



Discovery Day – Amazing Adaptations Fly Eyes

Video Premieres
March 28, 2021
on Facebook!

What you need

- 2 paper plates
- Bubble wrap
- Scissors
- Clear tape
- Hole punch
- 2 pipe cleaners
- 1 pencil
- Colorful markers or crayons for decorating

Follow the steps below to create your own wearable model of fly (compound) eyes! This adaptation, unlike human eyes, allows flies and other insects to see and process many images at once.

Preparation

1. Gather your supplies listed above.

What to do

1. Use the paper plates to trace two circles on the bubble wrap.
2. Cut the two bubble wrap circles out.
3. Draw a circle on each one of your paper plates that follows the inside lip of the plate. To make cutting out the inside of each plate easier, take the hole punch and create a hole along the line you drew; then use the hole as the starting point for your scissors to cut a circle out from the inside of each plate.

An adult can help if you have trouble with this step.

4. Hold your paper plates together so that it looks like a pair of big glasses (there should be some overlap of the plate edges). Use the hole punch to create a hole going through both plates at the top and at the bottom of the overlapping area – this is so you can slide the pencil through to hold the plates together in the glasses shape. Make sure the eraser end is what you put near your nose!
5. Use clear tape to attach the bubble wrap circles to the inside of the paper plates.
6. Wrap the two pipe cleaners at the top of the pencil (sharp end) to create two antennae.
7. Use your markers or crayons to decorate your fly eyes!
8. Hold the fly eyes up to your face. How does the world appear?



Image from the North Carolina Museum of Natural Sciences YouTube channel

What is happening?

Flies and most other insects have compound eyes. Compound eyes are made up of thousands of individual visual receptors, called ommatidia. Each ommatidium is a functioning eye in itself, and thousands of them together create a broad field of vision for the fly. Each ommatidium is a long, thin structure, with the lens on the outer surface of the eye. The bubble wrap of your fly eye model glasses represents these ommatidia.

Instead of moving their eyes, flies receive information from several different points simultaneously. A fly's eyes are immobile, but because of their spherical shape and protrusion from the fly's head, they give the fly an almost 360-degree view of the world. That's why they are so sensitive to movement! However, insect eyes do not have pupils, so they cannot control how much light enters the eye. With no control over how much light passes through the lens, the fly cannot focus the image it sees. This means that flies and other insects are short-sighted – a visible range of a few yards is considered good for an insect! In looking through your fly eye model glasses, you'll notice that your vision is fuzzier and short-sighted, too!