| NC Statement | Year 5 & 6<br>Electricity (Year A: Autumn Term, 1st half) | Lesson | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit | Investigate how the number/voltage of cells in a series circuit affects the brightness of one and more bulbs. | X | | | | | | |
| | Investigate how the number/voltage of cells effects how loud a buzzer buzzes. | X | | | | | | |
| | Investigate how the number/voltage of cells effects how fast a buzzer motor spins. | X | | | | | | |
| | Observe the effect of rotating the cell in a circuit – bulb (none), buzzer (doesn't work), motor (spins in the other direction). | X | | | | | | |
| | Understand that different components require different voltages to work and know where to find the voltage required. | X | | | | | | |
| | Know how to make a bulb light without a bulb holder. | X | | | | | | |
| | Understand how fuses work in appliances and know what a fuse cupboard is for in the home. | | X | | | | | |
| | Understand how light bulbs work, their structure and the development of the light bulb throughout history. | | X | | | | | |
| 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 | Understand how length of the wire affects bulb brightness. | | X | | | | | |
| | Know that some metals conduct electricity better than others. | | x | | | | | |
| | Know how to make a parallel circuit and in what circumstances you would make one. | | | X | | | | |
| | Use different switches that work in different ways. | | | X | | | | |
| | Know that batteries don't work as well over time. | | | X | | | | |
| | Use a voltmeter to measure current. | | | X | | | | |

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|---|---|---|---|---|---|---|---|---|
| | Choose an appropriate switch for a specific task. | | | | x | | | |
| | Make their own switches using an understanding of conductors. | | | | x | | | |
| | Use a circuit simulator and know the advantages of this over real equipment. | | | | x | | | |
| **use recognised symbols when representing a simple circuit in a diagram** | Make circuits from diagrams using conventional components. | | | | | x | | |
| | Draw circuit diagrams using the conventional symbols | | | | | x | | |
| **Electricity and the environment** | Know the impact that electricity consumption has on the environment and climate change. | | | | | | x | |
| | Know how consumers are charged for electricity. | | | | | | x | |
| | Know how to use less electricity. | | | | | | x | |
| | Know how to be safe with electricity. | | | | | | x | |
| | Non-renewable and renewable energy sources – advantages and disadvantages. | | | | | | | x |
| Working Scientifically | planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary | x | x | x | x | | | |
| | taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate | x | x | x | x | | | |
| | recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs | x | x | x | x | | | |
| | using test results to make predictions to set up further comparative and fair tests | x | x | x | x | | | |
| | 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 | x | x | x | x | | | |
| | identifying scientific evidence that has been used to support or refute ideas or arguments | | | | | | x | x |

| NC Statement | Year 5 & 6<br>Earth and Space (Year A: Autumn Term, 2nd half) | Lesson | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| describe the sun, Earth and moon as approximately spherical bodies | Know that Earth, Sun, Moon, dwarf planet Pluto and the other 7 planets are spherical. | X | | | | |
| describe the movement of the Earth and other planets relative to the sun in the solar system | Know the names of the planets and their order from the Sun. MVEMJSUNP | X | | | | |
| | Know the Sun is a star that the planets orbit. | X | | | | |
| | Know that the planets rotate as well as orbit. | X | | | | |
| | Know that the planets consist of inner rocky planets and outer gas giants with an asteroid belt in between. | X | | | | |
| | Know how far away from the Sun each planet is. | | X | | | |
| | Know how large the planets are and other significant features. | | X | | | |
| describe the movement of the moon relative to the Earth | Know that the planets have moons that orbit them including Earth. | | | X | | |
| | Know the names of some moons. | | | x | | |
| | Know how the moon orbits Earth – direction, rotation and length taken. | | | X | | |
| | Know the phases of the moon. | | | X | | |
| Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky | Understand that it is day when the Sun is shining on our part of Earth and night is when the Sun's light is not shining on us. | | | | X | |
| | Understand that the Earth's tilt is responsible for seasons. | | | | X | |
| | Understand that day length in winter and summer are caused by the distance between Earth and the Sun. | | | | X | |
| Other | Explore natural space phenomenon – nebulas, worm holes, stars, galaxies, comets, asteroids, shooting stars etc. | | | | | X |
| | Explore man-made objects in space – satellites, Space Station, debris etc. | | | | | X |
| | Know some well-known constellations and horoscope signs. | | | | | X |

