Y6 Science - LIGHT
Why are our eyes special?

Physics

Week 1

HOW LIGHT TRAVELS

LO: Explore how light travels

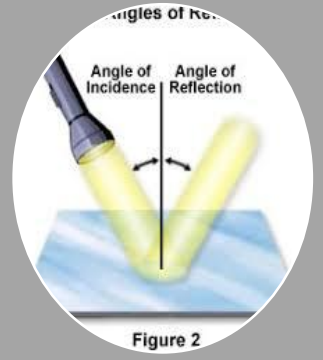
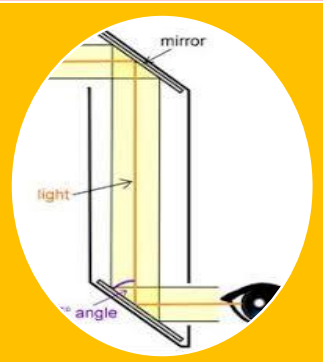


Figure 2

Week 2

REFLECTION

LO: Explore reflection



Week 3

REFLECTION

LO: Explore reflection and explain how it can be used to help see things

Week 4

SHADOWS

LO: Investigate how shadows can change

Week 5

SHADOWS

LO: Investigate how we can show why shadows have the same shape as the object that cast them

Week 6

REFRACTION

LO: Explore light phenomena

What will we be learning about over the coming weeks?

Key Vocabulary

Rocket Words

	light	a form of energy
	light source	an object that provides its own light
	reflected	when light shines on a surface and bounces back
	variable	any one of the elements of an experiment which could be changed
	angle	the space between 2 intersecting lines
	mirror	a surface that reflects a clear image
	opaque	it describes materials which do not allow light to travel through
	transparent	it describes materials which allow all light to travel through
	sunshade	a device giving protection from the sun
	rotate	to turn an object around a centre point
	optical	relating to the science of optics
	spectrum	a band of several colours

Physics

physics is the study of matter, energy, and the interaction between them.

Pre-assessment

Physics

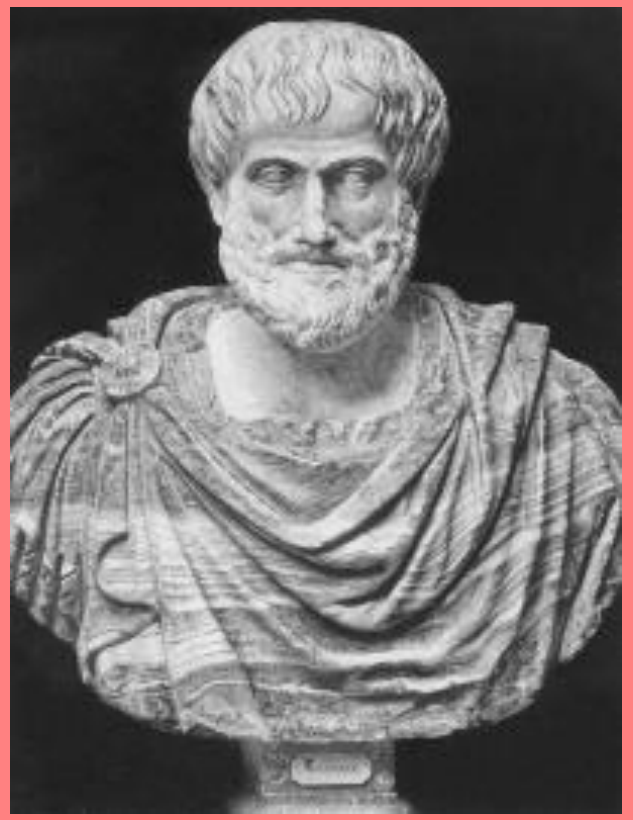
physics is the study of matter, energy, and the interaction between them.

Physics

physics is the study of matter, energy, and the interaction between them.

Aristotle was a very famous philosopher and scientist that was born 384 B.C. and he died in 322 B.C.

https://www.youtube.com/watch?v=7uVv2BAaPB8



Super Science 6

1) What type of rock is formed when magma or lava from volcanoes cools?
2) Why do we have a year and how many days is this?
3) What does the word transparent mean?
4) What does the word translucent mean?
5) Does everything look exactly the same in a mirror?
6) What is different about your reflection in the spoon compared with a normal mirror?

