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| **Science Curriculum Overview** | | | | | | |
|  | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| **Y1** | Physics  Seasonal Change   * The four seasons * Seasonal weather | Chemistry  Everyday materials   * Properties of materials * Grouping materials | Biology  Animals including humans   * Human body and senses | Biology  Animals including humans   * Name common animals * Carnivores, Herbivores, Omnivores | Biology  Plants   * Plant structure | Biology  Plants   * Common plants |
|  | S1j. Name the seasons and know about the type of weather in each season  WS1c. Explain to someone what has been learned from an investigation  WS1f. Draw conclusions from the answers to the questions asked | S1h. Know the name of the materials an object is made from  S1i. Know about the properties of everyday materials  WS1b. Set up a test to see which materials keeps things warmest, know if the test has been successful and can say what has been learned  WS1d. Measures (within Year 1 mathematical limits) to help find out more about the investigations undertaken  WS1g. Know if the test has been successful and say what has been learned | S1d. Know the name of parts of the human body that can be seen  WS1d. Measures (within Year 1 mathematical limits) to help find out more about the investigations undertaken | S1c. Know how to sort by living and non-living things  S1a. Know how to classify a range of animals by amphibian, reptile, mammal, fish and birds  S1b. Know and classify animals by what they eat (carnivore, herbivore and omnivore)  WS1a. Ask questions such as:  Why do some animals eat meat and others do not? | S1f. Know and name the petals, stem, leaves and root of a plant  S1g. Know and name the roots, trunk, branches and leaves of a tree | S1e. Know and name a variety of common wild and garden plants  WS1a. Ask questions such as: Why are flowers different colours?  WS1e. Begin to gather and record simple data to help in answering questions. |
| **Y2** | Chemistry  Everyday materials   * Identify different materials * Name everyday materials * Properties of materials | Chemistry  Everyday materials   * Compare the use of different materials * Compare movement on different surfaces | Biology  Animals, including humans   * Animal reproduction * Healthy living * Basic needs | Biology  All living things and their habitats   * Alive or dead * Habitats * Adaptations * Food chains | Biology  Plants   * Plant and seed growth * Plant reproduction | Biology  Plants   * Keeping plants healthy |
|  | S2i. Know how materials can be changed by squashing, bending, twisting and stretching  WS2e. Classify or group things according to a given criteria | S2j. Know why a material might or might not be used for a specific job  WS2d. Know how to set up a fair test and do so when finding out about how seeds grow best  WS2g. Use measures (within Year 2 mathematical limits) to help find out more about the investigations they are engaged with | S2f. Know the basic stages in a life cycle for animals, (including humans)  S2g. Know why exercise, a balanced diet and good hygiene are important for humans  WS2f. Draw conclusions from fair tests and explain what has been found out  WS2g. Use measures (within Year 2 mathematical limits) to help find out more about the investigations they are engaged with | S2a. Classify things by living, dead or never lived  S2b. Know how a specific habitat provides for the basic needs of things living there (plants and animals)  S2c. Match living things to their habitat  S2d. Name some different sources of food for animals  S2e. Know about and explain a simple food chain | S2H. Know and explain how seeds and bulbs grow into plants  S2h. Know what plants need in order to grow and stay healthy (water, light & suitable temperature)  WS2d. Know how to set up a fair test and do so when finding out about how seeds grow best | WS2a. Ask questions such as:  Why do some trees lose their leaves in Autumn and others do not?  WS2b. Use equipment such as thermometers and rain gauges to help observe changes to local environment as the year progresses changes to local environment as the year progresses  *or:*  WS2c. Use microscopes to find out more about small creatures and plants |
| **Y3** | Physics  Light   * Reflections * Shadows | Chemistry  Rocks   * Fossil formation * Compare and group rocks * Soil | Physics  Forces   * Different Forces * Magnets | Biology  Animals including humans   * Skeleton and muscles * Nutrition * Exercise and health | Biology  Plants   * Basic structure and functions * Plant life | Biology  Plants   * Life cycle * Water transportation |
