Plant Cells
MODULE 5 *Cellular Energy*	Module 5 delves into the highly complex functions within a cell which capture and produce energy and enable cellular respiration.	· Cellular Work · ATP · Photosynthesis · Electromagnetic Spectrum · Chloroplasts · Electron Transport Chain · Light Reactions · The Calvin Cycle · Cellular Respiration	· Pigments of Photosynthesis Paper Chromatography · Cellular Respiration and Fermentation in Yeast
MODULE 6 *DNA, Proteins, and the Cell Cycle*	Module 6 further explores the complexities of the cell including the composition and purpose of DNA, its role in protein synthesis and the cell cycle.	· Genetics · DNA, Genes, Chromosomes · History of Genetics · DNA Replication · Protein Synthesis: Transcription and Translation · Mitosis · Meiosis	· DNA Extraction · Mitosis
MODULE 7 *Genetics*	Module 7 introduces the study of genetics, most specifically Mendelion genetics, inheritance patterns, human genetics and gene technology.	· Mendelion Genetics · Allele · Genotype and Phenotype · Punnett Squares · Pedigree · Monohybrid Cross and Dihybrid Cross · Nonmendelian Inheritance Patterns · Dominance and Recessive Traits · Genetic Disorders · Gene Technologies	· Environmental Factors and Their Effect on Radish Leaf Color · Making Your Own Pedigree

Continued on next page.

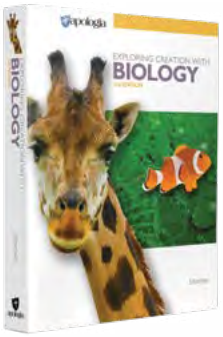


Scope & Sequence

Exploring Creation with Biology, 3rd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 8 *Evolution*	Module 8 discusses Charles Darwin's theory of evolution, natural selection, and the geological column and fossil records. It also provides information on the evidence provided in the study of molecular biology.	· Natural Selection · Charles Darwin · Microevolution and Macroevolution · Geological Column and Fossil Record · Structural Homology · Molecular Biology and Evidence	
MODULE 9 *Prokaryotes and Viruses*	Module 9 introduces the foundation of taxonomy and biological classification. It further discusses Archae, Bacteria, and Viruses.	· Taxonomy and Biological Classification · Domains and Kingdoms · Biological Key · Archae and Bacteria · Bacterial Cell Structure and Function · Types of Bacteria · Viruses · Virus Structure · Lytic Cycle and Lysogenic Cycle · Vaccines	· Using a Biological Key · Bacterial Fermentation—Making Yogurt
MODULE 10 *Protists and Fungi*	Module 10 discusses the classification and general characteristics of protists and fungi and their impact on life.	· Classifying Protists · Types of Protists · Structures of Protists · Types of Algae · Fungi Characteristics · Structure and Function of Fungi · Classifying Fungi · Life Cycle of Fungi · How Fungi Impact Life	· Pond Life—Part A · Protozoans, Algae, and Pond Life—Part B · Molds · Yeast · Club Fungi

Continued on next page.

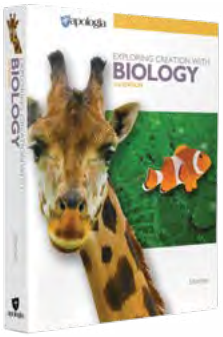


Scope & Sequence

Exploring Creation with Biology, 3rd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
Module 11 *Plant Diversity and Reproduction*	Module 11 introduces the study and classification of plants, their different characteristics, life cycles, and means of reproduction.	· Botany · Classifying Plants · Nonvascular and Vascular Plants · Bryophytes · Seedless Vascular Plants—Pteridophytes · Seed Plants · Gymnosperms and Angiosperms · Seed Plants Life Cycle of Bryophytes, Pteridophytes, Gymnosperms, and Angiosperms ·Flowers	· Flower Anatomy · Fruit Classification
Module 12 *Plant Structure and Function*	Module 12 provides a more in-depth understanding of plant structure, transport systems, growth, responses and unique designs.	· Plant Anatomy and Physiology · Plant Structure · Root Structure · Stems · Leaves · Transport of Water and Nutrients · Unique Designs of Flowering Plants	· Cross Sections of Roots, Stems, and Leaves · How Anthocyanins and pH Help Determine Leaf Color
MODULE 13 *Animals—Invertebrates Part 1*	Module 13 begins the study of the kingdom Animalia. Invertebrates characteristics and diversity are presented first.	· Characteristics of Animals · Invertebrates and Vertebrates · Diversity of Invertebrates · Regeneration · Anatomy	· Observation of Spicules of a Sponge · Observation of a Hydra · Earthworm Dissection · Observation of a Planarian

Continued on next page.

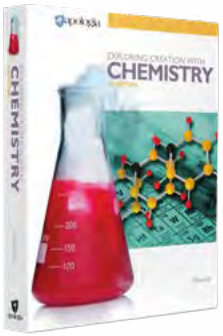


Scope & Sequence

Exploring Creation with Biology, 3rd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 14 *Animals—Invertebrates Part 2*	Module 14 takes a closer look at arthropods and echinoderms.	· Arthropods: Characteristics, Diversity, Anatomy · Arachnida: Characteristics and Anatomy · Chilopoda and Diplopoda · Insects: Characteristics and Anatomy · Echinoderms and Unique Design	· Crayfish Dissection
MODULE 15 *Animals—Chordates Part 1*	Module 15 introduces chordates, both nonvertebrate and vertebrate.	· General Characteristics of Chordates · Nonvertebrate Chordates · Vertebrate Chordates: Characteristics and Anatomy · Fishes: Diversity and Anatomy · Amphibians: Diversity and Anatomy · Reptiles: Diversity and Anatomy	· Perch Dissection · Frog Dissection · Alternate Experiment—Field Study II
MODULE 16 *Animals—Chordates Part 2*	Module 16 provides a closer look at birds, mammals, and animal behavior.	· Birds: Characteristics and Anatomy · Birds Feathers and Ability to Fly · Mammals: Characteristics and Anatomy · Classification of Mammals · Animal Behavior	· Bird Identification

ADDITIONAL INFORMATION: This text has several complementary products that can be found at apologia.com. Additional resources and websites for further exploration of the topics in the text are provided at the Book Extras link for this title.



Scope & Sequence

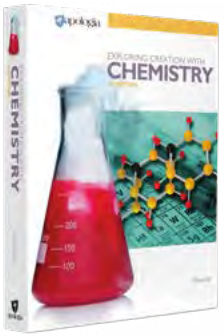
Exploring Creation with Chemistry, 3rd Edition

GRADE LEVEL: 10th

TEXT SUMMARY: Chemistry is not just elements on a chart or dots around a symbol. Chemistry is the substance of life on Earth. ***Exploring Creation with Chemistry***, 3rd Edition introduces the student to the concepts of chemistry and provides the strong foundation necessary to further understand many of the other sciences including biology, physics, astronomy, and countless others. ***Exploring Creation with Chemistry***, 3rd Edition will bring students one step closer to understanding their surroundings while strengthening their faith that the Creator has designed a magnificent and purposeful world. The material covered in this text lays the ground work for college level classes and will provide the student with the confidence needed to advance to more in-depth study and research.

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 1 *Measurement, Units, and the Scientific Method*	Module 1 provides an introduction to matter and how matter is measured. It provides a foundation of using units and converting units. Module 1 also introduces the scientific method.	· Units of Measurement · The Metric System · Manipulating Units · Converting Between Units and Unit Systems · More Complex Unit Conversions and Problem Solving · Derived Units · Making Measurements · Accuracy, Precision, and Significant Figures · Scientific Notation · Using Significant Figures in Mathematical Problems · Measuring Temperature · The Nature of a Scientific Law · Experimentation and Scientific Method	· Determining If Air Has Mass · Determining If Air Takes Up Space · Comparing Conversions to Measurements

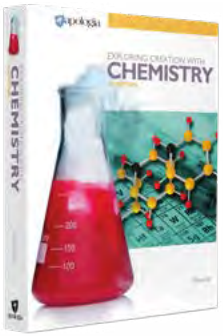
Continued on next page.



Scope & Sequence

Exploring Creation with Chemistry, 3rd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 2 *Atoms and Molecules*	Module 2 introduces elements and compounds. It also provides an understanding of how to name compounds and classify matter.	· Early Attempts to Understand Matter · The Law of Mass Conservation · Elements: The Basic Building Blocks of Matter · Compounds · The Law of Multiple Proportions · Dalton's Atomic Theory · Molecules: The Basic Building Blocks of Compounds · Abbreviating and Classifying Compounds · Classifying Matter as Ionic or Covalent · Naming Compounds · Classifying Matter	· Conservation of Mass · Electrical Conductivity of Compounds Dissolved in Water · Separating a Mixture of Sand and Salt
MODULE 3 *Atomic Structure*	Module 3 provides an in-depth look at the structure of atoms. Module 3 also teaches about the properties of light.	· Historical Overview · Electrical Charge and Atomic Structure · Determining the Number of Protons, Electrons and Neutrons in an Atom · Isotopes and Nuclear Bombs · Atomic Structure in More Detail · The Nature of Light · The Electromagnetic Spectrum · The Relationship Between Frequency and Energy · How the Eye Detects Color · The Bohr Model of the Atom · The Quantum Mechanical Model of the Atom · Electron Configurations · The Amazing Design of Atoms	· Investigating Electrical Charge · How Our Eyes Detect Color

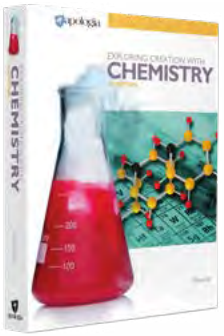


Scope & Sequence

Exploring Creation with Chemistry, 3rd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 4 *Molecular Structure*	Module 4 introduces the student to the periodic table and the structures of compounds. Lewis Structures and the application of Lewis Structures is also covered in this module.	· Electron Configurations and the Periodic Table · Lewis Structures · Lewis Structures for Ionic Compounds · Handling the Exceptions in · Ionic Compounds · Ionization Energy and Periodic Properties · Electronegativity · Atomic Radius · Lewis Structures of Covalent Compounds · Complicated Lewis Structures · An Application of Lewis Structures	This module contains no experiments.
MODULE 5 *Polyatomic Ions and Molecular Geometry*	Module 5 introduces molecular bonds and the VSEPR Theory. It discusses nonpolar covalent and polar covalent bonds and molecules.	· Polyatomic Ions · Molecular Geometry: The VSEPR Theory · Nonpolar Covalent and Polar Covalent Bonds · Nonpolar Covalent and Polar Covalent Molecules · The Practical Consequence of Whether or Not a Molecule Is Polar Covalent	· Comparing Polar Covalent and Nonpolar Covalent Compounds · Comparing Solubility of Ionic Compounds in Polar · Covalent and Nonpolar Covalent Compounds

Continued on next page.