Physics

physics is the study of matter, energy, and the interaction between them.

Super Science 6

1) Igneous Rocks
2) A year is the amount of time it takes a planet to orbit its star - the sun (365 days)
3) Allowing light to pass through so that objects behind can be clearly seen.
4) Allowing some light, but not detailed shapes, to pass through.
5) What you see in the mirror is nothing but a reflection.
6) The light waves hit the different parts of the spoon at different angles, so they're all bent a little bit differently. By the time they come back to you, they've all bent differently in such a way that they end up making you look upside down

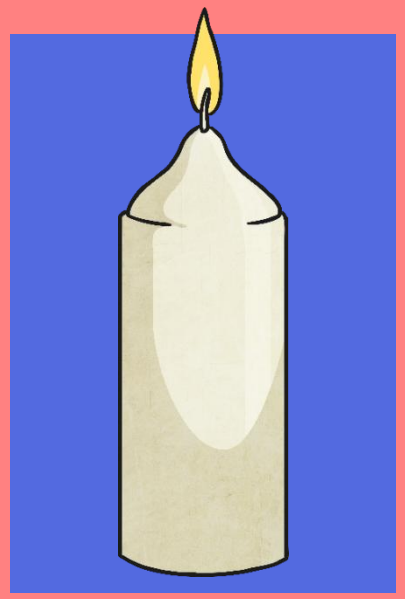
Physics

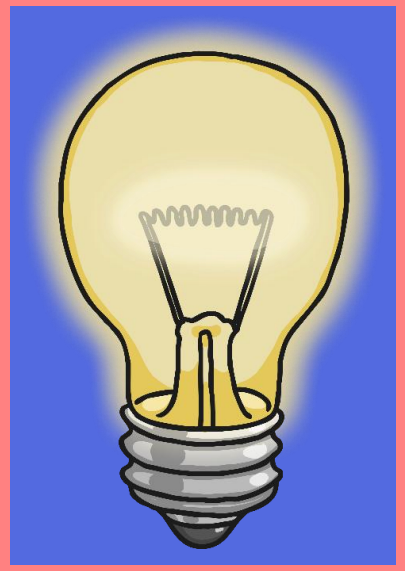
physics is the study of matter, energy, and the interaction between them.

LO: Explore how light travels.

Physics

physics is the study of matter, energy, and the interaction between them.





Light seems to be all around us. But where does it come from?

Can you name some sources of light?

Physics

physics is the study of matter, energy, and the interaction between them.

LO: Explore how light travels.

Physics

physics is the study of matter, energy, and the interaction between them.

What about some reflectors of light?

These can look like light sources, but are really reflecting light.

How does light travel from a light source?

Physics

physics is the study of matter, energy, and the interaction between them.

LO: Explore how light travels.

Physics

physics is the study of matter, energy, and the interaction between them.

Light is a type of energy known as electromagnetic radiation.

It is made up of photons, little particles of energy.

LO: Explore how light travels.

Physics

physics is the study of matter, energy, and the interaction between them.

Light travels as a wave. But unlike waves of water, or sound waves, it does not need any medium to travel through. This means light can travel through a vacuum - a completely airless space.

Light waves travel out from sources of light in straight lines. These lines are often called rays or beams of light.

LO: Explore how light travels.

Physics

physics is the study of matter, energy, and the interaction between them.

Rays of light travel from a light source and hit objects around us.

The rays of light reflect, or bounce, off an object, and then travel into our eyes.

This reflection of light allows us to see the object.

https://www.youtube.com/watch?v=d7yTlp4gBTI

LO: Explore how light travels.

Physics

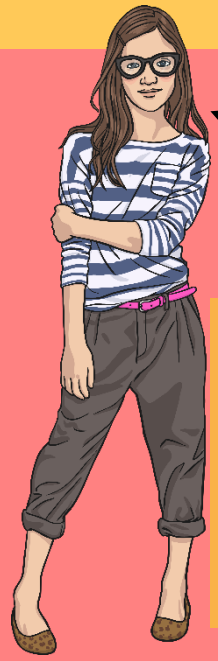
physics is the study of matter, energy, and the interaction between them.

Rays of light travel from a light source and hit objects around us.

