



## STUDENT AND PARENT OR TEACHER

### Labs and Activities

We understand that labs can sometimes be difficult for families to prepare for and prioritize, but we strongly recommend that all labs be completed. Ask your parent or teacher if you should complete the labs hands-on yourself or if you should watch the lab videos.

### About the Lab Supplies

Aside from a microscope and optional dissection specimen and tools, this course was designed with lab supplies that are generally easy and relatively inexpensive to find. You may already have many items at home, and many others can be found at the grocery or hardware store. Look ahead to see what supplies are needed and when you'll need them to make it as easy and cost-effective as possible to obtain them. For example, Lesson 97 requires hydrochloric acid, also known as muriatic acid. If you have a neighbor who owns a pool or works with concrete, you might be able to ask for a teaspoon of the solution rather than purchasing a larger quantity than needed. (Note the important safety warnings for this chemical solution within the lesson where it is used.)

## Supplies Needed

### Unit 1: The Wonders of Life

#### Lesson 2

- ☐ 2 empty clear water bottles (8–20 oz)
- ☐ 1 c warm water
- ☐ Liquid measuring cup
- ☐ 2 packets (5 tsp, or ½ oz total) quick-rise instant yeast
- ☐ 2 large balloons
- ☐ 2 tsp white sugar
- ☐ Permanent marker to label bottles
- ☐ Funnel
- ☐ Timer

#### Lesson 4

- ☐ Microscope
- ☐ Plain white paper
- ☐ Blank microscope slides
- ☐ Masking tape
- ☐ Assortment of household materials to view (see page 16 for ideas)

#### Lesson 8

- ☐ Hydrogen peroxide (3%)
- ☐ 1 potato
- ☐ Chicken liver
- ☐ Knife and cutting board
- ☐ 6 test tubes in test-tube rack, or 6 small glasses or jars
- ☐ Masking tape and marker
- ☐ Large, flat tray or pan with a lip
- ☐ 2 plastic sandwich bags
- ☐ Funnel (if using test tubes)
- ☐ 2 small saucepans
- ☐ Spoon
- ☐ Strainer
- ☐ Tablespoon
- ☐ Stove

### Unit 2: The Wonders of Botany

#### Lesson 15

- ☐ Small bag of potting soil
- ☐ At least 2 foam or flexible plastic cups
- ☐ Pencil, nail, or knife to poke holes in your cups
- ☐ At least 6 bean seeds that you soaked previously
- ☐ Permanent marker to label each cup
- ☐ Baking sheet or tray to protect surface beneath plants from water drainage
- ☐ Tablespoon
- ☐ Water
- ☐ Ruler
- ☐ Optional supplies (depending on your variable): avocado, plastic wrap, sandpaper, etc.



### Lesson 18

- ☐ 3 large paper towels
- ☐ Waxed paper
- ☐ Baking sheet
- ☐ Paper clips

### Lesson 21

- ☐ Small bag of potting soil
- ☐ 3 foam or flexible plastic cups
- ☐ Pencil, nail, or knife to poke holes in your cups
- ☐ At least 9 presoaked pinto bean seeds
- ☐ Permanent marker to label each cup
- ☐ Tablespoon
- ☐ Baking sheet or tray to protect surface beneath plants from water drainage
- ☐ 1 cardboard box (with lid) large enough to hold the plant, but not too large
- ☐ Extra pieces of cardboard to build a maze
- ☐ Strong tape, such as packing tape
- ☐ Scissors

### Lesson 24

- ☐ 6–9 large fresh leaves, 2–3 each from three separate types of plants, preferably of different dark colors
- ☐ 3 tall glass jars or drinking glasses
- ☐ 3 skewers, straws, or small sticks
- ☐ Tape
- ☐ Rubbing alcohol or acetone-based nail polish remover
- ☐ 3 eyedroppers or pipettes
- ☐ Pencil
- ☐ Safety goggles
- ☐ Sharp knife and cutting board
- ☐ Chromatography paper (preferred) or white coffee filters
- ☐ Plastic wrap
- ☐ 3 small glass bowls and a spoon (or mortar and pestle)
- ☐ Ruler
- ☐ Scissors