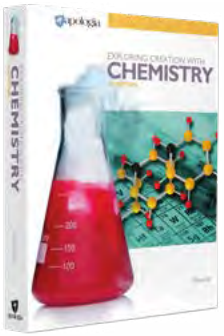


Scope & Sequence

Exploring Creation with Chemistry, 3rd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 6 *Changes in Matter and Chemical Reactions*	Module 6 provides an in-depth look at changes that occur in matter and illustrates this through chemical equations. The concept of balancing equations is also introduced.	· Classifying Changes That Occur in Matter · Phase Changes · The Kinetic Theory of Matter · Density · Phase Changes in Water · Chemical Reactions and Chemical Equations · Determining Whether or Not a Chemical Equation Is Balanced · Balancing Chemical Equations	· Distinguishing Between Chemical and Physical Change · Condensing Steam · The Relation Between the Speed and Temperature of Molecules · Comparing the Density of Liquids
MODULE 7 *Describing Chemical Reactions*	Module 7 reviews different types of chemical reactions and introduces the mole concept.	· Three Basic Types of Chemical Reactions · Decomposition Reactions · Formation Reactions · Combustion Reactions · Combustion of Metals · Complete Combustion Reactions · Incomplete Combustion Reactions · Atomic Mass · Molecular Mass · The Mole Concept · Using the Mole Concept in Chemical Equations	· Measuring the Width of a Molecule

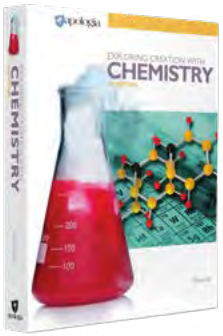
Continued on next page.



Scope & Sequence

Exploring Creation with Chemistry, 3rd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 8 *Stoichiometry*	Module 8 teaches the student how to analyze chemical equations and use them to determine relationships and formulas.	· Mole Relationships in Chemical Equations · Limiting Reactants and Excess Components · Fully Analyzing Chemical Equations · Relating Products to Reactants in Chemical Equations · Using Chemical Equations When the Limiting Reactant Is Identified · Volume Relationships for Gases in Chemical Equations · Mass Relationships in Chemical Equations · Using Stoichiometry to Determine Chemical Formulas · Empirical and Molecular Formulas · Complicated Experiments for Determining Chemical Formulas	· Determining Which Reactant Is the Limiting Reactant

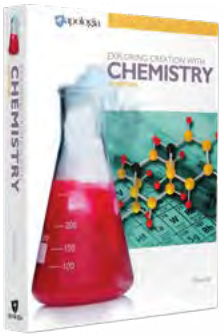


Scope & Sequence

Exploring Creation with Chemistry, 3rd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 9 *Acid-Base Chemistry*	Module 9 introduces acids and bases to the student. It provides a detailed look at the reactions between the two and the importance of concentration.	· Acids and Bases · The Chemical Definitions of Acids and Bases · The Behavior of Ionic Compounds in Aqueous Solutions · Identifying Acids and Bases in Chemical Reactions · Recognizing Acids and Bases from Their Chemical Formulas · Predicting the Reactions That Occur Between Acids and Bases · The Reactions Between Acids and Covalent Bases Molarity · The Dilution Equation · The Importance of Concentration in Chemistry · Using Concentration in Stoichiometry · Acid-Base Titrations	· Common Household Examples of Acids and Bases · Determining the Concentration of Ammonia
MODULE 10 *The Chemistry of Solutions*	Module 10 provides a closer look at solutions and the energy changes within solutions. It also teaches the student how to apply stoichiometry to solutions.	· How Solutes Dissolve in Solvents · Solubility · Energy Changes That Occur When Making a Solution · Applying Stoichiometry to Solutions · Molality · Freezing-Point Depression · Boiling-Point Elevation	· Determining the Effect of Temperature on the Solubility of Solid Solutes · Determining the Effect of Temperature on the Solubility of a Gas · Investigating a Solute That Releases Heat When Dissolved · Measuring Freezing-Point Depression

Continued on next page.

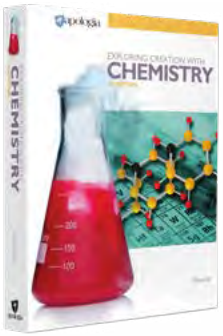


Scope & Sequence

Exploring Creation with Chemistry, 3rd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 11 *The Gas Phase*	Module 11 introduces the laws associated with pressure and gas. It also provides practice in using the Ideal Gas Law in stoichiometry.	· The Definition of Pressure · Boyle's Law · Charles's Law · The Combined Gas Law · Ideal Gases · Dalton's Law of Partial Pressures · Vapor Pressure · An Alternative Statement of Dalton's Law · The Ideal Gas Law · Using the Ideal Gas Law in Stoichiometry	· Determining the Ideal Gas Constant · Using the Ideal Gas Equation to Determine the Amount of Acid in Vinegar
MODULE 12 *Energy, Heat and Temperature*	Module 12 takes a look at energy and heat and its measurement. It also introduces the First Law of Thermodynamics.	· Energy and Heat · The First Law of Thermodynamics · Units for Measuring Heat and Energy · The Calorie Unit · Measuring Heat · Calorimetry	· Thermometer Calibration and Confirmation of Boiling and Freezing Temperatures of Water · Measuring the Specific Heat of a Metal
MODULE 13 *Thermodynamics*	In this module the student learns more about how energy is transferred during chemical reactions. Almost all chemical reactions either release or absorb energy. The universe runs on energy and since energy cannot be created or destroyed it is important to know how to keep a detailed accounting of what happens to the energy in order to fully understand the world around us.	· Enthalpy and determining ΔH of a chemical reaction · Hess's law · Applying enthalpy to stoichiometry · Energy diagrams · Second Law of Thermodynamics · Gibbs free energy	· Determining the Change in H of a Chemical Reaction

Continued on next page.

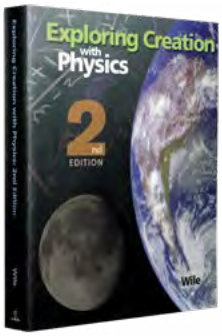


Scope & Sequence

Exploring Creation with Chemistry, 3rd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 14 *Kinetics*	Module 14 provides an introduction to kinetics and rate equations. Module 14 also provides an overview of catalysts and their role in the kinetics of chemical reactions.	· Reaction Kinetics · Factors that Affect the Kinetics of a Chemical Reaction · The Rate Equation · Using Experiments to Determine the Details of the Rate Equation · Rate Orders · Using Rate Equations · Temperature Dependence in the Rate Equation · Catalysts and Reaction Rate	· How Concentration and Temperature Affect Chemical Reaction Rates · The Effect of a Catalyst on the Decomposition of Hydrogen Peroxide
MODULE 15 *Chemical Equilibrium*	Module 15 provides an introduction to the concept of chemical equilibrium, the equilibrium constant and the use of the equilibrium constant in predicting the progress of a reaction.	· Chemical Equilibrium · The Equilibrium Constant · Using the Equilibrium Constant to Predict the Progress of a Reaction · Le Chatelier's Principle · Pressure and Le Chatelier's Principle · Temperature and Le Chatelier's Principle · Acid/Base Equilibria · The pH Scale · Acid Rain	· Demonstration of Equilibrium · Temperature Effects on Reactions and Le Chatelier's Principle
MODULE 16 *Reduction/Oxidation Reactions*	Module 16 provides an introduction to reduction/oxidation reactions including key concepts such as determining the oxidation number of an atom and recognizing a reduction/oxidation reaction. Module 16 also provides insight to how batteries work.	· Oxidation Numbers · Oxidation and Reduction · Recognizing Reduction-Oxidation Reactions · An Important Characteristic of Reduction-Oxidation Reactions · How Batteries Work · Real Batteries · Corrosion	· Demonstrating an Oxidation-Reduction Reaction · Creating a Galvanic Cell from Lemons

ADDITIONAL INFORMATION: This text has several complementary products that can be found at apologia.com. Additional resources and websites for further exploration of the topics in the text are provided at the Book Extras link for this title.



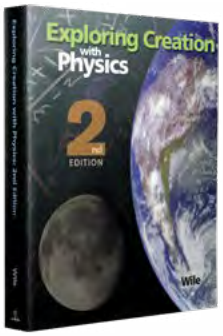
Scope & Sequence

Exploring Creation with Physics, 2nd Edition

GRADE LEVEL: 11th and/or working knowledge of Algebra 1, geometry and basic trigonometric functions.

TEXT SUMMARY: The science of physics is an attempt to explain everything that is observed in nature. This text is an overview of the advances made over the last three thousand years in that monumental task. It is designed as a college-prep physics course. Some important concepts covered are one and two-dimensional motion, Newton's laws and their applications in nature, work and energy, electricity, magnetism, momentum, periodic motion, waves and optics. This course uses quantitative applications to teach the details of how matter interacts in nature.

