apologia

Elementary Science: YOUNG EXPLORER SERIES

SCOPE and SEQUENCE

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Elementary Science: YOUNG EXPLORER SERIES

SCOPE and SEQUENCE

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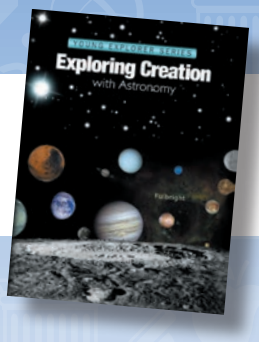


Scope & Sequence

Exploring Creation with Astronomy

GRADE LEVEL: K–6

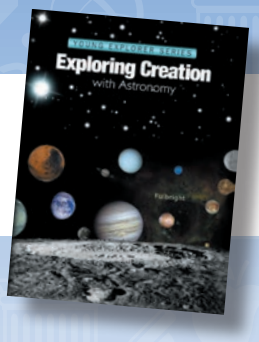
TEXT SUMMARY: An introduction to Astronomy covers the major structures of our solar system, details about each planet, the Earth's moon, the asteroid belt, stars and galaxies outside our solar system, space travel, astronauts, and more!

SEMESTER I: QUARTER 1

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 1 *What is Astronomy?*	**2 WEEKS** Lesson 1 provides an introduction to astronomy and how it is a part of our everyday lives.	• Why Did God Create the Universe? • Calendar • God's Signs • Stars and Planets • Solar Systems • Astronomers, Astronauts, and Satellites	• Build Model Solar System
LESSON 2 *The Sun*	**2 WEEKS** 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 • God's Light Shines Brighter • Solar Eclipse	• Focus Heat • Model a Solar Eclipse • Make a Pinhole Viewing Box
LESSON 3 *Mercury*	**2 WEEKS** 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*	**2 WEEKS** 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	• Make Some "Lava" • Create a Comic Strip • How Radar is Used

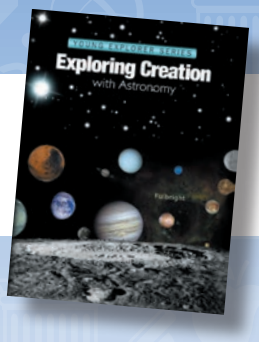
Scope & Sequence

Exploring Creation with Astronomy



SEMESTER I: QUARTER 2

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 5 *Earth*	**2 WEEKS** 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	• Make a Compass
LESSON 6 *The Moon*	**2 WEEKS** 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	• Chart the Moon • Make a Telescope
LESSON 7 *Mars*	**2 WEEKS** Lesson 7 provides an introduction to the planet Mars.	• Moving to Mars • Martian Gravity • Martian Atmosphere • Moons • Martian Orbit • Martian Rotation • Liquid Water on Mars? • Finding Mars in the Sky	• Design a Mars Community • Build Olympus Mons
LESSON 8 *Space Rocks*	**2 WEEKS** 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	• Create a Scale Model Solar System

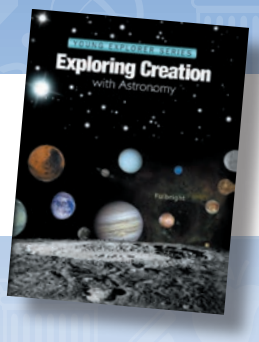


Scope & Sequence

Exploring Creation with Astronomy

SEMESTER II: QUARTER 3

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 9 *Jupiter*	**2 WEEKS** Lesson 9 provides an introduction to the planet Jupiter.	· Protective Mother · Going to Jupiter · Little Sun · Stormy Skies · Jupiter's Rings · Rotation and Revolution · Many Moons · Spacecraft Galileo · Finding Jupiter in the Night Sky	· Make a Hurricane Tube
LESSON 10 *Saturn*	**2 WEEKS** Lesson 10 provides an introduction to the planet Saturn.	· Twins · Ring System · Fast Rotation · Saturn's Moons · Cassini Mission · Finding Saturn in the Night Sky	· Make a Centaur Rocket
LESSON 11 *Uranus and Neptune*	**2 WEEKS** Lesson 11 provides an introduction to the planets Uranus and Neptune.	· Two More Gas Giants · Uranus · Moons · Eureka! · Orbit and Rotation · Neptune · Eureka! · Number Eight or Nine? · Atmosphere · Rotation and Revolution · Moons	· Write a Play about the Discovery of Uranus · Make Clouds
LESSON 12 *Pluto and the Kuiper Belt*	**2 WEEKS** Lesson 12 provides an introduction to the Kuiper Belt and Pluto.	· Kuiper Belt · Pluto · Who's Number Nine? · Hubble Space Telescope · Opposite Rotation · Winter's Coming · Moon · What is Pluto Anyway? · Planet Pluto?	· Make Ice Cream



