

**Pioneer Federation**  
**Medium term plan**  
**LKS2 Cycle 2, Term 1**  
**D.T**



Subject: D.T			
Key Concept/ Theme: How has electricity improved our lives?			
Prior Learning links: Cycle 1 Energising Engineers and Incredible Inventions- Technical design.			
Vocabulary: LED, resistor, circuit, structure, assemble , evaluate, light, bulb, neon, sign, battery, switch			
School specific areas to cover (Add in any local areas of study, trips and people)			
CP	EH	SMV	PM
1.	<p>Prior learning reconnection (year group, cycle &amp; term): 3/4 Cycle 1 Term 1  LO: <b>Today I am learning about signs and their design features.</b>  Activity: Show a variety of illuminated signs, advertisement hoardings, information boards etc. What are the purposes of illuminating these signs? Think, pair, share, and then show some suggested reasons. Show the slides explaining how some common illuminated signs work, e.g. lightboxes, neon signs, front lit signs, back-lit signs and bulb lettering (like fairground illuminations or theatre marquees).Although often used for advertising and information, illuminated signs can be decorative, too! Show some examples of domestic light-up signs and lightbox lamps. Do you know how to make an electric circuit with one lightbulb? Show a set of electrical components, separated. Challenge children to draw them connected as they think they should be, then show a correctly drawn circuit. Show an illustration of a basic box/enclosure in the shape of a letter 'T'. How could we fit a series circuit with 3 lightbulbs inside this shape? How could we hide some of the wiring? Think, pair, share, then show  Future learning links: Electrical circuits</p>		
2	<p>Reconnection: What different types of signs are there? How are they illuminated?  LO: <b>Today I am designing my light up box</b>  Activity: What do we use signs for? Challenge children to decide the purpose of each of the three signs shown. Apart from signs for information, instructions or advertising, can you think of any other purposes of signs? Briefly discuss, then explain that lots of people like to have decorative signs in their homes. Some are illuminated, too. Explain that today we are going to design decorative, illuminated lights for someone's home. Show some questions for children to consider and discuss, relating to the product's audience and purpose. Optionally, note some ideas on the space provided on the slide Show children various electrical components that they may use in their design. Which of these would you want to 'hide' in your product? Which would you want to show? Why? Discuss. Explain that children must design a 'light box' light, i.e. a cuboid shape with the light source inside it. Allow time for children to read the design criteria listed on the slide and ask any relevant questions. Show some examples of ways in which light boxes may be constructed. Ask children to consider where they might fit electrical components inside these types of light box, and how they might include text in their design. For example, some children may realise that they could include 'silhouette' text by placing dark lettering on the translucent surface of a light box, so light shines around the letters. Others may suggest putting lettering inside a light box, with bulbs or LEDs illuminating its interior Show some more specific questions about designing light box signs for children to discuss.</p>		

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3 and 4	<p>Reconnection: What are the important design features of signs?</p> <p>LO: <b>Today I am making my own light up box.</b></p> <p>Activity: Today we will be making the enclosure for a decorative, illuminated light box sign. If you have taught the previous lesson in this Complete Series, instruct children to get out their designs. Show the slides challenging children to consider and discuss how either scrap materials or 'new' materials may be used to construct a light box sign. Depending on your design, your light box frame will also need 'cladding' on some of its sides. What materials could you use to cover your frame? Discuss, then show three examples: card, foam board and balsa wood. Take a minute to discuss some pros and cons of each material.</p> <ul style="list-style-type: none"><li>• Depending on your design, your light box will have text or lettering on the inside or outside. The slide shows questions about adding text for children to discuss. You may wish to define the words 'transparent', 'translucent' and 'opaque'.</li><li>• How can we work safely? No additional information is given on the last slide, as you will have to explain how to work safely with the resources you have, or select, for use with your class.</li><li>• If you are doing the Main Activity, below, demonstrate techniques for measuring, marking, cutting and gluing wooden box section to make a frame. Stop periodically during the making session to demonstrate additional techniques such as painting the inside of the box white to reflect light.</li></ul>
5	<p>Reconnection: What materials did you select for your design? Why did these suit the design brief?</p> <p>LO: <b>Today I am evaluating my light up box.</b></p> <p>Activity: Each child to be given a post it note and add feedback to a peer's product. Next, explain the importance of evaluation in design and how it helps to improve the product. Finally, the children are to complete an evaluation of their product. Provide model questions to discuss.</p> <p>What do I like about my project?</p> <p>What did I have to change from my original plan?</p> <p>Which part do I think worked particularly well?</p> <p>Are there any areas I would change?</p> <p>What might I do differently if I were to do this project again?</p> <p><b>End of unit quiz</b></p>
<p><b>End points:</b></p> <p>To know that materials can be joined and connected in different ways.</p>	