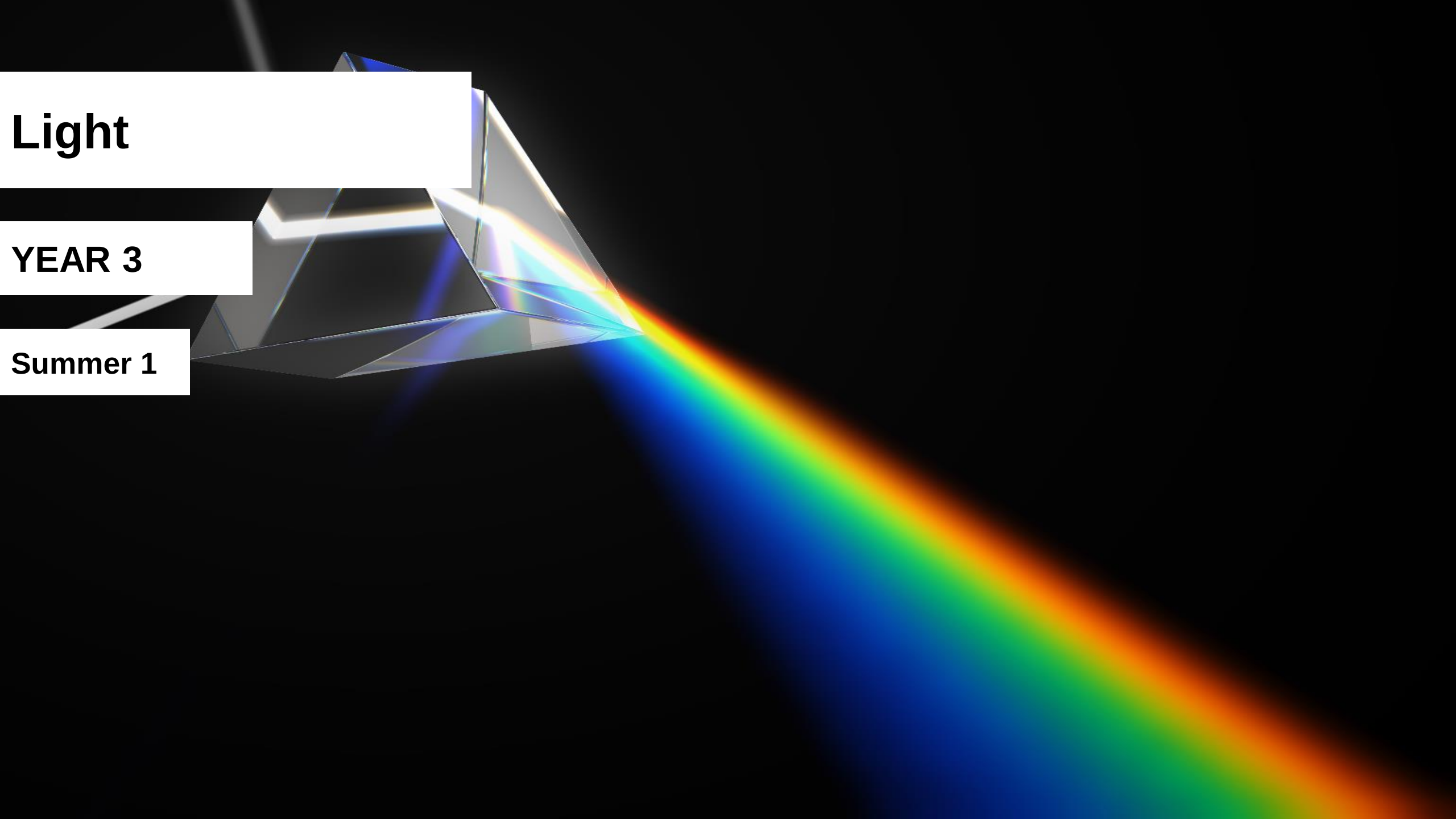
Light

YEAR 3

Summer 1



LESSON 4

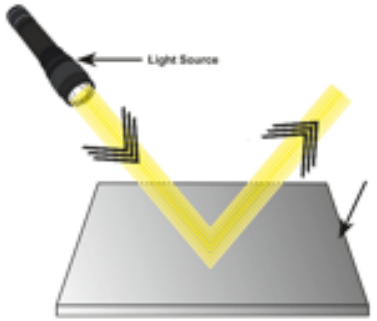
How do we see light?

