

APPENDIX C

A COMPLETE LIST OF LAB SUPPLIES

Module #1

- ◆ Eye protection such as goggles or safety glasses
- ◆ Vegetable oil
- ◆ Water
- ◆ Maple or corn syrup
- ◆ A grape
- ◆ A piece of cork
- ◆ An ice cube
- ◆ A small rock
- ◆ A tall glass
- ◆ Two glass canning jars or peanut butter jars (both the same size)
- ◆ Food coloring (any color)
- ◆ A pan and stove to boil water, and a hotpad to hold the pan
- ◆ A clear plastic 2-liter bottle
- ◆ A balloon (6-inch to 9-inch round balloons work best.)
- ◆ Clear vinegar
- ◆ Baking soda
- ◆ A funnel or butter knife
- ◆ A few leaves of red (sometimes called purple) cabbage
- ◆ A saucepan
- ◆ A stove
- ◆ Measuring cups
- ◆ A few ice cubes
- ◆ A pencil
- ◆ A sheet of paper (8 ½" by 11")
- ◆ Six thumbtacks or pushpins
- ◆ A piece of string 8 inches long
- ◆ A sheet of cardboard larger than or the same size as the sheet of paper

Module #2

- ◆ Eye protection such as goggles or safety glasses
- ◆ A reasonably heavy book
- ◆ A sheet of cardboard about the same size as the book (The cardboard that comes on the back of a pad of paper works well. You can also cut a piece out of an old cardboard box.)
- ◆ A sheet of heavy paper (like construction paper or cardstock) about the same size as the book
- ◆ A sheet of regular paper about the size of the book
- ◆ A metal paper clip
- ◆ A small rock (It needs to weigh less than the cardboard, so it should be really small.)

- ◆ A working flashlight
- ◆ A parent or helper

Module #3

- ◆ Eye protection such as goggles or safety glasses
- ◆ A tall glass
- ◆ Measuring cups for measuring out 1½ cups of water
- ◆ An egg (It is best to use one that hasn't been sitting in the refrigerator for a long time.)
- ◆ A teaspoon
- ◆ A spoon for stirring
- ◆ Water
- ◆ Salt
- ◆ Four sheets of reasonably thick cardboard (A cut-up cardboard box works nicely.)
- ◆ Scissors that will cut the cardboard
- ◆ A sheet of facial tissue (Make sure it is not the kind that has been treated with lotion.)
- ◆ A chunk of soap from a bar of soap
- ◆ A stick of chewing gum
- ◆ A bathtub or large sink (A bathtub works best.)
- ◆ A reasonably large bowl
- ◆ Black pepper
- ◆ Tweezers
- ◆ Metal paper clip (Use a standard-sized paper clip. A big one may not work.)
- ◆ Toilet paper

Module #4

- ◆ Eye protection such as goggles or safety glasses
- ◆ A wooden pencil
- ◆ A wooden ruler
- ◆ At least five quarters, preferably more
- ◆ Two brooms or a broom and a mop (You basically need two implements with long handles. The experiment works best when the handles are very smooth.)
- ◆ Several feet of rope -(Nylon rope works best because it is slick.)
- ◆ Two reasonably strong people to help you

Module #5

There are no experiments in this module.

Module #6

- ◆ Eye protection such as goggles or safety glasses
- ◆ Alum (a white powder you can find in the spice section of any large supermarket)
- ◆ A small glass (like a juice glass)
- ◆ A spoon for stirring
- ◆ Some thin, rough string (Thread will work, but the rougher the string, the better the results.)

- ◆ Two weights (washers, nuts, fishing sinkers, etc.)
- ◆ A large plate
- ◆ A few rocks from outside (Small pebbles actually work best.)
- ◆ A sheet of dark paper (blue, black, etc.)
- ◆ A magnifying glass
- ◆ A stove
- ◆ A pot to heat water
- ◆ Gloves to protect your hands from the heat
- ◆ Sugar (optional)
- ◆ Food coloring (optional)
- ◆ A large glass jar with a lid
- ◆ Some dirt from outside (Dig straight down into the ground so you get dirt from many depths.)
- ◆ Some sand
- ◆ Some gravel composed of various sizes of rocks
- ◆ Water
- ◆ Plaster of Paris
- ◆ A medium or large margarine tub
- ◆ A few lima beans
- ◆ Paper towels
- ◆ Vinegar
- ◆ A large glass
- ◆ A limestone rock (Most gravel is limestone. You can also go to a home improvement store's garden section and ask for limestone. The rock needs to be small enough to fit in the glass.)
- ◆ Some steel wool (You can get this at any hardware store.)
- ◆ A small bowl
- ◆ A shoebox
- ◆ A gardener's spade (or something else you can use to dig)
- ◆ Scissors
- ◆ A spot in the yard in which you can dig
- ◆ A water hose and water
- ◆ A large rock