### Lesson 25

- ☐ One or more of the vegetables listed on page 48 (with the root section)
- ☐ Knife and cutting board
- ☐ Bowl or jar

### Lesson 31

- ☐ Fresh-cut flower (with large parts, such as lily, tulip, or daffodil)
- ☐ Cutting board
- ☐ Magnifying glass (at least 10× magnification)
- ☐ Craft knife or sharp paring knife
- ☐ Optional: microscope
- ☐ Optional: face mask

### Lesson 32

- ☐ Common household items, such as those listed on page 66
- ☐ Any type of seed, kernel, or bean

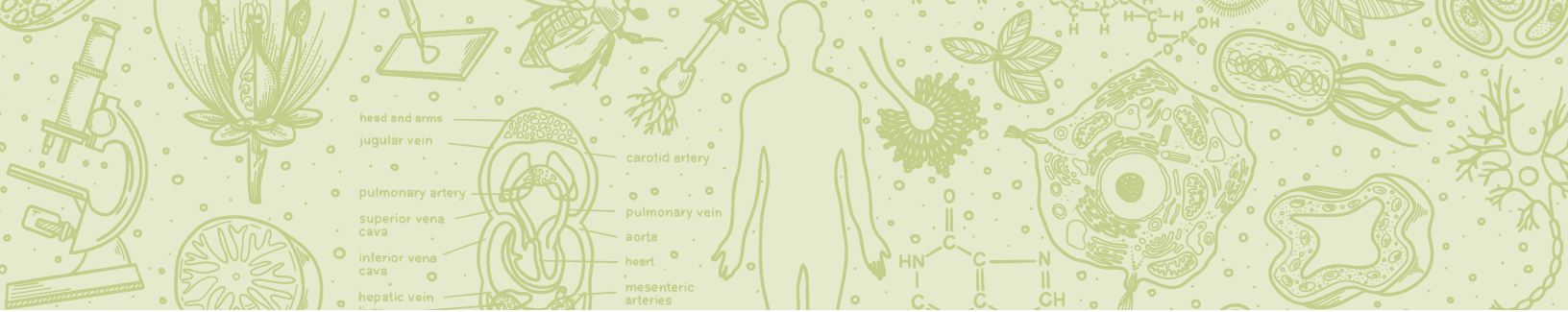
## Unit 3: The Wonders of Marine Biology

### Lesson 38

- ☐ 5 small cups or other containers (to hold ½ c water, do not have to be the same)
- ☐ 1 test tube
- ☐ Test-tube rack or narrow glass for holding the test tube upright
- ☐ ½ c measuring cup
- ☐ 1 Tbsp measuring spoon
- ☐ ½ Tbsp measuring spoon (or 1 tsp + ½ tsp measuring spoons)
- ☐ Pipette
- ☐ Food coloring (red, blue, yellow, and green)
- ☐ Salt (table salt works best)
- ☐ Cold water
- ☐ Spoon for stirring

### Lesson 40

- ☐ Sand
- ☐ Water
- ☐ Spatula
- ☐ Small pebbles
- ☐ Sloped painter's tray OR a 9" x 13" baking dish



#### Lesson 41

- ☐ Glass casserole dish
- ☐ Teaspoon
- ☐ Measuring cup
- ☐ Spoon
- ☐ Meat or candy thermometer
- ☐ 2 tsp of any dark, powdery spice
- ☐ 1–2 Tbsp of light cereal pieces that will float
- ☐ About 4 c vegetable oil
- ☐ 2–4 ceramic mugs or half-pint jars of the same height (2 for a square dish; if you are using a 9" x 13" dish, you may need 4). You may use other sturdy heat-proof objects to support the dish, such as wooden blocks.
- ☐ 2–4 small candles or chafing fuel cans; these must be shorter than the objects you will use to support the baking dish.
- ☐ Lighter or matches

#### Lesson 44

- ☐ Casserole dish, bread pan, or paint tray
- ☐ Standard kitchen sponge
- ☐ Scissors
- ☐ Food coloring
- ☐ Cup of soil
- ☐ Watering can or pitcher of water
- ☐ Folded towel or other object to prop up the pan, if not using a paint tray