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| | Space explorations throughout history. | | | | | X |
| | Famous astronauts. | | | | | X |
| Working Scientifically | planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary | x | x | x | x | x |
| | taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate | | | | | |
| | recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs | | x | x | x | x |
| | 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 | | | | | |
| | identifying scientific evidence that has been used to support or refute ideas or arguments | x | x | x | x | x |

| NC Statement | Year 5 & 6<br>Properties and changes of materials<br>(Year A: Spring Term) | Lesson | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and | Dissolving -know that some materials will dissolve in liquid to form a solution and some will not. | X | | | | | | | | | |
| | To recognise the solvent, solute and solution. | X | | | | | | | | | |
| | To know when a solution is saturated and what that means. | | x | | | | | | | | |

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| **response to magnets** | | | | | | | | | | | |
| **know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution** | To know that dissolving speed is increased with temperature, stirring and a weak solution. | | x | | | | | | | | |
| | To know that dissolving is a physical, reversible change. | | | x | | | | | | | |
| | To know that the solid can be recovered from a solution by evaporating the solvent. | | | x | | | | | | | |
| **use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating** | Filtering – to know that undissolved solids can be recovered by filtering. | | | | x | | | | | | |
| | To know that dissolved solids will pass through filter paper. | | | | x | | | | | | |
| **give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic** | Investigate properties of materials and the results to uses e.g. which material would be best as a sound insulator or which liquid makes the best solvent? | | | | | | | | | x | x |
| **demonstrate that dissolving, mixing and changes of state are reversible changes** | Separating - use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving, magnetism, dissolving and evaporating. | | | | | x | x | | | | |
| **explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda** | Irreversible changes - know that chemical changes are not reversible. | | | | | | | X | X | | |
| | To know that the formation of a new product, gas generation and heat are all signs of a chemical change. | | | | | | | X | X | | |
| | Know some common reactions – rust, plaster of Paris, bicarb and vinegar, chalk and vinegar etc. | | | | | | | X | X | | |
| | Know the uses of/damage caused by some chemical reactions. | | | | | | | X | X | | |

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| Working Scientifically | planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary | x | x | x | x | x | x | x | x | x | X |
| | taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate | x | x | x | x | x | x | x | x | x | X |
| | recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs | x | x | x | x | x | x | x | x | x | X |
| | using test results to make predictions to set up further comparative and fair tests | x | x | x | x | x | x | x | x | x | X |
| | 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 | x | x | x | x | x | x | x | x | x | X |
| | identifying scientific evidence that has been used to support or refute ideas or arguments | x | x | x | x | x | x | x | x | x | X |
| | | | | | | | | | | | |

| **NC Statement** | **Year 5 & 6<br>Living Things – humans, circulatory system, lifestyle choices<br>(Year A: Summer Term)** | **Lesson** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| **identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood** | Know some of the body systems and what they do: skeletal, muscular, nervous, digestion, circulatory, endocrine and reproductive. | X | | | | | | | | | |
| | To know the names of the bones of the skeleton – scientific. | | X | | | | | | | | |
| | To know how muscles work and be able to name some major muscles. | | | X | | | | | | | |
| | To remember the digestive system learnt in class 2. | | | | x | | | | | | |

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| **describe the ways in which nutrients and water are transported within animals, including humans** | To know the heart is made of muscle and its function is to pump blood around the body. | | | | × | × | | | | | | |
| | Know the structure of the heart and blood flow through it. | | | | | × | | | | | | |
| | To know the structure of arteries, veins and capillaries and their functions. Structure of blood. | | | | | | × | | | | | |
| **recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function** | To know how to keep our bodies healthy. | | | | | | | × | | | | |
| | To understand what a balanced diet is. | | | | | | | | | × | × | |
| | To understand the importance of exercise. | | | | | | | × | | | | |
| | To understand the effect on physical and mental health of legal and illegal drugs including medicine, caffeine, alcohol, smoking, vapes. | | | | | | | | × | | | |
| Working Scientifically | planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary | | | | | | | X | | | | |
| | taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate | | | | | | | X | | | | |
| | recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs | | | | | | | X | | | | |
| | using test results to make predictions to set up further comparative and fair tests | | | | | | | X | | | | |
| | 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 | | | | | | | X | | | | |
| | identifying scientific evidence that has been used to support or refute ideas or arguments | | | | | | | X | | | | |
| | | | | | | | | | | | | |

