

Ages:

8 & up

Strong Stems and Broad Leaves

(Adapted from **In-Touch Science: Plants & Engineering**. See “More Great Resources for Grab and Go with Science Activities” at the end of this publication for more information.)

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Main idea: Why some plants bend more easily and have less damage due to weather than others.

Objective: To show how different shapes of plant stems react to withstand wind and weather.

Materials:

- q stack of large size newspaper
- q clear tape
- q pencils

q scissors

Motivator questions:

- q What happens to different plants when in wind, ice or snow storms?
- q Are there different size and shapes to stems, branches and leaves?

Activity:

1. Draw and cut out giant leaf shapes from large sections of newspaper.
2. Make leaf petioles by rolling up whole sheets of newspaper. Use several sheets to make a sturdy tube.
3. Flatten half of the newspaper rolls.
4. Tape the leaves to the petioles so that about 12 inches of the petioles protrude from the bottom of the leaf.
5. Lift the leaves by the end of the petiole. Wave the leaves up and down in a fanning motion.

Questions:

- q What happens to the newspaper leaves when you wave them?
- q What stems are more flexible in the wind?
- q What do you think would happen in an ice storm?
- q Which stem is more flexible, the flat or the round?

Background:

When plant parts are flat, they tend to bend more easily than when they are cylindrical. This is a function of the role that the parts play within the plant. When wind or other forces push against round shapes, the cylindrical parts do not bend as easily as flat ones do. Notice that many plant stems are shaped like a circle, triangle, or square in cross section, particularly those that are tall. Many grasses have evolved to withstand windswept plains and open fields.

Vocabulary:

- q **petiole:** The stalks that connect the leaf to the stem.
- q **cylindrical:** Having a round shape.
- q **stem:** Primary plant parts that develop buds and shoots instead of roots.
- q **branches:** The secondary shoot or stem arising from an axis such as a tree.

Extensions:

- q Walk around your backyard/garden. In the wind does the grasses and hay bend without breaking?
- q Read books about different shaped leaves and how they stand up to different weather conditions.
- q Find out why some plants have larger leaves than others.

q Go on a plant scavenger hunt. Take a walk and find flat and round plant parts. Do the flat parts tend to be leaves? See if you can find another shaped stems beside round or flat. (Mint plants have square stems.)