ELECTRICITY

is what carries messages along neurons, and also what takes messages from your senses to your brain.

Here's how this works.

INSIDE A HUMAN EYE

LENS

RODS

CONES

Light bounces off an object, and carries a picture of it into your eyes.

There is a lens at the front of each eye. The light bends as it passes through the lens...

...and goes all the way to the back of each eyeball.

The back of the eye is covered in a layer of cells, known as rods and cones. They have a special power...

...the power to turn light into electricity.

But why do they do that?

The electricity is like a language your brain can understand.

CONES
help see in daytime.

RODS
help see at night.

HOW RODS & CONES WORK

Cone cells can pick out all sorts of details – and colours – in bright daylight.

At night, it's too dark for cones. But rod cells collect information even in dim light.

At the end of each rod and cone, parts called TRANSDUCERS gather all the information...

...and transform it into ELECTRIC MESSAGES that your neurons can understand.

Each message is carried all the way to your brain, where neurons are waiting to read the messages.

Electric message coming through!

Electric message coming through!

Messages travel from your eyes to your brain. Turn the page to find out what happens NEXT.

I've learned so many amazing things already! But how do we know so much about our brains?

Let me show you. Here we are in my

BRAIN SCIENCE

study. My friends are hard at work.

What's this?

It's a machine called a brain scanner. I'm using it to see what's happening inside this person's brain while she's thinking. She has to stay very still.

This screen shows her brain. The bright parts are where extra blood is flowing. That means the brain is working hard in those parts.

I'm looking at old neurons through a microscope. Some of them are very beautiful.

I'm using a computer to test ideas about how brains work. I want to see if I can make my computer think like a person.

This is our medicine cabinet. Lots of brain problems can be helped by taking the right kinds of medicines, but they have to be tested very carefully.

This is our library. We read lots of science books about brains.

We also love looking at art, and reading stories. Almost everything that people create tells us about what's going on in their brains.

That looks fun! What are they doing?

They're doing an experiment. My friend wants to see what happens when they try to build two different puzzles at the same time.

What do you call people who study brains?

People who study how we think and behave are called PSYCHOLOGISTS.

People who study what brains are made of, and how they work, are called NEUROSCIENTISTS.

Doctors who help people look after their mental health are called PSYCHIATRISTS.

Can I be a neuroscientist, too?

By asking questions about your brain, you already are! All you need to get started is CURIOSITY.

Do you have any more questions?