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| Medium Term / Unit Planning –  Core/Foundation Subjects | | | | Subject: | | Science | | Term: | | Summer 1 | |
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| **Big Question / Unit Title** | What is light? | | | | | | | | | | |
| **NC Links:** | Pupils should be taught to:   * 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 | | | | | | | | | | |
|  | Week 1 | Week 2 | Week 3 | | Week 4 | | Week 5 | | Week 6 | |  |
| **QFLs**  What will the children learn? | What is the importance of light in vision? | Why can I see myself in a mirror? | Which surfaces reflect light? | | Why shouldn’t I stare directly at the sun? | | How are shadows formed? | | How do I change the size of my shadow? | |  |
| **Key Vocabulary**  What words will children need to support them in this learning?  Which words will help in their talking/writing/thinking? | Light, dark, ray, light source, vision, darkness. | Reflect, mirror, light, smooth, shiny, rays, rough, scatter, reverse, beam. | Translucent, transparent, opaque reflect, reflective, cats eye, reflections | | Adaptation, organism. | | Shadow | | Opaque, shadow, light source. | | [Y3 Vocabulary Light - Teaching resources (wordwall.net)](https://wordwall.net/en-gb/community/y3/vocabulary/light) |
| **Outcomes / evidence of learning**  What recording / outcomes will evidence the children’s learning? What will the children make / write / do? | Children identify and record some light sources. Talk about their own experiences of dark, such as places that are dark, or times that it is dark. Can we see in the dark? Investigate.  Show ch a simple obstacle course. Ch navigate their way across it conventionally. Then blindfold children and ask them to navigate across the obstacle course without the sense of vision. Clarify that darkness is the absence of light and light is necessary to visually observe objects. | Discuss the characteristics of reflective surfaces  What is a Mirror? Explain how mirrors are commonly made, and that the image in a plain mirror appears to be reversed.  Model how to use a mirror to reflect light onto a specific object. Allow children to explore this and discuss how the mirrors had to be angled to be effective  Mirror games  In the first game, children should use a mirror to write a short reversed message to their partner. They should then swap messages and try to decipher them with their mirrors.  Second game - Make a periscope (a reflection of a reflection!) | Give groups of ch a torch and challenge them to reflect the torch light from one surface to another. Explain that opaque objects block light, transparent objects let most light through and translucent objects let some light through. Reflective objects bounce the light waves back off that object. Ch investigate which objects are reflective and which aren’t.  Explain how reflection works. Investigate which colours do you think reflect most light? (white, light or fluorescent colours).  Design a safety vest. | | Identify that sunlight can be dangerous and therefore sunglasses are important for health and safety. Ch to research and report on animal and plant adaptations to bright light in environments with high levels of sun exposure (deserts, etc.) e.g. camels have adapted eyelids to protect against bright sunlight, elephants cover themselves in mud (as sunscreen). | | Show a sundial as an example of an opaque object casting a shadow as the source of light, The Sun, (appears to) moves in relation to the opaque object. Ch create their own sundials using simple opaque objects. Clarify that as the source of light moves the shadow moves accordingly. | | Ch make shadow puppets from opaque materials. Give ch torches and they investigate the changing shape of shadows as the opaque object moves in relation to the light source. Ch investigate which time of day shadows are shortest and longest. | |  |
| **How will this learning be supported beyond the classroom?**  A visitor/trip/other sparkle/home learning |  |  | Home learning – find examples outside of school which use reflection. | |  | | Shadow puppet workshop – retelling a Roman story. | |  | |  |
| **TA support**  How will TAs /additional adults support learning? | **For all lessons:** Pre-teach the key vocabulary to targeted children prior to the lesson; produce visual cues for vocabulary for support in the lesson during teaching to sequence learning parallel to children | | | | | | | | | | |
| Whilst investigating light sources in the school, act as a scribe to allow for focus to be on discussion with children. |  |  | |  | |  | |  | |  |
| **Opportunities for checking and supporting recall/AfL**  How will you check that learning is happening?  How will you ensure it has been retained?  How will you make the learning memorable? | Ongoing: Science working wall that grows with exemplars of learning from each lesson. | Children can:  Explain why mirrors are good reflectors.  Use mirrors to reflect light onto different objects. Explain how mirrors work in different tasks. | Explain reflection.  Identify reflective materials.  Select the most reflective material for a purpose. | | Explain the benefits and dangers of the sun.  Explain about UV light and its dangers. Describe ways to protect our eyes from the sun. | | Explain how light travels. Sort different materials according to whether they are opaque, transparent or translucent. Use these materials in an investigation into different shadows | | Explain how a shadow is formed.  Plan and set up an investigation about the way shadows change size. Observe patterns in the way shadows change size. | |  |

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| **Prior Learning**  What prior learning will prepare them for this learning? | → | **Key Skills**  What will the children learn to do? | → | **Future learning**  How will this learning be built on?  How will this support future learning? |
| Geography – hot and cold parts of the world, location of the equator. | Recognise that they need light  in order to see things and that dark is the absence of light; | Recognise that light appears to travel in straight lines; |
|  | Notice that light is reflected  from surfaces | 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; |
|  | Recognise that light from the sun can be dangerous and that there are ways to protect their eyes; | 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; |
|  |  | Recognise that shadows are formed when the light from a light source is blocked by an opaque object; |  | Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. |
|  |  | Find patterns in the way that the size of shadows change. |  |  |