Elm, Maple, Walnut
Bright Sparks

Lesson	IPC Learning Goal	NC Coverage	Activities	Resources / Vocabulary / Personal Goals
Entry Point		Before the session: Before the session begins, put out all the resources needed to build different circuits. If possible, also put out electrical games (buzz wire games, Operation game – see Weblinks for ideas), remote-controlled toys, a plug and screw-driver. Put the question sheets, sticky-notes and pencils with each different exploring table (circuits, games, remote-controlled toys, plugs with screwdriver). Activities: Do this independent activity first, before any whole class teaching When chn arrive in class, explain that they are beginning the session by playing with the resources set out within the classroom. Each table has a question and some sticky-notes, explain that they should try to answer the question on a sticky-note, and should leave the sticky-note with the question page. Chn begin to explore the resources and games within the classroom. Allow them time to 'play' with everything. Ideally, have the class in groups that move around the different resources so that chn have an equal opportunity to explore everything. Move between the chn and listen to their talk. Jot down any misconceptions they may have or any understanding of electricity they already have. Use this to begin to inform the initial baseline assessment, and to judge progress by the end of the topic. What do you think our next science topic will be about? Hopefully most children will identify that it is electricity. Ask chn to discuss with the person next to them what they already know about electricity. Chn to jot down 1 or 2 things they know on a sticky-note and share with the class. Collect the sticky notes for class display and use to inform initial assessment. Watch the short *'What is electricity'* video on BBC Bitesize. Explain that we will be focusing on energy from batteries and mains electricity. Put these two as headings on a flipchart. With a partner, chn are to discuss then write the name of an appliance (found at home) that gets its energy from mains electricity on a sticky note and add it to that side of the flipchart. Read the responses aloud. Can they think of any more? Repeat with devices that run on battery power.	
Knowledge Harvest		Recall the entry point. Sometimes we just put a plug in a socket, flick a switch and a light comes on. Simple. But how does the socket and the switch work? What's going on inside the socket and switch? Electricity! Write this word on the board in huge letters. Ask, what is this thing we call 'electricity'? Can we see it? Can we smell it? Can we touch it? (No, we shouldn't touch it!) Is it magic? Long ago people used to think it was mysterious – this was before we knew what electricity was. Ask the children to name and make a list of common appliances that run on electricity (e.g. TVs, refrigerators, computers, mobile phones, etc). Who can make the longest list? Challenge the children, in groups, to list all the electrical appliances they can think of that are found in the home and at school. Sit the children in groups and give each group a statement, at random, about electricity – the statement could be written on a card (you could cut these in the shape of light bulbs) or sticky note. Ask each group to first discuss and then decide whether they think the statement is true or false. The children should be able to explain their decision to the rest of the class. Make a list of 'true', 'false' and 'don't know' statements and display these as your knowledge harvest.		

		Expand on these statements to make a class mind map about electricity. You could use mind-mapping software such as Inspiration 9 (inspiration.com/Kidspiration) or 2connect (2simple.com), or download free software from the following website: Finally, you should ask the children what they themselves would like to know about electricity. They could write out their questions and then add them to the mind map. Display the mind map as your knowledge harvest in a place that is easily accessible to the children so they can add further pictures, ideas and information as the unit progresses.		
Big Picture		Electricity is an energy that flows along wires in our homes, schools, offices, towns and cities to power lights, televisions, computers, cars and trains, and hundreds of other things that we use every day. Let's find out what we can do with electricity.		
Science 1 (SJ)	2.01a Be able to carry out simple investigations 2.01b Be able to prepare a simple investigation which is fair, with one changing factor 2.01c Be able to predict the outcome of investigations 2.01d Be able to use simple scientificequipment 2.01e Be able to test ideas using evidence from observation and measurement 2.01f Be able to link evidence to broader scientific knowledge and understanding 2.01g Be able to use evidence to draw conclusions		WALT: Understand how electricity works Display and discuss the PowerPoint of 'Understanding electricity.' Task: LA and MA – Provide children with 'electric circuits; activity sheet to label. HA - Written explanation of how it works with key to electrical symbols.	PowerPoint Activity sheets
Science 2 (SJ)	2.01a Be able to carry out simple investigations 2.01b Be able to prepare a simple investigation which is fair, with one changing factor 2.01c		WALT: Identify and name objects which require electricity to function. Find objects around the school/classroom/ home that need electricity. Are there any objects who can run without electricity? Name them. LA and MA – Draw and label objects that need electricity and those who don't.	PowerPoint Activity sheet