Scope & Sequence

Exploring Creation with Astronomy

SEMESTER II: QUARTER 4

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 13 *Stars and Galaxies*	**2 WEEKS** Lesson 13 provides an introduction to the stars.	• Star Light, Star Bright • Black Holes • Supernovas • Variable Stars • Categorizing Stars • Light Years • Galaxies • Constellations • Gospel in the Stars? • Corruption of Truth • Constellations and Astronomy	• Make an Astrometer • Create a Constellation Planetarium
LESSON 14 *Space Travel*	**2 WEEKS** Lesson 14 provides an introduction to the history of space travel and working in space.	• Let's Go to Space • Sputnik Sensation • The 1960s • The International Space Station • Building the International Space Station • Becoming a NASA Astronaut • Seeing the International Space Station	• Build a Model Space Station

Scope & Sequence

Exploring Creation with Botany

GRADE LEVEL: K–6

TEXT SUMMARY: Content covered includes the nature of botany and the process of classifying plants. It then discusses the development of plants from seeds, the reproduction processes in plants, the way plants make their food, and how plants get their water and nutrients and distribute them throughout the body of the plant.

SEMESTER I: QUARTER 1

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 1 *Botany*	**2 WEEKS** Lesson 1 provides an introduction to how scientists name and categorize plants. Lesson 1 also introduces the different phyla of plants.	• Latin • Taxonomy • Phyla • Vascular Plants • Nonvascular Plants • Moss • Seed Homes • Angiosperms • Gymnosperms • Seedless Vascular Plants	• Shoe Taxonomy • Paper Towel Activity • Making A Light Hut • Growing plants • Making Soap
LESSON 2 *Seeds*	**2 WEEKS** Lesson 2 provides an introduction to the parts of a seed, how it grows and the two classes of seeds.	• Testas • Outside of the Seed • Inside the Seed • Germination • Monocotyledons • Dicotyledons	• Examine a Seed • Diagram a Seed • Design a Coat • Germination Animation • Observe Germination • Identify Plants • Collect Seeds
LESSON 3 *Flowers*	**2 WEEKS** Lesson 3 provides an introduction to the parts of a flower, seed formation, classification of angiosperms and carnivorous plants.	• Making seeds • Flower families • Carnivorous Plants	• Flower Dissection • Build a Plant Model • Preserve a Fresh Flower

Scope & Sequence

Exploring Creation with Botany

SEMESTER I: QUARTER 2

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 4 *Pollination*	**2 WEEKS** Lesson 4 provides and introduction to plant pollination.	• Animal Pollination • Wind Pollination • Self-Pollination	• Flower Pollination • Flower Story & Comic • Create a Butterfly Garden
LESSON 5 *Fruits*	**2 WEEKS** Lesson 5 provides an introduction to seed dispersal. Lesson 5 also explains how to tell the difference between a fruit and a vegetable and introduces some of the the different types of fruit that God made.	• Human Dispersal • Water Dispersal • Wind Dispersal • Animal Dispersal • Fruit Types	• Examine Burrs • Creating A Game • Split a Squash • Which Flies Farthest?
LESSON 6 *Leaves*	**2 WEEKS** Lesson 6 provides an introduction to the stomata. Lesson 6 also explains how leaves are classified and identified and clarifies why plants are classified as producers.	• Photosynthesis • Color-Fill • Transpiration • Falling Leaves • Anatomy of a Leaf • Simple and Compound • Arrangement • Venation • Shapes • Margins	• Testing Transpiration • Classify Leaves • Create Storybook • Making A Field Guide • Leaf Skeleton

Scope & Sequence

Exploring Creation with Botany

SEMESTER II: QUARTER 3

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 7 *Roots*	**2 WEEKS** Lesson 7 provides an introduction to the root and an overview of the anatomy and classification of root systems.	• Root Hairs • Root Growth • Geotropism • Root Systems • Geophytes • Rooting	• Root Classification Hunt • Taproots • Force A Bulb
LESSON 8 *Stems*	**2 WEEKS** Lesson 8 provides an introduction to the structure and growth of plants.	• Woody and Herbaceous Stems • Cactus Stems • Auxins • Phototropism Activity	• Phototropism Activity • Celery Experiment • Seeking the Light
LESSON 9 *Trees*	**2 WEEKS** Lesson 9 provides an introduction to the role of trees in creation and their anatomy.	• Seed Making • Tree Growth • Twig Anatomy • Growing Outward • Layers in a Tree Trunk • Thirsty Trees • Identification	• Twig growth • Estimating the Height of a Tree • Bark Rubbings • Identifying Trees

