

*Discovering Design with Biology*  
Consolidated Lab List

- 18 small objects (like candies, beads, or coins) of one color, and 12 of another color (We used 18 blue M&Ms and 12 red M&Ms.)
- A  $\frac{1}{4}$ -cup measuring cup
- A  $\frac{1}{3}$ -cup measuring cup
- A  $\frac{1}{2}$ -cup measuring cup
- A 1-cup measuring cup
- A  $\frac{1}{4}$ -teaspoon measuring spoon
- A  $\frac{1}{2}$ -teaspoon measuring spoon (Plastic is ideal, but metal will work.)
- A 1-teaspoon measuring spoon
- A 1-tablespoon measuring spoon
- A  $\frac{1}{2}$ -liter plastic bottle, like the kind water comes in, with its screw cap (It needs to be a thin-walled bottle, because you need to be able to crush part of it while its cap is on.)
- A beef bouillon cube (or its equivalent)
- A cardboard box that can cover the cup with something sticking out several inches above the cup
- A chicken egg (You might need a second one if something goes wrong.)
- A clear baking pan
- A cotton swab or paintbrush
- A facial tissue
- A fan
- A flower (You can find one in nature, but there are protected areas where flowers cannot be picked. You can buy an inexpensive one at a large supermarket or ask a flower shop for one that they are throwing away. Make sure when you look at the flower you see both a central stalk (the pistil) and other stalks with knobs on the end (the stamen). That ensures you have a flower with both male and female parts. If you can get more than one type of flower, that would be even better!)
- A fork
- A freezer
- A glass jar with the lid removed
- A hard plate (not a paper plate)
- A large plastic bag that zips shut
- A large plate
- A large strawberry, two small strawberries, or a banana
- A lighter or a match
- A long-handled spoon or dipper
- A marshmallow and a knife (optional, but very interesting)
- A microwave (If you don't have a microwave, use a small pot and a stove.)
- A pan that can boil at least four cups of water
- A paper or plastic plate
- A pencil or pen
- A pin that has a sharp point
- A pond, lake, or ocean
- A potato
- A room that stays dark and cool most of the time (a seldom-used closet, for example)
- A ruler

- A sharp knife
- A sheet of writing paper or printing paper
- A sink
- A slice of banana or apple
- A small amount of aluminum foil
- A small amount of cheese (Don't use processed cheese.)
- A small plastic sandwich bag
- A stopwatch or other timing mechanism that can read down to at least seconds
- A strainer
- A Styrofoam or paper cup and a saucer that is not paper or Styrofoam that the cup can sit on
- A sunny spot indoors
- A table and a chair you can use to sit at the table
- A tall, clear glass
- A thermometer that can read from room temperature to the boiling point of water, like a candy thermometer, meat thermometer, or a thermometer used in chemistry experiments
- A well-lit room
- A wood rod for stirring, like a bamboo skewer
- A wooden spoon
- About half a slice of bread
- An onion
- Baker's yeast (Available at any supermarket.)
- Baking soda
- Blue food coloring (Blue is the color that shows up best.)
- Cellophane tape
- Colored pencils or some other art supplies you can use to make drawings in your notebook
- Cornstarch
- Dish soap
- Flour
- Food coloring
- Gloves (like cleaning gloves)
- Hydrogen peroxide (Sold at drug stores to clean wounds.)
- Paper towels
- Petroleum jelly (like Vaseline)
- Plastic wrap
- Rubbing alcohol
- Salt
- Scissors
- Several books that you can stack to elevate the bowls so you cannot see what is inside
- Several dried beans (The kind you soak before cooking, such as kidney, lima, pinto, or navy beans)
- Soil
- Something soft to throw, like a beanbag or nerf ball (It will hit the pan, so it needs to be soft.)
- Strong tape like packing tape or duct tape
- Sugar
- Tape
- Thread or very thin string
- Three small glasses, like juice glasses, that are all the same size

- Three stalks of celery with some of the leaves still on them (They don't need a lot of leaves.)
- Twist tie or piece of string
- Two 2-liter bottles, like the ones soft drinks come
- Two bowls that hold about 2 cups of liquid
- Two containers (like bowls) that are not transparent
- Two gummy bears (or any two similar candies of the same size.)
- Two jars (with lids)
- Two mugs used for hot beverages
- Two pieces of two different fruits (apple, cherry, tomato, etc.) that include the fleshy interior
- Two spoons
- Two Ziploc bags (The "snack" size is best, but "sandwich" size will work.)
- Vinegar
- Water
- Wax paper or a plastic sandwich bag
- White paper (It doesn't matter whether or not it has lines.)
- Yeast (Any yeast used for baking, even bread machine yeast, will work.)
- Your siblings and parents (Including uncles, aunts, and grandparents would be great, if possible.)

### Microscope Kit:

- Microscope
- Blank microscope slides
- Slide coverslips
- Four medicine droppers
- Iodine
- Methylene blue
- Prepared slide: *Amoeba Proteus*
- Prepared slide: *Ascaris* Mitosis
- Prepared slide: Diatoms
- Prepared slide: *Euglena*
- Prepared slide: Hydra budding
- Prepared Slide: Leaf C.S. w/Vein
- Prepared slide: Onion Tip Root
- Prepared slide: *Paramecium*
- Prepared slide: Planarian, w.m.
- Prepared Slide: Ranunculus Root C.S.
- Prepared Slide: Ranunculus stem C.S.
- Prepared Slide: Zea Mays Root C.S.
- Prepared Slide: Zea Mays stem C.S.
- Prepared slide: *Spirogyra*
- Prepared slide: *Volvox*

## **Dissection Kit:**

- Earthworm specimen
- Crayfish specimen
- Dissection tools
- Dissection tray
- PTC paper strips
- Perch specimen
- Frog specimen
- A feather