



Example Scheme of Work – MKSHK Year 3 Science

Teacher		Prep	Year	3	No of pupils		Subject	Science	
Topic	Electricity						No. of lessons	5	
About this Unit	<p>Pupils should be taught to: identify common appliances that run on electricity; construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers; identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery; recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit; recognise some common conductors and insulators, and associate metals with being good conductors.</p>								

Lesson	Learning <i>(what is to be learnt and the evidence of the learning)</i>	Learning Activities <i>(the planned activities/tasks to develop knowledge, skills and understanding in the subject)</i>	Differentiation <i>(learning activities/ resources/tasks to support and extend learners)</i>	Assessment Opportunities/AfL <i>(method of identifying achievement/assessment strategies to move learning forward)</i>
1	To recap knowledge of electricity and circuits.	<p>What do you already know about electricity? Children to think, pair, share their ideas then list on the slides.</p> <ul style="list-style-type: none"> • Provide children with mini-whiteboards or pieces of scrap paper and ask them to write down a definition for each of the words relating to electricity as shown on the slides in pairs. When children have had • some time to do this, go through their ideas and then check against the descriptions on the slides. • Show children the picture of the torch on the slides. What components would this torch need to work? • Children to suggest ideas then go through on the slides. • Show children the picture of a series circuit and a parallel circuit on the slides. What is the difference between these two circuits? Children to discuss ideas as a class then go through the information about series and parallel circuits on the slides and some of the different ways in which each are used. 	<ul style="list-style-type: none"> • outcome (learning objective) • task • process (the method of teaching) • pupil grouping • tailoring the content of the lesson for the individual (personalised learning agenda) • provision (access to specialists) • choice and self- 	<p>Do children know what the main components of a circuit are?</p> <p>Do children recognise what the difference between a series and a parallel circuit is?</p> <p>Can children draw and/or construct working circuits?</p>

		<ul style="list-style-type: none"> • Provide children with wires, motors or bulbs, batteries and switches in small groups. Challenge children to create various series circuits and parallel circuits using the components they have been given. If • necessary, provide children with the Circuit Cards to copy. Challenge children to think about questions such as: Does the order in which you place the components matter? What might these circuits be used for? • Children to draw each of the circuits they have created on a large sheet of paper and annotate each diagram. • When all groups have finished, invite each group to share their work with the rest of the class. What did you find out? Are all the circuits we created the same? Are there different ways of making the same • circuit? Discuss ideas as a class. 	<p>direction</p> <ul style="list-style-type: none"> • learning style 	
2	To investigate ways in which the brightness of a bulb or speed of a motor is changed.	<p>Provide children with wires, batteries, bulbs and/or motors and switches and give them some time to investigate how to make the bulbs brighter and/or the motors speed up or slow down. Remind children not to use too many batteries or the components will blow out. If children are struggling for ideas to test, cut out the Question Cards and leave them on the tables for children to test one at a time.</p> <ul style="list-style-type: none"> • EXTEND - challenge children to investigate whether the effects are the same in series circuits and parallel circuits. • Children to write up their findings 		<p>Do children know that the brightness of a bulb or the speed of a motor can be changed in a circuit?</p> <p>Do children know that the brightness of a bulb or speed of a motor depends on how much power is supplied to each component?</p> <p>Do children know that bulbs and motors will blow out if too high a voltage is used?</p>
3	To be able to recognise and use conventional symbols for circuits.	<p>Provide children with batteries, bulbs, wires, buzzers, motors and switches in pairs or small groups and ask them to create each of the circuits shown on the Circuit Cards. Children could take a photo of the circuits they have created to match to the circuit drawn using conventional symbols. This could then be used as a display or each group could create a poster showing what the different circuit symbols mean and how they can be fitted together to make diagrams of circuits.</p>		<p>Do children know why symbols are used to draw circuit diagrams?</p> <p>Can children recognise the symbols for various common circuit components?</p> <p>Can children use conventional circuit symbols to draw and/or construct circuits?</p>
4	To be able to plan, carry out and evaluate an experiment to see how changing the wire in a circuit	<p>Eric the Electrician has been asked by his boss to investigate the best kind of wire to use to make bulbs as bright as possible. He has asked him to find out whether the length of the wire affects the brightness, whether the thickness of the wire makes a difference and whether it makes a difference what the wire is made of. How could we test one</p>		<p>Do children know that the brightness of the bulb in a circuit can be altered by changing the wires?</p>

	affects the brightness of a bulb.	<p>of these questions to help Eric out? Invite children to share their ideas.</p> <ul style="list-style-type: none"> • Display one of the questions on the board: How does the thickness of the wire affect the brightness of the bulb? How would we carry out this experiment? How could we make sure it was a fair test? How could we make this as accurate as possible? How will we judge the brightness of the bulbs? Children to share their ideas. • Explain that usually you have to be very careful not to touch electrical wire as it can be very dangerous • but that the wire we will be using today (fuse wire) is safe because it is thin and because the batteries we will be using do not give out much power. 		<p>Can children suggest questions to investigate, decide what to do and what equipment to use to test the question?</p> <p>Can children make fair comparisons and draw conclusions from their results?</p>
5	To be able to review and assess understanding of circuits.	<p>Tell children that their challenge today will be to use what they have learnt about electricity and circuits to create a circuit for a particular use. Can you think of anything you could make using a circuit? Discuss ideas.</p> <ul style="list-style-type: none"> • If necessary, provide children with the Challenge Cards to give them ideas for useful products to make. • Provide children with wire, buzzers, motors, bulbs, batteries, etc. and challenge them to create their circuits. Children could design their products on worksheet 5C. • When children have created their products, give them some time to go around the class looking at what others have made. Do the circuits work well? 		<p>Can children recall information they have found out about circuits and electricity?</p> <p>Can children answer questions to demonstrate their knowledge?</p> <p>Can children convey knowledge of circuits in a variety of ways?</p>