Scope & Sequence

Exploring Creation with Botany

SEMESTER II: QUARTER 4

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 10 *Gymnosperms*	**2 WEEKS** Lesson 10 provides an introduction to the largest and oldest gymnosperms and different types of leaves and cones. Lesson 10 also introduces two gymnosperms that are not conifers.	• Softwood • Evergreen • Gymnosperm Leaves • Cones • Forest Fires • Berry-like Cones • Ginkgo Biloba	• Comparing Transpiration • Persuasive Speech • A Tree Grows Up • Opening and Closing Pinecones
LESSON 11 *Seedless Vascular Plants*	**2 WEEKS** Lesson 11 provides an introduction to vascular plants that produce sporangia rather than seeds.	• Fronds • From Spore to Prothallus to Fiddlehead to Fern • Tree Ferns	• Life cycle of a Fern • Fern Transfers • Fern Spores
LESSON 12 *Nonvascular Plants*	**2 WEEKS** Lesson 12 provides an introduction to bryophytes and the many ways they are used, including how they are used to monitor our environment.	• Moss • Reproduction • Liverworts • Lichen	• Notebook Activities • Test Your Air with a Lichenometer
LESSON 13 *Nature Journaling*	**2 WEEKS** Lesson 13 provides an introduction to journaling and encourages students to begin to journal after their own explorations.	• When and Where • Illustrations • Sketches with Labels • What to include	• Make a Nature Journal

Scope & Sequence

Exploring Creation with Zoology 1

GRADE LEVEL: K–6

TEXT SUMMARY: In this God-honoring study of birds, Exploring Creation with Zoology 1: Flying Creatures of the Fifth Day teaches your child about the glorious design and characteristics of flying creatures, including physical characteristics, nesting habits, flight patterns, and more! Your child will learn how to attract various bird species to your yard and identify them by looking at their special physical characteristics, diverse nests, and interesting domestic practices.

SEMESTER I: QUARTER 1

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 1 *What is Zoology?*	**2 WEEKS** Lesson 1 provides an introduction to animal classification, flight, habitat, and extinction.	• Classification • Latin • Binomial Nomenclature • Flight • Uplifting Pressure • Airfoil • What a Drag • Habitats • Instinct • Extinction • Extinction Errors	• Try This! Air Pressure • Glider Design • Create Notebook • Create Field Journal • Nature Scavenger Hunt • Research Biomes
LESSON 2 *What Makes a Bird a Bird?*	**2 WEEKS** Lesson 2 encourages the student to observe and identify the birds that are in his/her own yard.	• Bird Watching • Benefits of Birds • Identifying Birds • Field Guides • Do you Reside Here? • Field Marks • Wings • Crests • What's in a Name? • Passerines • From Large to Small • Bird Behavior • Habitats • Bird Banter • Songs and Calls • Other Communications • Bird Banding	• Record Bird Observations • Map A Bird • Build Bird Feeders • Experiment: Which Food Do Birds Prefer?

Scope & Sequence

Exploring Creation with Zoology 1

SEMESTER I: QUARTER 1, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 3 *Birds of a Feather*	**2 WEEKS** Lesson 3 provides an in-depth study of feathers and their functions.	• Feather Facts • Molting • Feather Features • Contour Feathers • Down Feathers • Semiplume Feathers • Filoplume Feathers • Bristles • Preening • Cormorants • Feather Color • Bird Baths • Sunbathing	• Diagram A Feather And Label • Make A Bird Guide • Life List • Build A Bird Bath • Experiment: The Best Bird Bath
LESSON 4 *Facts about Flying*	**2 WEEKS** Lesson 4 provides a closer look at flight and migration.	• Mighty Muscles • Takeoff • Steering • Flapping and Gliding • Soaring • Seabirds • Migration • Why Do They Say Goodbye? • Knowing where to Go • Using Landmarks • Sun and Stars • Magnetic Fields • Enough Eating? • Are we there Yet? • Champion Migrator • Perils on the Path • How High Can You Go? • Flocks or Loners • Left Alone	• Map Migration Route • Non-Migrating Birds • Experiment: Which Color Do Birds Prefer?

Scope & Sequence

Exploring Creation with Zoology 1

SEMESTER I: QUARTER 2

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 5 *Nesting*	**2 WEEKS** Lesson 5 provides an introduction to the many aspects of nesting.	• Home Builders • Types of Nests • Unusual Nests • Weavers • No Nests • Ground and Mound Nesters • Earth-Hole Nesters • Cavity Nesters • Platform Nesters • Cup Nesters • Adherent Nests • Egg Color	• Build a nest • Nature Walk • Write an Advertisement • Build a Birdhouse • Experiment: Which Nest Material Does a Bird Use?
LESSON 6 *Matching and Hatching*	**2 WEEKS** Lesson 6 provides and introduction to bird development and family life.	• Showcase • Helpful Mates • Single Parents • Exceptional Eggs • Clutch • Incubation • Development in the Egg • Egg tooth • Baby Birds • Precocial Birds	• Make a Comic Strip • Experiment: Candling • Experiment: Do Eggs Absorb Water?
LESSON 7 *Bats*	**2 WEEKS** Lesson 7 provides an overview of bats: classification, anatomy, habitats, and family life.	• Keystone Bats • Bat Anatomy • Echolocation • Microbats • What Big Ears You Have • Megabats • Bat Habitats • Guano • Winter Homes • Breeding • The Nursery	• Make a Play • Project: Find Your Pup
LESSON 8 *Flying Reptiles*	**2 WEEKS** Lesson 8 provides an introduction to an extinct flying creature, the Pterosaur.	• Pterosaurs • Pterosaurs in History • Types of Pterosaurs • Pterosaur Lifestyle • Powered Flight • Other Pterosaur Lifestyle Issues	• Research Pterosaur • Activity: Make a Fossil Egg