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 1 *Motion in One Dimension*	Module 1 provides an introduction to and basic understanding of distance, displacement, speed, velocity and acceleration.	· Distance and Displacement · Speed and Velocity · Acceleration	· Measuring Average Velocity · Measuring an Object's Acceleration
MODULE 2 *One-Dimensional Motion Equations and Free Fall*	Module 2 provides an introduction to mathematical applications used in analyzing one-dimensional motion. Module 2 also introduces the concept of free fall.	· Relating Velocity, Acceleration, Time, and Displacement · Using Mathematical Equations For One-Dimensional Motion · Free Fall · Terminal Velocity	· The Acceleration Due to Gravity Is the Same for All Objects · Determining a Person's Reaction Time · Factors That Affect Air Resistance
MODULE 3 *Two-Dimensional Vectors*	Module 3 provides an introduction to vectors and the use of vectors in analyzing two dimensional motion.	· Vectors · Adding and Subtracting Two-Dimensional Vectors: Graphical and Analytical Approaches · Vector Components · Determining a Vector's Components From Its Magnitude and Direction · Applying Vector Addition to Physical Situations	· Vector Components · Vector Addition
MODULE 4 *Motion in Two Dimensions*	Module 4 provides an introduction to quantitative science by applying two dimensional vectors to navigation and projectile motion.	· Navigation in Two Dimensions · Projectile Motion in Two Dimensions · The Range Equation	· The Two Dimensions of a Rubber Band's Flight · Measuring the Horizontal Speed of an Object Without a Stopwatch

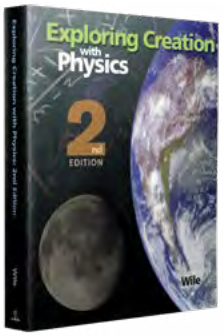


Scope & Sequence

Exploring Creation with Physics, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 5 *Newton's Laws*	Module 5 provides an overview of Newton's Laws of Motion. Module 5 also provides an introduction to friction.	· Sir Isaac Newton · Newton's First Law · Newton's Second Law · Mass and Weight · The Normal Force · Friction · An Equation for the Frictional Force · Newton's Third Law	· Inertia · The Frictional Force
MODULE 6 *Applications of Newton's Second Law*	Module 6 provides an in-depth study of Newton's Second Law of Motion applied to situations when multiple forces are involved.	· Translational Equilibrium · Translational Equilibrium and Measuring Weight · Rotational Motion and Torque · Rotational Equilibrium · Objects on an Inclined Surface · Applying Newton's Second Law to More Than One Object at a Time	· Measuring Acceleration in an Elevator · What Causes Rotational Acceleration? · Measuring a Coefficient of Static Friction
MODULE 7 *Uniform Circular Motion and Gravity*	Module 7 provides an analytical and quantitative approach to circular motion and gravity.	· Uniform Circular Motion · Centripetal Force and Centripetal Acceleration · Frictional Force · Gravity · Circular Motion Technology · Gravity and the Motion of Planets	· Centripetal Force
MODULE 8 *Work and Energy*	Module 8 provides an introduction to the concepts of work and energy and the role that friction plays in analyzing these two concepts.	· Defining Work and Energy · Kinetic and Potential Energy · The First Law of Thermodynamics · Friction, Work and Energy · Energy and Power	· Energy in a Pendulum · Estimating the Work Done by Friction

Continued on next page.

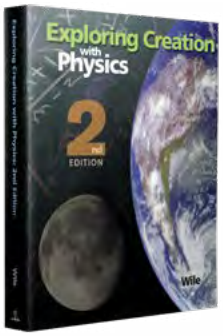


Scope & Sequence

Exploring Creation with Physics, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 9 *Momentum*	Module 9 provides an introduction to the concept of momentum and its relationship to impulse. Module 9 also provides an overview of the conservation to momentum and angular momentum.	· Momentum · Impulse · The Conservation of Momentum · The Mathematics of Momentum Conservation · Angular Momentum	· Egg Drop · Momentum and Energy Conservation
MODULE 10 *Periodic Motion*	Module 10 provides an introduction to periodic motion. Module 10 also provides a study of uniform circular motion and teaches a mathematical approach in examining a mass/spring system and a simple pendulum.	· Hooke's Law · Uniform Circular Motion · The Mass/Spring System · Potential Energy in Mass/Spring System · The Simple Pendulum	· Hooke's Law · The Characteristics of a Mass/Spring System
MODULE 11 *Waves*	Module 11 provides an introduction to waves and the different types of waves that have been found in nature.	· Waves · The Physical Nature of Sound · The Doppler Effect · Speed of Light · Light as a Wave · Light as a Particle · Biographies of Two Important Physicists	· Frequency and Volume of Sound Waves · The Doppler Effect
MODULE 12 *Geometric Optics*	Module 12 provides an introduction to optics (the study of the behavior of light) and provides an in-depth look at the use of mirrors and lenses in examining the behavior of light.	· The Law of Reflection · Flat/Spherical mirrors · Ray Tracing in Convex and Concave Spherical Mirrors · Snell's Law of Refraction · Converging/Diverging · Lenses · The Human Eye	· The Law of Reflection · Real and Virtual Images in a Concave Mirror · Measuring the Index of Refraction of Glass

Continued on next page.

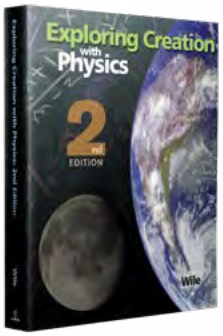


Scope & Sequence

Exploring Creation with Physics, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 13 *Coulomb's Law and the Electric Field*	Module 13 provides an introduction to electrostatics by building on the basic understanding of electric charge.	· The Basics of Electric Charge · Electrostatic Force/Coulomb's Law · Multiple Charges and the Electrostatic Force · The Electric Field · Calculating the Strength of the Electric Field · Applying Coulomb's Law to the Bohr Model of the Atom	· Attraction and Repulsion · Making and Using an Electroscope
MODULE 14 *Electric Potential*	Module 14 provides an introduction to electrical potential and its relationships to potential energy and potential difference. Module 14 also provides an overview of the application of electrical potential in capacitors and televisions.	· Electric Potential, Potential Energy, and Potential Difference · Conservation of Energy in an Electrical Potential · Capacitors · An Application of Capacitors · How a Television Makes Its Picture	· Making a Parallel-Plate Capacitor and Storing Charge
MODULE 15 *Electric Circuits*	Module 15 provides an introduction to electric circuits and their abilities to harness the kinetic energy of freely moving charges. Module 15 also provides an overview of circuit design and mathematical applications used to analyze circuits.	· Batteries, Circuits, and Conventional Current · Resistance · Electric Heaters · Electric Power · Switches and Circuits · Series and Parallel Circuits · Fuses and Circuit Breakers · Current and Power in Series and Parallel Circuits · Analyzing More Complicated Circuits	· Current and Resistance · Building a Simple Circuit to Turn on a Light Bulb · Series and Parallel Resistors

Continued on next page.

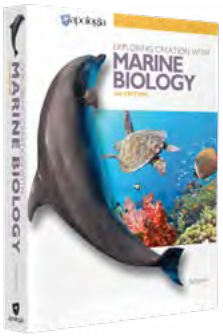


Scope & Sequence

Exploring Creation with Physics, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 16 *Magnetism*	Module 16 provides an introduction to the concept of magnetism. Module 16 also provides a in-depth look at magnetization, magnetic fields and the use of magnets in producing electricity.	· Permanent Magnets · Magnetic Fields · How Magnets Become Magnetic · Earth's Magnetic Field · The Magnetic Field of a Current-Carrying Wire · Faraday's Law of Electromagnetic Induction · Alternating Current	· Oersted's Experiment · Diamagnetic, Paramagnetic, and Ferromagnetic Compounds

ADDITIONAL INFORMATION: This text has several complementary products that can be found at apologia.com. Additional resources and websites for further exploration of the topics in the text are provided at the Book Extras link for this title.



Scope & Sequence

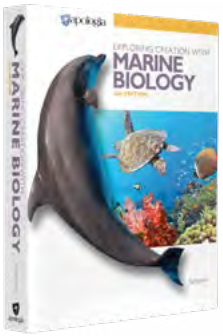
Exploring Creation with Marine Biology, 2nd Edition

GRADE LEVEL: 10th–12th with prerequisite of Biology

TEXT SUMMARY: Water covers 72% of our planet and makes up close to 99% of the living space on Earth. However, we know more about the surface of Mars than we know about the ocean floor. Dive into ***Exploring Creation with Marine Biology***, 2nd Edition and discover the living waters that God has placed all around us. Journey to the farthest depths of the ocean to explore life that exists in the most unlikely places. Learn how the ocean ecology is essential to our existence. Creation exists on every part of our planet. There is not one space that our Creator has not touched. Even the ocean floor is intelligently designed in order to support life.

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 1 *The Oceans of Our Planet*	Module 1 provides an introduction to the earth's structure and to ocean geography. Module 1 also introduces the properties of water and the forces that act on the oceans.	· The Geography of the Oceans · The Earth's Structure · Continental Drift and Plate Tectonics · Plate Interactions · Features of the Ocean Bottom · Properties of Water · Seawater · Salinity, Temperature, and Density · Light in the Sea · Pressure · The Motion of the Ocean · Waves · Tides · Vertical Motion	· Mountain Formation from Plate Movement · Removing the Salt from Salt Water · The Effects of Salinity and Temperature on the Density of Water · The Coriolis Effect · The Motion of Waves
MODULE 2 *Life in the Sea*	Module 2 introduces the student to life under the water. It provides an in-depth look at the essential elements necessary for life and the reproductive processes that enable life to continue.	· The Process of Life · Photosynthesis · Respiration · Cells · Levels of Organization · The Challenge of Life in the Sea · Diffusion and Osmosis · Temperature · Reproduction in the Sea · Asexual and Sexual Reproduction · Reproductive Strategies · Classifying Life in the Sea	· Photosynthesis · Respiration · Osmosis

Continued on next page.

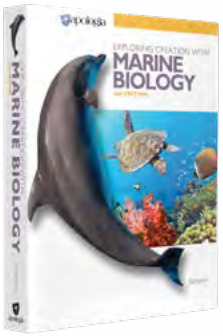


Scope & Sequence

Exploring Creation with Marine Biology, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 3 *The First Four Kingdoms*	Module 3 provides a detailed look at the Kingdoms Monera, Protista, Fungi, and Plantae.	· Kingdom Monera · Kingdom Protista: The Unicellular Algae · Diatoms · Dinoflagellates · Kingdom Protista: The Marine Protozoans · Foraminiferans · Radiolarians · Ciliates · Kingdom Protista: The Multicellular Algae · Green, Brown and Red Algae · Reproduction of Multicellular Algae · Kingdom Fungi · Kingdom Plantae · The Seagrasses · Salt Water Marsh Plants · The Mangroves	· Unicellular Algae · Marine Protozoans
MODULE 4 *Marine Invertebrates I*	Module 4 discusses invertebrates and vertebrates and provides and in-depth look at many marine invertebrates.	· Phylum Porifera · Phylum Cnidaria · Classes Hydrozoa, Scyphozoa, Anthozoa · Phylum Ctenophora · The Bilateral Worms · Phylums Platyhelminthes, Nemertea, Nematoda, Annelida · Class Polychaeta · Lophophorates	· Observation of a Sponge · One-Opening Gut vs. a True Digestive System

Continued on next page.

