Science – Year 6

Light

Why can I hear but not see around corners?

NC objectives - **areas of study**	End point of area of study	Vocabulary		
		Basic	Adventurous	Technical
recognise that light appears to travel in straight lines 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 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 use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them	Children recall learning from year 3 and build up on it. Children know that light appears to travel in straight lines and use this to support their explanations on how things are seen. They know that we see things because light travels from light sources to our eyes and from light sources to objects to our eyes, They explain the shape of shadows by applying the knowledge of the way light travels.	Light source, dark, reflect, ray, mirror, sun, straight lines, light rays,		transparent, translucent. opaque

Knowledge

Substantive Knowledge

Retrieval of knowledge from year 3 unit of learning on light. Children know how shadows are formed and the importance of light to see things. They know light is reflected from surfaces and the danger of looking directly at a light source.

- Lesson 1
- LO To know materials can be opaque, transparent and reflective.
- **transparent, translucent. opaque**

- Know that sunglasses can protect eyes from sunlight but looking at the Sun directly – even with sunglasses – can damage the eyes

Disciplinary Knowledge

Children work as physicists and opticians to explore light and how we see things.

Similarities and differences

Pupils observe how light travels and explain how light sources work to create shadows and reflections. They talk about what happens and make predictions of future learning applying this knowledge.

Evidence

Planning investigations into light, they use the idea of light travelling in straight lines to support their predictions and designs, for example to decide

• Know that opaque objects block light creating shadows and light passes easily through transparent objects • Know that opacity/transparency and reflectiveness are properties of a material • Lesson 2 • LO To know shadows have the same shape as the objects that cast them • **Light source,** • • Know that as objects move towards a light source, the size of the shadow increases • Know that the changing of shadow size can be shown by drawing a diagram with straight lines representing light • Know how to draw a diagram to show why the shape of a shadow will match the shape of an object • Lesson 3 • LO To know light appears to travel in straight lines. • **Light source, ray, straight lines, light rays** • • Know that translucent objects allow some light to pass through, but some of the light changes direction as it passes through the object; this means that an something seen through a translucent object is not clearly defined • Know that when light passes from one medium to another (e.g. from air to water), it changes direction; this is called refraction; this happens because light travels at different speeds in different media • Lesson 4 • LO To know objects are seen because they give out or reflect light into the eye • **Light source, reflect, straight lines,** • Appreciate the beauty of light and the spectrum • Know that white light comprises all the colours of light • Know that white light refracted by two surfaces in a prism will spread out so that all of its constituent colours can be seen; this array of	where to place rear view mirrors in cars, for designing and making periscopes. Using shadow puppets they investigate the relationship between light sources and shadows. They ask questions about light and its behaviour in rainbows, colours on soap bubbles, objects looking bent in water and coloured filters.

colours is called a spectrum; it happens because the different colours that constitute white light travel at different speeds

- Lesson 5
- LO To know light travels from light sources to our eyes or from light sources to objects and then to our eyes
- **Light source, reflect, ray, straight lines, light rays**
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- Know that when light reflects off an object, the diagram angle of incidence is equal to the angle of reflection
- Lesson 6
- LO To know that light travels in straight lines.
- **Light source, reflect, ray, straight lines,**
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- Know that a periscope takes advantage of the predictable angles of incidence and reflection to allow an image to be shown to a viewer
- Appreciate and enjoy creating to appreciate the wonder of light and the rules it follows.

Concepts

Biology	Chemistry	Physics	

SKILLS

1. Compare	2. Explore	3. Identify	4. describe	5. classify
6. Question	7. observe	8. test	9. record	10. research

ASSESSMENT

KNOW MORE, REMEMBER MORE, DO MORE...

In this unit of learning, progress has been made when a learner knows more. This 'distance travelled' from the starting point is evidenced through them remembering more and doing more: in books, low stakes quizzes, retrieval, use of mind maps, answering the big question and being able to feel more confident about this unit.