Scope & Sequence

Exploring Creation with Zoology 1

SEMESTER II: QUARTER 3

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 9 *A First Look at Insects*	**2 WEEKS** Lesson 9 provides an introduction to insect anatomy.	• Identifying Insects • What Good Are They? • Cold-Blooded • Exoskeleton • Molting • Insect Heads • Insect eyes • Antennae • Mouths • Thorax • The Abdomen	• Try This! Lazarus Experiment • Nature Walk • Project: Create an Insect Zoo
LESSON 10 *Insect Life Cycles and Life Styles*	**2 WEEKS** Lesson 10 provides an introduction to the life cycles and defense mechanisms of different insects.	• Finding a Mate • Metamorphosis • Complete Metamorphosis • Incomplete Metamorphosis • More Incomplete Metamorphosis • Insect Life Styles • Crypsis • Advertisment • Mimicry • Trickery • Chemical Defense • Bites and Stings	• Nature Walk • Draw Life Cycle Charts • Project: Insect Display • Experiment: Can Trap Experiment
LESSON 11 *Social Insects*	**2 WEEKS** Lesson 11 provides an introduction to insect socialization and survival.	• Hymenoptera • Worker Ant Jobs • Ant Talk • Ant Food • The Ant Shepherds And Farmers • The Honeybee • Royal Food • The Queen Bee • Worker Bee • Worker Bees • Dancing Bees • Flower Power • Making Honey • Bumblebees • Wasps • Termites • Ant Versus Termites	• Nature Walk • Make A Bee Book • Project: Make An Ant Farm • Experiment: Learning About Ants

SEMESTER II: QUARTER 3, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 12 *Beetles, Flies, and True Bugs*	**2 WEEKS** Lesson 12 provides an introduction to the classification of beetles, bugs, and flies.	• Beetle Behavior • Both Beneficial and Pesky • Scarab Beetles • Fireflies/Lightning Bugs • Ladybugs • Flies • Mosquitoes • True Bugs	• Try This! Observe Fly • Try This! Surface Tension • Nature Walk • Experiment: Where Do Most Insect Prefer to Live?

SEMESTER II: QUARTER 4

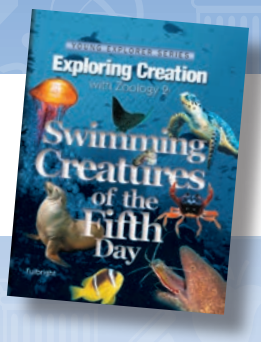
Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 13 *Interesting Insect*	**2 WEEKS** Lesson 13 provides an introduction to a variety of common insects.	• Praying Mantises • Dragonflies and Damsel Flies • Winging It • Seeing More Than Double • Feeding On The Fly • Water Babies • Crickets, Grasshoppers, and Katydids • Hearing Legs and Abdomens • Chomp and Chew • Swarming • Leg Power • Differences Among Crickets, Grasshoppers, and Katydids • Dangers and Defense • Looking For Members Of Order Orthoptera • Aphids • Cicadas	• Nature Walk • Experiment: Which Environment Does a Cricket Prefer?

SEMESTER II: QUARTER 4, continued

Lesson	Timeline/Summary	Main Themes	Supporting Experiments
LESSON 14 *Order Lepidoptera*	**2 WEEKS** Lesson 14 provides an overview of the anatomy, habitat, and life cycle of butterflies. Lesson 14 also encourages students to attract and observe butterflies.	• Lep Anatomy • Antennae • Drinking Straws • Thorax • Migration • More Metamorphosis • Cocoon • What's the Difference? • Home Sweet Home • Butterfly Pets	• Create a Poster of Butterflies in Area • Project: Home Sweet Home • Project: Butterfly Pets • Experiment: Do Caterpillars Use Gravity or Light to Determine Which Way Is Up?

