

## LAB SUPPLY LIST

## MODULE 1

**Experiment 1.1**

A tall, clear canister or jar with a lid  
 A ping-pong ball  
 A 3 oz. lead sinker (the kind used for fishing)  
 A bag of unpopped popcorn (small dried beans will also work)

**Experiment 1.2**

A fresh lemon  
 A small knife  
 3 tarnished pennies (between 1962 and 1982)  
 A paper towel  
 A paper plate  
 A teaspoon of salt  
 An eyedropper  
 Water

**Explore More, page 10**

2 glasses  
 Hot and cold water  
 Food coloring

**Explore More, page 15**

24 dimes  
 Kitchen scale

**Explore More, page 19**

Drinking glass  
 Water  
 A piece of card stock

**Explore More, page 22**

4 drinking straws  
 Scissors  
 A stapler  
 A ruler  
 Masking or cellophane tape  
 5 feet of string

## MODULE 2

**Experiment 2.1**

A reasonably heavy book  
 A sheet of cardboard about the same size as the book  
 A sheet of heavy paper (like construction paper or card stock) about the same size as the book  
 A sheet of regular paper about the same size as the book

**Experiment 2.2**

All the materials from Experiment 2.1  
 A metal paper clip

**Experiment 2.3**

A drinking glass  
 A small glass  
 Water  
 An eyedropper  
 Some paper towels  
 A penny  
 Liquid soap

**Explore More, page 38**

A basketful of small items (like a pencil, bottle cap, stuffed animal, hairbrush, socks, toy, ball)  
 A helium balloon

**Explore More, page 47**

A desk lamp  
 Red construction paper  
 A marker  
 Scissors  
 Tape  
 2 magnifying glasses

**Explore More, page 50**

A balloon  
 A hole punch  
 A piece of paper

## MODULE 3

### Experiment 3.1

A tall, clear glass  
Measuring cups to measure 1½ cups of water  
A fresh raw egg  
A teaspoon  
A spoon for stirring  
Water  
Salt

### Experiment 3.2

3 glass containers of different sizes  
A tea light candle  
Matches  
A ceramic, glass, or metal pie plate  
A stopwatch (or smart phone with a stopwatch feature)  
A water-filled glass

### Experiment 3.3

A medium glass container (NOTE: This experiment works better if the glass container is tall and thin.)  
A tea light candle  
Matches  
A ceramic, glass, or metal pie plate  
Food coloring  
A measuring cup of water (It is helpful if it has a pour spout.)  
A stirring spoon  
A paper towel  
A small lump of clay  
A medium-height candle that can fit in the medium glass container with room for a flame

### Explore More, page 68

Friends and family to poll  
Materials to create a bar graph of results (either on paper or computer)

### Explore More, page 73

Friends and family to participate in taste-testing  
Ingredients to make chocolate chip cookies using two different brands of chocolate chips  
Notebook to record results

## MODULE 4

### Experiment 4.1

Student Notebook  
Tree slice image (Figure 4.15) on page 103

### Explore More, page 89

A desk drawer to explore

### Explore More, page 104

Trees recently cut down or slices of tree trunks from a nursery or craft store  
Camera

## MODULE 5

### Experiment 5.1

A dark marker  
A paper plate (A thick paper plate works best.)  
A sharpened pencil  
A ruler  
A plastic straw  
Cellophane or masking tape  
Paper clips

### Experiment 5.2

A piece of chalk  
A sheet of corrugated cardboard  
Masking tape  
A piece of sandpaper about half the size of the cardboard

### Explore More, page 115

Materials to create a bar graph of results (either on paper or computer)

### Explore More, page 121

A friend or family member

### Explore More, page 127

A sheet of corrugated cardboard or a corkboard  
A sheet of white paper  
2 thumbtacks  
A pencil  
Some string

