**Appendix 1**

**Science Overview- Topics being covered and Scientific Enquiry Skills**

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| **Year Group** | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| **Year 1** | **Animals including humans: Humans**   * Naming parts and functions * Asking relevant questions and using different types of scientific enquiries to answer them. * Identifying differences, similarities or changes related to simple scientiﬁc ideas and processes * Carrying out comparative and fair tests * Grouping and classifying * Using secondary sources of information | **Animals including humans: Animals**   * Naming parts and functions * Asking relevant questions and using different types of scientific enquiries to answer them. * Identifying differences, similarities or changes related to simple scientiﬁc ideas and processes * Grouping and classifying * Using secondary source of information * Carrying out comparative and fair tests | **Everyday Materials**   * Exploration * Grouping and classifying * Carrying out comparative and fair tests * Identifying differences, similarities or changes related to simple scientiﬁc ideas and processes * Recording ﬁndings using simple scientiﬁc language, drawings, and labelled diagrams. * Asking relevant questions and using different types of scientific enquiries to answer them. | **Everyday Materials**   * Exploration * Grouping and classifying * Carrying out comparative and fair tests * Identifying differences, similarities or changes related to simple scientiﬁc ideas and processes * Recording ﬁndings using simple scientiﬁc language, drawings, and labelled diagrams. * Asking relevant questions and using different types of scientific enquiries to answer them. | **Plants**   * Naming parts, functions and grouping. * Carrying out comparative and fair tests * Identifying difference, similarities or changes related to simple scientiﬁc ideas and processes * Observing over time * Asking relevant questions and using different types of scientific enquiries to answer them. * Recording ﬁndings using simple scientiﬁc language, drawings, and labelled diagrams | **Plants**   * Naming parts, functions and grouping. * Carrying out comparative and fair tests * Identifying differences, similarities or changes related to simple scientiﬁc ideas and processes * Asking relevant questions and using different types of scientific enquiries to answer them. * Observing over time * Using secondary sources of information |
| **Year 2** | **Everyday Materials**   * Identifying and classifying * Identifying differences and similarities or changes related to simple scientiﬁc ideas and processes * Grouping and classifying * Observing over time | **Living things and their habitat**   * Grouping and classifying * Asking relevant questions and using different types of scientiﬁc enquiries to answer them * Observing change over time * Grouping and classifying * Carrying out comparative and fair tests | **Plants**   * Setting up simple practical enquiries, comparative and fair tests * Identifying differences, similarities or changes related to simple scientiﬁc ideas and processes * Setting up simple practical enquiries, comparative and fair tests * Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions * Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions * Recording ﬁndings using simple scientiﬁc language, drawings, labelled diagrams, keys, bar charts and tables * Reporting on ﬁndings from enquiries, including oral and written explanations, displays or presentations of results and conclusions * Making systematic and careful observations * Recording ﬁndings using simple scientiﬁc language, drawings, labelled diagrams, keys, bar charts and tables | | **Animals including humans**   * Exploration * Grouping and classifying * Comparing and identifying difference and similarities between groups * Recording ﬁndings using simple scientiﬁc language, drawings, labelled diagrams, keys, bar charts and tables | **Inventions**   * Asking relevant questions and using different types of scientific enquiries to answer them. * Setting up simple practical enquiries, comparative and fair tests * Making systematic and careful observations |
| **Year 3** | **Plants**   * Asking relevant questions and using different types of scientific enquiries to answer them. * Identifying differences, similarities or changes related to simple scientiﬁc ideas and processes * Carrying out comparative and fair tests * Grouping and classifying * Observing over time * Observing over time and using secondary sources of information * Using secondary sources of information * Carrying out comparative and fair tests | | **Animals Including Humans**   * Exploration * Grouping and classifying * Using secondary source of information * Looking for patterns | **Rocks**   * Grouping and classifying * Asking relevant questions and using different types of scientiﬁc enquiries to answer them * Observing change over time * Grouping and classifying * Carrying out comparative and fair tests * Using secondary sources * Finding things out using secondary sources of information | **Light**   * Setting up simple practical enquiries, comparative and fair tests * Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions * Reporting on ﬁndings from enquiries, including oral and written explanations, displays or presentations of results and conclusions * Using results to draw simple conclusions, make predictions for new values * Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions * Identifying differences, similarities or changes related to simple scientiﬁc ideas and processes | **Magnets and Springs- Forces**   * Identifying differences, similarities or changes related to simple scientiﬁc ideas and processes * Setting up simple practical enquiries, comparative and fair tests * Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions * Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions * Recording ﬁndings using simple scientiﬁc language, drawings, labelled diagrams, keys, bar charts and tables * Reporting on ﬁndings from enquiries, including oral and written explanations, displays or presentations of results and conclusions * Making systematic and careful observations |