| NC Statement | Year 5 & 6<br>Forces (Year B: Autumn Term) | Lesson | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object<br><br>identify the effects of air resistance, water resistance and friction, that act between moving surfaces | Understand that gravity pulls objects towards Earth. | x | | | | | | | | | |
| | Know that the effect of gravity is different in different places such as in space or in water. | x | | | | | | | | | |
| | Imagine life without gravity. | x | | | | | | | | | |
| | Know that surface area and mass effect the speed at which an object falls. | | x | | | | | | | | |
| | Understand that air resistance and up-thrust work in the opposite direction to gravity and slow/stop the fall of objects. | | x | | | | | | | | |
| | Know that air resistance and water resistance are forms of friction. Friction occurs between moving objects. | | x | | | | | | | | |
| | Understand that it takes more energy/fuel to move through water and air if you present a large surface area first. Stream-lined and aerodynamic designs reduce friction. When nature is copied e.g. the shape of a diving bird it is called biomimicry. | | | x | | | | | | | |
| | Water resistance/upthrust - identify the effects of air resistance, water resistance and friction, that act between moving surfaces – streamline animals/man-made objects in water | | | | x | | | | | | |
| | Understand how weight distribution effects friction in moving objects. | | | | | x | | | | | |
| | Know situations in which friction is helpful (ice-skating) and unhelpful (door hinge). | | | | | x | | | | | |
| | Pulleys - recognise that some mechanisms, including levers & pulleys allow a smaller force to have a greater effect | | | | | | x | | | | |
| | Gears - recognise that some mechanisms, including gears allow a smaller force to have a greater effect | | | | | | x | | | | |
| | Build powered vehicles – elastic band boats, balloon cars, cars with circuits. | | | | | | | x | x | | |
| | Build trebuchets – investigate angles and trajectories. | | | | | | | | | x | |

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| | Identify all forces acting on an object. | | | | | | | | | | x |
| | Label diagrams with arrows representing the strength of a force and showing the direction in which it is moving. | | | | | | | | | | x |
| Working Scientifically | planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary | | x | | x | x | | X | x | x | |
| | taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate | | x | | x | x | | X | x | x | |
| | recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs | | x | | x | x | | X | x | x | |
| | using test results to make predictions to set up further comparative and fair tests | | x | | x | x | | X | x | x | |
| | 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 | | x | | x | x | | X | x | x | |
| | identifying scientific evidence that has been used to support or refute ideas or arguments | | x | | x | x | | X | x | x | |
| | | | | | | | | | | | |

| NC Statement | Year 5 & 6<br>Light and Sound (Year B: Spring Term) | Lesson | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| recognise that light appears to travel in straight lines<br><br>explain that we see things because light travels from light | To know the parts of the eye – external and internal and the functions of those parts. | X | | | | | | | | | |
| | Know that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Without light a person cannot see. | X | | | | | | | | | |

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| **sources to our eyes or from light sources to objects and then to our eyes** | Recognise that light appears to travel in straight lines and on diagrams it is drawn in pencil with a single arrow showing direction of travel. | × | | | | | | | | | |
| | To understand how reflectors work and how to be seen in the dark/dusk. | | × | | | | | | | | |
| **use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye** | To know the difference between a reflector and a reflection. | | × | | | | | | | | |
| | To investigate reflections. | | × | | | | | | | | |
| | Make kaleidoscopes to explore reflections. | | × | | | | | | | | |
| | Make and use a pin-hole camera and understand how it works. | | × | | | | | | | | |
| **use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them** | Understand how shadows are formed and factors that effect their colour, length and shape. | | | × | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Understand why shadows are different lengths during different seasons. | | | × | | | | | | | |
| | To investigate how the angle of the light source effects shadow length. | | | × | | | | | | | |
| | Understand that refraction is the bending of light. | | | | × | | | | | | |
| | Know how refraction and reflection differ. | | | | × | | | | | | |
| | To identify the point of incidence, angle of incidence, angle of refraction, incidence ray and refracted ray. | | | | × | | | | | | |
| | To know that light is refracted when it enters a second material e.g. going from air into water. | | | | × | | | | | | |
| | To know that refraction is caused by a change of speed of light. | | | | × | | | | | | |
| | To explore refraction. | | | | × | | | | | | |
| | Know that white light is made up of the rainbow colours and these can be seen if the white beam is split by passing it through materials such as water or glass. | | | | | × | | | | | |
| Sound | Know the parts of the ear – internal and external and how those parts work. | | | | | | × | | | | |