### Explore More, page 130

Styrofoam ball  
A straw or a pencil  
A push pin or a bent paper clip  
A lamp

### Explore More, page 137

A dark room  
A flashlight

**MODULE 6****Experiment 6.1**

Alum (sold as Aluminum Alum in large supermarket spice sections, pharmacies, or hardware stores)  
 A small glass (like a juice glass)  
 A liquid measuring cup  
 A small spoon for dispensing the alum  
 A large spoon for stirring  
 Some thin, rough string (Thread will work, but the rougher the string, the better the results.)  
 2 weights (washers, nuts, fishing sinkers, etc.)  
 A large plate  
 A few rocks from outside (Small pebbles work best.)  
 A sheet of dark-colored paper  
 A magnifying glass  
 A stove  
 A pot to heat water  
 Oven mitt  
 Eye protection such as goggles or safety glasses

**Experiment 6.2**

A large glass jar with a lid  
 Some dirt of outside (Dig straight down into the ground to get dirt from many depths.)  
 Some sand  
 Some gravel composed of various sizes of rocks  
 Water

**Explore More, page 150**

16 oz. container of dry cornstarch  
 A large bowl  
 Water  
 A spoon

**Explore More, page 163**

2 cups of water  
 2½ cups Epsom salt  
 A saucepan  
 A spoon  
 2-foot length of twine  
 4 washers  
 2 juice glasses  
 A small plate  
 An airtight container to store extra solution

**Explore More, page 170**

A shell or other similar item  
 Petroleum jelly  
 Clay  
 A paper plate  
 Plaster of Paris  
 A disposable cup  
 A spoon

**MODULE 7****Experiment 7.1**

A large mason jar or other clear sturdy jar  
 A saucepan or kettle to boil water  
 2 hot pads  
 A 1-quart zippered plastic bag  
 Ice  
 A match and matchbox  
 A dark sheet of construction paper

**Experiment 7.2**

A large mason jar or other clear sturdy jar  
 A balloon  
 Scissors  
 A rubber band  
 A drinking straw  
 Cellophane tape  
 A sheet of cardboard  
 A fine-tipped marker

**Explore More, page 193**

$\frac{3}{4}$  cup of white vinegar  
 Empty 2-liter bottle  
 A balloon  
 2 tablespoons of baking soda  
 A butter knife

**Explore More, page 200**

A lightning storm

**Explore More, page 207**

A cereal bowl  
 Plastic wrap  
 A sunny window  
 A thermometer  
 A piece of tape

**MODULE 8****Experiment 8.1**

A candle  
 A match  
 Cotton swabs  
 2 juice glasses  
 Water  
 3 small plates  
 1 tablespoon of table salt  
 1 tablespoon of salt substitute (It should have potassium chloride as an ingredient.)  
 Safety goggles  
 OPTIONAL: A container of Damp Rid that you will carefully open to use 1 tablespoon

### Experiment 8.2

2 beakers - 100 mL and 250 mL (or 2 glasses - one large and one small)

Sand

Table salt

A funnel

Water

A measuring cup

Filter paper (You can cut a circle out of the bottom of a coffee-maker filter.)

Stirring rod (or small spoon)

Measuring teaspoon

Measuring tablespoon

A stove

A saucepan

### Explore More, page 216

A balloon

String

A helper

A ruler

### Explore More, page 217

A bar of Ivory soap

A bowl of water

A knife

Microwave-safe plate

A microwave

### Explore More, page 218

A balloon

Empty soda can

### Explore More, page 232

A skillet

A raw egg

A bowl

A stove

A plate

### Explore More, page 234

Common crystals (like salt, sugar, finely crushed ice, play sand, and possibly a diamond)

Notebook for illustrations and descriptions

Magnifying glass or microscope (optional)

### Explore More, page 236

Clean, clear, plastic food container with recycle logo

Scissors

Some permanent markers

A hole punch

Aluminum foil

An oven

### Explore More, page 238

A few purple cabbage leaves

Distilled water

A saucepan

Tongs

A stove

A few clear juice glasses

Household liquids (like lemon juice, milk, vinegar, water, dish soap, and -using gloves-some household cleaning supplies)

A plastic spoon or wooden chopstick for stirring

## MODULE 9

### Experiment 9.1

A large book (The book does not have to be thick, but the larger the surface area of its cover, the better.)

