Your Amazing Eyes!

Sight is one of the five senses that help us to get information about what is going on in the world around us. We see through our eyes, which are organs that take in light and images and turn them into electrical impulses that our brain can understand. Eyes are like having cameras in your head. They are so incredible they can work in bright sunshine or at night. Only 2.5 cm in diameter, they can bring you the image of a tiny ant or a twinkling star trillions of kilometers away. They can change focus almost instantly and stay focused even when you’re shaking your head around.

Eye-Popping Fact ONE: A crucial part of your eyes is as flimsy as a wet tissue!

A fly darts towards your head! Light bounces off the insect and enters your eye’s cornea, a clear covering over your eye. The light passes through your pupil, the black circle in the center of the iris, to the lens. The lens focuses the light onto your retina - a thin but vital lining on the back of your eye that is as flimsy as a wet tissue. Your retina acts like camera film, capturing the picture of the fly. This image is sent to the brain, which instantly tells you to – duck!

Eye-Popping Fact TWO: You blink more than 10,000 times a day!

Your sight is incredibly important, so your body has ways to protect your eyes. Each eye sits on a cushion of fat, surrounded by protective bone. Your eyebrows prevent sweat dripping into your eyes, while eyelashes keep dust and other particles out. The eyelids act as windscreen wipers, spreading tear fluid with every blink to keep your eyes moist and wash away bacteria. You blink more than 10,000 times a day! And if anything gets too close, your eyelids slam shut with amazing speed. How fast does this happen? In the blink of an eye – about 2/5 of a second!

Eye-popping Fact THREE: Your eyes adjust in milliseconds to ANY movement of your head!

You bounce your eyes around all the time. Even when you are not running or jumping, your head doesn’t stay still. Why isn’t everything a blur when you are moving? The eyes automatically adjust to the movement of your head with great speed and precision. They are good at following a moving object, and even better at adjusting to the motion of your head. Test it: Keeping your head still, hold up your hand about 30cm away, and quickly move
it back and forth. As fast as your eyes are, your fingers become blurry. Now keep your hand still and move your head back and forth. Amazingly, your fingers stay in focus!

**Eye-Popping Fact FOUR: Your eyes see everything upside down and backward!**
Your eyes are amazing, but the images they send to your brain are a little quirky - they're upside down, backward and two-dimensional! Lucky for you, the cameras in your head come with an impressive software package - your brain - that can fix these problems. The brain automatically flips the images from your retinas right side up and combines the images from each eye into a three-dimensional picture.

There is a small area of each retina, called a blind spot, that can't record what you're seeing. Your brain makes adjustments for this, too. But sometimes it can be fooled! Check it out - hold the tips of your two index fingers together, about 15cm in front of your eyes. Now separate them slightly and look past them at something in the distance. A floating finger that looks like a sausage appears between your fingers. You just fooled your brain into seeing something that isn't there!

**Eye-Popping Fact FIVE! Your pupils change size whenever the light changes!**
Your black pupils may be small but they have an important job - they grow or shrink to allow just the right amount of light to enter your eyes to let you see. Try this: Go into a windowless room, turn off the light and close the door so there is just enough light to see the pupils in your eyes in the mirror. Your pupils will be far larger than usual, having grown to their maximum size to capture as much light as possible. Now, turn on the light while still watching your pupils. You'll see them shrink to a small dot almost immediately - right before your very, um...eyes!


**Match the definition to the correct part of the eye.**

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<table>
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<tr>
<td>___ Lens</td>
<td>A. The clear covering over the eye.</td>
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<tr>
<td>___ Pupil</td>
<td>B. The thin lining in the back of the eye that captures an image being looked at.</td>
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<tr>
<td>___ Cornea</td>
<td>C. The part of the eye that focuses light onto the retina.</td>
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<tr>
<td>___ Retina</td>
<td>D. The black circle in the center of the iris.</td>
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List 2 ways that your body protects your eyes.
1. __________________________________________
2. __________________________________________

Why isn’t your eyesight blurry when you move? __________________________
__________________________________________________________

According to Fact #4, the eyes see objects upside down and backwards. How does
the body correct this?
__________________________________________________________
__________________________________________________________
__________________________________________________________

Explain why pupils change size.
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__________________________________________________________
__________________________________________________________

**Challenge Question:** Research and write about something that could affect
someone’s eyesight in a negative way. Is there a way to avoid or correct the issue
that you found?
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