Hook:

Children will learn how the brain can misinterpret what the eye can see by looking at a range of optical illusions.

Significant individuals

Alhazen 'Father of Optics' , Albert Einstein, C V Raman

Year 6: Science Medium Term Plan: Autumn 2

Areas of learning (subject)

Science, Literacy, History, DT

Key Vocabulary:

Light, travels, straight, reflect, reflection, light source, object, shadows, mirrors, periscope.

Resources

Card for puppets, torches, batteries

Year 6: Light

Curriculum

What will we learn?

Children will be able to:

recognise that light appears to travel in straight lines

use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye

explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes

use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Creativity:

How will we show we understand in multiple ways? What elements of Working Scientifically will we cover?

- Children will decide how to investigate how the size of shadows can vary and how they will record their findings *(planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary)*
- Children will measure the size if shadows created by their puppets *(taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate)*
- Children will record their measurements and will decide how they will represent their *findings (recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs)*
- Children will explain their findings and link it to their own learning *(reporting and presenting findings from enquiries, including conclusions)*

Connections

What are the connections to our curriculum? past

Connections to previous learning

In Year 3 pupils were taught to:

- recognise that they need light in order to see things and that dark is the absence of light
- notice that light is reflected from surfaces
- recognise that light from the sun can be dangerous and that there are ways to protect their eyes
- recognise that shadows are formed when the light from a light source is blocked by an opaque object
- find patterns in the way that the size of shadows change

Connections to Future learning

In KS3, children will be taught to:

- the similarities and differences between light waves and waves in matter
- light waves travelling through a vacuum; speed of light
- the transmission of light through materials: absorption, diffuse scattering and specular reflection at a surface
- use of ray model to explain imaging in mirrors, the pinhole camera, the refraction of light and action of convex lens in focusing (qualitative); the human eye
- light transferring energy from source to absorber, leading to chemical and electrical effects; photosensitive material in the retina and in cameras

Community

What links can we develop ' Near and Far'? What opportunities will we create to use the outdoors?

Children will be using the torches in the dark at Minydon during the residential. Take an opportunity for them to observe how the beam of light changes as it moves closer and further away from a surface. Also look at shadow size.