#### Lesson 45

- ☐ Small box or bin with a top opening about the size of the 10 x 10 grid Depth Chart and with a height approximately the same as the Depth Scale
- ☐ Tape
- ☐ Aluminum foil
- ☐ Colored pencils
- ☐ Various objects to make a seafloor within the box
- ☐ Long wooden skewer, ruler, chopstick, or knitting needle that is at least 9" long

#### Unit 4: *The Wonders of the Animal Kingdom, Part 1*

#### Lesson 59

- ☐ Live earthworm (find outside or from a bait shop)
- ☐ Paper towels
- ☐ Disposable plate
- ☐ Cotton swabs
- ☐ Rubbing alcohol

#### Lesson 62

##### Clam Dissection

- ☐ Preserved clam specimen
- ☐ Foam tray or other disposable work surface
- ☐ Small, sharp kitchen knife or scalpel
- ☐ Dissecting scissors
- ☐ Forceps or tweezers
- ☐ Dissection probe
- ☐ Disposable gloves (recommended)
- ☐ Cut-resistant gloves (optional)
- ☐ Apron
- ☐ Safety glasses or goggles (recommended)

#### Sea Star Dissection

- ☐ Preserved sea star specimen for dissection (If you search online for a specimen, also search “starfish specimen for dissection.”)
- ☐ Foam tray or other disposable work surface
- ☐ Dissecting scissors
- ☐ Small, sharp kitchen knife or scalpel
- ☐ Forceps or tweezers
- ☐ Dissecting probe
- ☐ Apron
- ☐ Safety goggles or glasses (recommended)
- ☐ Disposable gloves (recommended)
- ☐ Magnifying glass
- ☐ Microscope and slide
- ☐ Cover slip
- ☐ Water
- ☐ Pipette or eyedropper



## Bony Fish Dissection

- ☐ Preserved fish (or a caught fish if you prefer)
- ☐ Foam tray or other disposable work surface
- ☐ Dissection scissors
- ☐ Small, sharp kitchen knife or scalpel
- ☐ Dissection probe
- ☐ Forceps or tweezers
- ☐ Disposable gloves (recommended)
- ☐ Cut-resistant gloves (optional)
- ☐ Apron
- ☐ Safety glasses or goggles (recommended)
- ☐ Magnifying glass
- ☐ Microscope
- ☐ Slide and cover slip
- ☐ Water
- ☐ Pipette or eyedropper

### Lesson 64

- ☐ Small paper bag or other opaque container
- ☐ 80–150 small objects of the same type—counted by your assistant (such as pennies, beans, cereal pieces, etc.)
- ☐ Permanent marker or small pieces of masking tape (to mark items)

## Unit 5: The Wonders of the Animal Kingdom, Part 2

### Lesson 92

- ☐ Calculator (optional)

## Unit 6: The Wonders of the Human Body

### Lesson 97

- ☐ Fresh onion
- ☐ Glass or jar
- ☐ Muriatic acid, also called hydrochloric acid (a few drops, available from pool or hardware stores)
- ☐ 3 disposable cups
- ☐ 3 pipettes
- ☐ Distilled water
- ☐ Methylene blue (available online as lab stain or medicine or in pet stores as fish treatment)
- ☐ Scissors
- ☐ Paper towels
- ☐ Tweezers
- ☐ Pencil with eraser end
- ☐ Microscope
- ☐ 2 glass slides
- ☐ Cover slip
- ☐ Goggles, gloves, and apron
- ☐ Newspapers or disposable tablecloth
- ☐ Timer

### Lesson 103

- ☐ A willing volunteer
- ☐ 9 toothpicks
- ☐ Tape
- ☐ Ruler with millimeters
- ☐ 2 index cards
- ☐ Paper towel or hand towel
- ☐ Pencil
- ☐ Ice

### Lesson 115

- ☐ 2 strawberries (fresh)
- ☐ 2 plastic zipper freezer bags
- ☐ Cup
- ☐ Spoon
- ☐ ½ c water (warm)
- ☐ 2 tsp dish soap
- ☐ 1 tsp salt
- ☐ Coffee filter or cheesecloth
- ☐ Pint or half-pint glass jar with ring
- ☐ 2 Tbsp rubbing alcohol (cold)
- ☐ Toothpick or coffee stirrer
- ☐ Teaspoon and tablespoon measuring spoons
- ☐ Timer