A paper clip

A small pencil-topper eraser

2 lumps of clay each about the same size as the eraser

A ruler

### Experiment 9.2

2 D batteries

Electrical tape

Insulated number 22 copper wire (about 18 inches)

Scissors

2 large metal paper clips

A spring-tension wood or plastic clothespin

A cork message board or a sheet of very thick cardboard, about 8" × 11"

Masking tape

3 metal thumbtacks

A non-LED, 3-volt flashlight bulb (You can also use a small car tail-light bulb)

### Experiment 9.3

3 tall drinking glasses, all the same size and shape

Water

A metal spoon

A rubber band (Use a thicker one for better results.)

Scissors

A large metal binder clip

A block of wood thin enough for the binder clip to clamp onto (Several layers of cardboard will also work.)

### Explore More, page 250

A friend or family member

A swing

**Explore More, page 257**

A sheet of white paper  
 A tray or paper plate  
 A bar magnet  
 Iron shavings

**Explore More, page 258**

A strong magnet  
 A steel nail  
 A pile of steel paper clips

**Explore More, page 262**

A stiff bowl  
 Some plastic wrap  
 Tape  
 Table salt  
 A large metal pot  
 A metal spoon

**Explore More, page 269**

A sunny day  
 A white piece of fabric  
 A black piece of fabric

**MODULE 10****Experiment 10.1**

2 strands of black licorice that have hollow centers (Twizzlers brand works best for this.)  
 2 strands of red licorice that have hollow centers (Again, Twizzlers work well.)  
 4 different colors of gummy bears - several of each color (Colored marshmallows also work.)  
 2 long, stiff pipe cleaners (The ones with glitter cellophane fuzz work best.)  
 6 toothpicks (and a few to spare in case some break.)  
 Scissors

**Experiment 10.2**

Eye protection such as goggles or safety glasses  
 One slice of raw potato  
 A pale green leaf (The paler the green, the better this experiment will work.)  
 Rubbing alcohol  
 Iodine  
 A jar with a lid  
 2 shallow dishes  
 A cookie sheet lined with parchment paper or waxed paper for protection (Don't use a cookie sheet you wouldn't want to risk getting stained by iodine.)  
 Tweezers  
 A small non-metallic bowl

**Explore More, page 286**

A small potted plant  
 A jar with a lid (with enough extra room for the plant to grow)  
 Water  
 A marker

**Explore More, page 286**

A small potted plant (A small basil plant works well.)  
 A sunny window

**Explore More, page 297**

A banana  
 A knife  
 Water  
 Yeast granules  
 2 zippered plastic bags  
 A marker  
 2 paper plates

**Explore More, page 297**

A clear plastic cup  
 2 paper towels  
 Water  
 4 beans  
 Plastic wrap

**MODULE 11****Experiment 11.1**

Warm and cold tap water  
 A liquid measuring cup  
 A drinking glass  
 A permanent marker  
 2 empty 20-oz. soda bottles (Most water bottles are too flimsy for this experiment.)  
 A packet of activated baker's yeast  
 A teaspoon  
 Sugar  
 2 balloons

**Experiment 11.2**

Leaf press or old books and waxed paper  
 Lab notebook  
 Tree identification book (from the library or online sources)

**Explore More, page 314**

A piece of bread (NOTE: the fewer preservatives, the faster this activity will work.)  
 Tap water  
 A small paper plate  
 Some dust from a windowsill  
 Plastic wrap  
 A warm, dark area

### Explore More, page 321

A few purple cabbage leaves  
A saucepan  
Distilled water  
Tongs  
A container with a lid

### Explore More, page 326

Purple water from previous Explore More  
OR A few purple cabbage leaves  
A saucepan  
Distilled water  
Tongs  
A clean, small, clear glass  
A straw

### Explore More, page 329

Friends and family to poll  
Materials to create a table with your results  
(either on paper or computer)