Scope & Sequence

Exploring Creation with Zoology 2

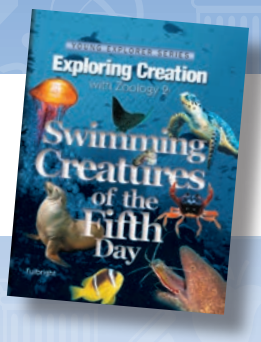


GRADE LEVEL: K–6

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

SEMESTER I: QUARTER 1

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 1 *Aquatic Animals*	**2 WEEKS** Lesson 1 provides an introduction to the habitats of swimming creatures.	• Aqua Mobility • Filter Feeders • Animal Assortment • Current Events • Surface Currents • Deep Ocean Currents • Tides • Planet Water • Freshwater Facts • Salt Solutions • Continental Shelf • The Abyss • Abyssal Animals • The Bottom Line	• Try This! Air Pressure • Create Ocean Box • Experiment: Currents
LESSON 2 *Whales*	**2 WEEKS** Lesson 2 provides an introduction to several species of whales, the anatomy of whales and the behavior of whales.	• Two Kinds of Whales • A Whale of a Tail • Do You Hear What I Hear? • Thar She Blows! • Beach Bum • Whale Moves • Whalers • Migration • Don't Have a Calf • Toothed Whales • Echoes to Locate • Dolphins • Porpoises • Killer Whale • Narwhals • Sperm Whales • Baleen Whales • Humpback Whales • Gray Whales • Right Whales	• Try This! Using Sound • Try This! Freezing Water • Ocean Box • Experiment: Sound



Scope & Sequence

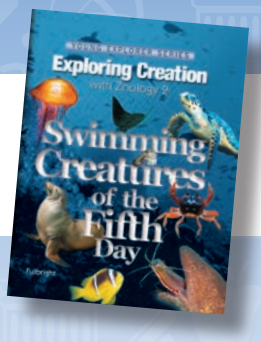
Exploring Creation with Zoology 2

SEMESTER I: QUARTER 1, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 3 *Seals and Sea Cows*	**2 WEEKS** Lesson 3 provides an in-depth look at seals and sea cows.	• Pinnipeds • Finding Food • Family Planning • Pinniped Peril • True Seals • Eared Seals • Walrus Family • Manatees and Dugongs • Manatee Menaces	• Ocean Box • Experiment: How Blubber Works
LESSON 4 *Aquatic Herps*	**2 WEEKS** Lesson 4 provides an introduction to aquatic reptiles and amphibians.	• Ectothermic • Turtle Tales • Significant Shells • Give Me Air • Munching Mouths • Hatching Heroes • Sand Flight • Eight Turtles of the Sea • Sea Snakes • Eight Turtles of Sea • Sea Snakes • Positively Poisonous • Spotting Sea Snakes • Reptitles versus Amphibians • Frog or Toad • Aquatic Toads • Aquatic Frogs • Aquatic Salamanders	• Try This! Move Like a Turtle • Try This! Draw a Full-Size Leatherback Turtle • Ocean Box • Experiment: Raise an Aquatic Frog • Experiment: Does Temperature Affect Tadpole Development?

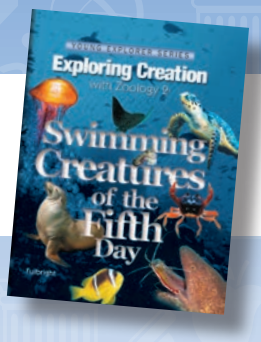
Scope & Sequence

Exploring Creation with Zoology 2



SEMESTER I: QUARTER 2

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 5 *Primeval Reptiles*	**2 WEEKS** Lesson 5 provides an introduction to the fossils of extinct reptiles.	• Amazing Creations • Four Saurs • The Nothosaurs • The Mosasaurs • The Plesiosaurs • The Pliosaurs • The Ichthyosaurs • The Deluge	• Try This! Draw life-size head of Pliosaurs • Try This! No Fossils? • Experiment: Best Material for Fossils?
LESSON 6 *Fish*	**2 WEEKS** Lesson 6 provides an introduction to fish: their differences, anatomy, survival, and life stages.	• Bony Fishes • Grand Gills • Fabulous Fins • Shaping Up • Defense • Bouncy Buoyancy • Smelly Fishes • Do You See What I See? • Do You Hear What I Hear? • Lateral Lines • Spawning • Stages of Life • Hermaphrodites • Explore More	• Ocean Box • Experiment: Effect of Temperature
LESSON 7 *Sharks and Rays*	**2 WEEKS** Lesson 7 provides an introduction to cartilaginous fish and an in-depth look at the shark.	• Sharks and Rays • Rays • Stingrays • Manta Rays • Electric Rays • Eagle Rays • Sawfish • Skates • Sharks • Shark Teeth • Shark Sense • Shark Pups • Shark Orders • Avoiding Shark Bites • Jawless Fish	• Ocean Box • Experiment: Conducting Electricity in Water

