

Supply List

Every student will need his own notebook (or the *Chemistry and Physics Notebooking Journal*), blank paper, lined paper, and colored pencils. An adult should supervise all projects, experiments, and “Try This!” activities. Caution: Set aside equipment to be used only in experiments, not for cooking. Never experiment and cook/eat with the same items! Thrift stores are a good source of inexpensive equipment.

Lesson 1

- water
- graduated cylinder
- small, solid object that doesn't absorb water (such as a rock)
- safety goggles
- 2 glasses
- 2 eggs
- 2 clear plastic straws
- food coloring (red, yellow, blue, and green)
- 12 plastic cups
- measuring spoons
- 1½ cups salt
- tall, thin vase or glass
- 8 ounces honey
- 8 ounces corn syrup
- 8 ounces 100% pure maple syrup
- 8 ounces whole milk
- 8 ounces dish soap
- large bottle of vegetable oil
- 8 ounces rubbing alcohol
- turkey baster
- popcorn kernel
- die from a game
- cherry tomato
- bead
- ping-pong ball or marshmallow
- bowl to hold water
- small piece of wood
- cork
- piece of ice
- coins
- small plastic toys
- 25 pennies
- large glass pan to hold water
- aluminum foil
- damp paper towel
- strong magnet
- needle

- metal tack
- metal hair clip
- 3 tall, thin plastic bottles with caps (like a soda or water bottle)
- box of Alka-Seltzer tablets
- vinegar

Lesson 2

- water
- 5 identical plastic cups
- 1¼ cup salt
- ¼ cup Epsom salt
- ¼ cup rubbing alcohol
- 1 packet Jell-O
- freezer
- clock
- 16 ounces corn starch
- glass cake pan
- measuring cup
- piece of waxed paper
- bowl
- needle
- 1 square of toilet paper
- 1 cup fruit juice
- 2 cups ice
- small zippered plastic bag
- large zippered plastic bag
- clear plastic cup
- small piece of paper
- 1 piece of gum (or peanut butter)
- uninflated balloon
- small bottle of soda
- packet of Pop Rocks candy
- 1 piece of bubble gum
- mirror or window
- large, clear plastic container or jar with a tight-fitting lid
- enough rocks to make a layer in the container
- enough sand to make a layer in the container

- enough topsoil to make a layer in the container
- plant from a plant store
- small plastic cup

Lesson 3

- gloves
- safety goggles
- small empty soda bottle
- tablespoon measuring spoon
- 1 tablespoon yeast (or potassium iodide for stronger reaction)
- very warm water
- ¼ cup dishwashing liquid
- 7 colors of food coloring
- cup
- spoon for stirring
- sink or deep-sided dish
- ½ cup hydrogen peroxide (The stronger kind from the beauty supply store makes a bigger reaction.)
- 1 large and 2 small paper plates
- marker
- glue
- 10 pieces of small candy (like Nerds)
- 10 pieces of large candy in one color and 8 pieces in another color (like peanut M&M'S or Gobstoppers)
- pile of Legos
- 2 wire coat hangers
- 12 small fruits (blueberries, grapes, cherry tomatoes, or any other small, roundish fruit)
- masking tape
- 2 pieces of copy paper
- 3 cups butter, softened
- 4 cups white sugar
- 8 eggs
- 2 teaspoons vanilla extract
- 10 cups all-purpose flour
- 4 teaspoons baking powder
- 2 teaspoons salt
- 2 cups powdered sugar
- 4 teaspoons milk
- 4 teaspoons light corn syrup
- pastry tube

Lesson 4

- magnifying glass or microscope
- ½ cup salt
- water
- pan

- stove
- notebook or notebooking journal
- pencil
- safety goggles
- ½ teaspoon borax
- 1 tablespoon cornstarch
- 1 tablespoon white glue or clear school glue
- a few drops of food coloring
- 9 small plastic cups
- spoon
- timer
- zippered plastic bag
- rubber band
- string
- balloon
- bamboo skewer
- several Styrofoam cups
- glass bowl or casserole dish
- ¼ cup pure acetone (available as nail polish remover at beauty supply store)
- saucer
- paper towel
- vinegar
- 5 copper pennies (made before 1981)
- ¼ cup milk
- ¼ cup lemon juice
- ¼ cup Milk of Magnesia
- ¼ cup baking soda
- ¼ cup ammonia-based glass cleaner
- litmus paper
- 2-liter bottle of Diet Coke
- package of mint Mentos
- hot glue gun
- 2 glass jars with lids
- 2 thermometers that will fit inside the glass jars
- 2 steel wool pads
- 2 bowls
- sink
- ½ cup potassium nitrate (stump remover)
- aluminum foil
- ⅓ cup sugar
- water
- wick
- empty toilet paper tube
- duct tape
- protective gloves
- box of alum
- large glass measuring bowl

