APPENDIX B

A COMPLETE LIST OF LAB SUPPLIES

Items in blue type are found in the laboratory equipment sets that are sold for the course. The other materials are available at supermarkets, hardware stores, or drug stores. If the bullets are black, the items are used in an experiment that employs only household items. Green bullets accompany items used in microscope experiments. Red bullets accompany items used in dissection experiments.

MODULE 1

- Microscope
- Lens paper
- Slides
- Coverslips
- Eyedropper
- Methylene blue stain
- Prepared slide: *Ranunculus* root or *Zea mays* root
- Cotton swabs
- Water
- Small pieces of brightly colored thread

MODULE 2

- Penny
- Medicine dropper (or eyedropper)
- Graduated cylinder (10 mL)
- 3 clear plastic or glass cups, or beakers (one for Exp. 2.1 and two for Exp. 2.2)
- Detergent
- Wax paper
- Felt-tip marker
- Strip cut from a coffee filter (½" x 6," or as long as you can get it)
- Stopwatch or clock
- Metric ruler
- 2 different antacids (try to find white tablets, like Tums, Rolaids, or generic)

- Self-sealing plastic sandwich bag
- Mallet or hammer
- Graduated cylinder
- Water
- 2 plastic spoons
- pH indicator strips
- White vinegar
- Part of a fresh pineapple (it cannot be canned. It must be fresh.)
- A blender or fine cheese grater
- 3 small bowls
- A small box of Jell-O gelatin mix—any flavor (Generic brands work just as well.)
- Pot
- 2 tablespoons

MODULE 3

- Thermometer (It must be able to read temperatures from room temperature to at least 100 degrees Fahrenheit. The smaller the thermometer, the better.)
- A large, clear Ziploc® freezer bag (It must be large enough for the thermometer to fit inside once it is zipped.)
- Plastic, two-liter soda pop bottle
- Vinegar
- Baking soda
- Teaspoon
- Bean seeds (about 20)
- 2 paper cups
- 2 saucers
- Marking pen or pencil
- Potting soil

MODULE 4

- Microscope
- Lens paper
- Slides (concave and flat)
- Coverslips
- Eyedroppers
- Methylene blue stain
- Iodine
- Concave slide and coverslip
- Knife or scalpel
- Tweezers
- Water
- Onion
- *Elodea* leaf* (will use for two experiments)—Sometimes called "waterweeds" or Anacharis, they can be purchased at aquarium stores. If you live in a state that has outlawed the sale of these plants due to their tendency to take over an ecosystem, ask

the salesperson at the aquarium shop what they are selling in place of Anacharis. You could also use thin leaves from another plant like Impatiens. The main point is that the leaves need to be alive and very thin.

- Banana
- Toothpicks
- Paper towel
- Sodium chloride (table salt)
- Water
- Paper towel or tissue
- Three coffee mugs or wide-mouth pint-sized mason jars
- A measuring cup for liquids
- A tape measure
- One fresh, raw egg, which is about 90% water
- White vinegar, which is about 5% acetic acid and 95% water
- Clear sugar syrup (like Karo® syrup), which is about 25% water
- Distilled water (available for purchase at any large supermarket) which is close to pure water
- Measuring spoons

MODULE 5

- 2 coffee filter papers
- 2 250-mL beakers
- 2 squares of aluminum foil (big enough to cover the mouth of the beaker)
- 2 rubber bands
- Acetone such as nail polish remover or 70% isopropyl alcohol (solvents)
- Quarter (coin)
- Pencil
- Metric ruler
- Fresh spinach leaf
- Red leaf such as Coleus leaves or red lettuce
- 3 60-mL (2-oz) bottles (bottles can be purchased at most drug stores as travel size reusable bottles)
- 1 to 2 packets of fresh baker's yeast (make sure to check the expiration date)
- Apple cider (not apple cider vinegar) at room temperature
- Sugar
- Water
- 50-mL graduated cylinder
- Funnel
- Three 7- to 9-inch latex balloons
- ½ teaspoon measuring spoon or metric kitchen scale
- Tape measure or string (not yarn) and metric ruler

MODULE 6

- Blender
- Toothpick

- Clear liquid hand soap or dish soap (The liquid hand soap tends to work just a bit better, and colorless will work a bit better than soap that is tinted with a color.)
- Salt
- Water
- Strainer
- Small glass
- Meat tenderizer (Make sure it has been bought within the last year or so.)
- Rubbing alcohol
- ½ cup of split peas
- Measuring cups and spoons
- Flashlight
- Microscope
- Prepared slide of *Allium* (onion) root tip
- Prepared slide of *Ascaris Mitosis*

MODULE 7

- 60 radish seeds (purchase locally)
- 2 shallow pans or dishes
- Potting soil
- Clear plastic wrap
- Box to cover on dish
- Water
- Magnifying glass
- Eyedropper
- Your parents, grandparents, aunts, uncles, and siblings (Even if your grandparents, aunts, and uncles are not living, you might be able to find pictures of them. Or if they are living far away you could ask them over the phone, which is all that you might need for the experiment. If you don't have many siblings or cannot determine the characteristics listed in the background section of your grandparents, aunts, and uncles, you might consider studying another family as well so that you can get even more information.)
- Mirror

MODULE 8

There are no experiments in module 8.