|  | S3o. Know that dark is the absence of light  S3p. Know that light is needed in order to see and is reflected from a surface  S3q. Know and demonstrate how a shadow is formed and explain how a shadow changes shape  S3r. Know about the danger of direct sunlight and describe how to keep protected  WS3b. Observe at what time of day a shadow is likely to be at its longest and shortest  WS3d. Use research to find out how reflection can help us see things that are around the corner  WS3a. Ask questions such as: Why do shadows change during the day?  WS3j. Measure carefully (taking account of mathematical knowledge up to Year 3) and add to scientific learning  WS3r. Make sense of findings and draw conclusions which help them to understand more about scientific information | S3g. Compare and group rocks based on their appearance and physical properties, giving reasons  S3h. Know how soil is made and how fossils are formed  S3i. Know about and explain the difference between sedimentary, metamorphic and igneous rock  WS3e. Use research to find out what the main differences are between sedimentary and igneous rocks  WS3a. Ask questions such as: Where does a fossil come from?  WS3p. Be confident to stand in front of others and explain what has been found out, for example about how the moon changes shape | S3j. Know about and describe how objects move on different surfaces  S3k. Know how a simple pulley works and use to on to lift an object  S3l. Know how some forces require contact and some do not, giving examples  S3m. Know about and explain how magnets attract and repel Predict whether magnets will attract or repel and give a reason  S3n. Predict whether magnets will attract or repel and give a reason  WS3q. Present findings using written explanations and include diagrams when needed  WS3r. Make sense of findings and draw conclusions which help them to understand more about scientific information  WS3s. Amend predictions according to findings  WS3t. Be prepared to change ideas as a result of what has been found out during a scientific enquiry | S3a. Know about the importance of a nutritious, balanced diet  S3b. Know how nutrients, water and oxygen are transported within animals and humans  S3c. Know about the skeletal and muscular system of a human  WS3g. Test to see if their right hand is as efficient as their left hand  WS3i. Explain to a partner why a test is a fair one e.g. lifting weights with right and left hand, etc.  WS3k. Use a thermometer to measure temperature and know there are two main scales used to measure temperature | S3d. Know the function of different parts of flowing plants and trees  WS3c. Observe which type of plants grow in different places e.g. bluebells in woodland, roses in domestic gardens, etc.  WS3m. Group information according to common factors e.g. plants that grow in woodlands or plants that grow in gardens  WS3l. Gather and record information using a chart, matrix or tally chart, depending on what is most sensible | S3e. Know how water is transported within plants  S3f. Know the plant life cycle, especially the importance of flowers  WS3f. Test to see which type of soil is most suitable when growing two similar plants  WS3h. Set up a fair test with different variables e.g. the best conditions for a plant to grow  WS3n. Use bar charts and other statistical tables (in line with Year 3 mathematics statistics) to record findings  WS3o. Know how to use a key to help understand information presented on a chart |
| **Y4** | Physics  Electricity   * Uses of electricity * Simple circuits and switches * Conductors and insulators | Physics  Sound   * How sounds are made * Sound vibrations * Pitch and Volume | Biology  Animals, including humans   * Digestive system * Teeth * Food chains | Biology  All living things and their habitats   * Grouping living things * Classification keys * Adaptation of living things | Chemistry  States of matter   * Compare and group materials * Solids, liquids and gases * Changing state | Chemistry  States of matter   * Water cycle |
|  | S4l. Identify and name appliances that require electricity to function  S4m. Construct a series circuit  S4n. Identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers)  S4o. Predict and test whether a lamp will light within a circuit  S4p. Know the function of a switch  S4q. Know the difference between a conductor and an insulator; giving examples of each    WS4p. When making predictions there are plausible reasons as to why    WS4q. Able to amend predictions according to findings    WS4r. Prepared to change ideas as a result of what has been found out during a scientific enquiry    WS4c. Use research to find out which materials make effective conductors and insulators of electricity  WS4k. Group information according to common factors e.g. materials that make good conductors or insulators | S4r. Know how sound is made, associating some of them with vibrating  S4s. Know how sound travels from a source to our ears  S4t. Know the correlation between pitch and the object producing a sound  S4u. Know the correlation between the volume of a sound and the strength of the vibrations that produced it  S4v. Know what happens to a sound as it travels away from its source  WS4a. Ask questions such as:  What do we mean by ‘pitch’ when it comes to sound?  