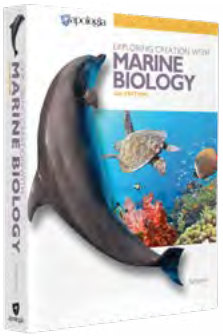


Scope & Sequence

Exploring Creation with Marine Biology, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 5 *Marine Invertebrates II*	Module 5 continues the study of marine invertebrates.	· Phylum Mollusca · Classes Gastropoda, Bivalvia, Cephalopoda, Other Classes · Mollusk Biology · Phylum Arthropoda · Class Crustacea · Crustacean Biology · Other Arthropod Classes · Phylum Echinodermata · Classes Asteroidea, Ophiuroidea, Echinoidea, Holothuroidea, Crinoidea · Echinoderm Biology · Phylum Chordata · Subphylums Urochordata and Cephalochordata	· The Clam · Crustacean Larvae · The Sea Star
MODULE 6 *Marine Vertebrates I*	Module 6 provides a study of several marine vertebrates and an in-depth look at their biology and behaviors.	· Classes Agnatha, Chrondrichthyes · Rays and Skates · The Bony Fishes · The Biology of Fishes · Coloration · Locomotion · Feeding and Digestion · The Circulatory System · The Gills and Respiratory System · Osmoregulation and Osmosis · The Nervous System · Social Behavior · Migration · Reproduction	· Types of Fish Scales · The Shark

Continued on next page.

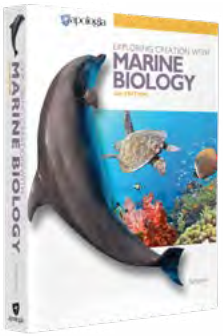


Scope & Sequence

Exploring Creation with Marine Biology, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 7 *Marine Vertebrates II*	Module 7 continues the study of marine vertebrates including reptiles, birds, and mammals.	· Classes Reptilia, Aves · Gulls and Similar Birds · Penguins · Shearwaters and Similar Birds · Pelicans and Similar Birds · Birds at the Shore · Class Mammalia · Orders Cetacea, Sirenia, Pinnipedia, Carnivora · Echolocation · Movement in the Water · Behavior · Mating and Reproduction	· Dolphin Echolocation · What Causes the Bends?
MODULE 8 *Marine Ecology*	Module 8 delves into the marine ecosystem and different types of relationships that exist in marine life.	· The Ecosystem · Population Growth · Predator and Prey Relationships · Symbiosis · Trophic Relationships · Primary Productivity · The Nitrogen and Carbon Cycles · Environmental Zones	· Exploring Carbon Fixation
MODULE 9 *The Intertidal Zone*	Module 9 introduces intertidal communities and breaks down these communities into different intertidal zones.	· Intertidal Communities · The Rocky Intertidal · Rocky Intertidal Abiotic Conditions · Intertidal Feeding and Reproduction · Wave Action · Surviving the Waves · Zonation of the Rocky Intertidal · The Intertidal Zones: Upper, Middle, Lower · The Sandy and Muddy Intertidal · Survival in the Mud	· Exploring Intertidal Sediments · The Movement of Water Through Sediment

Continued on next page.

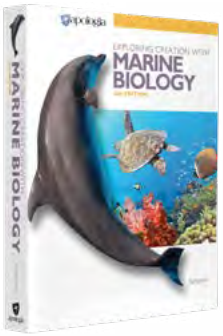


Scope & Sequence

Exploring Creation with Marine Biology, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 10 *Estuary Communities*	Module 10 provides and introduction to estuaries and an in-depth look at different aspects of estuaries.	· The Ice Age · Types of Estuaries · Abiotic Factors in Estuaries · Estuarine Communities · Estuarine Habitats · Wetland · Mudflats · Channels · Estuary Production	· Distribution of Mangroves in an Estuary
MODULE 11 *Coral Reefs*	Module 11 provides an introduction to coral reefs and the intricate details of their formations, growth, and relationships.	· Coral Reef Requirements and Locations · Reef Composition · Coral Reef Formation and Growth · Types of Reefs · Coral Reef Ecology · Reef Relationships · Symbiotic Relationships	· Examining Coral
MODULE 12 *Continental Shelf Communities*	Module 12 provides an overview of the continental shelf and the different communities that exist there.	· Physical Features of the Continental Shelf · Soft-Bottom Shelf Communities · Unvegetated Soft Bottom Environments · Vegetated Soft-Bottom Environments · Hard-Bottom Shelf Communities · Kelp Beds and Forests · Sea Urchins	· Meiofaunal Organisms

Continued on next page.

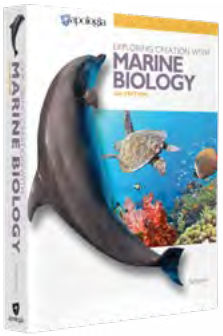


Scope & Sequence

Exploring Creation with Marine Biology, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 13 *The Epipelagic Zone*	Module 13 provides an introduction to the epipelagic zone and an in-depth look at life there.	· The Epipelagic Zone · Life in the Epipelagic · Epipelagic Phytoplankton, Zooplankton, Nekton · Staying Afloat in the Epipelagic · Living in the Epipelagic Zone · Vertical Migration · The Epipelagic Food Web · Primary Productivity · Nutrients and Productivity · El Niño—Southern Oscillation	· Observing Live Microplankton · Water Drag
MODULE 14 *The Deep Ocean*	Module 14 provides a study of the two zones under the epipelagic zone: the mesopelagic zone and the deep sea.	· The Mesopelagic · Food Webs · Body Design · The Deep Sea · The Deep Sea Floor · Hydrothermal Vents and Other Vent Communities · Deep Sea Photosynthesis	· Chemical "Bioluminescence" · The Bioluminescence of Plankton
MODULE 15 *Ocean Resources*	Module 15 provides a study of living and nonliving ocean resources.	· Food From the Sea · Food Species and Their Locations · Managing Populations · Mariculture · Other Living Resources · Nonliving Ocean Resources	· Mapping Ocean Resources

Continued on next page.

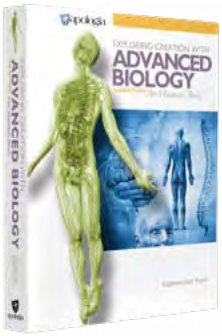


Scope & Sequence

Exploring Creation with Marine Biology, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 16 *Effects of Humans on the Sea*	Module 16 provides a closer look at how the human lifestyle effects all water sources.	· Ocean Habitat Damage · Effects on Coral Reefs · Pollution · Sewage, Fertilizers, Oil, Synthetic Pollutants, DDT · Other Toxic Chemicals · Metals and Other Toxic Materials · Trash and Other Debris · Our Responsibility	· Biomagnification

ADDITIONAL INFORMATION: This text has several complementary products that can be found at apologia.com. Additional resources and websites for further exploration of the topics in the text are provided at the Book Extras link for this title..



Scope & Sequence

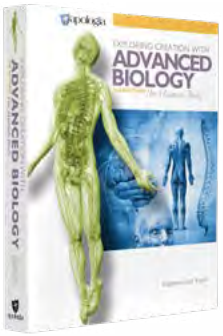
Exploring Creation with Advanced Biology The Human Body

GRADE LEVEL: 11th or 12th with prerequisite of Biology and Chemistry

TEXT SUMMARY: In this course you will explore the fascinating creation we call the human body. As you make your way through the modules, you will begin to understand how every part of the body has a purpose, each part being necessary for the other parts to function. This study will introduce the organizational levels of the human body from the cell to the 11 major systems. You will learn the anatomy and physiology of the human body and the efficiency with which each system works. The seamless integration of one system with the others and the intricacy at the molecular level represents a feat of engineering and design that could only come from God. We are truly fearfully and wonderfully made!

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 1 *Introduction to Anatomy and Physiology*	Module 1 provides an introduction to the organizational levels of the human body from the major organ systems to cellular functions.	· Anatomy Terms · Organization of the Human Body · Homeostasis · Cell Structure and Function · Protein Synthesis · Cellular Mitosis · Plasma Membrane · Membrane Transport Processes	This module contains no experiments.
MODULE 2 *Histology: The Study of Tissues*	Module 2 provides an in-depth look at different tissues in the body including their structures and functions.	· Epithelial Tissues · Glandular Epithelium · Connective Tissues · Cartilage · Bone and Blood Tissues · Membranes · Tissue Repair	· Microscope: Epithelial Tissues · Microscope: Microscopic Anatomy of the Salivary Glands
MODULE 3 *The Integumentary and Skeletal Systems*	A study of the integumentary system more commonly known as the skin. A study of the gross anatomy of the skeletal system.	· Basic Structure of Skin · Epidermis · Hair and Nails · Skin Glands · Skeletal System · Gross Anatomy of Bone · Details of the Appendicular Skeleton · Details of the Axial Skeleton	· Microscope: A Closer Look at the Skin · Microscope: A Closer Look at Follicles

Continued on next page.

