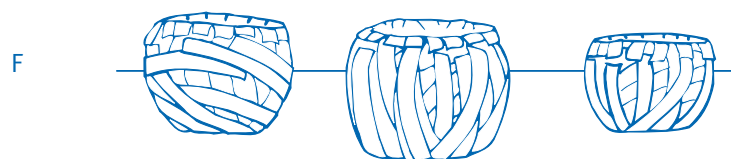
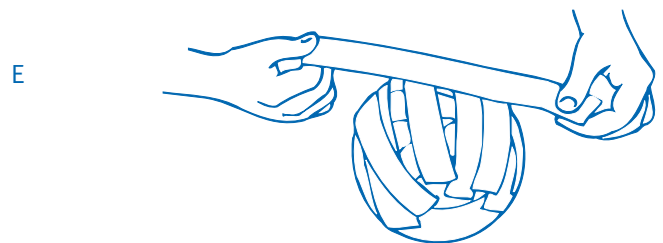
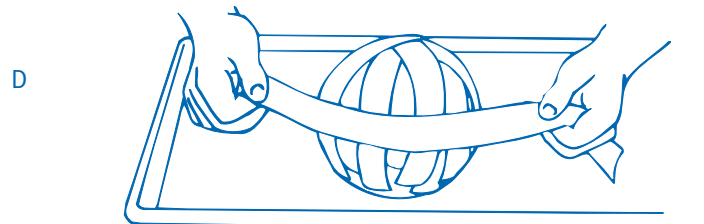
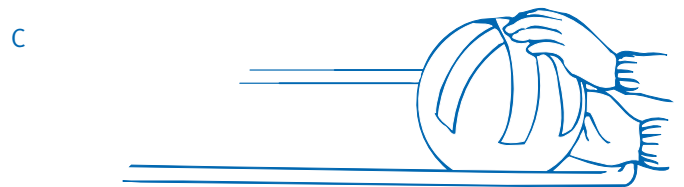
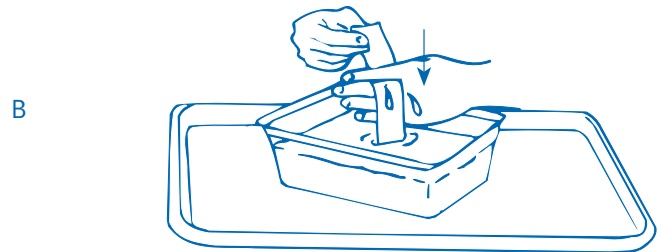
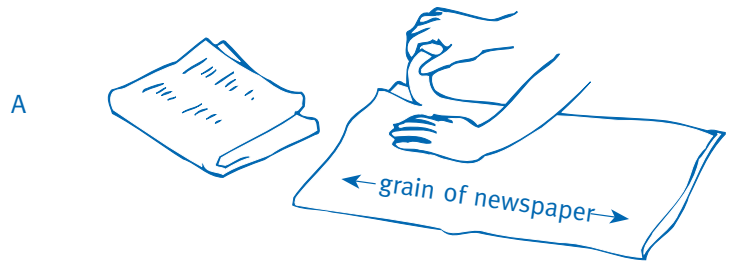


Recycling Paper

Follow the directions below to make a papier-mâché bowl.

1. Tear newspaper (with the grain) into strips 5 cm (2 in.) wide (Figure A). Blow up and tie the balloon. Wipe the balloon with the oil-coated cotton ball.
2. Dip the newspaper strips into the paste, coating both sides and using your fingers to remove excess paste (Figure B).
3. Apply the first layer of strips in a star pattern over the rounded end of the balloon (Figure C).
4. Apply the second layer of strips in a horizontal pattern around the mold (Figure D). Apply the third layer around the mold at right angles to the second.
5. Apply the fourth layer of strips diagonally to the strips that are on the mold (Figure E), and the fifth layer at right angles to the fourth. Repeat the steps for added strength.
6. Prepare the bowl for drying: Pop and remove the balloon. Reshape the bowl, slightly flattening the base so that it does not rock (Figure F). Set the bowl out to dry. If you wish, apply short strips around the rim of the bowl to build it up.



What Do Plants Need?

1. What do you predict will happen to plants grown in each of the four conditions listed below?

- a. In light, with water: _____
- b. In light, without water: _____
- c. In darkness, with water: _____
- d. Light to one side, with water: _____

Effects of Light and Water on Bean Seedlings								
Observations	Conditions of Growth							
	a. In light, with water		b. In light, without water		c. In darkness, with water		d. Light to one side, with water	
	Before	After	Before	After	Before	After	Before	After
Color of leaves								
Appearance of leaves								
Other observations								
Drawing of plant	Before		Before		Before		Before	
	After		After		After		After	

2. Review your predictions. Were they correct?

Plant Stems—Structure and Function

Session I—Activity 36

1. Use a piece of tape to label the cup with your team’s name. Bring the cup to the distribution station and fill it half way with water. Add about 15 drops of red food coloring.
2. Return to your team’s work station. Trim off the bottom of the celery stalk. Describe the appearance of the cut end.

What looks like dark green circles in the cut end of the celery?

3. Gently stir the food coloring into the water with the cut end of the celery stalk. Leave the celery in the cup overnight. What do you predict will happen?

Session II—Activity 37

4. Describe the appearance of the stalk one day later.

5. Remove the stalk from the water and cut it into several segments. Describe the appearance of the cut ends.

What do you conclude from your observations?

Based on your observations, what do you infer is the function of the xylem cells in the stem?

Plant Stems—Structure and Function

Session II—Activity 37

6. Draw what you see in microslide images 4 and 5. Then label your drawings.

What differences can you see between the structure of the woody stem and the structure of the nonwoody stem?

What are two functions of xylem in a stem?

What is the function of phloem in a stem?

Stomata and Transpiration

Session I—Activity 38

1. Observe microslide image 6 of the underside of a leaf. How many stomata can you find?

2. Observe microslide image 7, a close-up of a stoma. Compare the guard cells—the two cells that open and close the stoma—with the surrounding cells that cover the underside of the leaf. What differences do you notice?

3. Draw the stoma and guard cells. Include and label any other cell parts that you can see.

4. Use masking tape to label one bag *Covered* and the other *Uncovered*. Write your team's name on both bags. Then cover both surfaces of one geranium leaf with petroleum jelly. Be sure to spread the jelly over the entire surface of both sides. Place each leaf into its corresponding bag.

5. Gently press each bag to let most of the air out, and then seal it. Set the bags aside overnight. What do you predict will happen in each bag?

Session II—Activity 39

6. The next day, observe the bags. What do you see?

How does your prediction compare with what actually happened? How can you account for any differences?