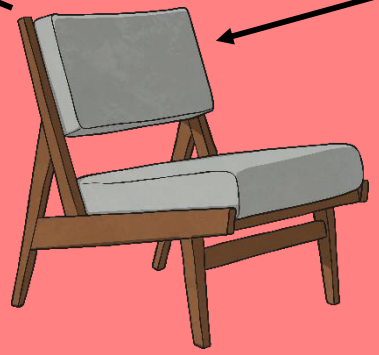
The rays of light reflect, or bounce, off an object, and then travel into our eyes.

This reflection of light allows us to see the object.

1. Light from the light bulb travels in a straight line and hits the chair.



2. The ray of light is reflected off the chair and travels in a straight line to the girl's eyes, enabling her to see the chair.



Can you describe how you can see some objects right now?

Model It!

Physics

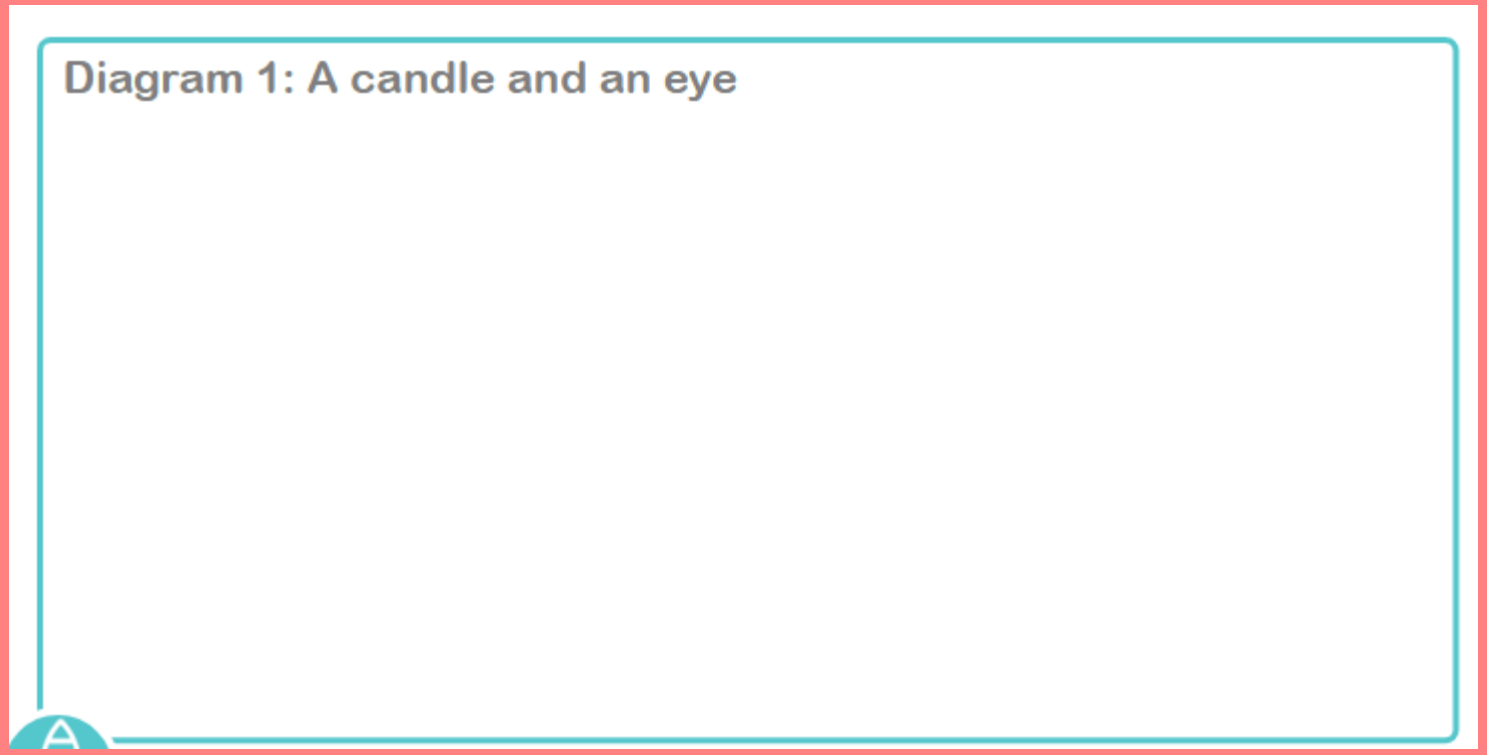
physics is the study of matter, energy, and the interaction between them.