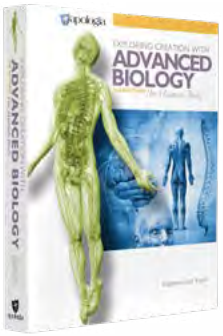


Scope & Sequence

Exploring Creation with Advanced Biology The Human Body

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 4 *Skeletal System Histology and Movement*	Module 4 provides a detailed look at the skeletal system: bone make-up and joint movement.	· Bone Histology Overview · Cancellous and Compact Bone Histology · Bone Growth and Remodeling · Bone Homeostasis · Nutrition for Bone Health · Three Major Types of Joints · Motion and Terms of Movement	· Calcium Salts in Bone · Microscope: Cancellous and Compact Bone Histology
MODULE 5 *The Muscular System Histology and Physiology*	Module 5 provides an introduction to muscle structures, functions, and how muscles perform those functions.	· Skeletal Muscle Structure · How a Muscle Fiber Contracts · Neuromuscular Junction · How a Muscle Fiber Relaxes · Motor Units · Muscle Tone · Energy in Skeletal Muscle Fibers · Warm-Up and Cool-Down	· Microscope: Skeletal Muscle Histology
MODULE 6 *The Skeletal Muscle System*	Module 6 provides an overview of how the individual muscles of the body come together to enable us to move and keep our shape.	· General Terms and Principles · Overview of the Skeletal · Muscle System · Major Muscles Groups Including the Head and Face; Anterior Chest and Abdominal Wall; Shoulder, Back and Arm; Forearm; Hand; Thigh; Leg; and Foot	This module contains no experiments.

Continued on next page.

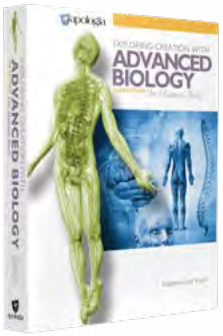


Scope & Sequence

Exploring Creation with Advanced Biology The Human Body

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 7 *The Nervous System*	Module 7 provides an overview of the central nervous system and the peripheral nervous system. Module 7 also provides an in-depth study of the nervous system at the cellular and molecular levels.	· Overview of the Entire Nervous System · The Nervous System at the Cellular Level · Neuroglia · Nerve Structure · Action Potentials · Synaptic Transmission · Neuron Arrangements	· Microscope: Neurons and Neuroglia
MODULE 8 *The Central Nervous System*	Module 8 provides an introduction to the complexity of the human brain and spinal cord.	· Brain Anatomy · Cerebrum in Detail · Important Brain Structures · Protection of the Brain · The Spinal Cord · The Reflex Arc · Ascending and Descending Pathways in the Spinal Cord	This module contains no experiments.
MODULE 9 *The Peripheral Nervous System*	Module 9 provides a detailed look at the peripheral nervous system and the general senses.	· Divisions of the Autonomic Nervous System (ANS) · Control of the ANS · Afferent Division of the Peripheral Nervous System · General Senses · Sense of Taste · Sense of Balance · Sense of Hearing · Sense of Vision: Eye Anatomy and Physiology	· Two-Point discrimination · Cow Eye Dissection

Continued on next page.

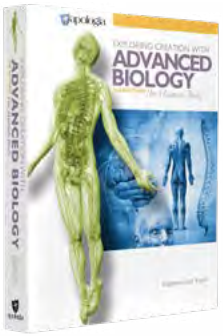


Scope & Sequence

Exploring Creation with Advanced Biology The Human Body

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 10 *The Endocrine System*	Module 10 provides an introduction to the endocrine system's make-up, chemical production, and function in the human body.	· Endocrine System as a Whole · Endocrine Glands and Hormones · Hormone Chemistry · Hormone Secretion Control · Hormone Receptors in the Body · Prostaglandins	This module contains no experiments.
MODULE 11 *The Cardiovascular System*	Module 11 provides an introduction to the blood, heart, and blood vessels that make up the cardiovascular system.	· Composition of Blood · Formed Elements in Blood · Blood as a Connective Tissue · Blood Types · Blood Circulation · Heart Anatomy · Cardiac Muscle and the Cardiac Cycle · Blood Vessels and the Entire Circulatory System	· Microscope: Examining a Blood Smear · Cow's Heart Dissection
MODULE 12 *The Lymphatic System*	Module 12 provides an introduction to the vast network of lymph vessels and lymph tissues in the human body and their functions.	· Lymph and Lymph Vessels · Functions of the Lymphatic System · Lymph Nodes · Spleen and Thymus Gland · Immunity · Innate Immunity · Innate Defense · Acquired Immunity: Humoral and Cell-Mediated · Types of Acquired Immunity and Autoimmunity	· Microscope: Histology of a Tonsil

Continued on next page.

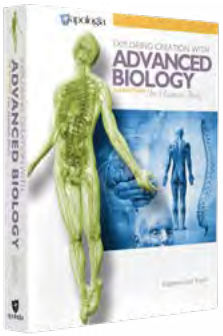


Scope & Sequence

Exploring Creation with Advanced Biology The Human Body

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 13 *The Digestive System*	Module 13 provides an introduction to the digestive system as a whole and a detailed look at the anatomy and function of each of its parts. Module 13 also provides an in-depth look at nutrition and what the body needs to stay healthy.	• Overview of the Digestive System • Mouth, Pharynx, and Esophagus • Stomach • Small Intestine • Large Intestine • Accessory Organs: Liver, Pancreas, Gallbladder • Nutrition • Micronutrients	• Microscope: Histology of the Stomach • Microscope: Histology of the Liver
MODULE 14 *The Respiratory System*	Module 14 provides an introduction to the anatomy of the respiratory system and the functions it performs at macro and micro levels.	• Anatomy and Functions of Respiratory System • Voice • Muscles and Mechanics of Ventilation • Factors that Aid Ventilation • External Respiration • Gas Exchange During External and Internal Respiration • Respiratory Control • Cellular Respiration: Glycolysis, Oxidation of Pyruvate, Citric Acid (Krebs) Cycle, Electron Transport Chain • Review of Cellular Respiration	• Microscope: Histology of the Lung

Continued on next page.



Scope & Sequence

Exploring Creation with Advanced Biology The Human Body

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 15 *The Urinary System*	Module 15 provides an introduction to the anatomy of the urinary system and the processes that it performs to provide balance to the body while removing harmful toxins.	· Anatomy of Urinary System · Urine Formation: Overall Scheme, Glomerular Filtration, Secretion, Reabsorption of Water · Storage and Release of Urine · Blood Pressure Control by the Kidneys · Acid-Base Balance in the Body	· The Bicarbonate Buffer
MODULE 16 *The Reproductive System*	Module 16 provides an introduction to the anatomy of both the male and female reproductive systems and the part they play in the miraculous conception of human life.	· Anatomy of the Male Reproductive System · Meiosis · Spermatogenesis · Hormonal Control of Male Reproduction · Anatomy of the Female Reproductive System · Oogenesis · The Menstrual Cycle · Fertilization, Development, and Parturition	· Microscope: Spermatogenesis and Sperm · The Fetal Pig Dissection

ADDITIONAL INFORMATION: This text has several complementary products that can be found at apologia.com. Additional resources and websites for further exploration of the topics in the text are provided at the Book Extras link for this title.

Scope & Sequence

Exploring Creation with Advanced Chemistry, 2nd Edition

GRADE LEVEL: 12th with prerequisite of Chemistry and Algebra 2

TEXT SUMMARY: ***Exploring Creation with Advanced Chemistry,*** 2nd Edition will take you on a journey through the fascinating world of dancing molecules, balancing electrons, and the physical creation of all things including ourselves. Building on the concepts and tools learned in general chemistry, this text will provide a solid understanding of complex chemistry theories and models so that the student is prepared for the college advanced placement exam.

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 1 *Units, Chemical Equations, and Stoichiometry Revisited*	Module 1 reviews basic concepts of chemistry. The modules following will build upon these concepts.	· Units Review · Chemical Equations · Hess's Law · Stoichiometry and Limiting Reactants · Stoichiometry, Percent Yield, and Multiple Reactions	· The Strength of Household Ammonia
MODULE 2 *The Atom Revisited*	Module 2 delves into the make-up of the world at the atomic level. Grasp the concept of "the atom" in all of its complexity and color.	· The Atom · The Bohr Model and Atomic Spectra · The Size of an Atom · Quantum Mechanical Model · Determining Quantum Numbers for Individual Electrons	· Colors in Chemistry
MODULE 3 *The Electronic Structure of Molecules*	Module 3 provides an understanding of how atoms interact with each other and share space. Learn the concept and see it in color.	· How Atoms Share Electrons · Hybrid Orbitals · Molecular Orbitals · Molecular Orbitals—The Rule Breakers	· The Effect of Solvent on the Color of a Substance

Continued on next page.

Scope & Sequence

Exploring Creation with Advanced Chemistry, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 4 *Intermolecular Forces and the Phases of Matter*	Module 4 provides information about the forces that hold everything together.	· Applying the Kinetic Theory of Matter to Phase Changes · Different Types of van der Waals Forces · Cohesive Forces, Adhesive Forces, and Surface Tension · Phase Diagrams · Crystals and Unit Cells · Metallic Crystals · Determining Density from Crystal Structure · Ionic Crystals	· The Kinetic Theory of Matter · Separating a Mixture Using Sublimation · Identifying Unit Cells
MODULE 5 *Solutions and Colloids*	Module 5 provides the key terms, concepts and mathematical formulas to create and measure solutions. Learn how to use temperature to conceptualize and measure change.	· Concentration, Solubility, and the Formation of Solutions · Relating Units of Concentration · Solubility, van der Waals Forces, and Entropy · Temperature and Solubility · The Effect of a Solute on a Solvent's Phase Diagram · Separating Solute From Solvent in a Solution · Colloids	· A Solubility Curve · A Simple Distillation · Paper Chromatography · Forming Colloidal Particles with Soap
MODULE 6 *Solutions and Equilibrium*	Module 6 clarifies the meaning of equilibrium and why it is important in understanding solubility and saturation. This module also explains *the common ion effect.*	· The Equilibrium Constant and Gibbs Free Energy · Solubility Equilibria · The Common Ion Effect · Precipitation from Solution	· The Common Ion Effect · Precipitation · Making Your Own Precipitate

Continued on next page.