	Be able to predict the outcome of investigations 2.01d Be able to use simple scientificequipment 2.01e Be able to test ideas using evidence from observation and measurement 2.01f Be able to link evidence to broader scientific knowledge and understanding 2.01g Be able to use evidence to draw conclusions		HA - Create a table of objects that run on electricity and those that don't	
History 1 (SJ)	2.04 Be able to give some reasons for particular events and changes 2.05 Be able to gather information from simple sources 2.06 Be able to use their knowledge and understanding to answer simple questions about the past and about changes 2.07 Understand that the past can be considered in terms of different time periods		WALT: Research famous scientists First show the children images of famous scientists. Who knows them? What were they famous for? Display and discuss 'famous Irish scientists' PowerPoint. Look at the lives and work of Benjamin Franklin, Nikola Tesla, Michael Faraday or Elon Musk. Task: children research and make notes of their favourite famous scientist.	PowerPoint of Famous Irish Scientists. Laptops Template for famous scientist notes.
History 2 (RW)	2.04 Be able to give some reasons for particular events and changes 2.05 Be able to gather information		**WALT: Identify how electricity changed Britain** Have we always had electricity? What did we use as a source of energy before?	https://www.youtube.com/watch?v=F_o0_Qel9QU Timeline Thomas Edison PowerPoint

	from simple sources 2.06 Be able to use their knowledge and understanding to answer simple questions about the past and about changes 2.07 Understand that the past can be considered in terms of different time periods		Watch the clip from Downton Abbey. Why is Carson (the man) so shocked? What sort of time do we think this was set in? Show chn a timeline of the invention of electricity. What was the main event? Who were the main inventors? LA – Have a picture of a pre-Victorian home without any electricity and a modern home and chn to write some comparative statements about the homes. Scaffold sentences for them. MA – Write a comparative paragraph about two homes, modern day and pre-Victorian without electricity. HA – chn to write a diary entry as a Victorian child, who has time travelled into 2020. Model for them first.	
Technology 1 (RW)	2.02 Be able to design and make products to meet specific needs 2.03 Be able to make usable plans 2.04 Be able to make and use labelled sketches as designs 2.05 Be able to use simple tools and equipment with some accuracy 2.07 Be able to identify the ways in which products in everyday use meet specific needs		**WALT: Design and make a product which include electrical components.** Design a cardboard box to look like a house and add a doorbell and lighting with a switch. Children to label the components and ensure the circuit will work.	
Technology 2 (RW)	2.02 Be able to design and make products to meet specific needs 2.03		WALT: Design and make a product which includes electrical components.	

	Be able to make usable plans 2.04 Be able to make and use labelled sketches as designs 2.05 Be able to use simple tools and equipment with some accuracy 2.07 Be able to identify the ways in which products in everyday use meet specific needs		Create the house from the previous lesson's design.	
Technology 3 (RW)	2.02 Be able to design and make products to meet specific needs 2.03 Be able to make usable plans 2.04 Be able to make and use labelled sketches as designs 2.05 Be able to use simple tools and equipment with some accuracy 2.07 Be able to identify the ways in which products in everyday use meet specific needs		WALT: Design and debug programs that accomplish specific goals. Lego robots – make the goal keeper and create a programme to run the keeper.	
Technology 4 (RW)	2.02 Be able to design and make products to meet specific needs 2.03 Be able to make usable plans 2.04 Be able to make and use labelled sketches as designs		WALT: Design and debug programs that accomplish specific goals. Lego robots - Goal Keeper extension – use the sensor to create noise when a goal is scored.	

	2.05 Be able to use simple tools and equipment with some accuracy 2.07 Be able to identify the ways in which products in everyday use meet specific needs			
International 1 (SJ)	2.01 Know about some of the similarities and differences between the different home countries and between them and the host country 2.02 Know about ways in which these similarities and differences affect the lives of people 2.03 Be able to identify activities and cultures which are different from but equal to their own		WALT: justify our opinions using evidence. Look at the differences in people's lifestyles around the world and how they use electricity. Debate ' are we more developed because we have more electrical items?'	
Exit point		-	Children to be given a modern day electrical invention. They have 15mins to create a presentation which explains how that invention has changed the lives of modern day people, and present to the class. Children to go back to their knowledge harvest and add in things that they have learnt.	