| **Year 4** | **Electricity**   * To identify common appliances that run on electricity * To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers * To 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 * To recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit * To recognise some common conductors and insulators, and associate metals with being good conductors | **Sound**  Pupils will be taught to:   * Identify how sounds are make, associating these with vibrations. * Recognise that vibrations from sounds travel through a medium to the air * Find patterns between the pitch of sound and features of the object that produced it * Find patterns between the volume of a sound and the strength of the vibrations that produced it * Recognise that sounds get fainter as the distant from the sound source increases   **Scientific enquiry**  Investigations to find which material provides the best insulation against sound. | **Living things and their Habitats**  **Statutory requirements**   * Recognise that living things can be grouped in a variety of ways * Explore and use classification keys to help group * Identify and name a variety of living things in their local and wider environment * Recognise that environments can change and that his can sometimes pose dangers to living things   **Pupils will work scientifically by:**   * Using and making simple guides or keys to explore and identify local plants and animals * Making a guide to local livings things * Raising and answering questions based on their observations of animals and what they have found out about other animals that they have researched | **States of matter**   * To compare and group materials together, according to whether they are solids, liquids or gases. * To observe that some materials will change state when they are heated and cooled. * To measure or research the temperature at which this happens in degrees Celsius. * To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.   **Scientific Enquiry focus:**   * Measuring temperatures * Planning a fair test * Drawing conclusion; comparing and explaining conclusions * Collecting and presenting evidence | | **Animals including humans**  Pupils will be taught to:   * Describe the simple functions of the basic parts of the digestive system in humans * Identify the different types of teeth in humans and their simple functions. * Construct and interpret a variety of food chains, identifying producers, predators and prey   **Scientific Enquiry:**  Investigation on what damages teeth |
| **Year 5** | **Properties and Changes of Materials**   * planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary * 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 * 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 | **Living Things and Their Habitat**   * identifying scientific evidence that has been used to support or refute ideas or arguments | **Animals Including Humans**   * Exploration * Grouping and classifying * Using secondary source of information * Looking for patterns | **Earth and Space**   * recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs | **Forces**   * recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs * using test results to make predictions to set up further comparative and fair tests * planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary * taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate | **Properties and Changes of Materials**   * planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary * 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 * 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 |
| **Year 6** | **Animals Including Humans**  To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurement with increasing accuracy and precision, taking repeat readings when appropriate by creating an enquiry that compares and categorises different forms of exercise and by taking accurate pulse measurements to gather data.  To record data and results of increasing complexity using classification keys, tables, scatter graphs, bar and line graphs. To report findings from enquiries, including conclusions and degree of trust in results, in written forms by reporting and presenting the findings of their enquiry.  To identify scientific evidence that has been used to support or refute ideas or arguments in the context of changing attitudes to smoking. | | **Light**  Using test results to make predictions to set up further comparative and fair tests by planning and conducting a further investigation  To recognise that light appears to travel in straight lines by investigating the angles of incidence and reflection.  To recognise that light appears to travel in straight lines by investigating refraction.  To 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 by investigating how we see colours. | **Electricity**  Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit by observing and explaining the effect of different voltages in a circuit.  Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary by investigating the relationship between wire length and the brightness of bulbs or the loudness of buzzers.  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.  Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.  Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations by conducting an investigation, presenting and report findings on the effect of wire length on the brightness of bulbs or the loudness of buzzers.  Using test results to make predictions to set up further comparative and fair tests by planning and conducting a further investigation | **Living Things and their habitats**  To give reasons for classifying plants and animals based on specific characteristics in the context of sorting and grouping animals for a zoo.  To 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 by finding out about the Linnaean System of classification.  To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals by identifying the characteristics of mammals, birds, insects, reptiles, amphibians, fish, arachnids, annelids, crustaceans, echinoderms and molluscs.  To give reasons for classifying plants and animals based on specific characteristics by exploring unusual creatures and designing their own curious creature. | **Evolution and Inheritance**  Identifying scientific evidence that has been used to support or refute ideas or arguments.  Identify how adaptation may lead to evolution by examining the advantages and disadvantages of specific adaptations and the role of human intervention in the process of evolution. |