- large drinking glass
- thread or nylon fishing line
- skewer or pencil
- magnifying glass

Lesson 5

- ½ cup flour
- ½ cup sugar
- ½ cup melted butter
- ½ cup old-fashioned oats
- ½ cup chocolate chips
- greased baking sheet
- mixing bowl
- large mixing spoon
- oven
- 8 ounces of a clear carbonated drink
- 1 glass
- 8 raisins
- ¼ cup cooking oil
- running water
- soap
- glass pie plate or similar high-lipped dish
- ½ cup milk
- 1 drop each of red, yellow, blue, and green food coloring
- cotton swab
- a few drops of dishwashing liquid
- aluminum foil
- ½ cup heavy whipping cream
- small glass jar (like a baby food jar) with lid
- powdered chocolate drink mix
- spoon
- large glass of milk
- 4 Crayola markers (original classic colors: black, brown, violet, green)
- 4 white Crayola sidewalk chalk sticks
- 4 plastic cups
- ½ gallon of swamp water or muddy lake water
- 2 two-liter soda bottles with caps
- large glass beaker or glass vase with wide mouth
- 2 teaspoons alum
- ½ cup fine white play sand or beach sand
- ½ cup coarse or industrial sand
- ½ cup small pebbles, like aquarium rocks
- coffee filter
- rubber band
- stopwatch
- scissors

Lesson 6

- 6 pennies
- 1 index card
- table
- 1 glass
- water
- tin pie pan
- raw egg
- empty toilet paper tube
- smooth, flat surface
- 2 rulers
- tape
- 13 marbles
- 1 large shooter marble
- easy-to-squeeze bottle
- clay
- coffee stirrer straw
- wide straw
- sidewalk chalk

Lesson 7

- bicycle with hand brakes
- small toy car
- glass or wooden table
- water
- 1 tablespoon soap or oil
- 3 pieces of copy paper
- window
- shoe box or other small box
- 20-inch string
- small rock
- tape
- 15–20 pencils
- few small toys or objects
- table
- chair
- video camera
- baseball
- tennis ball
- ledge
- penny
- balloon
- small pail with handle
- 3 pieces of heavy card stock

Lesson 8

- 2 rubber bands (1 thin)
- 2 pencils
- an object to use as a drum, such as a can with a plastic lid or a large cookie tin
- safety goggles
- wooden spool with large hole
- electrical or duct tape
- washer
- toothpick
- scissors
- tennis ball
- basketball
- zippered plastic bag
- kitchen counter near sink
- 2 straws cut at an angle to make a sharp point
- water
- 3 shoe boxes (1 that is white or light on the inside and outside)
- 2 small bottles of water
- thermometer
- black paint (enough to cover the inside and outside of a shoebox)
- 6–10 eggs
- sand (enough to fill 1 shoe box halfway)
- 1-foot sheet of aluminum foil
- bamboo skewer
- baking soda
- vinegar
- black powder paint
- small funnel
- plastic cup

Lesson 9

- large casserole dish
- water
- several pieces of Cheerios cereal
- set of dominoes
- flat surface like a table or counter
- long cardboard tube (such as a gift wrapping paper tube)
- balloon
- rubber band
- paper
- tape
- scissors
- candle
- lighter

- long garden hose
- piece of thick paper (like card stock)
- 2 metal spoons
- Sheetrock wall
- car hood
- large container filled with water (like an aquarium or plastic bucket)
- wooden table
- drinking straw
- large metal can
- small metal can
- table
- chair
- shoebox
- materials that will absorb sound (carpet, foam, cardboard, plastic, fabric, carpet padding, etc.)
- glue
- object that produces sound, like an iPod, cell phone, alarm clock, or small radio

Lesson 10

- straight-sided, thin drinking glass
- water
- 3 sheets of white paper
- duct tape
- 3 bright flashlights
- very dark bathroom
- copy paper box
- knife
- 2 prisms
- sunny day
- glass of water
- ¼ cup of milk
- white wall
- darkened room
- plastic wrap or cellophane (red, blue, and green)
- scissors
- 3 cardboard tubes
- tape
- piece of white cardboard
- sharp pencil
- 6 colors of markers, crayons, or tempera paint (purple, blue, green, yellow, orange, red)
- TV remote control
- bouncy ball
- piece of aluminum foil
- mirror, and something to prop it up with on a table
- table in a dark room

