# Knowledge Organiser Year 6 – Spring 2 2024

## Science - Light

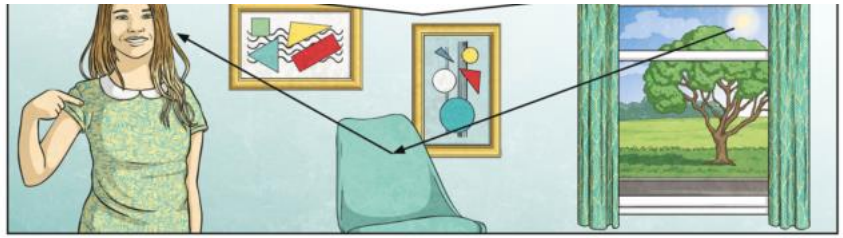
This half term students will recognise that light appears to travel in straight lines and they will then use this knowledge to explain that objects are seen because they give out or reflect light into the eye. The children will explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.

### How does light travel? (Part 1)

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

### How does light travel? (Part 2)

We need light to be able to see things. Light waves travel out from sources of light in straight lines. These lines are often called rays or beams of light. Light from the sun travels in a straight line and hits the chair. The light ray is then reflected off the chair and travels in a straight line to the girl's eye, enabling her to see the chair.



### Key Vocabulary

light: A form of energy that travels in a wave from a source.

light source: An object that makes its own light.

reflection: Reflection is when light bounces off a surface, changing the direction of a ray of light.

incident ray: A ray of light that hits a surface

reflected ray: A ray of light that has bounced back after hitting a surface.

### Key Vocabulary

the law of reflection: The law states that the angle of the incident ray is equal to the angle of the reflected ray

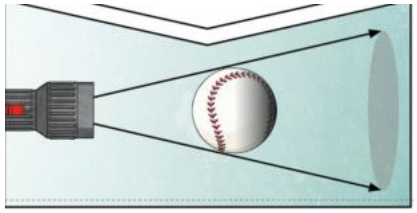
refraction: This is when light bends as it passes from one medium to another. E.g. light bends when it moves from air into water.

shadow: An area of darkness where light has been blocked.

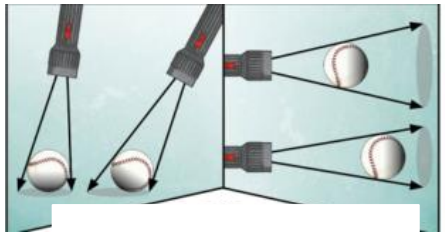
*The spoon in this water looks as if it is bent. This is because light bends when it moves from air to water. When light bends in this way, it is called refraction.*

## Shadows

- A shadow is always the same shape as the object that casts it. This is because 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.



- Shadows can also be elongated or shortened depending on the angle of the light source. A shadow is also larger when the object is closer to the light source. This is because it blocks more of the light.



## Home Learning Project

During our topic on light, we are going to be investigating how light travels and some of the scientific laws regarding light.

Your task will be to independently research and create a piece of learning on one of the following:

- Shadows
- Refraction

### What could my learning focus on?

- How do we use light in modern technologies?
- How did we discover these facts about light?
- What scientific facts do you know about light?
- Are there any experiments you can carry out studying light?

### What could my learning look like?

- A fact file
- Labelled diagrams
- A write up of an experiment you conducted

## The law of reflection

- The law of reflection states that the angle of incidence is equal to the angle of reflection. Whenever light is reflected from a surface, it obeys this law.
- The angle of reflection is the angle between the normal line and the reflected ray light.
- The angle of incidence is the angle between the normal line and the incident ray of light.