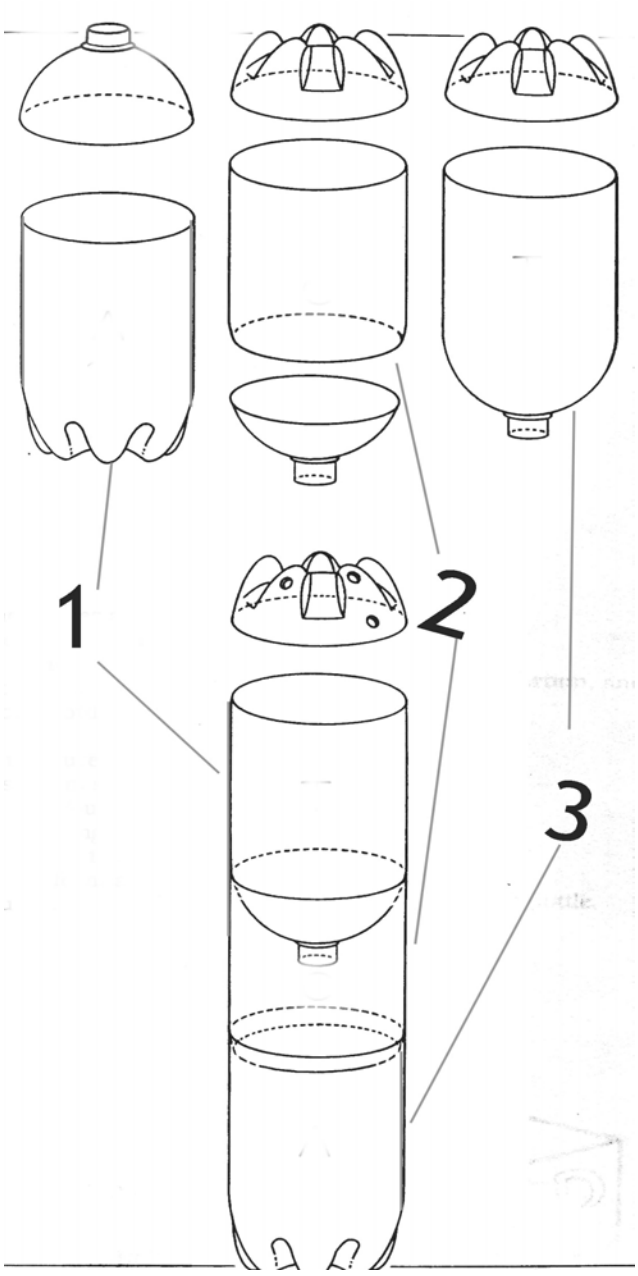
Name _____

Building Eco-columns

Procedure:
Visit the supply area. Get the following materials and return to your work area.

- ❒ Bottles (1, 2 and 3)
- ❒ Box
- ❒ Marker
- ❒ Scissors

Your teacher may want you to make smoother cuts on the bottles. Be careful.



1. Use the marker to label the first bottle "1." (This will be your terrarium.)

2. Turn the second bottle upside down and mark it "3." (This will be your aquarium.)

3. Turn the third bottle upside down and mark it "2." (This will be your connector.)

Save the base from Bottle 3. It is a lid for your terrarium. Ask your teacher to cut a few holes in this piece.

4. Assemble the bottles as shown in the picture. If the bottles do not fit together well, try to adjust them. If they still do not fit together, try to trade your bottle for another team's bottle of the same number. Your goal is to make a snug eco-column — a stack of all three bottles.

BUILDING A TERRARIUM — A MODEL ECOSYSTEM

Visit the supply area. Get the following supplies and bring them back to your work area:

- ❒ Cup (empty)
- ❒ Cup of gravel
- ❒ 2 Cups of soil
- ❒ 3 Cups of seeds
- ❒ Dropper
- ❒ Rocks, twigs, dead leaves
- ❒ Rubber band
- ❒ Screen
- ❒ Toothpicks (2)

Good scientists keep track of their work. You will record your observations in a table. Look at the table now to see what you need to record as you work.

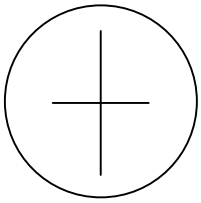
1. Begin with bottle 1 your terrarium. Put the square of fiberglass screen over the opening and neck (narrow part). Wrap the rubber band around the screen and the neck of the bottle to hold the screen in place.

2. Put your terrarium into a plastic cup so that its narrow part (neck) is pointing down. The cup makes a stand for the terrarium. One person should hold the bottle while the other adds materials. Take turns!

3. Add one cup of gravel to the terrarium.

4. Put two cups of soil on top of the gravel. Try to keep the sides of the bottle clean as you work.

5. Use your toothpicks to divide the soil surface into four equal parts. Use a marker to label the outside of the bottle. One quarter should be labeled “dead leaves,” another quarter “alfalfa,” another “radish,” and another “grass.” The labels will help you remember what you put where.



6. In the quarter labeled "alfalfa," plant the alfalfa seeds. To do this, first count the seeds and record the number. Then observe the seeds with a hand lens. Then evenly sprinkle the seeds on the soil's surface. Use your fingers to gently press them down**. Do not plant the seeds too deeply!** Next, count the grass seeds, record the number and use the hand lens to look at them. Then plant the grass seeds in the quarter labeled "grass," following the same procedure. Count and observe the mustard seeds and then plant them in the quarter labeled "mustard," using the same method.

7. Use your empty gravel cup to get a cup of water. Use the water dropper to thoroughly wet the soil. Count how many droppers full of water you add before water begins to drip out of the bottom of the terrarium. Record this number. Put the cap on your terrarium.

8. Seeds need moisture to germinate. Always be sure the soil is moist. If it is not, you will need to add water. Each time you do, remove the cap and count how many droppers full of water you add before water drips out the bottom. Always record that number. Always replace the cap.

9. In the quarter labeled "dead leaves," put leaves, twigs, and a rock or several tiny pebbles.

10. You and your partners should check your terrarium every day. Your teacher will give you time to observe, draw, and write about what you see. The table you filled out today lists some things you might keep track of. Talk now with your partner about other things you could look for each time. Write your ideas on the back of the table you filled out today. Later, you will create a table that you and your partner can use every time you make observations.

Name _____

Terrarium Observation Table

	Amount/Size	Description	Other Observations
Soil/Gravel			
Alfalfa			
Grass			
Mustard			
Rock			
Twigs			
Dead Leaves			
Water			