Do Now – Retrieval

1. Fill in the sentence below:

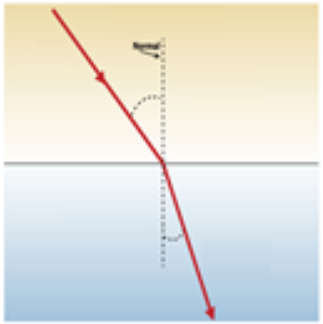
Refractions takes place when light changes _____ as it moves from one _____ material to another.

2. **Write down if light is reflected or refracted in each of the examples below and say why:**



This is r_____ because _____

_____



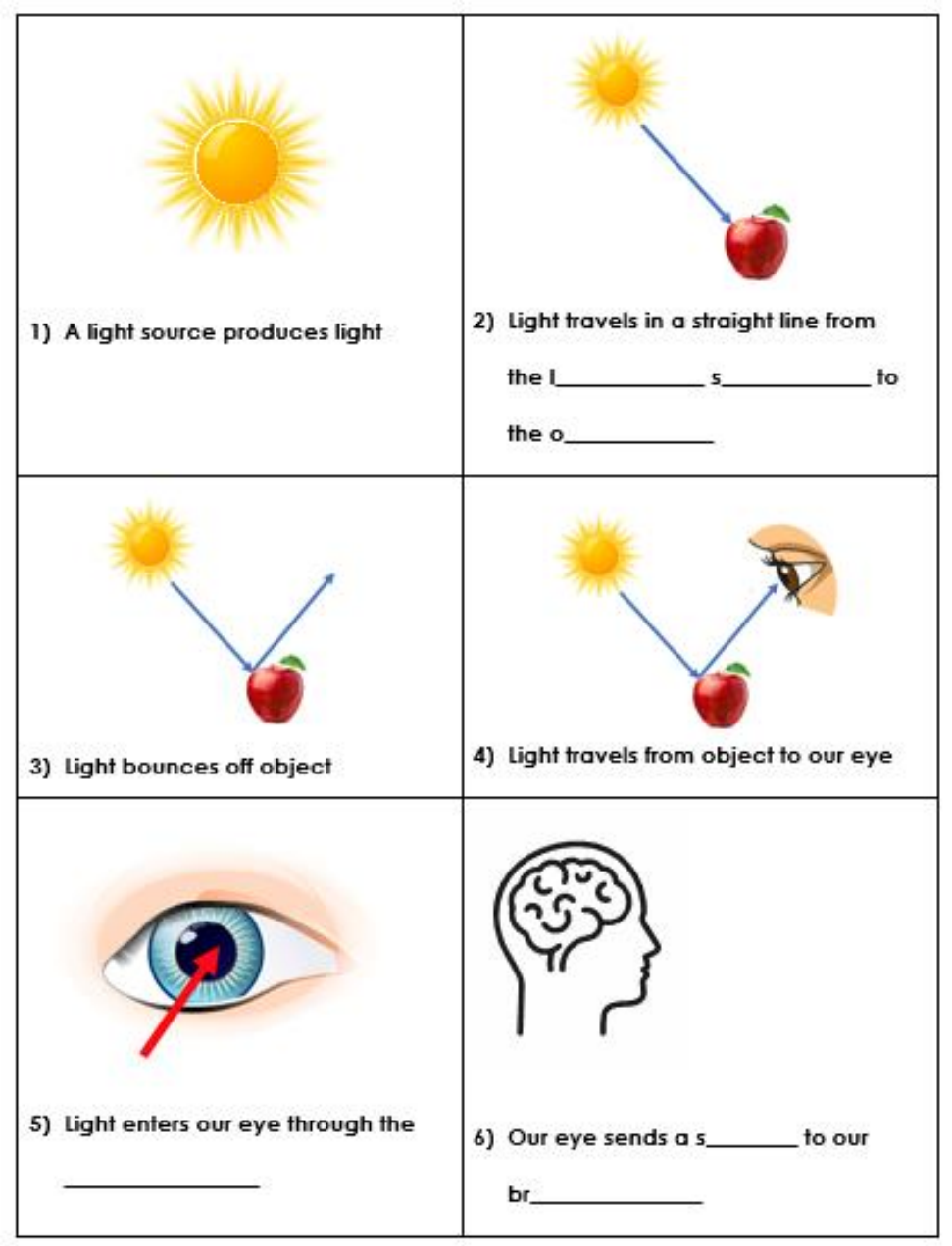
This is r_____ because _____

_____

From a previous cycle:

1. What are the three states of matter?
   a. _____
   b. _____
   c. _____
2. **Fill in the gaps below in the definitions:**
   The independent variable is the thing you _____.
   The dependent variable is the thing you _____ to see _____.
   Control variables are the things _____ to make sure you have completed a _____.