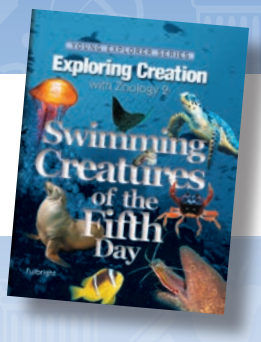


Scope & Sequence

Exploring Creation with Zoology 2

SEMESTER I: QUARTER 2, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 8 *Crustaceans*	**2 WEEKS** Lesson 8 provides an introduction to different types of crustaceans.	• Exoskeleton • Crustacean Anatomy • Head Features • Leg Features • Hind Features • Lobsters • Crayfish • Crabs • Fiddler Crabs • Hermit Crab • Crabs for Christmas? • Shrimp • Symbiotic Shrimp • Shrimp-like Crustaceans • Barnacles • Horseshoe Crabs • Trilobites	• Try This! Trilobite Focus • Project: Animal Game Quiz • Ocean Box • Experiment: Raise Sea Monkeys



Scope & Sequence

Exploring Creation with Zoology 2

SEMESTER II: QUARTER 3

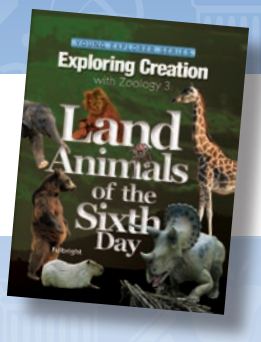
Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 9 *Mollusks*	**2 WEEKS** Lesson 9 provides an introduction to several different species of mollusks.	• Bivalves • Bon Appetit, Bivalve • Burrowing Bivalves • Clams • Clinging Creatures • Pearls • Swiftly Swimming Scallops • Sea Snails • Conchology • Conchs • Whelks • Winkles or Periwinkles • Moon Snail • Cowries • Wentletraps • Cone Shells • Limpets • Abalones • Slipper Shell • Nudibranchs	• Ocean Box • Experiment: Resonance • Project: Make a Conchology Box
LESSON 10 *Cephalopods*	**2 WEEKS** Lesson 10 provides an introduction to four different types of cephalopods: how they move, reproduce, and see.	• Propulsion • Cuttlefish • Squids • Reproduction • Giant Squid • Octopuses • Feeling Colors • Reproduction • Octopus Brains • Seeing Eye to Eye • Nautilus • Chitons	• Try This! Blind Spot • Ocean Box • Experiment: Buoyancy
LESSON 11 *Echinoderms*	**2 WEEKS** Lesson 11 provides an introduction to echinoderms. Lesson 11 also provides a closer look at echinoderms that lack eyes or brain.	• Sea Stars • Making New Sea Stars • Brittle Stars • Crinoids • Sea Urchins • Sand Dollars • Sea Cucumbers	• Ocean box • Project: Salty Brittle Stars

SEMESTER II: QUARTER 3, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 12 *Cnidarians*	**2 WEEKS** Lesson 12 provides an introduction to the phylum Cnidaria including jellyfish, sea anemones and corals.	• Polyp vs. Medusa • Nematocysts • Jellyfish • Making More Jellies • Floating Boxes • Floating Friends • Sea Anemones • Anemone Associates • Adding Anemones • Coral • Stony Corals • Assisting Algae • Coral Reefs • Reefs at Risk • Soft Corals • Non-nettle Jellies	• Ocean box • Experiment: Deep Sea Current

SEMESTER II: QUARTER 4

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 13 *Other Interesting Aquatic Animals*	**2 WEEKS** Lesson 13 provides an introduction to "simple aquatic animals including those with no eyes and ears and those that resemble plants.	• Sponges • Sponge Anatomy • Defenses • Sponge Assortment • Making New Sponges • Sea Squirts • Water Worms • Phylum Annelida • Leeches • Bristle Worms • Flatworms • Tiny Tales • Rotifiers • Tardigrades	• Ocean Box • Experiment: Desalination of Saltwater



Scope & Sequence

Exploring Creation with Zoology 3

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!

SEMESTER I: QUARTER 1

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 1 *Introduction to the Animals of Day 6*	**2 WEEKS** The young scientist will begin his/he 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*	**2 WEEKS** 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*	**2 WEEKS** 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

SEMESTER I: QUARTER 1, continued

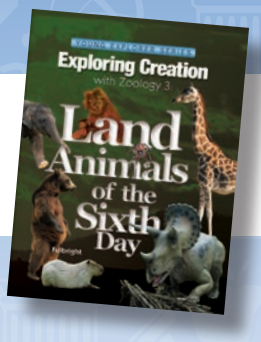
Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 4 *Feliform Carnivores*	**2 WEEKS** The families of feliform are explored in this chapter. Mutation is introduced.	• Family Felidae • Proficient Predators • Specific Spots and Stripes • Family Names • The Top of the Food Chain • Lions • Tiger • North America's Three • Hyaenidae • Aardwolves • Viverriadae • Herpestidae • Meerkats	• Map It! • Track It! • Experiment: Cougar Eats Deer

SEMESTER I: QUARTER 2

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 5 *Marsupials*	**2 WEEKS** 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

SEMESTER I: QUARTER 2, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 6 *Primarily Primates*	**2 WEEKS** 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*	**2 WEEKS** 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



Scope & Sequence

Exploring Creation with Zoology 3

SEMESTER II: QUARTER 2, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 8 *Ungulates*	**2 WEEKS** 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!