MODULE 9

- 1 cup of plain unflavored yogurt (You can buy this at the grocery store. Just make sure it says "Live Cultures" or "Active Cultures" on the container. You can also get a yogurt starter culture at most health food stores.)
- 4 cups whole milk (or 2%)
- 2-quart saucepan
- Wooden spoon
- Whisk

- Sink, plugged and filled to about 2 inches with ice water
- 5 pint-sized sterilized canning jars with lids (You can sterilize them by running them through the dishwasher.)
- Oven or heating pad and towel
- Wide-mouth funnel (Optional)
- Candy thermometer (Optional, but great if you have it.)

MODULE 10

- 4 jars with lids (You do not want a lot of light to get into the jars. Thus, jars made of darker glass or plastic work really well. If you can't find that kind of jar, cover your jars with paper or foil to keep the light out.)
- A small amount of chopped hay (Dried grass will work as a substitute.)
- Uncooked white rice (Brown rice will not work as well.)
- Egg yolk (This should come from a boiled egg so that the yolk is cooked.)
- A small amount of rich soil
- A long-handled ladle (A good one can be made by attaching a kitchen ladle to a broom handle with duct tape.)
- A pond or small body of water (A still creek will do in a pinch, but it will not be ideal.)
- Something to rest your lab notebook on while you draw in it
- Colored pencils
- Microscope
- Prepared slide: amoeba
- Prepared slide: paramecium
- Prepared slide: euglena
- Prepared slide: volvox
- Prepared slide: spirogyra
- Prepared slide: diatoms
- Slides
- Coverslips for the slides
- 4 pipets or eyedroppers (one for each jar)
- Methylene blue
- 4 jars of water collected at the pond
- A small amount of cotton (from a cotton ball, for example)
- Bread, jelly, and/or fruit mold grown earlier (Only one specimen is necessary, but if you observe more than one specimen, you will learn more.)
- Magnifying glass
- Knife
- Needle (or probe from your dissection kit)
- Water (warm and cool)
- Packet of active dry yeast (This can be purchased at a grocery store. Be sure to check the expiration date.)
- Measuring spoons
- Measuring cup
- Glass that holds at least 2 cups of water

- Sugar
- Mushrooms
- Puffballs
- Shelf fungi
- Gloves

MODULE 11

- Sharp scissors (If you have the dissection kit, use the scissors in it.)
- Sharp blade (If you have the dissection kit, use the scalpel in it.)
- Slides and coverslips
- Water
- Eyedropper
- Magnifying glass
- Microscope (optional)
- Colored pencils and lab notebook
- A variety of flowers (Most flower shops will save old flowers for you if you contact them ahead of time and tell them why you want them. They do not need to be fresh, but you should get a good variety. An example of a good variety would be a rose, a carnation, a daisy, a lily, and a tulip. At least one of them, preferably more, should have stamens and at least one carpel that are easy to see. In the list above, the lily and tulip will have easily visible stamens and a carpel. The rose and carnation will have them as well, but they will be harder to find. Look in the very center of the flower. The daisy is a composite flower, so its reproductive organs will be even harder to see.)
- A variety of different fruits (suggested fruits: apple, plum, orange, tomato, walnut, sunflower seed, maple seed, pea in pod, strawberry, and raspberry)

MODULE 12

- Prepared slide: *Zea mays* (corn) cross section of stem
- Prepared slide: *Zea mays* (corn) cross section of root
- Prepared slide: *Ranunculus* (buttercup) cross section of stem
- Prepared slide: *Ranunculus* (buttercup) cross section of root
- Prepared slide: Leaf cross section with vein
- Microscope
- Lab notebook
- Colored pencils
- Red (some people call it purple) cabbage (just a few leaves)
- Stove
- Stirring spoon
- Pot
- White vinegar (It must be clear. Apple cider vinegar will not work for this experiment.)
- Clear ammonia solution (This is sold in grocery stores with the cleaning supplies.)
- Water
- 2 eyedroppers

- 2 small cups or glasses
- 1 small glass (It must be see-through!)
- A sheet of white paper (preferably without lines)
- Measuring cups (1 cup and ¼ cup)
- Tablespoon

MODULE 13

- Microscope
- Prepared slide: sponge
- Prepared slide: Hydra
- Prepared slide: planarian
- Lab notebook
- Colored pencils
- Natural sponges (optional)
- Dissecting tools and tray that came with your dissection kit
- Earthworm specimen
- Magnifying glass

MODULE 14

- Dissecting tools and tray that came with your dissection kit
- Crayfish specimen
- Magnifying glass
- Laboratory notebook

MODULE 15

- Dissecting tools and tray that came with your dissection kit
- Perch specimen
- Frog specimen
- Magnifying glass
- Laboratory notebook
- Water
- Small bowl
- Colored pencils
- Magnifying glass (if available)
- Field guide (This will help you identify the organisms that you see. Most libraries have field guides. Try to find one on plants and one on animals.)

MODULE 16

- Magnifying glass
- Desk lamp
- Lab notebook
- Colored pencils
- Bird field guides (available online or at your local library)
- Binoculars (if available)
- Bird seed