ADVENT TERM 1 – CYCLE A SCIENCE – Year 6 and Year 5 - Medium Term Planning – PHYSICS: LIGHT		
LESSON 1	**LESSON 2**	**LESSON 3**
Recap & retrieval: • Light travels in waves in straight lines.	**Recall & retrieval:** • Light travels in waves in straight lines. • Light waves in diagrams are drawn as straight lines with arrowheads that show the direction of travel.	**Recall & retrieval:** • Light travels in waves in straight lines. • Light waves in diagrams are drawn as straight lines with arrowheads that show the direction of travel. • When light hits an object, it is absorbed, scattered, reflected or a combination of all three. • Light from a source or reflected light enter the eye.
LEARNING INTENTION: **Year 5** To know that light is a form of energy that travels as waves. (Recap Y3) To know that light waves travel in straight lines. **Year 6** To know that light is a form of energy that travels as waves. (Recap Y3) To know and explain how light waves travel in straight lines. **Skills: Disciplinary Knowledge** **Year 5** Report on their findings, answer questions and justify their methods, opinions and conclusions. **Year 6** Report on and validate their findings, answer questions and justify their methods, opinions and conclusions. **Aim:** Develop scientific knowledge and conceptual understanding through the specific disciplines of physics	**LEARNING INTENTION:** **Year 5** To know that objects are seen because they give out or reflect light into the eye. **Year 6** To explain that objects are seen because they give out or reflect light into the eye. **Skills: Disciplinary Knowledge** **Year 5** Use the chosen approach to record accurate results, including scientific diagrams and labels. **Year 6** Choose an appropriate approach to recording accurate results, including scientific diagrams and labels. **Aim:** Develop scientific knowledge and conceptual understanding through the specific disciplines of physics	**LEARNING INTENTION:** **Year 5** To know that a shadow appears when an object blocks the passage of light. (Recap Y3) To know that shadows have the same shape of the objects that cast them. **Year 6** To understand and explain that a shadow appears when an object blocks the passage of light. (Recap Y3) To explain why shadows have the same shape of the objects that cast them. **Skills: Disciplinary Knowledge** **Year 5** Plan and carry out enquiries to answer questions/support the investigation. This could include: writing methods, identifying and controlling variables, deciding on equipment and data to collect and making predictions based on prior knowledge and understanding. **Year 6** Plan and carry out a range of enquiries, including writing methods, identifying and controlling variables, deciding on equipment and data to collect and making predictions based on prior knowledge and understanding. **Aim:** Develop understanding of the nature, processes and methods of science through different types of science enquiries that

		help them to answer scientific questions about the world around them
Key Vocabulary: Light, ray, light wave straight, angle. reflected	**Key Vocabulary:** Light source, natural, artificial, reflect, absorb, scatter, light ray, pupil, cornea, retina, signal	**Key Vocabulary:** Shadow, distort, distortion, diffuses, cast, sharpness, direction,
Key Knowledge: **Child:** • Light travels in waves in straight lines. • Light waves in diagrams are drawn as straight lines with arrowheads that show the direction of travel. **Teacher:** • The angle at which light hits a reflective surface is the same angle at which it is reflected.	**Key Knowledge:** **Child:** • Light sources give out light. • They can be natural or artificial. • When light hits an object, it is absorbed, scattered, reflected or a combination of all three. • Light from a source or reflected light enter the eye. **Teacher:** • Vertebrates have a cornea and lens that refracts light that enters the eye and focuses it on the nerve tissue at the back of the eye, which is called the retina. • Once light reaches the retina, it is transmitted to the brain via the optic nerve.	**Key Knowledge:** **Child:** • A shadow appears when an object blocks the passage of light. • Apart from some distortion or fuzziness at the edges, shadows are the same shape as the object. **Teacher:** • The distortion or fuzziness depends on the position or type of light source.