- Can you work with your group to create a human model to show how light enables us to see things?
- Use your string as the ray of light - remember, it should always go in a straight line!
- With one member of your group acting as the light source, and one member acting as an object, show how the ray of light travels to the other group members' eyes.
- Show your models to the rest of the class. Do they agree with the way you have demonstrated how we see?

LO: Explore how light travels

Physics

physics is the study of matter, energy, and the interaction between them.



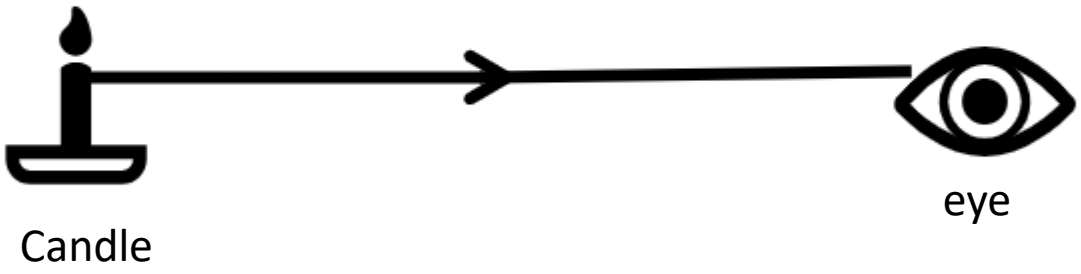
As a class draw the scientific model together

LO: Explore how light travels

Physics

physics is the study of matter, energy, and the interaction between them.

Diagram 1: A candle and an eye

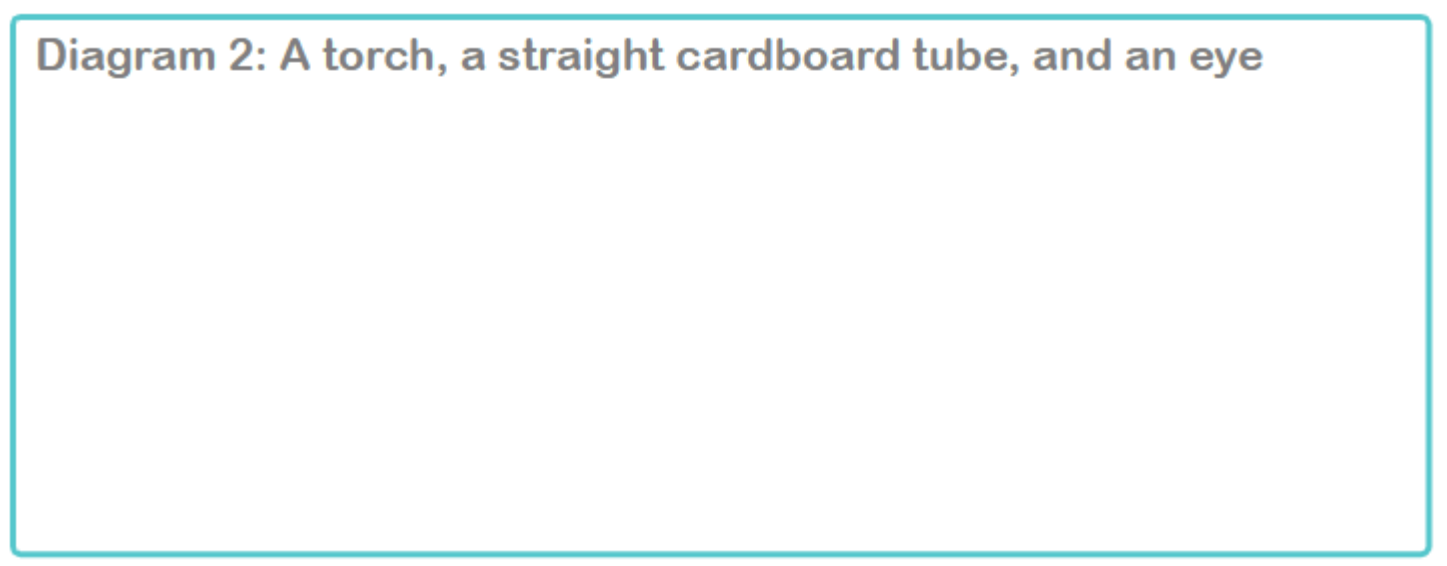


Answer

LO: Explore how light travels

Physics

physics is the study of matter, energy, and the interaction between them.



