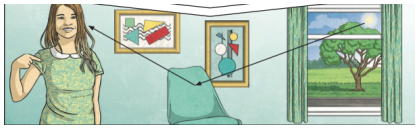
Year 6 Science Knowledge Organiser - Light

Knowledge - How do we see?



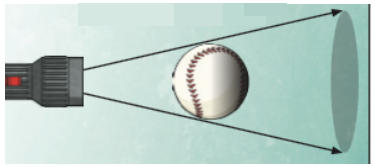
1. We need light to be able to see things.
2. Light waves travel out from the sources of light in straight lines.
3. Light from the light source travels in a straight line and hits the object. The light ray is then reflected off the object and travels in a straight line into the eye enabling the person or animal to see the object.

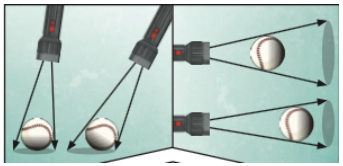
Knowledge - Light

1. The moon does not shed any light of its own; it only reflects light from the sun.
2. Light waves travel out from sources of light in a straight line.
3. The lines are often called rays or beams of light.
4. Light travels as a wave but unlike waves of water or sound, it does not need a medium to travel through.
5. Light can travel through a vacuum - a completely airless space.
6. Isaac Newton shone a light through a transparent prism, separating out light into the colours of the rainbow (red, orange, yellow, green, blue, indigo and violet) - the colours of the spectrum. All the colours together merge and make visible light.

Shadow

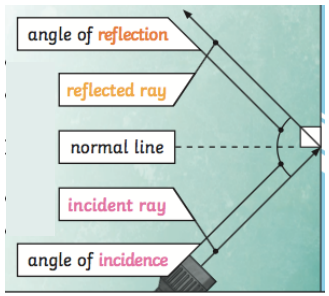
1. As light travels in straight lines, when there is an opaque object blocking the light, a shadow is formed.
2. The shadow has the same shape as the object that cast it.
3. When an opaque object is in the path of light travelling from a light source, it will block the light rays that hit it, while the rest of the light can continue travelling.
4. Shadows can be elongated or shortened depending on the angle of the light source.
5. A shadow is larger when the object is closer to the light source. This is because it blocks more of the light.



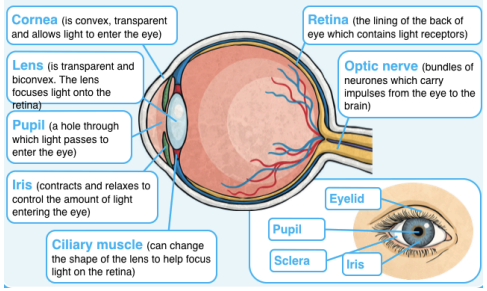


Knowledge - Rules of Reflection

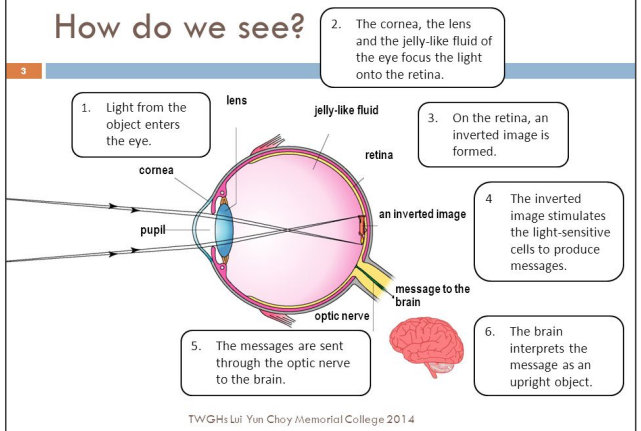
1. The angle of incidence is equal to the angle of reflection.
2. Whatever light is reflected from a surface, it obeys this law.
3. The angle of reflection is the angle between the normal line and reflected ray of light.
4. The angle of incidence is the angle between the normal line and the incident ray of light.



