| **Science Year 6 Medium Term Planning – Advent 1: Electricity and Animals including humans** |
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| **National Curriculum**Electricity* associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
* compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches use recognised symbols when representing a simple circuit in a diagram

Animals including humans* identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
* recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
* describe the ways in which nutrients and water are transported within animals, including humans
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| **Prior vocabulary knowledge**circuit,circuits, current, conduct/conductor, insulate, insulator, insulationskeleton, muscles digestion nutrition oxygen |
|  | Lesson 1 | Lesson 2 | Lesson 3 | Animals including humans Lesson 4 | Lesson 5 | Lesson 6 |
| **Learning intention** | What is electricity? How does it work? Do it - How do we build and represent a series circuit?  | What are the components in a series circuit? Test it - How does the number of cells and voltage affect components in a circuit? | Diagnose it – what are the effects and consequences of changing circuit components and batteries?ENRICHMENT | What is blood made of and why do we need it? | Why do our bodies need nutrients and how are they transported?  | What is our circulatory system? |
| **Working Scientifically** | Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. | Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables scatter graphs, bar graphs and line graphs | Using test results to make predictions to set up further comparative and fair tests.reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations. | Researching from secondary sources. | Recording data and results of increasing complexity, using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. | Identifying scientific evidence that has been used to support or refute ideas or arguments. |
| **Recall and retrieval** | CQ: 1-11 | CQ: 12-18 | CQ: 19-21 | CQ: 1-6 | CQ: 7-8 | CQ: 9-13 |
| **Sequence of knowledge throughout the lesson** | **Key knowledge**To know the power source gives energy to electrons (potential difference) and this can make them move around the circuit (current) To know what conductors and insulators are and examples of both.To know how energy is transferred in a circuit. | **Key knowledge**To demonstrate knowledge of circuits and symbols by drawing and labelling a circuit when investigating how the number of batteries and potential difference affect the components in a circuit.To know what a series circuit is. | **Key knowledge**To know:open circuitsclosed circuitssingle looped circuits.To predict and investigate using electrical knowledge to answer a question.To identify potential differences. | **Key knowledge**To know the components of blood cells.To know that plasma is mainly water and a liquid that blood cells are suspended in and waste is carried.To know the function of red blood cells.To know the role of red blood cells in respiration.To know the function of white blood cells and how and where they are made in the body. To know the role of platelets.To know fibrin bonds platelets together. | **Key knowledge**To know that cells in our bodies need to grow, feed and MULTIPLY.To know that nutrients feed cells through the cell membrane.To know the meaning and function of respiration.To know food must be a liquid for cells.To know blood is mostly water that carries red and white blood cells, platelets and nutrients.To know that plasma carries other nutrients.To know the important nutrients. | **Key knowledge**To know the origin of the word circulatory.To know the parts of the circulatory system.To know why some parts of the circulatory system are coloured blue and some are red.To know the pathway blood takes around our bodies. |
| **Scaffolding** | Peer support and discussion. Matching labels to atom parts. | Peer support and discussion. Match labels and parts. | Peer support and discussion.Simple investigation question. | Peer support and discussion.word mat | Peer support and discussion.Label diagrams.Initial letter for important nutrients. | Peer support and discussion.To label the circulatory system. |
| **Challenge** | Predict and investigate rearranging a circuit. | Predict, test and answer a question related to the changes in a circuit. | To answer a what happens if question- to investigate increasing power or amount of items requiring power. | To explain the role of red and white blood cells and what happens if they are low. | Explain the role of nutrients and their importance in our bodies and blood cells. | To explain how the heart and lungs are key organs in the circulatory system. |
| **Tier 2 vocabulary** | componentsconsequencesystematicrepresentsourcegenerate | componentsconsequencesystematicrepresentsourcegenerate | componentsconsequencesystematicrepresentsourcegenerate | cellscirculationclotvessel | cellscirculation | circulationvesselsystem |
| **Tier 3 vocabulary** | protonneutronelectronterminalseries | protonneutronelectronterminalseries | protonneutronelectronterminalseries  | plasmaplatelets | plasmaplateletsveinscapillaryartery | veinscapillaryartery |