

## Items Needed To Complete Each Lesson

Every child will need his own notebook, blank paper, lined paper, and colored pencils.

### Lesson 1

- ◆ Cup full of water
- ◆ Four straws (Two could be paint stirrers which are given away at hardware stores.)
- ◆ Scissors
- ◆ Pen
- ◆ Cardboard box (A pizza box or cereal box works well.)
- ◆ Clay
- ◆ Tape
- ◆ Tape measure (or some other device for measuring distance, like a yardstick or someone's feet)
- ◆ Several sheets of plain white paper
- ◆ One sheet of thicker, colored paper (such as construction paper) or a thick decorative paper like you would find in a scrapbook store
- ◆ A long-arm stapler (If you don't have one, you can go to an office supplies store or copy center and use theirs. They might charge you a small fee, but most places allow you to use it for free.)

### Lesson 2

- ◆ Colored pencils
- ◆ Outline of a bird (available on course website)
- ◆ An adult with a knife
- ◆ Two bamboo skewers
- ◆ An empty plastic bottle with a wide mouth opening, such as a juice jug. You can use a plastic soda pop bottle instead, but the narrow mouth opening will make it hard to fill with seeds.
- ◆ Wire or string
- ◆ Bird seed
- ◆ Small plastic zippered bags
- ◆ Mesh bag or suet basket (A suet basket can be purchased in lawn and garden stores and some pet stores.)
- ◆ 2 cups crunchy peanut butter
- ◆ 2 cups lard (not shortening)
- ◆ 4 cups rolled oats (not quick oats)
- ◆ 4 cups cornmeal
- ◆  $\frac{2}{3}$  cup sugar
- ◆ 1 cup raisins
- ◆ Stove

- ◆ Pot
- ◆ Stirring spoon
- ◆ Freezer
- ◆ Two identical bird feeders (You can make them both or purchase them both, but they must be the same)
- ◆ Two types of bird seed

### Lesson 3

- ◆ Umbrella
- ◆ At least two feathers (Make sure they come from game birds like ducks, chickens, or geese. It is illegal to collect the feathers of many other kinds of birds.)
- ◆ A magnifying glass
- ◆ An umbrella
- ◆ Water
- ◆ Oil (like vegetable oil)
- ◆ Two terracotta, ceramic, or plastic saucers from large planters (Make sure they are exactly the same size, shape, color, etc.)

### Lesson 4

- ◆ Chicken bone
- ◆ Cow bone (like one from a t-bone steak)
- ◆ Two bird feeders that are exactly the same and can be painted (We used wooden tangerine crates to make our feeders, but you can use any kind of feeder, even a soda pop bottle feeder like the one you made in Lesson 2.)
- ◆ A scale to measure the weights of the feeders and seed each day.
- ◆ Spray or acrylic paint: red and green (You can use a color besides green, but be sure that one of the colors you use is red.)
- ◆ Bird food

### Lesson 5

- ◆ Mud (about a handful)
- ◆ Twigs (any will do)
- ◆ Grass (Just pull some from your yard.)
- ◆ String (any kind)
- ◆ Cotton balls (a few)
- ◆ Leaves (Just pull some from a tree.)

- ◆ Real estate advertisements from the newspaper
- ◆ A 1-in x 6-in piece of lumber at least 5 feet long. Use cedar if you can find it. (Many lumber stores will cut the board for you. If they do you will need four pieces 9 inches long, one piece 8¾ inches long, and one piece 7 inches long).
- ◆ Outdoor nails or wood screws that won't rust
- ◆ Screwdriver and hammer if you are using nails
- ◆ Drill
- ◆ Drill bits: one ¼-in and one 7/64-in. They don't have to be exactly this size, but something close.
- ◆ Hole saw attachment for drill (1½ inches for a birdhouse this size)
- ◆ Two 1½-in x 1-in middle hinges (should come with screws to attach the hinges)
- ◆ 1 gate hook and eye assembly (1-in assembly)
- ◆ Tape measure (or ruler)
- ◆ Two outdoor wood screws that will not rust, 2 inches long

#### Lesson 6

- ◆ Five eggs from the refrigerator
- ◆ A bright lamp with the shade removed
- ◆ A darkened room
- ◆ A large box or low table
- ◆ A pencil
- ◆ A bowl (It should be deeper than the height of an egg on its side.)
- ◆ Water

#### Lesson 7

- ◆ A sheet of notebook paper
- ◆ A square inch of paper or a math manipulative that is a square inch
- ◆ A blindfold
- ◆ 20 cotton balls
- ◆ 20 different agents with characteristic smells such as vanilla, toothpaste, dish soap, hand lotion, coffee, juice, vinegar, oils, and perfumes.