Watch the video. Fill in the gaps to complete the steps.



1) A light source produces light

2) Light travels in a straight line from the l_____ s_____ to the o_____

3) Light bounces off object

4) Light travels from object to our eye

5) Light enters our eye through the _____

6) Our eye sends a s_____ to our br_____

Complete the diagrams by drawing arrows to show where the light needs to travel for us to see the object.

Remember: light travels in straight lines so use a ruler!

Example:

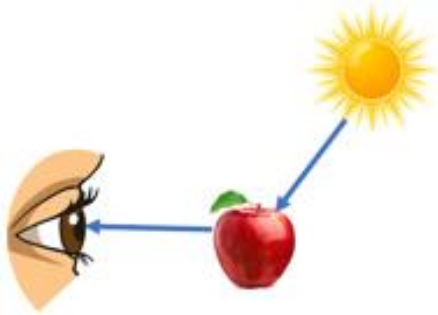
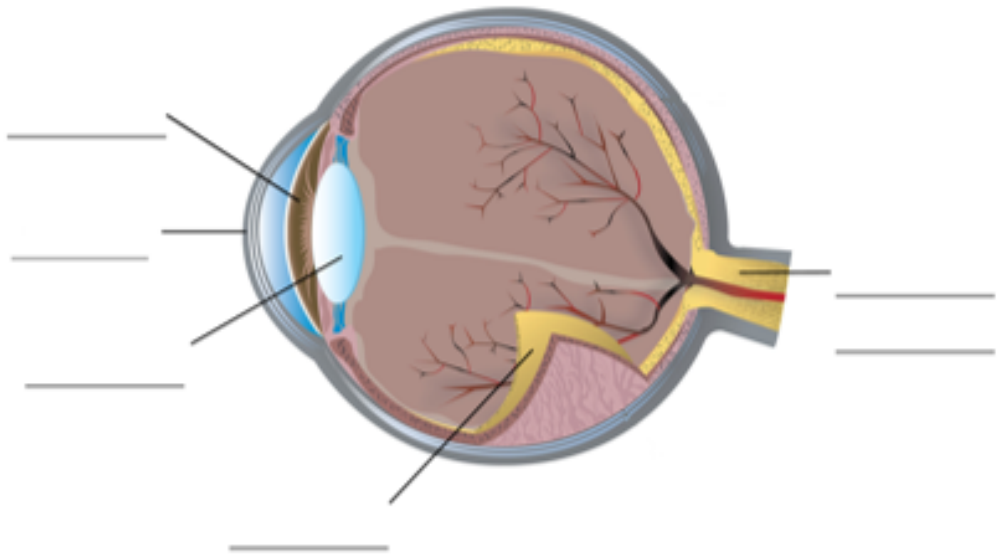


Diagram 1

Diagram 2:

Diagram 3:

Read the following passage about the human eye – add labels to the parts of the eye below as you go along.



The job of the human eye is to take in light from wherever we look and convert this light to signals that are sent to the brain. In many ways, it is like a camera for the human body and cameras and eyes have a lot of the same parts.

Firstly, they both need a hole for light to come in through. In a camera, this is known as the aperture; for the human eye, this is called the **pupil**. This opens up to become very big when more light is needed (like the eyes of a cat can do) but goes small when light is bright.

What is the pupil?

_____

_____

Secondly, we need a way to focus (which means collect together) light that is bouncing of the object we are trying to see. For this we have a lens in a camera or the **lens** and **cornea** of the human eye. A lens is the same thing that is used in magnifying glasses to help you see something close up.

What do lens and cornea do together?

If the lens and cornea that people have in their eye is too strong or too weak, then they may have to have glasses. Glasses have lenses that add focus or reduce focus of light to help people to see.

What do glasses do?

Finally, we need a way of detecting the light that enters the eye. In cameras this is done with film but in the human eye this job is done by the **retina.** The retina made of cells that can sense light and change it into an electrical signal moves up the **optic nerve** to the brain which puts the signals together to give us a picture of what we are seeing.

The retina can be damaged for a short time or even permanently if it received too much light. That is why you should not stare at the sun for example.

What does the retina do?

What do electrical signals travel up to get to the brain?

Match the part of the eye to its function

Pupil	Carries signals from the eye to the brain
Lens/Cornea	Focuses light onto the retina
Retina	A hole through which light enters the eye
Optic nerve	Cells that sense light and convert it into electrical signals

Why is it a good idea to wear sunglasses when the weather is very sunny?

Return to page 4 to complete the learning review