Module #7

- ◆ Eye protection such as goggles or safety glasses
- ◆ Modeling clay (Play-Doh[®] will work)
- ◆ Plaster of Paris
- ◆ A paper plate
- ◆ A shell or something else with a distinctive shape or design
- ◆ Vaseline[®] or another petroleum jelly
- ◆ A cup of water
- ◆ A small glass
- ◆ Table salt
- ◆ A measuring spoon that measures one-eighth of a teaspoon
- ◆ A clean glass baking pan (A large rectangular one works best)
- ◆ At least two (preferably more) leaves (They should not be dried out. You can pick them off the tree or get recently fallen ones that are not yet dried out.)

- ◆ Two sheets of blank, white paper per leaf
- ◆ Many thick books (You can use fewer books if you have some heavy weights you can put on the books.)

Module #8

- ◆ 18 index cards (The size is irrelevant, as is the presence or absence of lines.)
- ◆ A parent or someone else to write on the cards and hold the key

Module #9

- ◆ Eye protection such as goggles or safety glasses
- ◆ Long pipe cleaners (the longer the better)
- ◆ Four different colors of beads (They need to have holes in them large enough for the pipe cleaners to fit through. You can get beads like that at any craft store.)
- ◆ Scissors strong enough to cut the pipe cleaners
- ◆ One slice of potato (uncooked)
- ◆ A pale green leaf (The paler the green, the better this experiment will work.)
- ◆ Rubbing alcohol (available at any drugstore)
- ◆ Iodine (available at any drugstore)
- ◆ A large jar with a lid
- ◆ Two shallow dishes
- ◆ Tweezers
- ◆ A small potted plant that can fit inside the jar with room to spare
- ◆ Water
- ◆ An area of the house that gets sunlight almost every day
- ◆ A piece of masking tape or a marker
- ◆ A few earthworms (Get them at a live bait shop if you can't find them outside.)
- ◆ A container that will hold the earthworms and soil
- ◆ Soil
- ◆ A bright light
- ◆ Large jar (It must be large enough to fit a banana inside.)
- ◆ Nylon stocking large enough to stretch over the mouth of the jar
- ◆ Rubber band large enough to fit around the mouth of the jar
- ◆ A banana

Module #10

- ◆ Eye protection such as goggles or safety glasses
- ◆ One chicken bouillon cube
- ◆ Table salt
- ◆ White vinegar
- ◆ Four small glasses
- ◆ One large glass
- ◆ One measuring cup
- ◆ One teaspoon

- ◆ Masking tape
- ◆ Marker or pen
- ◆ White paper (no lines if possible)
- ◆ A brightly colored marker or crayon
- ◆ Baker's active yeast (available at any supermarket)
- ◆ Banana
- ◆ Water
- ◆ Two zippered plastic bags (like Ziploc[®] sandwich bags)
- ◆ A butter knife
- ◆ A houseplant (Ivy works best, but most houseplants will work. If you have a few varieties of houseplants and ivy is not among them, you might try a few instead of just one.)
- ◆ Scissors
- ◆ A stalk of wilted celery with the leaves still on it
- ◆ A reasonably sharp knife
- ◆ Some food coloring (preferably blue)

Module #11

- ◆ An uncooked chicken bone (preferably a wishbone or wing)
- ◆ A jar with a lid
- ◆ Vinegar (preferably white)
- ◆ Two houseplants. Make sure that your parents won't mind one of them looking really funny once the experiment is over.
- ◆ A few books
- ◆ A sunny window
- ◆ A plastic bandage, such as a Band-Aid[®]

Module #12

- ◆ Eye protection such as goggles or safety glasses
- ◆ A small candle (It needs to be in some kind of heavy holder, but the holder should not be tall. A small tealight candle in a glass holder, like the one in the figure under step 5, is ideal.)
- ◆ A glass that will cover the candle
- ◆ A deep bowl (The bowl should be deep enough so that when the candle is placed at the bottom of the bowl, the sides of the bowl are above the flame of the candle.)
- ◆ Vinegar
- ◆ Baking soda
- ◆ Matches
- ◆ A mirror (A hand-held mirror is best, but any mirror will do.)
- ◆ A paper towel
- ◆ Red (sometimes called purple) cabbage (You only need a few leaves.)
- ◆ Distilled water (You can get it at any large supermarket. You need about ½ gallon.)
- ◆ Two drinking straws
- ◆ A saucepan
- ◆ A stove
- ◆ Three small glasses (like juice glasses)

- ◆ A ¼-cup measuring cup and a 1-cup measuring cup
- ◆ A 2-liter plastic bottle (the kind soda comes in)
- ◆ A balloon (6-inch or 8-inch round balloons work best.)
- ◆ A small spoon (like a ¼ measuring teaspoon)
- ◆ An oral thermometer (The kind you use to take a person's temperature. Do not use one of those strips you put on your forehead. Use the kind of thermometer you stick in your mouth.)

