

## Medium Term Plan: Supporting Implementation of LTP/Progression Grid

Subject: Science  
NC/PoS:

Year: LKS2 Year 3- Light

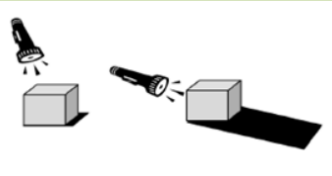
- recognise that they need light in order to see things and that dark is the absence of light
- notice that light is reflected from surfaces
- recognise that light from the sun can be dangerous and that there are ways to protect their eyes
- recognise that shadows are formed when the light from a light source is blocked by an opaque object
- find patterns in the way that the size of shadows change

Prior Learning (what pupils already know and can do)

- Know that glass is transparent. Know that the movement of Earth in space gives us day and night. Know that in the UK (United Kingdom), the day length is longest in the summer and shortest in the winter. Know that light sources give out light and the sun is a light source. Know that light is essential for seeing things. Know that sources of light show up best at night-time.

End Goals (what pupils MUST know and remember)

- Know that light is a form of energy
- Know that the eyes take in light so we can see
- Know that you cannot see anything when there is no light
- Know light sources give out light
- Know natural light sources are sun, stars, candle flame, fire
- Know artificial light sources are light bulbs, florescent lighting, computer screens
- Know some objects seem bright but are reflecting light from elsewhere, for example the Moon, mirrors, and shiny objects
- Know that light from the Sun is very strong and can damage your eyes
- Know the eyes can be protected by wearing dark glasses
- Know to never look directly at the sun
- Know that light can pass through materials that are transparent like glass
- Know that some light passes through materials that are translucent like frosted glass
- Know that light cannot pass through opaque materials
- Know that when light is blocked by an opaque object, a shadow is formed
- Know that the size of the shadow changes depending on the position of the light source
- Know that the closer the light source to the object the larger the shadow will be



Key Vocabulary: opaque, translucent, transparent, natural sources, artificial light, reflected, absorb, reflective, dangerous, ultraviolet light, radiation, sunburn, protection, blocked, opaque, light rays, overhead, midday.

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Session 1: Recap: properties of materials –opaque, translucent, transparent

**Learning: Identify objects that are opaque, translucent and transparent.**

Children learn that we need light to see

Know that light is a form of energy

Know that the eyes take in light so we can see

Know that you cannot see anything when there is no light

Suggested activities:

<https://www.youtube.com/watch?v=QsrCnthWGEs> what is light?

Vocabulary: opaque, translucent, transparent

Session 2: Recap: what can you see in the absence of light?

**Learning: What light sources are artificial or natural?**

Know light sources give out light

Know natural light sources are sun, stars, candle flame, fire

Know artificial light sources are light bulbs, florescent lighting, computer screens

**Ensure the children understand that the moon is NOT a source of light, just a reflection from the sun.**

Suggested activities:

<https://www.youtube.com/watch?v=01SAxjPZbRM> examples of natural and artificial sources

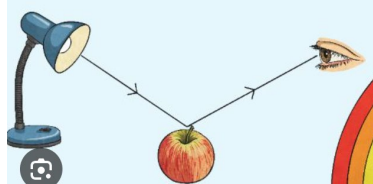
A) Sort a selection of objects into natural or artificial light sources.

Vocabulary: natural sources, artificial light

Session 3: Recap: give three examples each of natural and artificial light sources

**Learning: How do our eyes help us see?**

Know some objects seem bright but are reflecting light from elsewhere, for example the Moon, mirrors, and shiny objects.



Suggested activities:

Give a selection of different materials and children explore which ones are more reflective using torches.

Learn that objects absorb all colours of the spectrum except for the colour they are and then the colour bounces into our eyes to help us see. Draw a diagram to show this action.

N.B. black objects absorb the most light so are not very reflective

Vocabulary: reflected, absorb, reflective

Session 4: Recap: which materials/objects are good reflectors of light?

**Learning: Sun safety.**

Children learn the dangers of the sun- is the sun a hero or a villain?

Know that light from the Sun is very strong and can damage your eyes

Know the eyes can be protected by wearing dark glasses and a hat with a rim

Know to never look directly at the sun

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ultraviolet light - is a form of **radiation** which is not visible to the human eye.  
sunburn - ultraviolet rays can burn our skin cells, the skin gets red and feels warm.

Vocabulary: dangerous, ultraviolet light, radiation, sunburn, protection

Session 5: Recap: how is the sun dangerous? What can you do to protect your eyes?

### **Learning: How are shadows formed?**

Children learn how shadows are formed

Know that light can pass through materials that are transparent like glass

Know that some light passes through materials that are translucent

Know that light cannot pass through opaque materials

Know that when light is blocked by an opaque object, a shadow is formed

Suggested activities:

<https://www.youtube.com/watch?v=3Mv4qa5c0q8> what are shadows

children go outside and make shadows, blocking the light with their opaque bodies

Use torches to create shadows within the classroom

Create shadow puppets

Vocabulary: blocked, opaque, light rays

Session 6: Recap: how are shadows formed?

### **Learning: How do shadows change?**

Children are learning to look for patterns in the size of shadows

Know that the size of the shadow changes depending on the position of the light source

Know that the closer the light source to the object the larger the shadow will be

Know the more directly overhead the light source is, the shorter the shadow (midday)

Suggested activities:

<https://www.youtube.com/watch?v=bepLxu65OdM> size of shadows

children explore shadows using objects and torches

Children could draw round their shadows outside and then observe how the shadows move throughout the day.

Vocabulary: overhead, midday

Link to career scientist:

[https://pstt.org.uk/application/files/3616/3525/6983/Laser\\_Physicist\\_-\\_Professor\\_Colin\\_Webb.pdf](https://pstt.org.uk/application/files/3616/3525/6983/Laser_Physicist_-_Professor_Colin_Webb.pdf)

Scientists who have helped develop understanding in this field: Sir Isaac Newton – light was made up of tiny particles.