#### Lesson 8

- ◆ An old photo of a family member the students knows little about but someone else in the family knows a lot about
- ◆ A page of notebook paper
- ◆ Masking tape

- ◆ Strapping tape (the kind with reinforcing fibers)
- ◆ A shipping box made of corrugated cardboard
- ◆ A hardboiled egg
- ◆ A paper plate
- ◆ A piece of wax paper
- ◆ Clay or Play-doh®
- ◆ Plaster of Paris
- ◆ Water
- ◆ A paint brush
- ◆ A tea bag
- ◆ Hot water
- ◆ An old toothbrush (optional)

#### Lesson 9

- ◆ Two live insects (catch them from outside)
- ◆ Jar with holes in the lid
- ◆ A dead insect
- ◆ A bowl
- ◆ Water
- ◆ A spoon
- ◆ Salt
- ◆ Paper towels
- ◆ Magnifying glass
- ◆ A small plastic or glass aquarium with a lid (A plastic storage container with holes punched in the lid will work.)

#### Lesson 10

- ◆ Magnifying glass
- ◆ Cigar box or shoebox
- ◆ A rectangle of Styrofoam® that will fit in the box listed above
- ◆ Pins
- ◆ Dead insects you collect
- ◆ A wide-mouth jar
- ◆ Clean sand
- ◆ Liquid disinfectant (Lysol® or a similar product, but not bleach or household cleaner)
- ◆ Cardboard
- ◆ Water
- ◆ Measuring cup
- ◆ Scissors
- ◆ Two soup cans
- ◆ Something to punch holes into the soup cans
- ◆ Fruit, meat, or other possible insect baits
- ◆ Cheesecloth

- ◆ A small board or boards that will cover the openings of both soup cans with room to spare

### Lesson 11

- ◆ Two glass jars (One needs to be large enough to fit a soda pop can into. Ideally, the can should fit into the jar with just a little room to spare.)
- ◆ Jelly
- ◆ A soft drink can
- ◆ A piece of netting (or cheesecloth)
- ◆ Black construction paper
- ◆ Two rubber bands
- ◆ Sand (dirt or peat moss is fine)
- ◆ Paper plate
- ◆ A piece of sponge
- ◆ Bread and honey (to feed the ants)
- ◆ A few small plates

### Lesson 12

- ◆ A banana
- ◆ A glass jar with a lid
- ◆ A small sewing needle
- ◆ Scissors
- ◆ A small square of tissue paper (or a square of toilet paper)
- ◆ A bowl of water
- ◆ A large funnel with a pretty large drain hole (It is best to cut off the top of a plastic, 2-liter soda pop bottle to make one of these.)
- ◆ A lamp with the shade removed (A bendable-necked desk lamp works best.)
- ◆ A clear glass jar in which the funnel rests comfortably
- ◆ A trowel or very large serving spoon
- ◆ A couple of containers in which to collect your dirt
- ◆ A set of measuring cups

### Lesson 13

- ◆ A tall drinking glass
- ◆ A small spoon
- ◆ Water
- ◆ At least one cricket (You can either catch them yourself or buy them from a live bait or pet store.)
- ◆ Spray bottle of water

- ◆ Four different types of materials that you will test. Here are some suggestions: grass clippings, dried leaves, moss, bark mulch, pine shavings, a piece of a black plastic bag.

- ◆ Clear plastic wrap
- ◆ Tape
- ◆ A knife
- ◆ A shoebox or plastic box with a lid
- ◆ Sand
- ◆ A fresh potato

### Lesson 14

- ◆ Caterpillars (You can either find them outside or order them from a supplier. Several suppliers are listed on the course website I discussed in the introduction to this book.)
- ◆ A potted plant that the caterpillar likes to eat
- ◆ Two coat hangers
- ◆ Tulle or netting (found at any fabric or craft store)
- ◆ Rubber band
- ◆ Sugar
- ◆ Water
- ◆ Clean lid from a jar
- ◆ Cotton balls