- 2 small square mirrors
- small object (such as a small plastic figure)
- long pencil
- penny
- teacup
- reusable adhesive putty
- one 18-inch length of 2-inch outer diameter PVC pipe
- two 2-inch inner diameter PVC pipe elbow joints
- 2 small, round mirrors measuring 2 inches or less in diameter

Lesson 11

- thermometer
- desk lamp that's turned on
- aquarium or other large transparent container
- room temperature water
- large bowl that will fit into aquarium (or two small bowls)
- 2 plastic film canisters with lids (or 2 four-ounce plastic GladWare containers)
- hammer
- nail
- scissors
- boiling water
- ice water
- red and blue food coloring
- balloon
- pot of boiling water
- empty glass bottle
- ¼ cup peanut butter
- metal spoon
- wooden spoon
- plastic spoon
- container of hot water
- pan
- water
- 5 empty baby food jars with lids
- masking tape
- 4 pieces of insulation material (such as fiberglass, down-filled fabric, cotton cloth, a wool sweater, or wool socks)
- a tissue
- magnifying glass
- pitcher of water
- sunny day
- paved surface outside
- jar with lid

- candle that fits inside the jar
- match
- vinegar
- baking soda
- narrow-necked glass bottle
- plastic straw
- piece of clay
- safety goggles
- 4 small paper cups
- rubbing alcohol
- nail polish remover
- oil
- freezer
- large glass of water
- thin plastic bottle with cap
- 2 cardboard boxes, one smaller than the other so it can fit inside the larger one
- aluminum foil
- glue
- pot or glass jar with lid, painted black, that will fit inside the smaller box
- newspaper
- sheet of cardboard a bit larger than the top of the larger box
- pencil
- piece of plastic wrap or clear sheet of plastic or glass about the size of the top of the larger box
- some food to cook (grilled cheese sandwich, hot dog, etc.)

Lesson 12

- balloon
- mirror
- plate
- coarsely ground black pepper
- pair of wool socks
- large carpeted area
- doorknob
- Wint O Green Life Savers
- very dark room
- 6 pennies dated after 1982
- piece of rough sandpaper
- piece of thick cardboard
- electrical tape
- small LED
- water
- scissors
- 1 teaspoon salt

- vinegar
- 6-volt lantern battery
- 8 pieces of coated copper wire
- 3 small 6-volt light bulbs and sockets
- 4 drinking glasses
- milk
- 2 paper clips
- 4 brass paper fasteners (brads)
- tape
- 2-inch piece of corrugated cardboard
- 2 D batteries
- 2 five-inch pieces of insulated copper bell wire
- 4-inch cardboard tube
- flashlight bulb
- 1-inch x 3-inch cardboard strip
- electrical tape
- bathroom-sized paper cup

Lesson 13

- 2 magnets with north and south markings
- 2 bar magnets
- horseshoe magnet
- round magnet
- 2 pieces of paper
- iron shavings
- table
- different items from around your house (such as keys, bottle caps, nails, paper clips, and metals from your parents' toolbox)
- very large steel nail
- box of steel paper clips
- hammer
- compass
- rock
- large needle
- pencil eraser
- flame
- plate
- bowl of water
- plastic bottle cap
- long piece of thin, insulated copper wire
- 1 D battery
- small rare earth magnet
- 1 AA battery
- 7-inch piece of 18- or 20-gauge copper wire
- large piece of cardboard
- markers
- several strong magnets

- several small toy cars or trucks
- strong glue for metal and magnets
- base (such as boxes)

Lesson 14

- several large books
- rubber band cut in half
- scissors
- paper clip
- ruler
- duct tape
- sock filled with rocks
- table
- pencil
- board
- piece of paper
- marker
- pencil
- can
- bowl of colored water
- clear packing tape
- clear, plastic tubing ($\frac{1}{4}$ inch in diameter)
- chair
- broom
- can of beans
- full water bottle
- handful of pennies
- yardstick or other long stick
- long string
- coat hanger
- strong wire cutters
- empty spool of thread or ribbon
- small pail
- rope
- safety goggles
- 3 straws
- 4 bamboo skewers
- 4-inch x 6-inch piece of cardboard
- 4 bottle caps (like water bottle caps)
- balloon
- hammer
- nail
- thick rubber band
- 2 spools
- 2 long nails without heads (longer than the spools)
- board
- bicycle