SEMESTER II: QUARTER 3

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 9 *Order Artiodactyla*	**2 WEEKS** 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

SEMESTER II: QUARTER 3, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 10 *Orders Squamata and Rhynchoecphalia*	**2 WEEKS** 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*	**2 WEEKS** 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

SEMESTER II: QUARTER 3, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 12 *Dinosaurs*	**2 WEEKS** 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

SEMESTER II: QUARTER 4

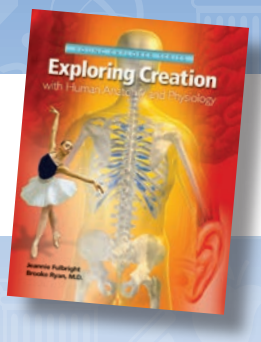
Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 13 *Arthropods of the Land*	**2 WEEKS** The young scientist will crawl into the world of arthropods, such as spiders, harvestmen, scorpions, mites, centipedes, and millipedes.	• Arachnids • Spiders • Spider Friends and Foes • 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

SEMESTER II: QUARTER 4, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 14 *Gastropods and Worms*	**2 WEEKS** 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

Scope & Sequence

Exploring Creation with Human Anatomy and Physiology

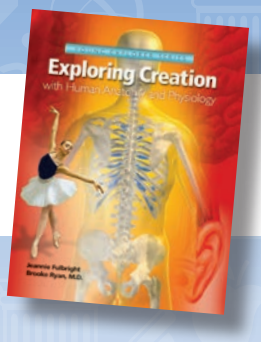


GRADE LEVEL: K–6

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!

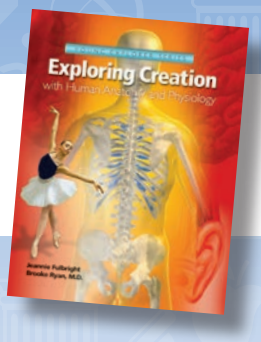
SEMESTER I: QUARTER 1

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 1 *Introduction to Anatomy and Physiology*	**2 WEEKS** 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	• Personal Person Project • Edible Cell



SEMESTER I: QUARTER 1, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 2 *The Skeletal System*	**2 WEEKS** 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	• Experiment: Analyzing A Chicken Bone
LESSON 3 *The Muscular System*	**2 WEEKS** 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	• Experiment: Growing Muscle

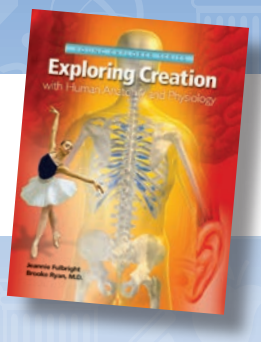


SEMESTER I: QUARTER 1, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 4 *The Digestive and Renal Systems*	**2 WEEKS** 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	• Project: Design a Digestion Theme Park

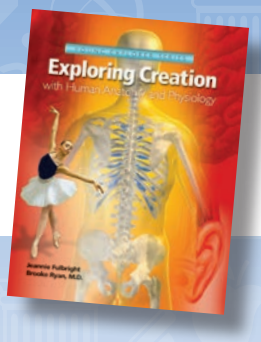
SEMESTER I: QUARTER 2

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 5 *Health and Nutrition*	**2 WEEKS** 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	• Testing for Vitamin C



SEMESTER I: QUARTER 2, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 6 *The Respiratory System*	**2 WEEKS** 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	• Diaphragm Model • Vital Lung Capacity
LESSON 7 *Life in the Blood*	**2 WEEKS** 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	• Finding Iron in Cereal • Experiment: Type Your Blood

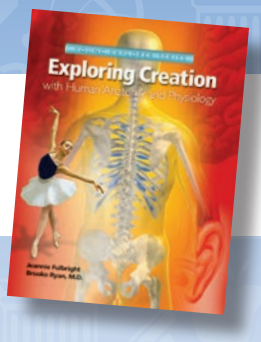


SEMESTER I: QUARTER 2, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 8 *The Cardiovascular System*	**2 WEEKS** 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	· Project: Make a Stethoscope

SEMESTER II: QUARTER 3

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 9 *The Nervous and Endocrine Systems*	**2 WEEKS** 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	· Project: Anatomy Trivia Game
LESSON 10 *The Nervous System Extended*	**2 WEEKS** 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	· Project: Design a Science Fair Project