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| | Know how soundwaves travel and how to protect your hearing but using sound insulators. | | | | | | | x | | | |
| | Identify how to change the pitch of tuned instruments. | | | | | | x | | | | |
| | Recognise high-pitched sound waves travel further than low-pitched ones. | | | | | | | | x | | |
| | Label sound waves with amplitude, wavelength, frequency, time period and velocity. | | | | | | | | | x | |
| | Create tuned instrument and play them. | | | | | | | | | | x |
| Working Scientifically | planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary | | x | x | x | x | | x | x | | |
| | taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate | | x | x | x | x | | x | x | | |
| | recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs | | x | x | x | x | | x | x | | |
| | using test results to make predictions to set up further comparative and fair tests | | x | x | x | x | | x | x | | |
| | 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 | | x | x | x | x | | x | x | | |
| | identifying scientific evidence that has been used to support or refute ideas or arguments | | x | x | x | x | | x | x | | |
| | | | | | | | | | | | |

| NC Statement | Year 5 & 6<br>Living Things – life cycles, reproduction, evolution, inheritance<br>(Year B: Summer Term) | Lesson | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| describe the differences in the | Compare the life cycles of mammals and birds, amphibians and reptiles. | x | | | | | | | | | |

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| **life cycles of a mammal, an amphibian, an insect and a bird** | | | | | | | | | | | |
| **describe the life process of reproduction in some plants and animals** | Understand the difference between sexual and asexual reproduction. | | × | | | | | | | | |
| | Research gestation length in different animals. | | | × | | | | | | | |
| | Know the life cycle of non-flowering plants and plants that do not reproduce via pollination. | | × | | | | | | | | |
| **describe the changes as humans develop to old age** | Have an understanding of changes that happen to humans as they age. | | | × | | | | | | | |
| | Know how to look after yourself/others during each life stage. | | | | × | | | | | | |
| | To know some common misconceptions about each life stage. | | | | × | | | | | | |
| **describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals**<br><br>**give reasons for classifying plants and animals based on specific characteristics** | To know the Carl Linnaeus classification system of living things, naming living things in each group and knowing some of their characteristics. | | | | | × | | | | | |
| | Know helpful (bread-making, cheese making, antibiotics, beer, medicines) and harmful microorganisms (viruses and bacteria that cause illness). | | | | | | × | | | | |
| | Know how to be hygienic in the kitchen to prevent food poisoning. | | | | | | | × | | | |
| **recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago** | Know how fossils have formed. | | | | | | | | × | | |
| | Know what we can learn by looking at fossils. | | | | | | | | × | | |
| | Know different types of fossils, plant and animal fossils that have been found and important locations where fossils are found. | | | | | | | | × | | |
| | Know some famous palaeontologists and their discoveries. | | | | | | | | × | | |
| **recognise that living things produce** | Know that offspring inherit characteristics from both parents and are not identical to either. | | | | | | | | | × | |

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| **offspring of the same kind, but normally offspring vary and are not identical to their parents** | Know that some changes occur due to mutations. | | | | | | | | | x | |
| | Know that some characteristics are dominant and others are recessive. | | | | | | | | | x | |
| **identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution** | Understand how plants and animals adapt to their environment. | | | | | | | | | | x |
| | Know how characteristics can change due to Natural Selection. | | | | | | | | | | x |
| | Know how some animals have evolved over time – human, horse, peppered moth. | | | | | | | | | | x |
| | Be aware of studies carried out by naturalist, Charles Darwin – Galapagos finches and tortoises. | | | | | | | | | | x |
| Working Scientifically | planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary | | | | | | X | | | | |
| | taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate | | | | | | X | | | | |
| | recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs | | | | | | X | | | | |
| | using test results to make predictions to set up further comparative and fair tests | | | | | | X | | | | |
| | 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 | | | | | | X | | | | |
| | identifying scientific evidence that has been used to support or refute ideas or arguments | | | | | | X | | | | |
| | | | | | | | | | | | |