

Pye Bank CE Primary DSAT Knowledge Organiser

YEAR 3

PHYSICS : What is the dark?

SCIENCE

KEY VOCABULARY

Light: A visible form of energy that enables us to see.

Light source: An object that emits light. Fire, torches, the Sun and the lights in our homes are all examples of light sources.

Mirror: an object that reflects a clear image
Shadow: An area of darkness that results when light is blocked.

Opaque: not allowing light to pass through Opaque materials absorb and reflect light, and create shadows. Examples of opaque materials include metals, wood and concrete.

Pupil: the round hole in the centre of the eye.

Ray: waves of light are also called rays, or beams.

Retina: a layer at the back of the eye. The retina takes the light the eye receives. It then changes it into nerve signals to send to the brain.

Reflection: when light bounces off a surface. All visible objects reflect some light. Shiny, smooth surfaces reflect lots of light in one direction, and are known as reflectors.

Translucent: allowing some light to pass through. Translucent materials include sunglasses, greaseproof paper and tissue paper.

Transparent: allowing light to pass through unchanged. Transparent materials are “see through”. Examples include colourless glass and certain plastics, such as cling film.

Incident ray: The point at which the light source strikes the reflective surface.

KEY SCIENTIST



Percy Shaw

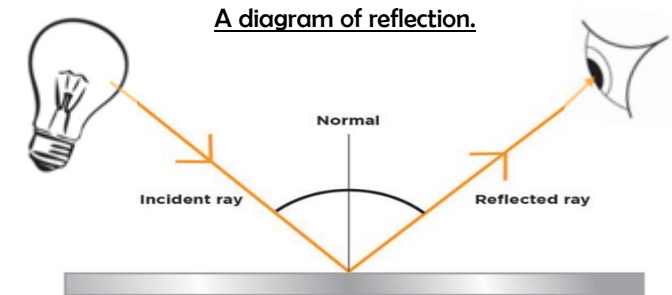
Picture of cat's eyes invention

Percy Shaw is a British inventor. In 1930 he invented a way to keep drivers safe on the road. Percy Shaw created a version of a cat's eye that helps drivers see better at night. His design allows the headlights of a car to be reflected back to the driver allowing the driver to see the road clearer. Today, Shaw's cat's eyes are used all over the world, and the design has barely changed in over 80 years.

STICKY KNOWLEDGE

1. Darkness is the absence of light and in order to see objects light needs to be present.
2. Opaque objects – that is, objects that you cannot see through – create dark shadows. Other objects, like leaves, let a little light through. These are called translucent objects. The shadows translucent objects create are not as dark as those created by opaque objects. Transparent objects, like water, let all light through and don't make any shadows at all.
3. A shadow forms when an object blocks the path of a beam of light. Light travels in straight lines and cannot bend around an object in its path, so a dark area forms that is the same shape as the object. A shadow is simply an area that lacks light.
4. The size of a shadow depends on the distance between the light source and the object that is creating the shadow. When the light source is close to the object, a lot of light is blocked and a large shadow is formed. When the object is far away, a smaller amount of light is blocked and so a smaller shadow is formed.

KEY CONCEPT



When we see an object, it is because light has bounced off the object's surface and gone into our eyes. When light bounces off something we say it has been reflected. Light that is not reflected by a surface is absorbed. When a ray of light is reflected by a surface, the angle between the reflected ray and a line vertical to the surface at the point of reflection is known as the angle of reflection. The angle at which light strikes the surface is called the angle of incidence.

KEY CONCEPT

A diagram to show how light travels towards opaque, translucent and transparent objects

