

Key Facts
Light and dark

The word 'dark' in everyday terms is generally used to mean not much light, and children will be familiar with it in this context. However, in a scientific context it means no light at all (or the absence of light). The absence of light means that we cannot see, so there is a possibility for some confusion here unless the word 'dark' is used precisely.

All objects will reflect some light, although in some cases the ability of the eye to register this is limited and so we may not see them.

Sunglasses



wearers might imagine.

Sunglasses serve two main functions. The first is to reduce the intensity of light, which makes it easier to see things and not to be overwhelmed by glare. The second is to provide a filter to reduce the potentially damaging amount of UV light that enters the eye. Some cheap sunglasses are not very effective at filtering UV light and so do not offer all of the protection to eyes that

Ultraviolet

Ultraviolet light from the sun can also damage the skin, including causing some types of skin cancer. Suncream/suntan lotion acts in the same way as sunglasses, as a filter to reduce the amount of UV reaching and being absorbed by the skin. There are clear parallels between how sunglasses and sun creams work and this is not a false



Science

Year 3

Spring

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Light:

Can you see me?

Vocabulary

Word	Definition
Light	The natural agent that stimulates sight and makes things visible.
Dark	The absence of light.
Shadow	A dark area or shape produced by a body coming between rays of light and a surface.
Mirror	A surface, typically of glass which reflects a clear image.
Bright	Giving out or reflecting much light; shiny.
Opaque	Preventing light from travelling through.
Transparent	Letting light pass through and giving a clear view of objects on the other side.
Translucent	An object or a substance is translucent, it is almost transparent, allowing some
Ultraviolet	Beyond the violet end of the spectrum of visible light and having a wavelength between that of visible light and x-rays.

Common misconceptions:

Light is only found in bright areas. We see things because light travels from our eyes towards an object. Objects that we see, 'give out' their own light. The moon is a source of light. We can see objects because light shines on them (the light still needs to get to our eyes!). You can see more of your image in a mirror as you move backwards from it

Surfaces that are not shiny do not reflect light. A mirror reverses everything (think left/right and up/down). Cats and other animals that see in the dark do so because their eyes give out light. Shadows are real 'things' rather than the absence of light (or less light than the surrounding area). Shiny/reflective/white objects make light and can be seen in the dark. Some children may think that the object 'gives out' the light and others may not include both the light sources and the object in descriptions of shiny objects.

Knowledge and Understanding:

Children will learn:

- How we see objects.
- The ways in which different objects reflect different amounts of light and how these ideas can be applied to staying safe at night.
- Explore what causes a shadow, as well as how the shape and size of a shadow can be affected by its position.
- How exposure to sunlight can cause harm, and about ways by which they can protect themselves.

Key skills and concepts:

Children will be able to:

Ask and answer their own questions about light and shadows as well as investigate how some materials block more light than others.

Sort objects according to how much light they block, as well as through simple shadow investigations.

Carry out a range of investigations such as fair tests to investigate why they have used a certain material for a 'safe at night' piece of clothing or a pair of sunglasses.

Key Questions

What do we need to see?

How can we make things easier to see at night?

What do mirrors do?

How can we make a shadow?

Can you change the shape of a shadow?

What makes the best sunglasses?

Are you safe in the sun?