Module #13

- ◆ Eye protection such as goggles or safety glasses
- ◆ A saltine cracker
- ◆ A tablespoon
- ◆ Iodine (This is available at most drugstores. You used it in Experiment 9.2.)
- ◆ Two small glasses
- ◆ Tums[®] antacid tablets (Try to get white ones, or at least a tub of Tums that has some white ones in it.)
- ◆ Toilet bowl cleaner (It should contain hydrochloric acid, also called hydrogen chloride, as an ingredient. The best kind to get is colorless. If you cannot get colorless, get a clear kind that has a light tint of color to it. DO NOT get the kind that clings to the bowl.)
- ◆ Red (sometimes called purple) cabbage
- ◆ A small glass (like a juice glass)
- ◆ A teaspoon
- ◆ A spoon for stirring
- ◆ A saucepan
- ◆ A measuring cup
- ◆ Distilled water (You can get it at any large supermarket. You need about ½ gallon.)
- ◆ A stove
- ◆ Baking soda
- ◆ Toilet bowl cleaner (the kind you used in the previous experiment)

Module #14

- ◆ Eye protection such as goggles or safety glasses
- ◆ A stopwatch or a watch with a second hand
- ◆ A place where you can do jumping jacks
- ◆ Flexible tubing (If you don't have some, the best place to get it is anywhere that sells aquarium accessories. It is typically called "aquarium tubing," and it is used to connect the aquarium air pump to the filter.)
- ◆ A plastic 1-gallon jug with a lid
- ◆ A sink with a plug
- ◆ A measuring cup
- ◆ A plastic 2-liter bottle (the kind soda pop comes in)
- ◆ Strong scissors
- ◆ A plastic sandwich bag (It needs to be large enough for the bottom of the 2-liter bottle to fit into the bag.)
- ◆ Tape

- ◆ A round balloon (12-inch is ideal, but any size greater than 6-inch will do.)
- ◆ A rubber band (It should be large enough to fit around your wrist without stretching. If the rubber band is larger, it will work fine, but a smaller one will not work.)
- ◆ A reasonably fresh white carnation (Almost all big supermarkets, as well as florists, sell them.)
- ◆ Two glasses
- ◆ Blue food coloring
- ◆ Red food coloring
- ◆ A knife
- ◆ Two spoons for stirring

Module #15

- ◆ Eye protection such as goggles or safety glasses
- ◆ Three onions (any size)
- ◆ A cutting knife (In this experiment, a dull knife works better than a sharp one!)
- ◆ A freezer
- ◆ A cutting board
- ◆ A sink in which you can cut
- ◆ A tea bag
- ◆ Three small glasses (like juice glasses)
- ◆ A paper towel
- ◆ A coffee filter
- ◆ A funnel
- ◆ Scissors
- ◆ A tea kettle or pot
- ◆ A stove
- ◆ A spoon for stirring
- ◆ A pile of two to three books (The pile needs to be at least $\frac{3}{4}$ as high as one of the glasses.)

Module #16

- ◆ Eye protection such as goggles or safety glasses
- ◆ Scissors
- ◆ A pencil
- ◆ Paper
- ◆ A ball (It needs to be small enough to be thrown with one hand, like a baseball, softball, or golf ball.)
- ◆ A coin
- ◆ Some stairs or porch steps
- ◆ A paper towel tube or rolled-up piece of thick paper
- ◆ A few people to test (8 years or older)
- ◆ A glass
- ◆ A mirror
- ◆ A room with a light switch that when closed off gets *really* dark
- ◆ A candle
- ◆ Matches
- ◆ Toothpicks

- ◆ Apple
- ◆ Onion
- ◆ Blindfold
- ◆ A person to act as your subject
- ◆ A knife
- ◆ Two paper towels
- ◆ Two well-sharpened pencils
- ◆ Some tape
- ◆ Printouts from the course website, the address and password to which are given in the “Student Notes” at the beginning of the book

or

- ◆ Two sheets of paper
- ◆ A black marker or pen