



Light and sound

	Expectations	Key words
EYFS	<ul style="list-style-type: none"> • know that it is dangerous to look at the sun • relate their sense of sight to their eyes • relate their sense of hearing to their ears 	
Y3 Light and Shadows	<ul style="list-style-type: none"> • name a number of light sources, including the sun • describe and compare some light sources • state that light sources are seen when light from them enters the eyes • recognise that light from the sun can be dangerous and that there are ways to protect their eyes • recognise that they cannot see in the dark • recognise that light travels from a source • recognise that they need light in order to see things and that dark is the absence of light • explain that places are dark because there is no light and a light source is needed to help us see in such places • notice that light is reflected from surfaces • state that reflections can be seen in shiny surfaces • makes generalisations about shiny surfaces (e.g. smooth) • demonstrate light travelling using a torch and record light bouncing off a mirror • identify suitable reflective clothing for travelling in the dark • explain that they cannot see shiny objects in the dark because there are no light sources • recognise that when light is blocked, a shadow is formed • recognise that shadows are formed when the light from a light source is blocked by a solid object • recognise that shadows are similar in shape to the objects forming them • make observations of changes in shadows • explain that shadows are formed when light from a source is blocked • state that even transparent objects block some light and form shadows 	Shadow, light, flames, opaque, block, direction, light, travels, shortest, longest, highest, torch, shape, similar, transparent, translucent, light source, sun, object daytime, night-time, reflect, shine, shiny, absorb, reflective surface, surface, mirror, sundial, block, lamp

	<ul style="list-style-type: none"> • describe the difference in shadows cast by opaque, translucent and transparent materials • explore how to make shadows of different shapes and sizes • find patterns in the way that the size of shadows change • <i>use ideas about shadows to make predictions about the shadows formed by different objects or materials</i> • <i>describe how the length of a shadow changes throughout the day as the sun moves across the sky</i> • <i>describe how nocturnal animals are adapted to use what little light there is or their other senses in the dark (e.g. cats, aye-aye, lemurs)</i> • <i>describe how Percy Shaw invented cat's eyes and explain their importance to road safety</i> 	
<p>Y4 Sound and Vibrations</p>	<ul style="list-style-type: none"> • recognise and describe many sounds and sound sources • state that they hear sounds through their ears • recognise that when sounds are generated by objects, something moves or vibrates • identify how sounds are made, associating some of them with something vibrating • identify what is vibrating in a range of musical instruments • generalise that sounds are produced when objects vibrate • describe how sounds are generated by specific objects • suggest ways of producing sounds • recognise that vibrations from sounds travel through a medium to the ear • <i>recognise that sounds travel through solids, water and air</i> • <i>explore how sound travels through a variety of materials</i> • distinguish between pitch and volume (loudness) • describe differences in pitch and volume • find patterns between the pitch of a sound and features of the object that produced it • know that altering vibrations alters the pitch or volume • <i>describe ways in which the pitch of a sound made by a particular instrument or vibrating object can</i> 	<p>Sound, pitch, volume, vibrations, medium, insulation, travel, instrument</p>

	<p><i>be raised or lowered</i></p> <ul style="list-style-type: none"> • <i>generalise the effects of changes on sound (e.g. the tighter the tension the higher the pitch)</i> • <i>explore how to vary the pitch and volume of sounds from a variety of objects or instruments</i> • find patterns between the volume of a sound and the strength of the vibrations that produced it • <i>suggest how to change the loudness of the sounds produced by a range of musical instruments</i> • recognise that sounds get fainter as the distance from the sound source increases • <i>describe what they observe when they move further away from a source of sound</i> • <i>group instruments independently by the way sounds are produced</i> • <i>identify suitable materials to use for sound insulation</i> • <i>recognise that sound can be reflected from a surface which can cause an echo</i> • <i>describe how some animals use echo-location</i> 	
<p>Y6 Light</p>	<ul style="list-style-type: none"> • <i>explore how light travels using torches and periscopes</i> • recognise that light appears to travel in straight lines • <i>describe reflection as light 'bouncing off' objects</i> • <i>understand that in order to be seen, all non-luminous objects must reflect light</i> • <i>diagrammatically represent light from sources and bouncing off reflective surface using arrows</i> • 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 • <i>draw diagrams to illustrate how light is travelling from the source to the eye</i> • use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye • <i>describe a variety of ways of changing the size of the shadow produced by an object</i> • <i>describe the relationship between the size of a shadow and the distance between the light source and an object</i> 	<p>Reflection, transparent, translucent, opaque, periscope, luminous, non-luminous, absorb, direction</p>

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| | <ul style="list-style-type: none">• diagrammatically represent the formation of shadows using arrow convention• use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them• <i>know that, when sunlight passes through some objects, coloured light is produced (for example in rainbows, soap bubbles and prisms)</i>• <i>describe how curved mirrors distort a reflection</i> | |
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