Samuel Allsopp
Primary & Nursery School

MEDIUM TERM PLAN

TERM: Autumn 2		YEAR GROUP: Year 6		SUBJECT: Science Light and Reflection	
WEEK 1 DATE:	**WEEK 2 DATE:**	**WEEK 3 DATE:**	**WEEK 4 DATE:**	**WEEK 5 DATE:**	**WEEK 6 DATE:**
LO: To describe the pathway of light**.** **Working scientifically:** To use evidence to form conclusions. **Success Criteria:** I can compare sources of light. I can describe how light travels. Working scientifically: I can make observations about the properties of light. Working scientifically: I can use my observations as evidence to support conclusions about light. **Main Event:** In pairs, children to complete the 'what do we need to see' activity. Children to complete the 'Can light bend' activity. Teacher to demonstrate. Children to draw one diagram based on an observation from the lesson to support their written conclusion. **Support:** Could use the Activity: Prompts to conclude about light to support their summary of their observations and why it is useful evidence. **Challenge:** Should consider how the materials of the equipment may impact the outcome of the results, for example, choosing a transparent material would mean that the alignment of the light source does not matter as much as light can still reach the final surface.	**LO:** To describe how we see. Working scientifically: To draw scientific diagrams. **Success Criteria:** I can describe how we see luminous objects. I can describe how we see non-luminous objects. I can explain how the eye is protected from light. Working scientifically: I can draw ray diagrams. **Main Event:** Children to have equipment in groups of four. Children to complete the 'How do we see' activity. Children to self and peer assess their diagrams against the criteria. **Support:** Could use the Resource: Drawing a ray diagram as a model example when completing the Activity: How do we see? **Challenge:** Should try to explain, verbally or with diagrams, why animals such as rabbits have eyes on the side of their head and how this affects their vision.	**LO:** To explain how shadows change. **Working scientifically:** To pose questions. **Success Criteria:** I can recall factors that affect the size of a shadow. I can describe how the distance between an object and the surface its shadow is cast on affects the size of the shadow. I can use ray diagrams to explain why shadows change size. I can use ray diagrams to explain why the shape of a shadow matches the object that cast it. Working scientifically: I can pose testable questions in response to observations. **Main Event:** Children to investigate 'How does the distance between the object and the surface affect the size of the shadow?' Children to complete the activity: Measuring shadows results (one each) and the experiment equipment. Children to use the data to write a conclusion on the Activity: Measuring shadows results sheet. **Support:** Could watch the Pupil video: Measuring shadows that is set to play on a loop to support following the method; could use the Activity: Measuring shadows results: support version to reduce written work and support drawing ray diagrams that explain the observed relationship. **Challenge:** Should describe what affects whether a shadow appears clear or blurry at the edges; could try to explain why some shadows have blurry edges; should suggest ways of improving the method to improve the quality of results.	**LO:** To investigate what affects the angle of the reflected ray. **Working scientifically:** To record results as a line graph. **Success Criteria:** I can recall what happens to light when it reaches a smooth mirror surface. I can identify the incoming and reflected rays. I can describe the relationship between the angles of the incoming and reflected rays. Working scientifically: I can record my measurements as a line graph. Working scientifically: I can use my line graph to extrapolate data and make predictions about missing values. **Main Event:** Children to measure the angle of the incoming and reflected rays on the activity sheet and record the results in the table at the bottom. Teacher demonstrations. **Support:** Should use the Activity: Investigating reflected light: support version when measuring the angles and writing their conclusion; could review how to use a protractor before the lesson. **Challenge:** Should consider how alternative materials to the mirror (like paper or crinkled foil) could affect the reflection relationship observed, for example, the paper is not shiny so it does not reflect light uniformly, or the foil is not smooth so light will be reflected in different directions; could answer how this rule of reflection can be useful to us; should compare the demonstrations of light through a piece of hose and light passing through a stream of water.	**LO:** To explain how a periscope works. **Success Criteria:** I can use mirrors to make a working periscope. I can describe the journey light makes through a periscope. I can use ray diagrams to explain how a periscope works. **Main Event:** Arrange the children into groups of three. Explain that each group will make a periscope which they will use to relay information from the board to their team waiting in a 'trench'. Children to look over the trench and compare their recorded information to the source information on the board. **Support:** Could use slide 5 of the Presentation: Looking around corners to support construction, or a pre-built periscope as a model to work from when making their own; should use the Activity: Periscope outline to support summarising how periscopes work. **Challenge:** Should be offered junk modelling materials to design their own periscope structure; could evaluate the strengths and weaknesses of their design, while suggesting improvements.	**LO:** To explain how mirrors are helpful. **Science in action:** To explore different jobs or inventions that depend on reflection. **Success Criteria:** To recall a range of uses of mirrors and reflection. To describe how a mirror is used to reflect light in different situations. To explain how light is reflected using knowledge of light and reflection. Science in action: To recall various jobs or inventions that use mirrors and reflection. **Main Event:** Children to work in groups to demonstrate one of these uses of mirrors in a creative way, which could be: A dramatic re-enactment, a song, an advert for the mirrors used in the chosen scenario or a poem. Children to perform for the class. **Support:** Should use the Resource: Light and reflection knowledge organiser as a prompt sheet to help summarise how reflection occurs; could write an acrostic poem that spells out 'reflection' for the Main event activity. **Challenge:** Should evaluate how useful mirrors are in each scenario, considering advantages and disadvantages; could think of a unique use of a mirror to summarise; should draw comparisons that include similarities and differences between the uses of mirrors.

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