Scope & Sequence

Exploring Creation with Advanced Chemistry, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 7 *Acid/Base Equilibria*	Module 7 applies the equilibrium constant to other types of chemical reactions. This module focuses on acids and bases.	· Common Definitions of Acids and Bases · Conjugate Acids and Conjugate Bases · The Real Meaning Behind the pH Scale · Calculating the pH of a Solution of an Acid or Base · Amphiprotic Substances and Their Behaviors · Diprotic and Triprotic Acids · Alternate Definitions of Acids and Bases	· Calculating Concentration from pH
MODULE 8 *More on Equilibrium*	Module 8 continues to discuss equilibrium while introducing buffers.	· Buffer Solutions · The pH of a Buffer · The Common Ion Effect and pH · The Technique of Successive Approximations · Other Equilibrium Situations	· The Bicarbonate Buffer
MODULE 9 *Electrochemistry Part 1*	Module 9 introduces the concept of electrochemistry by reviewing redox reactions and establishing mathematical equations to produce and measure chemical reactions. Electrolysis is also discussed.	· Review of Oxidation Numbers · Analyzing Redox Reactions · Galvanic Cells · The Nernst Equation · Electrolytic Cells · Faraday's Law of Electrolysis	· A Redox Reaction between Copper and Zinc · Making Your Own Galvanic Cell · The Electrolysis of Copper Sulfate

Continued on next page.

Scope & Sequence

Exploring Creation with Advanced Chemistry, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 10 *Electrochemistry Part 2*	Module 10 explores electrochemistry that occurs outside of a cell, teaches how to balance redox reactions, and explains how to measure redox reactions.	· Balancing Redox Reaction—The Half-Reaction Method · Balancing Redox Reactions—The Change in Oxidation Number Method · The Strengths of Oxidizing and Reducing Agents · Relating Redox Potential to ΔG and the Equilibrium Constant · Corrosion	· Predicting Redox Reactions
MODULE 11 *Chemical Kinetics*	Module 11 focuses on understanding and measuring the kinetic properties of a chemical reaction.	· Reaction Rate, the Rate Equation, and the Rate Constant · The Kinetics of a Chemical Reaction · First-Order Chemical Reactions · Second-Order Reactions · The Collision Theory of Chemical Kinetics · Reaction Mechanisms and Reaction Rates	· The Rate of an Iodine Clock Reaction
MODULE 12 *An Introduction to Organic Chemistry*	Module 12 introduces organic chemistry, describes what makes something "organic" and compares how it is chemically different from something "inorganic".	· Saturated Hydrocarbons · Alkenes and Alkynes · Aromatic Compounds · Petroleum Polymers	· Investigating the Properties of Polyethylene · Making Slime · Cross-Linking a Polymer

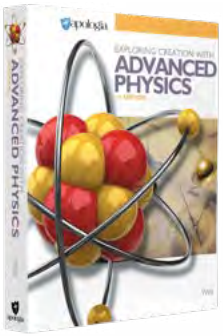
Continued on next page.

Scope & Sequence

Exploring Creation with Advanced Chemistry, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 13 *Functional Groups in Organic Chemistry*	Module 13 introduces variations of the common organic carbon chain. These are called functional groups.	· Alcohols · Ethers · Aldehydes and Ketones · Carboxylic Acids · Esters · Amino Acids and Proteins · Carbohydrates · Organic Chemistry and Biochemistry	· Yeast and Fermentation Process · The Hydrolysis of Sucrose
MODULE 14 *Nuclear Chemistry*	Module 10 explores electrochemistry that occurs outside of a cell, teaches how to balance redox reactions, and explains how to measure redox reactions.	· Balancing Redox Reaction—The Half-Reaction Method · Balancing Redox Reactions—The Change in Oxidation Number Method · The Strengths of Oxidizing and Reducing Agents · Relating Redox Potential to ΔG and the Equilibrium Constant · Corrosion	This module contains no experiments.
MODULE 15 *Review Part 1*	Module 15 is designed to review basics taught in this course through questions and problems.	· Questions and Problems to Assist in Review of the Material Learned in this Course	This module contains no experiments.
MODULE 16 *Review Part 2*	Module 16 continues to review the basic and more complex concepts through questions and problems. This module also provides some insight into preparing for the Advanced Placement Chemistry Exam.	· Questions and Problems to Assist in the Review of the Material Learned in this Course · How to Prepare for the Advanced Placement Chemistry Exam	This module contains no experiments.

ADDITIONAL INFORMATION: This text has several complementary products that can be found at apologia.com. Additional resources and websites for further exploration of the topics in the text are provided at the Book Extras link for this title.



Scope & Sequence

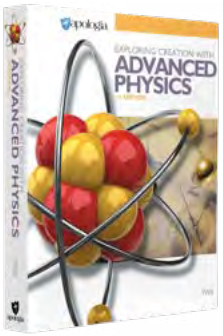
Exploring Creation with Advanced Physics

GRADE LEVEL: 12th with prerequisite of Physics and Pre-calculus

TEXT SUMMARY: ***Exploring Creation with Advanced Physics*** is designed to provide a deep and insightful understanding of the way in which our world and universe function. The course offers both written and mathematical explanations of both fundamental and abstract areas of physics. Because the concepts introduced in this text are detailed and complicated, the author keeps the subject interesting, thought provoking, and teaches in a way that is unintimidating. This text is written at an advanced level and will help prepare students for the physics advanced placement exam.

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 1 *Units and Vectors Revisited*	Module 2 provides an essential review of basic physics concepts including units and vectors.	· Units · Vectors · Unit Vectors · The Dot Product and Its Physical Significance · The Cross Product and Its Physical Significance	This module contains no experiments.
MODULE 2 *Kinematics*	Module 2 provides the tools necessary to be able to describe motion in detail.	· Position Versus Time Graphs · Velocity Versus Time Graphs · The Major One-Dimensional Motion Equations · Air Resistance and Terminal Velocity · Kinematics in Two Dimensions	· Measuring Vertical Pitching Speed · The Effect of Cross Section on Air Resistance
MODULE 3 *Newton's Laws*	Module 3 introduces the laws of motion established by Sir Isaac Newton.	· Newton's Three Laws of Motion · Inertial Reference Frames and Inertial Mass · Newton's Second Law · Newton's Third Law	· Building and Using Atwood's Machine · Measuring the Coefficient of Kinetic Friction
MODULE 4 *Energy and Momentum*	Module 4 applies the concepts of energy and momentum to different situations including the collision of two objects.	· Review and Applications of Energy Concepts and Equations · Power · Momentum and Impulse · Collisions in Two Dimensions	· Ping Pong Pendulums · Conservation of Momentum and Energy

Continued on next page.

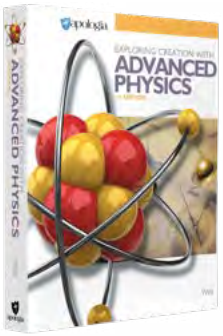


Scope & Sequence

Exploring Creation with Advanced Physics

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 5 *Rotational Motion*	Module 5 introduces the concept of rotational motion and provides written and mathematical explanations.	· The Center of Mass · Torque and Static Rotational Equilibrium · Rotational Motion · Rotational Dynamics · Rotational Energy · Angular Momentum	· The Center of Mass · Static Rotational Equilibrium · The Direction of the Angular Momentum Vector
MODULE 6 *Oscillations and Waves*	Module 6 focuses on oscillations and waves and how they apply to motion.	· The Mass/Spring System · The Pendulum · Transverse and Longitudinal Waves · The Propagation of Waves · Harmonic Waves · Reflection and Superposition of Waves · Standing Waves	· The Simple Pendulum and the Physical Pendulum
MODULE 7 *Sound and Light*	Module 7 takes a deeper look at waves, specifically sound and light waves.	· Sound Waves · Standing Sound Waves · Beats · The Doppler Effect · Light: Electromagnetic Waves · Reflection and Refraction · Flat Mirrors · Curved Mirrors and the Mirror Equation · Lenses	· Sound Waves in a Bottle and the "Bottle Paradox" · Interference of Light Waves

Continued on next page.

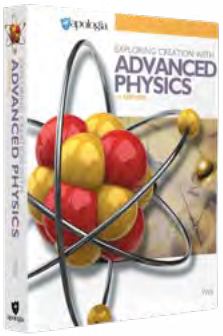


Scope & Sequence

Exploring Creation with Advanced Physics

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 8 *Gravity and Relativity*	Module 8 provides written and mathematical formulas in an effort to explain the concepts of gravity and light. This information will set the ground work for understanding relativity.	· Kepler's Laws and Gravity · Gravity and Extended Bodies · True Weight and Measured Weight · Gravitational Potential Energy · Einstein's Special Theory of Relativity · Time Dilation and Length Contraction · The Twin Paradox · The Famous Equation · Einstein's General Theory of Relativity	· Simulating Curved Spacetime
MODULE 9 *Heat*	Module 9 focuses on thermal energy and concepts of temperature and heat.	· Temperature Scales · Temperature Changes Due to Heat · Phase Changes Due to Heat · Volume and Length Changes as a Result of Heat · The Behavior of Gases · The Speed of Gas Molecules · Heat Transfer in Gases	· The Energy Associate with a Phase Change · Measuring the Coefficient of Volume Expansion for a Gas

Continued on next page.

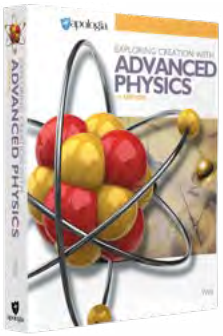


Scope & Sequence

Exploring Creation with Advanced Physics

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 10 *Thermodynamics*	Module 10 provides the information needed to understand thermodynamics and the relationship of work and heat.	· The First Three Laws of Thermodynamics · The First Law of Thermodynamics · Calculating Work · Cyclic Process and The First Law of Thermodynamics · The Second Law of Thermodynamics · Heat Engines and the Carnot Cycle · The Third Law of Thermodynamics	· Adiabatic Compression and Expansion
MODULE 11 *Electrostatics*	Module 11 provides written and mathematical explanations of the properties of electricity and magnetism.	· Coulomb's Law · Electric Fields · A Quantitative Description of the Electric Field · Insulators, Conductors, Semiconductors, and Superconductors · The Electric Field of a Conductor	· A Repulsive Application of Coulomb's Law · Conductors and Insulators · There Is No Electric Field Inside a Conductor
MODULE 12 *Electrical Potential Energy and Electric Potential*	Module 12 establishes a deeper understanding of electrical potential energy and electric potential.	· Electrical Potential Energy · Electric Potential · Capacitors and Uniform Electric Fields · The Electric Field and Energy of a Capacitor · Capacitors and Dielectrics	· Making a Leyden Jar

Continued on next page.

