Medium Term Plan: Supporting Implementation of LTP/Progression Grid

Subject: – Science - Unit 5/6 Light Year A phase 2

NC/PoS:

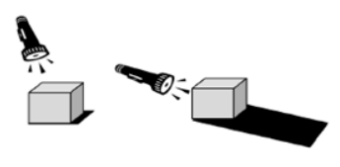
- recognise that they need light in order to see things and that dark is the absence of light
- notice that light is reflected from surfaces
- recognise that light from the sun can be dangerous and that there are ways to protect their eyes
- recognise that shadows are formed when the light from a light 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, protection, blocked, opaque, light rays, overhead, midday

Curriculum Connections

- Art: Using light and shadows in creative projects.
- Mathematics: Measuring shadow lengths. Time of day
- PSHE: Teaching safe practices to protect eyes from harmful light exposure. Laser pointers
- Dt: making a torch

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Career Opportunities • Optical Engineer: Develops optical instruments and lighting systems. • Lighting Technician: Designs lighting for events, film, and architecture. • Astronomer: Studies space • Physicist: Explores how the universe works, including matter, energy, space, and time.
Session 1: Recap: properties of materials –opaque, translucent, 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 Use of a black out tent Vocabulary: opaque, translucent, transparent
Session 2: Recap: what can you see in the absence of 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 Suggested activities: https://www.youtube.com/watch?v=01SAxjPZbRM examples of natural and artificial sources What sources of light are there in school? Sort a selection of objects into natural or artificial Vocabulary: natural sources, artificial light
Session 3: Recap: give three examples each of natural and artificial light sources 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 N.B. black objects absorb the most light so are not very reflective Vocabulary: reflected, absorb, reflective
Session 4: which materials/objects are good reflectors of light? Children learn the dangers of the sun 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 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: sunburn, protection

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