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LESSON 4	**LESSON 5**	**LESSON 6**
Recall & retrieval: • Light travels in waves in straight lines. • Light waves in diagrams are drawn as straight lines with arrowheads that show the direction of travel. • When light hits an object, it is absorbed, scattered, reflected or a combination of all three. • Light from a source or reflected light enter the eye. • Apart from some distortion or fuzziness at the edges, shadows are the same shape as the object.	**Recall & retrieval** • Light travels in waves in straight lines. • Light waves in diagrams are drawn as straight lines with arrowheads that show the direction of travel. • When light hits an object, it is absorbed, scattered, reflected or a combination of all three. • Light from a source or reflected light enter the eye. • Apart from some distortion or fuzziness at the edges, shadows are the same shape as the object. • Plane mirrors are flat, concave mirrors curve inwards and convex mirrors curve outwards	**Recall & retrieval:** • Light travels in waves in straight lines. • Light waves in diagrams are drawn as straight lines with arrowheads that show the direction of travel. • When light hits an object, it is absorbed, scattered, reflected or a combination of all three. • Light from a source or reflected light enter the eye. • Apart from some distortion or fuzziness at the edges, shadows are the same shape as the object. • Plane mirrors are flat, concave mirrors curve inwards and convex mirrors curve outwards. • Refraction is the bending of light as it passes from one transparent material to another.
LEARNING INTENTION: **Year 5** To know that different shaped mirrors effect the light waves and image. **Year 6** To explain that different shaped mirrors effect the light waves and image. **Skills: Disciplinary Knowledge** **Year 5** Record and report using diagrams, how light behaves when reflected off a mirror **Year 6** Describe, using diagrams, how light behaves when reflected off a mirror **Aim:**	**LEARNING INTENTION:** **Year 5** To know that refraction is the bending of light as it passes from one transparent material to another. **Year 6** To understand and explain that refraction is the bending of light as it passes from one transparent material to another. **Skills: Disciplinary Knowledge** **Year 5** Ask and answer scientific questions about the local and wider world that build on and extend their own and others' experiences and knowledge. **Year 6** Ask and answer deeper and broader scientific questions about the local and wider world that build on and extend their own and others' experiences and knowledge.	**LEARNING INTENTION:** **Year 5** To know that Ibn al-Haytham was Iraqi scientist who made breakthroughs in light and vision theory. **Year 6** To understand and explain that Ibn al-Haytham was Iraqi scientist who made breakthroughs in light and vision theory. **Skills: Disciplinary Knowledge** **Year 5** Research and describe key points about the life and discoveries made by a scientist, and its influence on science today. **Year 6** Research and understand about the life and discoveries made by a scientist, and its influence on science today. **Aim:** Are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

Develop scientific knowledge and conceptual understanding through the specific disciplines of physics	**Aim:** Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them.	
Key Vocabulary: Opaque, reflect, reflection, absorb, scatter, angle, equal, impact, plane, convex, concave, curve, flat	**Key Vocabulary:** Refraction, transparent, material, bent, disjointed, denser, prism, spectrum,	**Key Vocabulary:** Pinhole camera, camera obscura, methodology, investigations, theory, evidence, proof
Key Knowledge: **Child:** • Plane mirrors are flat, concave mirrors curve inwards and convex mirrors curve outwards. **Teacher:** • Plane mirror reflections are the same size, and the right way up but they are reversed. • Concave mirrors enlarge the image and concentrate the rays of light into a focal point. • Convex mirrors make images smaller and disperse light which reflects a wider view.	**Key Knowledge:** **Child:** • Refraction is the bending of light as it passes from one transparent material to another. • The human eye depends on refraction to see. **Teacher:** • Refracted light creates a visible spectrum when white light shines through a prism or raindrops.	**Key Knowledge:** **Child:** • Ibn al-Haytham studied how light moved and did tests using lenses and mirrors. • He named important parts of the eye. • He invented the first pinhole camera. **Teacher:** • Born in Basra, Iraq, around the year 965, Ibn al-Haytham, was a pioneering scientific thinker who, from his observation of light entering a dark room, made major breakthroughs in understanding light and vision. • His methodology using experiments to verify theory later became known as the modern scientific method. • He studied reflection and refraction concluding that light refracts when it moved through different materials. • He studied how light moved and did tests using lenses and mirrors. • He named important parts of the eye. • He invented the first pinhole camera.
Assessment Cumulative quiz. Retrieval practice.		