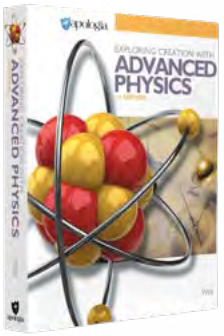


Scope & Sequence

Exploring Creation with Advanced Physics

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 13 *DC Electric Circuits*	Module 13 provides an in depth look at electric circuits.	· Resistance · A Review of Circuits, Ohm's Law, and Other Equations · Combinations of Resistors · Kirchhoff's Rules · Batteries, Electromotive Force, and Internal Resistance · Resistance-Capacitance (RC) Circuits	· The Factors Which Influence Resistivity · Resistors in Series and Parallel
MODULE 14 *Magnetism and Electromagnetic Induction*	Module 14 teaches the concepts of magnetism, electromagnetic force, and electromagnetic induction.	· Magnetic Fields and Their Sources · Charged Particles Moving in Magnetic Fields · Cyclotrons · Magnetic Fields and Current-Carrying Wires · Motional EMF · Electromagnetic Induction · Alternating Current	This module contains no experiments.
MODULE 15 *Atomic Physics*	Module 15 explores advancements in physics within the last 100 years and introduces newer discoveries and theories.	· The Photoelectric Effect: Light as a Particle · The Bohr Model and Atomic Spectra · The Size of an Atom · Moving From the Bohr Model to the Quantum Mechanical Model	This module contains no experiments.

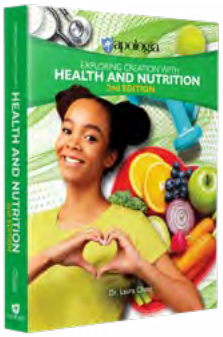
Continued on next page.



Scope & Sequence

Exploring Creation with Advanced Physics

Module & Major Themes	Summary	Main Themes	Supporting Experiments
MODULE 16 *Nuclear Physics*	Module 16 offers an exciting look at the physics of the nucleus of an atom.	· Binding Energy · The Strong Nuclear Force · The Stability of a Nucleus · Radioactivity · The Rate of Radioactive Decay · The Dangers of Radioactivity · Radioactive Dating · Other uses of Radioactivity and Ionizing Radiation · Nuclear Reactions · Using Nuclear Reactions to Make Energy	This module contains no experiments.



Scope & Sequence

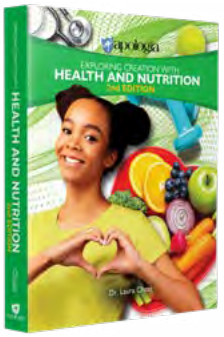
Exploring Creation with Health and Nutrition, 2nd Edition

GRADE LEVEL: 9–12th and mature 8th graders* with no prerequisite
*(*Reproductive health, drug abuse, and other sensitive topics are discussed in this text. Parents should consider the maturity level of the student when deciding the appropriate grade level.)*

TEXT SUMMARY: Developing an understanding of one's self is essential in making healthy life choices. ***Exploring Creation with Health and Nutrition***, 2nd Edition teaches the student about his or her body and how to establish healthy routines. The text provides information needed to make wise decisions regarding physical health, as well as establishing and maintaining social, emotional and spiritual well-being. Topics covered include physical anatomy, nutrition, mental health, and social and emotional influences.

Module & Major Themes	Summary	Main Themes	Supporting Projects
MODULE 1 *Who Am I and Why Does Health Matter?*	Module 1 presents the concept of genetics, heredity, and temperament.	·The Importance of Studying and Understanding Health ·Genetics ·Temperament ·Inclinations and Patterns ·Primary Care Physician as a Health Profession	· Nature Versus Nurture · A Quick Temperament Test · Building on Temperament Strengths and Weaknesses · My Natural Preferences
MODULE 2 *Physical Influences on Thoughts and Feelings*	Module 2 discusses the nervous system and the endocrine system; and it explains how these two systems are related to mental and emotional health.	· The Nervous System · Addiction · Brain Illness · The Endocrine System · Neurosurgery, Neurology, and Endocrinology as Health Professions	This module contains no projects.
MODULE 3 *Mental and Emotional Stability*	Many choices that an individual makes is based on his or her ability to clearly process the situation, factor in previous experiences, and control his or her emotional state. Module 3 focuses on the factors that physically influence the way one thinks.	· Mental Health · Brain Reserve · Support for Clear Thinking · Decision Making · Routine · Barriers to Thinking Deeply · Attention and Distraction · Autism Spectrum · Decompensation · Mental Illness · Emotional Health · Mental Health Professional as a Health Profession	· List of Self-Care Tips · Decision-Making Practice · A Digital Media Fast · Caregiver Encouragement · Guilty of Emotional Manipulation · Compile an Emotions Word List · Avoiding Ruinous Rumination · Abundantly Blessed

Continued on next page.

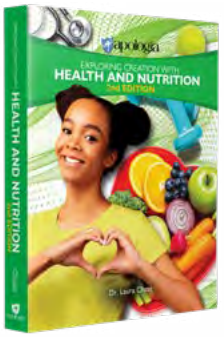


Scope & Sequence

Exploring Creation with Health and Nutrition, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Projects
MODULE 4 *Interpersonal Harmony*	Recognizing the value of others and being able to gain joy through relationships is important in staying healthy and having meaning in life. Module 4 discusses the factors that influence interpersonal harmony.	· The Inestimable Value of Another Human Being · Culture · Gender Roles · Family · Socialization and Friends · Communication Skills · Building Relationships · Conflict and Conflict Resolution · Nursing as a Health Profession	· Who Is Responsible? · Reflecting on Birth Order · Expressing Thanks to Extended Family · Overcoming Low or High Self-Worth · The Pitfalls of Peer Pressure · Acts of Service to Overcome Loneliness · Practicing Refusal · Reflection to Aid in Boundary Setting
MODULE 5 *Treasuring Your Senses*	We connect and participate with the world around us through our senses. Module 5 reviews the senses and helps the student develop a better understanding of them.	· The Eyes and Vision · Eye Health · The Ears and Hearing · The Vestibular System of the Ear · Touch and Its Relationship to Equilibrioception and Temperature Concerns · Taste · Smell · Gas, Fire, Electrical Safety · Vision and Hearing Professional as a Health Professions	· Color-Blind Assessment and Awareness · Take a Hearing Test · Gas Safety · How Many Alarms Does Your Home Need? · Planning for Fire Safety · Electrical Safety and Awareness

Continued on next page.

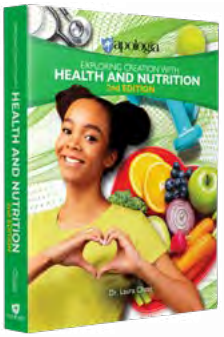


Scope & Sequence

Exploring Creation with Health and Nutrition, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Projects
MODULE 6 *Processing Nourishment and Hydration*	Without the digestive and urinary systems, humans would not be able to process energy, take in water, or rid themselves of waste and impurity. Module 6 discusses these two very important systems.	· Digestion · The Mouth · Involuntary Muscles of Digestion · The Pharynx, Esophagus, and Stomach · GERD · The Small and Large Intestines · Urination · Internal Medicine Physician, Urologist, Colon and Rectal Surgeon as Health Professions	· A Mouth Too Full? · Finding the Point of Satiety · Preparedness: Locating the Thrust Point · Safe Food Storage and Warming
MODULE 7 *Food Science I—Macronutrients*	Module 7 discusses macronutrients and how they are essential to your body.	· Metabolism · Carbohydrates · Storage and Release of Glucose · Fat · Protein · Registered Dietitian as a Health Profession	· Keep a 3-Day Food Diary · List of Food Tips

Continued on next page.

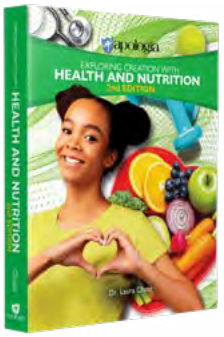


Scope & Sequence

Exploring Creation with Health and Nutrition, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Projects
MODULE 8 *Food Science II—Micronutrients*	We need small amounts of certain molecules to help our bodies function properly. Module 8 discusses these micronutrients.	· Vitamins and Minerals · Dietary Recommendations for the Macro Minerals · Antioxidants and Phytochemicals · Food You Can't Digest · Package Labeling · Fresh, Frozen, Canned, and Dry Foods · Food Preservatives · Color and Flavor Additives · MSG · Texture Enhancements · Sugar and Sugar Substitutes · Eating Better, Dealing with Hunger, and Taking Vitamins · Medical Laboratory Scientist and Technician as Health Professions	· Vitamin Table · More Food Tips · Preservative Hunt · Hunt for Color Additives · MSG Hunt · Find the Sugar Content · Fast Food Findings
MODULE 9 *Let's Look at What You Eat*	Module 9 educates the student on the importance of being aware of what and how much he or she eats each day.	· Calories · Balance of Macronutrients · Micronutrient Goals · Fiber · Establishing a Healthy Diet · Pharmacist and Pharmacy Technician as Health Professions	· Assembling Data on Your Food Intake · Calculate Your BMR · Factor in Your Activity Level · Assessment of Macronutrients · Assessment of Micronutrients · Assessment of Fiber · Reconciling Your Diet with the Standards

Continued on next page.

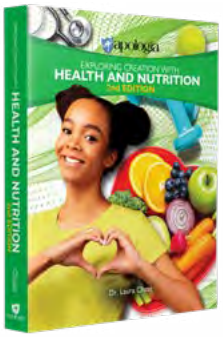


Scope & Sequence

Exploring Creation with Health and Nutrition, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Projects
MODULE 10 *Delivering the Oxygen*	Our respiratory and cardiovascular systems are miraculously designed to take in the air around us, sort it out chemically, distribute it throughout each cell of our bodies and then rid our bodies of the byproducts. Module 10 explains these two fascinating systems.	· The Respiratory System · The Cardiovascular System · Blood and Blood Vessels · The Heart · Heart Problems and Circulation · Heart Problems from Rhythm · Emergency Personnel as a Health Profession	· Record Your Pulse · Record Your Blood Pressure
MODULE 11 *Let's Move*	Module 11 examines the skeletal and muscular systems and explains how our physical abilities and features are largely determined by them.	· Bone Development · Long Bones · The Skeleton · The Skull · Bones of the Spine · Ribs and Sternum · Joints, Tendons, and Ligaments · Muscles · Bone Professionals as Health Professions	This module contains no projects.