WS4d. Carry out tests to see, for example, which of two instruments make the highest or lowest sounds and to see if a glass of ice weighs the same as a glass of water    WS4e. Set up a fair test with more than one variable e.g. using different materials to cut out sound    WS4g. Measure carefully (taking account of mathematical knowledge up to Year 4) and add to scientific learning | S4a. Identify and name the parts of the human digestive system    S4b. Know the functions of the organs in the human digestive system    S4c. Identify and know the different types of human teeth    S4d. Know the functions of different human teeth    S4e. Use and construct food chains to identify producers, predators and prey    WS4a. Ask questions such as:  Why is the liver important in the digestive systems?  WS4b. Use research to find out how much time it takes to digest most of our food | S4f. Use classification keys to group, identify and name living things    S4g. Know how changes to an environment could endanger living things | S4h. Group materials based on their state of matter (solid, liquid or gas)    S4i. Know the temperature at which materials change state    S4j. Know about and explore how some materials can change state    WS4a. Ask questions such as:  Why are steam and ice the same thing?  WS4f. Explain to others why a test that has been set up is a fair one e.g. discover how fast ice melts in different temperatures    WS4h. Use a data logger to check on the time it takes ice to melt to water in different temperatures    WS4i. Use a thermometer to measure temperature and know there are two main scales used to measure temperature | S4k. Know the part played by evaporation and condensation in the water cycle    WS4j. Gather and record information using a chart, matrix or tally chart, depending on what is most sensible    WS4l. Use bar charts and other statistical tables (in line with Year 4 mathematics statistics) to record findings    WS4m. Present findings using written explanations and include diagrams, when needed    WS4n. Write up findings using a planning, doing and evaluating process    WS4o. Make sense of findings and draw conclusions which helps them understand more about the scientific information that has been learned |
| **Y5** | Physics  Forces   * Gravity * Friction * Forces and motion of mechanical devices | Physics  Earth and Space   * Movement of the Earth and the planets * Movement of the Moon * Night and day | Biology  Animals, including humans   * Changes as humans develop from birth to old age | Biology  All living things and their habitats   * Life cycles – plants and animals * Reproductive processes * Famous naturalists | Chemistry  Properties and changes in materials   * Compare properties of everyday materials * Soluble/ dissolving | Chemistry  Properties and changes in materials   * Reversible and irreversible substances |
|  | S5l. Know what gravity is and its impact on our lives  S5m. Identify and know the effect of air and water resistance  S5n. Identify and know the effect of friction  S5o. Explain how levers, pulleys and gears allow a smaller force to have a greater effect  WS5b. Set up a fair test when needed e.g. which surfaces create most friction?  WS5d. Know what the variables are in a given enquiry and can isolate each one when investigating e.g. finding out how effective parachutes are when made with different materials  WS5f. Use other scientific instruments as needed e.g. thermometer, rain gauge, spring scales (for measuring Newtons)  WS5h. Make predictions based on information gleaned from investigations | S5p. Know about and explain the movement of the Earth and other planets relative to the Sun  S5q. Know about and explain the movement of the Moon relative to the Earth  S5r. Know and demonstrate how night and day are created  S5s. Describe the Sun, Earth and Moon (using the term spherical)  WS5m. Their explanations set out clearly why something has happened and its possible impact on other things | S5e. Create a timeline to indicate stages of growth in humans    WS5c. Set up an enquiry based investigation e.g. find out what adults / children can do now that they couldn’t when a baby  WS5j. Able to present information related to scientific enquiries in a range of ways including using IT such as power-point and iMovie  WS5k. Is evaluative when explaining findings from scientific enquiry  WS5l. Clear about what has been found out from recent enquiry and can relate this to other enquiries, where appropriate | S5a. Know the life cycle of different living things e.g. mammal, amphibian, insect and bird  S5b. Know the differences between different life cycles  S5c. Know the process of reproduction in plants  S5d. Know the process of reproduction in animals  WS5k. Use diagrams, as and when necessary, to support writing  WS5n. Able to give an example of something focused on when supporting a scientific theory e.g. how much easier it is to lift a heavy object using pulleys  WS5p. Able to relate causal relationships when, for example, studying life cycles | S5f. Compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets  S5g. Know and explain how a material dissolves to form a solution  S5h. Know and show how to recover a substance from a solution  S5i