Parts of the Eye



Knowledge - Human Eye



Vocabulary

1. Source	Where something comes from.
2. Angle	The direction from which you look at something.
3. Beam	A ray of light.
4. Reflect	Sent back from the surface and not passed through it.
5. Opaque	If an object or substance is opaque, you cannot see through it.
6. Transparent	If an object or substance is transparent, you can see through it.
7. Translucent	If a material is translucent, **some** light can pass through it.
8. Iris	A flat, coloured, ring-shaped membrane behind the cornea of the eye, with an adjustable circular opening (pupil) in the centre.
9. Retina	A layer at the back of the eyeball that contains cells sensitive to light.

Year 6 Science Skills Knowledge Organiser - Light

Key Concepts and what they mean

1. Physics	Physics is the study of energy and matter in space and time and how they are related to each other.
2. Chemistry	Chemistry deals with the properties of substances, the transformations they undergo, and the energy that is released or absorbed during these processes. For example, when plants use sunlight to produce energy (or food for itself).
3. Data Collection	Data collection is the process of gathering and measuring information to answer a question. For example, recording living and non living things to investigate whether numbers change depending on the weather.
4. Cause and effect	Cause and effect is the relationship between events or things, where one is the result of the other or others. For example, the weather gets colder and there is less food around, so animals hibernate.
5. Envrionmental	Environmental relates to the environment around us at Old Fletton.

Creating a Data Table

Data tables help you keep information organised. If you're collecting data from an experiment or scientific research, saving it in a table will make it easier to look up later.

1) Name your table - make sure the title relates to the data you will put in your table
2) Decide how many columns and rows you need.
3) Draw the table. Using a ruler, draw a large box and making the necessary number of columns and rows.
4) Label all your columns.
5) Record the data from your experiment or research in the appropriate columns.

1)

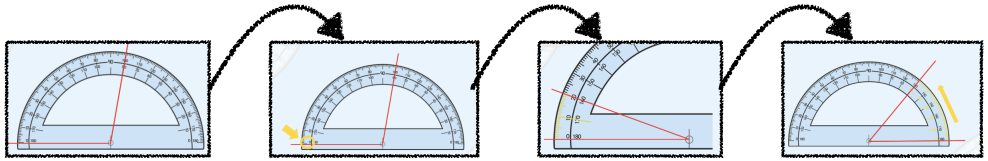
4) Lux from different light sources

Light Source	Lux
Torch	123
Smartboard	98
Ceiling Light	45
Mobile Phone	34

2) 5)

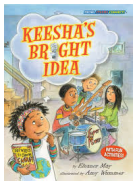
How to use a Protractor

1. This is a protractor, it helps you measure angles.
2. Place the cross or circle at the point of the angle you are measuring.
3. Read from zero on the outer scale of your protractor.
4. Count the degree lines carefully.
5. If the angle that you are measuring turns in an anticlockwise direction, you will need to use the inner scale of your protractor



Literacy links to this topic

Stories that relate to the topic of 'Light' are:

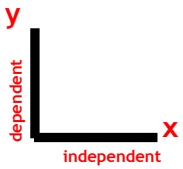


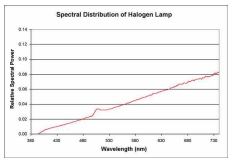
The Firework Maker's Daughter by Philip Pullman
Keesha's Bright Idea by Eleanor Ma
The Dark by Lemony Snicket

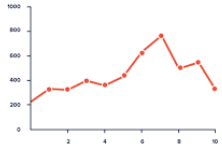
These stories help you to gain a greater understanding of Light and may spark some questions that you might want to ask in your next science lesson!

Line Graph

Axis:
Y axis = vertical
X axis = horizontal
Variables:
Y axis = dependent
X axis = independent







Steps to Success

1. Find the highest value for the y axis (vertical).
2. Round up and think of a good scale for the numbers.
3. Draw the y axis making sure you have an equal gap between the numbers.
4. Count up the y axis until you get to the number you want.
5. Put a ruler above the number, making sure it is straight.
6. Now, find the number on the x axis.
7. Follow the line of the graph paper up (without drawing a line) until you reach the ruler.
8. Mark the place where the line meets the ruler with a dot.
9. Do all points and then join up all the dots with a straight line.