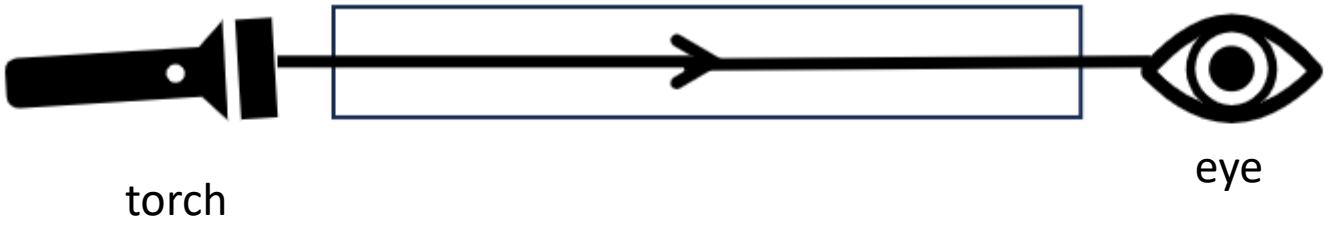
In pairs use a torch, a cardboard tube and your eye to investigate this and then draw a scientific diagram.

LO: Explore how light travels

Physics

physics is the study of matter, energy, and the interaction between them.

Diagram 2: A torch, a straight cardboard tube, and an eye

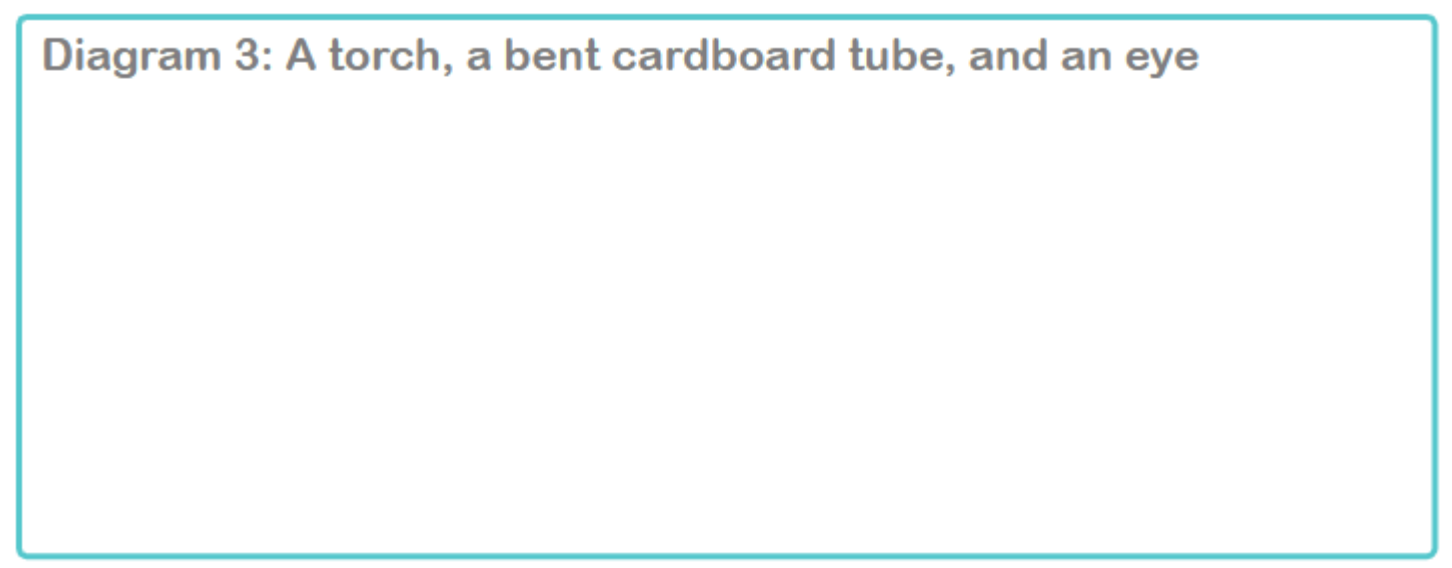


Answer

LO: Explore how light travels

Physics

physics is the study of matter, energy, and the interaction between them.