Know and demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating)  WS5a. Set up an investigation when it is appropriate e.g. finding out which materials dissolve or not  WS5e. Use all measurements as set out in Year 5 mathematics (measurement), including capacity and mass  WS5g. Able to record data and present them in a range of ways including diagrams, labels, classification keys, tables, scatter graphs and bar and line graphs | S5j. Know and demonstrate that some changes are reversible and some are not  S5k. Know how some changes result in the formation of a new material and that this is usually irreversible  Able to record data and present them in a range of ways including diagrams, labels and classification keys  WS5q. Frequently carry out research when investigating a scientific principle or theory  WS5i. Create new investigations which take account of what has been learned previously |
| **Y6** | Physics  Electricity   * Electrical components * Simple circuits * Fuses and voltage | Physics  Light   * How light travels * Reflection * Ray models of light | Biology  Animals, including humans   * The circulatory system * Water transportation * Impact of exercise on body | Biology  All living things and their habitats   * Classification of living things and the reasons for it | Biology  Evolution and inheritance   * Identical and non-identical off-spring * Fossil evidence and evolution | Biology  Evolution and inheritance   * Adaptation and evolution |
|  | S6m. Compare and give reasons for why components work and do not work in a circuit  S6n. Draw circuit diagrams using correct symbols  S6o. Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer  WS6d. Know what the variables are in a given enquiry and can isolate each one when investigating  WS6e. Justify which variable has been isolated in scientific investigation  WS6j. Use a range of written methods to report findings, including focusing on the planning, doing and evaluating phases | S6p. Know how light travels  S6q. Know and demonstrate how we see objects  S6r. Know why shadows have the same shape as the object that casts them  S6s. Know how simple optical instruments work e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.  WS6b. Set up a fair test when needed e.g. does light travel in straight lines?  WS6h. Make accurate predictions based on information gleaned from their investigations and create new investigations as a result  WS6f. Use all measurements as set out in Year 6 mathematics (measurement), including capacity, mass, ratio and proportion  WS6m. Aware of the need to support conclusions with evidence | S6a. Identify and name the main parts of the human circulatory system  S6b. Know the function of the heart, blood vessels and blood  S6c. Know the impact of diet, exercise, drugs and lifestyle on health  S6d. Know the ways in which nutrients and water are transported in animals, including humans  WS6a. Know which type of investigation is needed to suit particular scientific enquiry e.g. looking at the relationship between pulse and exercise  WS6g. Able to record data and present them in a range of ways including diagrams, labels, classification keys, tables, scatter graphs and bar and line graphs  WS6c. Know how to set up an enquiry based investigation e.g. what is the relationship between oxygen and blood?  WS6d. Know what the variables are in a given enquiry and can isolate each one when investigating  WS6e. Justify which variable has been isolated in scientific investigation | S6e. Classify living things into broad groups according to observable characteristics and based on similarities and differences  S6f. Know how living things have been classified  S6g. Give reasons for classifying plants and animals in a specific way  WS6k. Clear about what has been found out from their enquiry and can relate this to others in class  WS6o. Able to give an example of something they have focused on when supporting a scientific theory e.g. classifying vertebrate and invertebrate creatures or why certain creatures choose their unique habitats  WS6p. Frequently carry out research when investigating a scientific principle or theory | S6j. Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents)  S6h. Know how the Earth and living things have changed over time  S6i. Know how fossils can be used to find out about the past  WS6i. Able to present information related to scientific enquiries in a range of ways including using IT such as power-point, animoto and iMovie  WS6l. Explanations set out clearly why something has happened and its possible impact on other things  WS6p. Frequently carry out research when investigating a scientific principle or theory | S6k. Know how animals and plants are adapted to suit their environment  S6l. Link adaptation over time to evolution  S6m. Know about evolution and can explain what it is  WS6n. Use diagrams, as and when necessary, to support writing and be confident enough to present findings orally in front of the class  WS6p. Frequently carry out research when investigating a scientific principle or theory |