

Year 6 Science Home Learning – Summer Term 2020

I highly recommend Mark Rober's You Tube channel to anyone wanting to broaden their scientific understanding. He is an ex NASA scientist who makes You Tube videos explaining scientific principles through fun and wacky experiments. He is very good at explaining the science behind what is happening and watching his videos will give you a useful broad knowledge of science ideas before you start secondary school. The LIVE science class streams he has been producing over the last few weeks are particularly worth a watch. Please check with your parents before you watch any You Tube videos – you might want to watch these videos with them, even adults find them fascinating!

Mark Rober's channel can be found here:

<https://www.youtube.com/user/onemeeeliondollars/featured>

A. LO: To know the main parts of the eye and understand how we see.

Find out about how the eye works. Draw a labelled cross section of the eye and add a written explanation to explain the function of each part of the eye.

Watch this You Tube video <https://www.youtube.com/watch?v=syaQgmxb5i0> or do your own research to find out about the different parts of the eye.

Draw a labelled cross section of the eye – if you pause the video you will be able to copy the diagram.

Include the following parts: Cornea, Iris, Pupil, Lens, Retina, Optic Nerve

Below your diagram write a couple of sentences to explain the function of each of the labelled parts.

B. LO: To know that light travels in straight lines and can be reflected

Carry out an investigation to observe what happens to beams of light when they are reflected in a mirror

You will need:	a torch or small, bright light source
	paper or card
	A mirror you can place on the ground
	A4 paper
	Coloured pencils
	Ruler

Try to cover most of the light source leaving just a hole or slit so that you are making quite a thin beam of light. You could use paper or cardboard over the lens of a torch to do this.

Set up the following investigation: See photo for an idea of what your experiment might look like.

1. In a darkened room (as dark as possible) place the mirror on the floor propped up flat against a wall.
2. Lay the A4 paper on the floor so that the edge touches the mirror.
3. Place the light source on the floor at the edge of the paper so that it is shining across the paper towards the mirror
4. Shine the beam towards the mirror at an angle.

5. Use a coloured pencil and ruler to draw the position of the beam of light on the A4 paper as it travels across the paper to the mirror and then the position of the beam of light AFTER it is reflected in the mirror
6. Move the light source slightly so that the beam of light is hitting the mirror at a different angle. Record the position of the light beams with a different coloured pencil.
7. Repeat for at least 5 different angles, changing colour each time

What do you notice? In a space on the A4 paper or on the back try to write a few sentences to explain what you noticed and have a think about what this shows us.

This video: <https://www.youtube.com/watch?v=EZIWPXTHIU8> shows you another variation of this experiment using a comb to divide the light into separate beams. You could try this at home too.

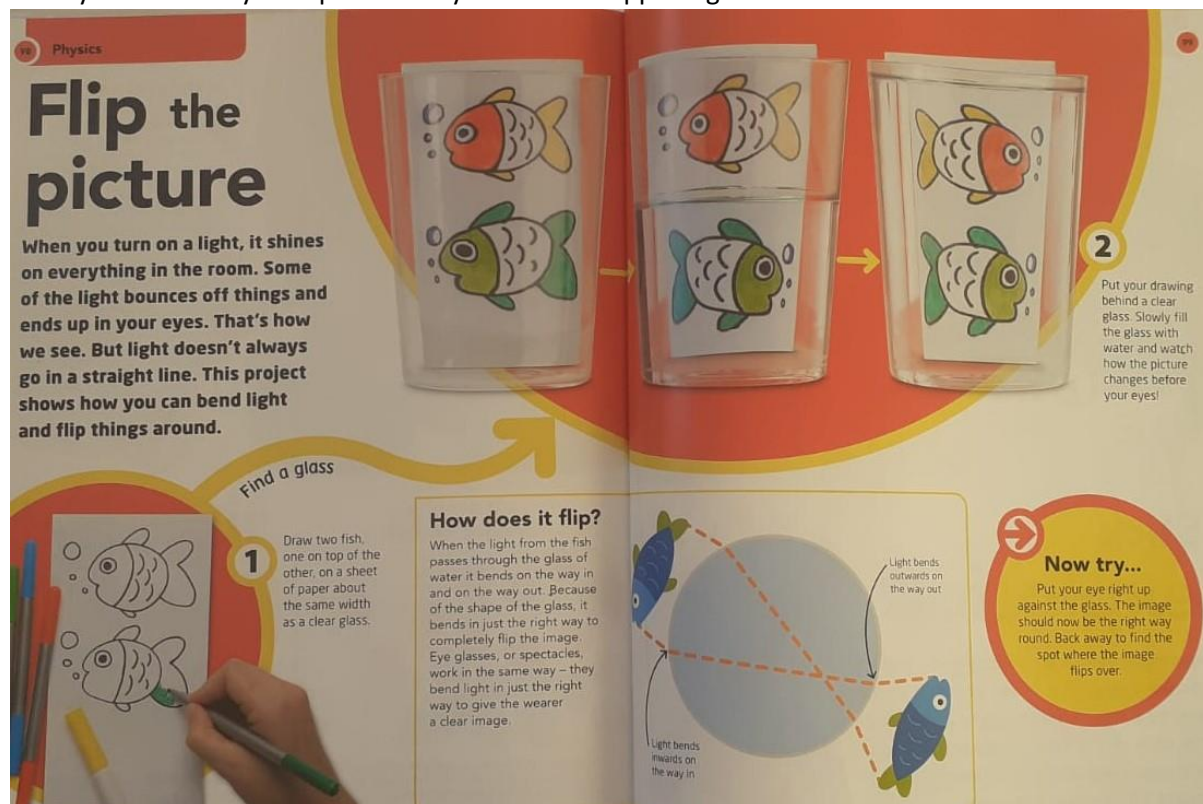


C. LO: To know that light can be bent.

A fun experiment to demonstrate what happens when light is bent

Follow the instructions given in the picture to show how you can bend light and flip things around.

What other strange things happen when light is bent through water? Can you take a photo or draw what you see? Can you explain what you think is happening?



D. LO: To find out about Isaac Newton's discoveries about LIGHT

Produce a report explaining the work of Isaac Newton and what he discovered about light. Your report could be handwritten, produced on the computer, a slide show in Powerpoint or even a video report.

Isaac Newton investigated many areas of science. He was very interested in light and colour and did many experiments to try to understand what he observed in the natural world. Can you find out about the investigations he carried out and the conclusions he reached? Can you replicate any of his investigations or the things he observed in your own house? (NB: Stay away from the investigation where he stuck a blunt needle in his eye though!)

These two You Tube clips might be a good place to start your research:

<https://www.youtube.com/watch?v=-b1F6jUx44>

https://www.youtube.com/watch?v=6_HroTxaZe0

Produce a report about what you have discovered – use any appropriate format.

E. LO: To investigate the size of shadows.

Design your own investigation to find out what happens to the size of the shadow created when the distance between the light source and an object is changed.

You need to find out what happens when you change the distance between a light source and an object. There are lots of ways to investigate this but you will certainly need a bright light source, a darkened room and an object which will cast a shadow (A small teddy or toy is ideal), ruler or tape measure, flat plain wall.

It is up to you to design and carry out this investigation within the following guidelines:

Independent variable (the variable which is altered): Distance BETWEEN light source and object

Dependent variable (the variable which is measured): Height of the shadow

Controlled variables (variables you keep the same to make it a fair test)

See the photo below for a possible way to set up this investigation



Once you have completed this practical investigation produce a report about your work. Include the following:

Diagram of the investigation

State the independent, dependent and controlled variables.

Results table and/or graph

Conclusion (er/er rule)