Continued on next page.

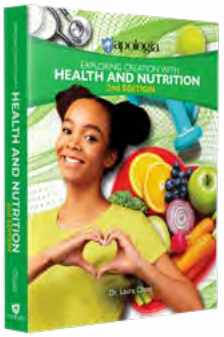


Scope & Sequence

Exploring Creation with Health and Nutrition, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Projects
MODULE 12 *You're Stronger Than You Look*	Module 12 emphasizes the important role that exercise plays in staying healthy.	·Physical Fitness ·Strength Training ·Core and Upper Body Strength ·Training Exercises ·Lower Body and Balance Strength-Training Exercises ·Aerobic Exercise ·Stretching ·Further Resources on Exercise ·Exercise, Training, and Rehabilitation Professionals as Health Professions	· A Half Hour of Daily Exercise · Prioritizing Posture
MODULE 13 *At War with Infection*	Module 13 explains the make-up and the role of the incredible human immune system.	· Skin · Mucous Membranes · Innate Immunity · The Lymphatic System · Adaptive Immunity · Lymphocyte Error · Vaccination · Dentist, Pathologist, Oncologist as Health Professions	· Oral Hygiene as a Habit · Offer Comfort to a Cancer Patient
MODULE 14 *Peace in Difficult Times*	Module 14 highlights the importance of giving your body, mind, and spirit a chance to relax and rejuvenate.	· Rest · Choose Joy in Spiritual Life · Preserving Contentment · Occupation, Speech, Music, and Play Therapies as Health Professions	· Temperament and Margin · Planning a Sabbath Rest · Keep a Sleep Record · Gaining Joy · What Makes a Good Day · Career Brainstorming · The 5-Hour Project

Continued on next page.

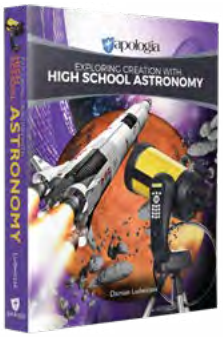


Scope & Sequence

Exploring Creation with Health and Nutrition, 2nd Edition

Module & Major Themes	Summary	Main Themes	Supporting Projects
MODULE 15 *The Gift of Reproduction*	Module 15 will help the student understand the functioning and role of the reproductive system in the hopes that he or she will gain a greater appreciation of this gift from God.	· Sexual Reproduction Gives Diversity · The Male Reproductive System · The Female Reproductive System · Sexual Arousal · The Act of Marriage · Fertilization · Embryology · Pregnancy and Birth · Milk Production · Sexually Transmitted Dis eases · A Worthy Goal · A Final Challenge · OB/GYN, Neonatologist, Pediatrician, Infertility Specialist as Health Professions	· For Young Women · For Young Men

ADDITIONAL INFORMATION: This course requires the textbook and the student notebook. The answer key is included in Book Extras online along with additional websites related to the topics covered. This course is also taught online. You can learn more at apologia.com



Scope & Sequence

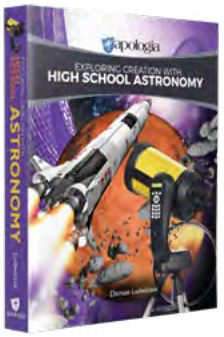
Exploring Creation with High School Astronomy

GRADE LEVEL: 9th–12th There are no prerequisites for this course. All of the math is worked out in the text so that the student can follow along.

TEXT SUMMARY: This text covers in-depth concepts of astronomy and uses math to support the content. Students will be awestruck at the vastness of God's creation and gain a greater appreciation for this complex and magnificent universe.

Module & Major Themes	Summary	Main Themes	Mathematical Concepts
MODULE 1 *Mysteries of the Universe*	Module 1 introduces the concept of the universe by defining space and explaining electromagnetic energy and high energy particles.	· Interstellar Space · The Universe · Matter and Antimatter · Cosmic Rays · Dark Matter and Dark Energy · Black Holes and Worm Holes · Temperature of the Universe	· Mathematical concepts are not introduced in this module.
MODULE 2 *The History of Astronomy*	Module 2 discusses the beginnings of astronomy, cultural influences, and the significance of progress.	· Ancient Stargazers · Renaissance Era of Stargazers · Telescope · Modern Astronomers · Spectroscopy	· Einstein's Theory of Special Relativity
MODULE 3 *Understanding the Basics*	Module 3 provides the mathematical framework for astronomy in order to understand terminology and define measurement.	· Measurement and Units · Astronomical Unit, Light Year, Parsec · Time · Speed and Velocity · Mass and Weight · Doppler Effect · Rotations and Revolutions · Potential and Kinetic	· Newton's Universal Law of Gravitation

Continued on next page.

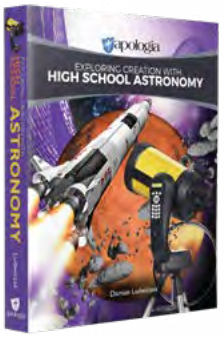


Scope & Sequence

Exploring Creation with High School Astronomy

Module & Major Themes	Summary	Main Themes	Mathematical Concepts
MODULE 4 *Our Solar System*	Module 4 explores the solar system, the history of developing a model and the role of mathematics and The Church.	· Models of the Solar System · Geocentric Model · Heliocentric Model · Ptolemy · Copernicus · Galileo · Bode Law	· Kepler's Third Law · The Bode Law
MODULE 5 *The Sun*	Module 5 delves into complexities of the Sun, how it works, and its relationship to other planets.	· Distance from the Sun · Distance between Planets · Size of the Sun · Experiment: Estimating the Diameter of the Sun · Parts of the Sun · How the Sun Works · Electromagnetic Energy · The Electromagnetic Spectrum	· Kepler's Third Law · Parallax · Geometric Relationship for Distance · Volume of a Sphere · Volume of a Segment of a Sphere · Kepler's Law of Planetary Motion · Einstein's Theory of Special Relativity · Speed of Light · Energy of a Photon
MODULE 6 *The Inner Planets*	Module 6 explores the inner planets of the solar system and uses applied math to determine measurable features.	· Mercury, Venus, Earth, Mars · Basic Orbital Mechanics · Size, Volume, and Mass · Layers and Surface Features · Atmosphere and Temperature · Rotation and Revolution · Moons · Missions	· Geometry of an Ellipse · Planet's Speed at the Perihelion Position · Planet's Speed in an Elliptical Orbit · Orbital Period of an Object Orbiting the Sun · Diameter of a Planet · Volume of a Planet

Continued on next page.

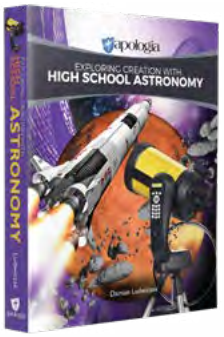


Scope & Sequence

Exploring Creation with High School Astronomy

Module & Major Themes	Summary	Main Themes	Mathematical Concepts
MODULE 7 *The Moon*	Module 7 explores the Moon and uses applied math to determine measurable features.	· Size and Volume · Layers and Surface Features · Atmosphere and Temperature · Phases · Gravity	· No new mathematical concepts are introduced in this module.
MODULE 8 *Telescopes*	Module 8 provides an in-depth look at telescopes including technical build, optics, and imaging.	· Optical Telescopes · Lenses · Focal Point · Images and Magnification · Optics of the Eye · Radio Telescopes · Infrared Telescopes · X-ray Telescopes	· Focal Point · Distance of an Image from the Center of a Lens · Magnification of a Lens · Magnification Factor (Telescope Power) · Light Gathering Power
MODULE 9 *The Outer Planets*	Module 9 explores the outer planets of the solar system and uses applied math to determine measurable features.	· Jupitar, Saturn, Uranus, Neptune · Basic Orbital Mechanics · Size, Volume, and Mass · Layers and Surface Features · Atmosphere and Temperature · Rotation and Revolution · Moons · Missions	· Distance and Velocity Relationship
MODULE 10 *Dwarf Planets & The Asteroid Belt*	Module 10 provides a detailed analysis of the dwarf planets and discusses the asteroid belt.	· Dwarf Planets · Pluto and Pluto's Moons · Ceres, Eris, Makemake, and Haumea · The Asteroid Belt · Classifying Asteroids	· No new mathematical concepts are introduced in this module.

Continued on next page.



Scope & Sequence

Exploring Creation with High School Astronomy

Module & Major Themes	Summary	Main Themes	Mathematical Concepts
MODULE 11 *The Universe*	Module 11 explains techniques that scientists use to study the universe. This module also includes information on constellations and other visible objects in the universe.	· Studying the Universe · Electromagnetic Energy · Cosmic Rays · The Visible Universe · Constellations · Discovering Planets of Distant Stars · Interstellar Medium · Black Holes	· No new mathematical concepts are introduced in this module.
MODULE 12 *The Stars*	Module 12 investigates the stars, provides a solid background for how they are studied, and explains their classifications.	· Nuclear Fusion and Binding Energy · Star Temperatures · Spectroscopy · Brightness of a Star · Determining a Star's Radius and Distance · Classification of Stars · Star Explosions	· Temperature of a Distant Star · The Brightness of a Star · Luminosity of a Distant Star · Comparing Star Brightness · Radius of a Star · Converting Fahrenheit to Kelvin · Calculating the Distance to a Star
MODULE 13 *Galaxies*	Module 13 reveals the order of the universe. It describes different types of galaxies and how they are clustered together.	· Different Galaxy Shapes · Quasars · The Milky Way Galaxy · Galaxies Close to the Milky Way	· No new supporting equations are introduced in this module.
MODULE 14 *Celestial Navigation*	Module 14 demonstrates different methods of navigation and ways to determine one's current position.	· Navigation · Dead Reckoning · Celestial Navigation · Angle Measurements · Longitude and Latitude · The Sextant and the Nautical Almanac	· Estimating the Angle between Earth and Polaris

ADDITIONAL INFORMATION: Additional resources and websites for further exploration of the topics in the text are provided at the Book Extras link for this title.