Grade Level: K-3

Classroom Time: 20 Minutes

Materials: straws, tape, red/pink tissue paper or plastic wrap

Objectives: Students experience viewing the world through a repeating unit structure.

Teacher’s introduction to the activity:
Arthropod eyes are called compound eyes because they are made up of repeating units, the ommatidia, each of which functions as a separate visual receptor. Each ommatidium is pointed at just a single area in space and contributes information about only one small area in the field of view. The composite of all the ommatidium responses is a mosaic image—a pattern of light and dark dots rather like the halftone illustrations in a newspaper or magazine. And just as in those media, the finer the pattern of dots, the better the quality of the image. The compound eye is excellent at detecting motion. As an object moves across the visual field, ommatidia are progressively turned on and off. Because of the resulting "flicker effect", insects respond far better to moving objects than stationary ones. Many insects are able to see ultraviolet light, which has a shorter wavelength than the light that is visible to humans. With mosaic vision, insects can find a brightly colored flower. Flower coloration in the ultraviolet light range helps the insect locate the pollen center of the flower. The plants need insects for pollination (the transfer of pollen from flower to flower).

Instruction:
1. Cut 4 straws in half.
2. Tape the 8 straw pieces together in a bundle. (Make 2 bundles for 2 eyes.)
3. Ask students to read using the repeating unit structure (compound eye).
4. As they read, pass your hand between the compound eyes and the text. The movement should be easier for the student to see than the text.
5. Ask students to describe the vision when looking through the compound eyes.
6. It is very difficult to read text through the straws, but movement, light and shadow are easily seen.
7. Tape red/pink tissue paper or plastic wrap over one end.
8. Many insects are able to see ultraviolet light, which has a shorter wavelength than the light that is visible to humans. Ask students to look at colored pictures of flowers and describe the appearance of the flowers when looking through the compound eyes.
9. Compare human vision to insect vision.

Skills: Compare and contrast human vision to insect vision.

Vocabulary: Compound eye
Compound Eye

Human Vision

Insect Vision

Human Vision

Insect Ultraviolet Light Vision