

Year 3 Science – Dark and Light

Progression Organiser

Knowledge, Skills and
Summer Term

Enquiry Question: Can we see if there is no light?

Why this/why now?

The summer is the best time to learn about light because the sun is at it's brightest. It's really important to learn about how we can stay safe in the sun. During our art lessons, we will discover how impressionist artists represented light using thick brush strokes. We will use their work as inspiration when we produce our own 'reflections on water' artwork. The knowledge that the children will acquire, will prepare them for when they study light again in Year 6.

How does this link to the National Curriculum?

Year 3 Programme of Study – Light

We will be scientists by:

- ✓ recognising that they need light in order to see things and that dark is the absence of light
- ✓ noticing that light is reflected from surfaces
- ✓ recognising that light from the sun can be dangerous and that there are ways to protect their eyes
- ✓ recognising 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

Are there any trips and/or links to the school?

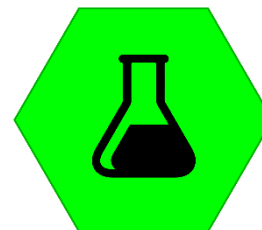
The children will paint a scene from the local river that links to our dark and light topic.

How will this unit of work be assessed?

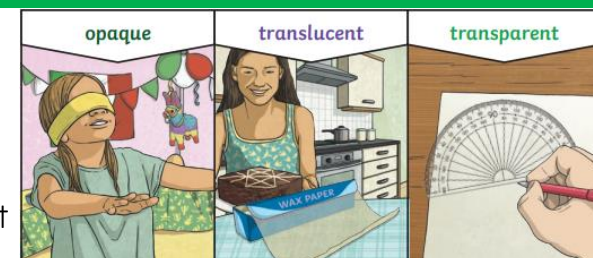
Through observation during practical work, work in books and floor books and Plicker tests.

How will the learning journey be evidenced?

In books and floor books through writing and photographs of practical investigations



Science



Character Muscles



Problem-solving

Questioning

Self-control

Things to do with my family:

Make a short story using your hands to cast a shadow on the wall.

Use objects from around your home, including: opaque, translucent and transparent materials to make an interesting shadow scene.



Visit : [Total Darkness](http://TotalDarkness.sciencemuseum.org.uk)
(sciencemuseum.org.uk)

Links to other subjects

The children will look at reflections on a body of water in their art lessons.

The Knowledge (these are the key bits of information!)

Key Knowledge

Natural Light

Natural light sources are those which are not man-made.



SUN



STARS



FIRE-FLY

Artificial light sources are man-made. They include candles; lamps and matches



LAMP

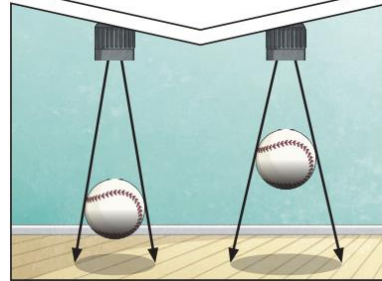


MATCHES



FIRE-FLY

A **shadow** is caused when **light** is blocked by an **opaque** object. A **shadow** is larger when an object is closer to the **light** source. This is because it blocks more of the **light**.



We need **light** to be able to see things. **Light** travels in a straight line. When **light** hits an object, it is **reflected** (bounces off). If the **reflected light** hits our eyes, we can see the object. Some surfaces and materials **reflect light** well. Other materials do not **reflect light** well. **Reflective** surfaces and materials can be very useful...



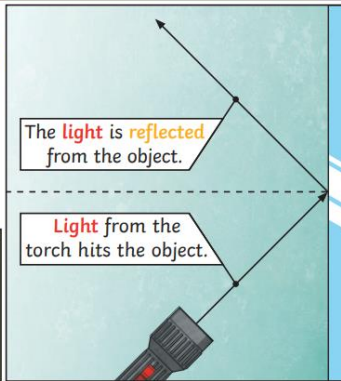
hi-vis jacket



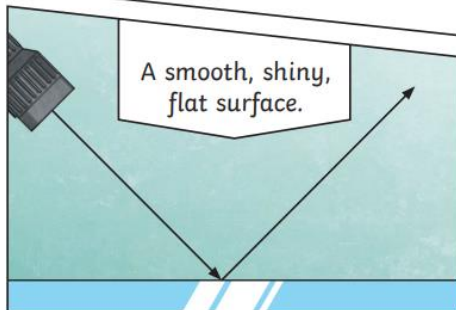
cat's eyes

The **light** is **reflected** from the object.

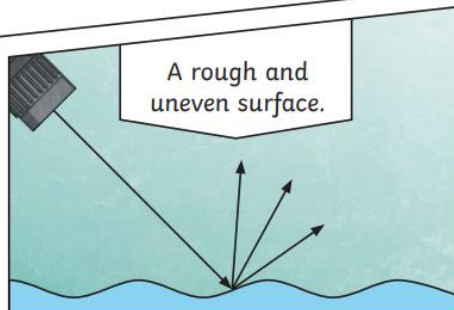
Light from the torch hits the object.



The surfaces that reflect **light** best are smooth, shiny and flat.



A smooth, shiny, flat surface.



A rough and uneven surface.

Key Vocabulary

light

The brightness that comes from natural or electrical objects and allows things to be seen.

dark

with little or no light

shadow

an area of darkness, caused by light being blocked by something

opaque

preventing light from travelling through so not transparent or translucent

transparent

If a substance or object is transparent, you can see through it very clearly.

translucent

If an object or a substance is translucent, it is almost transparent, allowing some light through it.

pupil

The circular black area in the centre of an eye that light passes through.

iris

the coloured circular part of that eye that surrounds the black pupil

lens

a transparent material with curved sides. We have one in our eyes to focus the light and help us to see.

retina

a layer at the back of the eye that picks up the light from the lens and helps to pass the images to the brain.

Sun protection factor

This is the level of protection for your skin from the sun.

When the **light** source is directly above the object, the **shadow** will be directly underneath.



midday

When a **light** source is to one side of an object, the **shadow** will appear on the opposite side. The **shadow** will also be longer.



sunset