

## CAPILLARY ACTION AND TRANSPIRATION

### Basic Description:

❖ Extension to the “Investingating Xylem” activity.  
Through a teacher demonstration, students are introduced to the concept of capillary action.

### Source:

Project WET: Curriculum & Activity Guide, The Watercourse and the Council for Environmental Education, 1995.

**Preparation time:** 15 minutes

**Duration:** 20 minutes

### Materials:

- Paper towel tube
- Paper that is cut into a series of connecting circles – **see diagram** (if possible, the width of the circles should equal the diameter of the paper towel tube, so that the tube holds the paper in place).

**Preparation:** Gather and prepare the necessary materials.

### Procedure:

1. Ask your students to consider how a 10 metre tall tree can get the water from the roots up to the leaves at the top of the tree.
2. Show your students the paper towel tube with the paper circles inside of it. Explain that the tube represents the xylem and that the paper circles represent water molecules.
3. Explain to your students that the water molecule at the top of the tube represents a molecule at a stoma (leaf pore).
4. Explain the process of *evaporation*. To represent evaporation, pull on the top circle to draw the next circle up to the top, and then tear off the top circle. Explain that when water molecules evaporate from leaves it is called *transpiration*.

### Follow-up:

Ask your students to write a description of transpiration based on your demonstration.

### Resources:

- Science Is... by Susan V. Bosak, Scholastic Canada Ltd. and The Communication Project, 2000.
- Experiments with Plants: Projects for Home, Garden, and Classroom by Joel Beller, Arco Publishing, Inc., 1985.

- Plant Biology Science Projects by David R. Hershey, John Wiley & Sons, Inc., 1995.
- Botany: 49 Science Fair Projects by Robert L. Bonnet and G. Daniel Keen, Tab Books Inc., 1989.
- Botany Projects for Young Scientists by Maurice Blefield, Franklin Watts, 1992.
- Project WET: Curriculum & Activity Guide, The Watercourse and the Council for Environmental Education, 1995.