## MODULE 12

### Experiment 12.1

8 Oreo cookies  
A butter knife  
2 zippered storage bags  
Chocolate pudding (Milk chocolate looks better  
than dark chocolate.)  
4 graham crackers  
Vanilla, banana, or butterscotch pudding  
Whipped cream  
A tall, transparent glass  
A serving spoon

### Experiment 12.2

2 empty toilet paper rolls  
3 balloons  
Water  
A large mixing bowl  
Vegetable oil  
A funnel  
Markers (optional)

### Explore More, page 343

A ping-pong ball  
A 12" piece of string  
A balloon  
Cellophane tape  
Electrical tape  
OPTIONAL: A helper

### Explore More, page 355

A mason jar  
Water  
Scraps of black and white craft foam  
Glue  
Scissors  
A flashlight  
A black piece of paper

### Explore More, page 357

Dried herbs (Parsley, oregano, or basil work well.)  
A bowl  
Water  
A fine-toothed hair comb

### Explore More, page 359

Empty 2-liter bottle  
A small knife  
Electrical tape

### Explore More, page 360

A glow stick  
A freezer

## MODULE 13

### Experiment 13.1

5 zipper-seal plastic sandwich bags  
5 plastic straws  
Masking tape  
A marker  
Tape  
Scissors  
5 ounces of fresh spinach  
Newspaper  
A kitchen scale  
Water  
A tablespoon

### Experiment 13.2

A small bag of dry white navy beans (about 1 cup)  
A paper lunch bag  
A dark permanent marker  
A calculator  
Your notebook

### Explore More, page 376

A nearby natural area (like a park or a field)  
Your notebook

**MODULE 14****Rube Goldberg Machine  
Experiment Setup 1**

An iced cupcake on a small plate  
 Sprinkles  
 A large trifold cardboard presentation display board  
 measuring 36" × 48" when open  
 A funnel  
 Strong packing tape or masking tape  
 A 12" × 2" strip of stiff cardboard  
 A small paper or plastic cup  
 Cellophane tape  
 A hole punch  
 An 18" length of string  
 A pencil  
 An X-ACTO craft knife

**Rube Goldberg Machine  
Experiment Setup 2**

Setup from Experiment Setup 1  
 A stack of books about 8-inches high  
 A few pencils  
 Kite string  
 2 rolls of masking tape  
 5–6 dominoes

**Rube Goldberg Machine  
Experiment Setup 3**

Setup from Experiment Setup 1–2  
 1 large hardcover book that is not very thick  
 1 small book  
 A toy car (For best results, use a car somewhat  
 heavier and larger than a Matchbox-sized car.)  
 Kite string  
 A tennis ball  
 Masking tape  
 An empty paper towel roll  
 Books  
 An empty 2-liter bottle  
 A 9" diameter balloon  
 Baking soda  
 A liquid measuring cup  
 Vinegar  
 A butter knife  
 A stiff ruler

**Rube Goldberg Machine  
Experiment Setup 4**

Setup from Experiment Setup 1–3  
 A long table  
 A stiff ruler  
 Dominoes  
 Masking tape  
 A thin, hardcover book  
 A metal or glass 9" × 13" baking dish  
 Water  
 Aluminum foil  
 2 short wood skewers  
 Cellophane tape  
 A scrap of cardboard  
 2 long strips of cardboard that are the length of  
 the baking dish  
 A sheet of paper  
 Scissors

**Rube Goldberg Machine  
Experiment Setup 5**

Setup from Experiment Setup 1–4  
 A blow dryer  
 Masking tape  
 Various sized books  
 An electrical power strip with an on and off  
 switch  
 An empty 16- or 20-oz. plastic water bottle  
 with lid  
 Sand  
 A funnel  
 Kite string  
 Scissors  
 Empty 1-gallon milk jug  
 A short candle on a stand

**Rube Goldberg Machine  
Experiment Finale**

Setup from Experiment Setup 1–5  
 A match