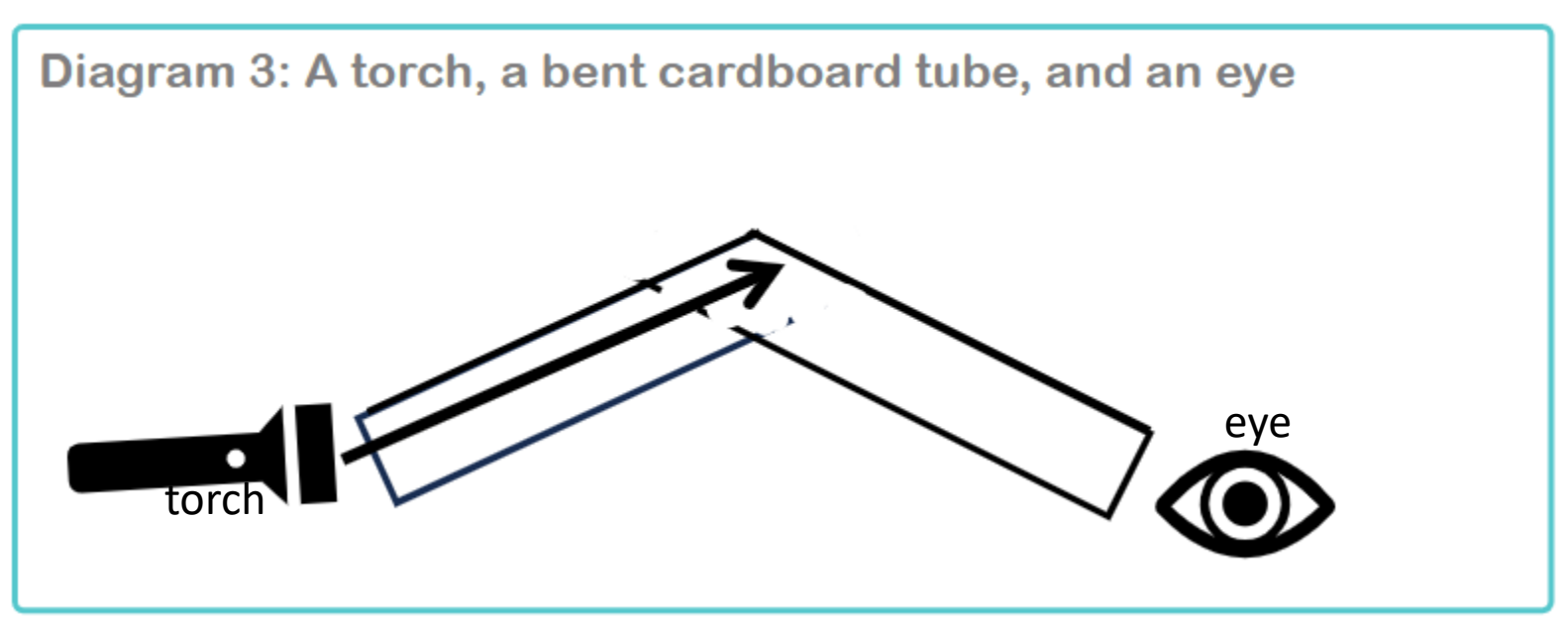


As a class discuss what might happen here!.

LO: Explore how light travels

Physics

physics is the study of matter, energy, and the interaction between them.



Using the diagrams we have draw can you explain how light travels.

LO: Explore how light travels

Physics

physics is the study of matter, energy, and the interaction between them.

Light travels in straight lines.
If the tube is curved gently, some light will still make it through by reflecting off the inside of the tube. However, if the bend is too sharp, the light won't be able to follow the path, and the inside of the tube might appear dark because the light can't reach the other end

Using the diagrams we have draw can you explain how light travels.