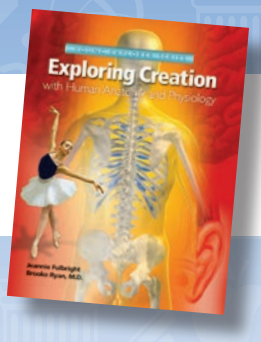


SEMESTER II: QUARTER 3, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 11 *Your Senses*	**2 WEEKS** 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	• Experiment: Testing Taste
LESSON 12 *The Integumentary System*	**2 WEEKS** 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	• Project: Braille Challenge Experiment: Sensing Sensitivity

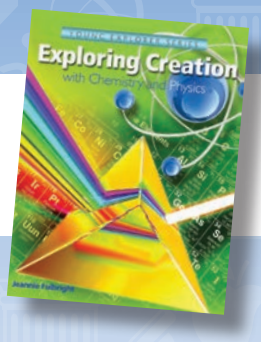
Scope & Sequence

Exploring Creation with Human Anatomy and Physiology



SEMESTER II: QUARTER 4

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 13 *The Lymphatic and Immune Systems*	**2 WEEKS** 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 Bateria • Freaky Fungi • Wonky Worms • Viral Villians • 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*	**2 WEEKS** 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	• Project: Dominant and Recessive Traits



Scope & Sequence

Exploring Creation with Chemistry and Physics

GRADE LEVEL: K–6

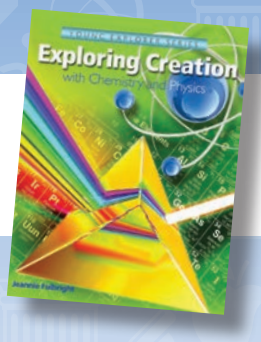
TEXT SUMMARY: Exploring creation using chemistry and physics helps us to understand our surroundings and our interaction with the physical world God created. This course investigates the chemistry of matter from the smallest atom to a multitude of mixtures. The lessons examine the mechanics and dynamics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

SEMESTER I: QUARTER 1

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 1 *Chemistry and Physics Matter*	**2 WEEKS** Lesson1 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*	**2 WEEKS** 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*

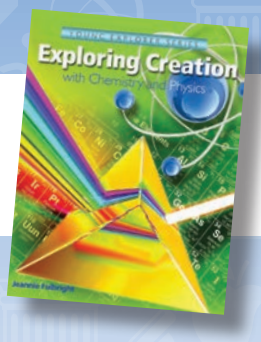
Scope & Sequence

Exploring Creation with Chemistry and Physics



SEMESTER I: QUARTER 1

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 3 *Building Blocks of Creation*	**2 WEEKS** 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*	**2 WEEKS** 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*

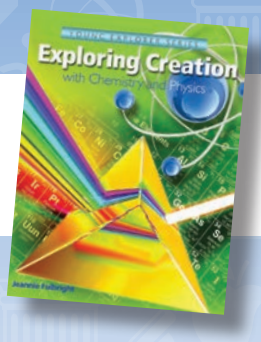


Scope & Sequence

Exploring Creation with Chemistry and Physics

SEMESTER I: QUARTER 2, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 5 *Multitude of Mixtures*	**2 WEEKS** 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*	**2 WEEKS** 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*	**2 WEEKS** 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

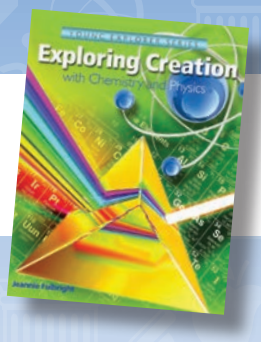
Exploring Creation with Chemistry and Physics

SEMESTER I: QUARTER 2, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 8 *Work in the World*	**2 WEEKS** 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!*

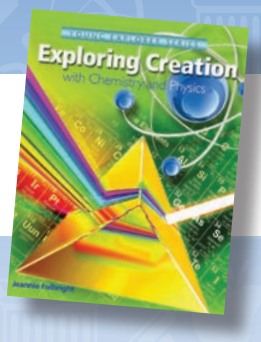
SEMESTER II: QUARTER 3

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 9 *Sound of Energy*	**2 WEEKS** 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*



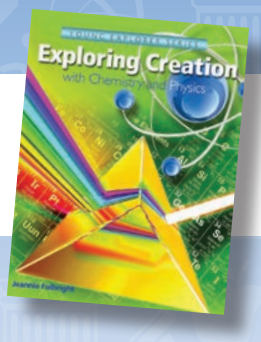
SEMESTER II: QUARTER 3, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 10 *Light of the World*	**2 WEEKS** 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*



SEMESTER II: QUARTER 3, continued

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 11 *Thermal Energy*	**2 WEEKS** 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
LESSON 12 *Electrifying Our World*	**2 WEEKS** 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*



Scope & Sequence

Exploring Creation with Chemistry and Physics

SEMESTER II: QUARTER 4

Lesson	Timeline/Summary	Main Themes	Supporting Activities and Experiments
LESSON 13 *Mysterious Magnetism*	**2 WEEKS** 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*
LESSON 14 *Simple Machines*	**2 WEEKS** 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*