**Long Term Overview for Science at Springfield**

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| **INTENT** | We offer a curriculum that is broad and balanced where the children are taught substantive knowledge for science. This is taught exclusively but where possible linked to topics at a level that is personalised to meet their level of development. | | |
| **IMPLEMENTION** | At Springfield we plan a sequence of lessons demonstrating progression throughout each unit of work. We use the long term overview substantive knowledge to ensure a wide range of coverage is included in our Medium Term Plans that is suited to the current cohort of children. Disciplinary knowledge (using our skills trackers) is also identified on the medium term plans and these link directly to the developmental stages of the current cohort of children. | | |
| **IMPACT** | Children will make progress in developing their disciplinary knowledge and their substantive knowledge each year.  Evidence will be found in children’s science books and tracked on their skills trackers. | | |
| **Level expected of the end of EYFS** | We have selected the Early Learning Goals that link most closely to the Science National Curriculum.  For more detail about linked subject progression within the EYFS Framework.     |  |  |  | | --- | --- | --- | | Communication and Language | Listening, Attention and Understanding | Make comments about what they have heard and ask questions to clarify their understanding. | | Personal, Social and Emotional Development | Managing Self | 1. Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. | | Understanding the World | The Natural World | 1. Explore the natural world around them, making observations and drawing pictures of animals and plants. 2. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. 3. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. | | | |
| **National Curriculum Expectations**  **Substantive Knowledge KS1** | |  | | --- | | **KS1 Science National Curriculum**  **Asking Questions and carrying out Fair and Competitive Tests**  Asking simple questions and recognising that they can be answered in different ways.  Performing simple tests.  **Children can:**  **a** explore the world around them, leading them to ask some simple scientific questions about how and why things happen;  **b** begin to recognise ways in which they might answer scientific questions;  **c** ask people questions and use simple secondary sources to find answers;  **d** carry out simple practical tests, using simple equipment;  **e** experience different types of scientific enquiries, including practical activities;  **f** talk about the aim of scientific tests they are working on. |   **Observing and Measuring Changes**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Observing closely, using simple equipment.  **Children can:**  a observe the natural and humanly constructed world around them;  b observe changes over time;  c use simple measurements and equipment;  d make careful observations, sometimes using equipment to help them observe carefully.  **Identifying, Classifying, Recording and Presenting Data**   |  |  | | --- | --- | | Identifying and classifying.  Gathering and recording data to help in answering questions. |  |   **Children can:**  **a** use simple features to compare objects, materials and living things;  **b** decide how to sort and classify objects into simple groups with some help;  **c** record and communicate findings in a range of ways with support;  **d** sort, group, gather and record data in a variety of ways to help in answering questions such as in simple sorting diagrams, pictograms, tally charts,  block diagrams and simple tables.   |  | | --- | | **Drawing Conclusions, Noticing Patterns and Presenting** **Findings**  Using their observations and ideas to suggest answers to questions.  **Children can:**  **a** notice links between cause and effect with support;  **b** begin to notice patterns and relationships with support;  **c** begin to draw simple conclusions;  **d** identify and discuss differences between their results;  **e** use simple and scientific language;  **f** read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1;  **g** talk about their findings to a variety of audiences in a variety of ways. | |  | | | |
| **National Curriculum Expectations**  **Substantive Knowledge KS2** | **Key Stage 2 National Curriculum**  **Asking Questions and carrying out Fair and Competitive Tests**   |  | | --- | | Asking relevant questions and using different types of scientific enquiries to answer them.  Setting up simple practical enquiries, comparative and fair tests.  **Children can:**  **a** start to raise their own relevant questions about the world around them in response to a range of scientific experiences;  **b** start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions;  **c** recognise when a fair test is necessary;  **d** help decide how to set up a fair test, making decisions about what observations to make, how long to make them for and the type of simple equipment that might be used;  **e** set up and carry out simple comparative and fair tests. |   Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.  **Observing and Measuring Changes**  **Children can:**  a make systematic and careful observations;  b observe changes over time;  c use a range of equipment, including thermometers and data loggers;  d ask their own questions about what they observe;  e where appropriate, take accurate measurements using standard units using a range of equipment.  **Identifying, Classifying, Recording and Presenting Data**   |  | | --- | | 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.  **Children can:**  **a** talk about criteria for grouping, sorting and classifying;  **b** group and classify things;  **c** collect data from their own observations and measurements;  **d** present data in a variety of ways to help in answering questions;  **e** use, read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge;  **f** record findings using scientific language, drawings, labelled diagrams, keys, bar charts and tables. |   **Drawing Conclusions, Noticing Patterns and Presenting** **Findings**   |  | | --- | | Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.  Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.  **Children can:**  **a** draw simple conclusions from their results;  **b** make predictions;  **c** suggest improvements to investigations;  **d** raise further questions which could be investigated;  **e** first talk about, and then go on to write about, what they have found out;  **f** report and present their results and conclusions to others in written and oral forms with increasing confidence. |   **Using Scientific Evidence and Secondary Sources of Information**   |  |  | | --- | --- | | Identifying differences, similarities or changes related to simple scientific ideas and processes.  Using straightforward scientific evidence to answer questions or to support their findings.  **Children can:**  **a** make links between their own science results and other scientific evidence;  **b** use straightforward scientific evidence to answer questions or support their findings;  **c** identify similarities, differences, patterns and changes relating to simple scientific ideas and processes;  **d** recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations |  | | | |
|  | Autumn | Spring | Summer |
| Rabbits Class (2021-2022) | Marvelous Me  Scientists and Inventors  **Pupils should be taught to:**  • identify and name a variety of   common wild and garden   plants, including deciduous and   evergreen trees;  • describe and compare the   structure of a variety of   common animals (fish,   amphibians, reptiles, birds and   mammals including pets);  • identify, name, draw and label   the basic parts of the human   body and say which part of the   body is associated with   each sense; | Down in the Garden  Plants  **Pupils should be taught to:**  • identify and name a variety of   common wild and garden   plants, including deciduous   and evergreen trees; | Off on an Adventure  Animals Including Humans  **Pupils should be taught to:**  • identify and name a variety of  common animals including fish,   amphibians, reptiles, birds   and mammals;  • identify and name a variety of   common animals that are   carnivores, herbivores   and omnivores; |
| Rabbits Class 2(2022-2023) | Night and Day  **Everyday Materials**  **Pupils should be taught to:**  • distinguish between an object   and the material from which it   is made;  • identify and name a variety of   everyday materials, including   wood, plastic, glass, metal,   water, and rock; | Once upon a Time  **Seasonal Changes**  **Pupils should be taught to:**  • observe changes across the   4 seasons; | Pirates and the Seaside  **Animals including humans**  **Pupils should be taught to:**   * identify, name, draw and label   the basic parts of the human   body and say which part of   the body is associated with   each sense. |
| Hedgehogs and Butterflies Class | Every Day Life  Scientists and Inventors  **Pupils should be taught to:**  • describe the simple physical   properties of a variety of   everyday materials;  • compare and group together a   variety of everyday materials on   the basis of their simple   physical properties;  • observe and describe weather   associated with the seasons   and how day length varies | Space  Plants  **Pupils should be taught to:**  • identify and describe the basic   structure of a variety of   common flowering plants,   including trees. | Animals and Wildlife  Animals Including Humans  **Pupils should be taught to:**  • describe and compare the   structure of a variety of   common animals (fish,   amphibians, reptiles, birds   and mammals including pets); |
| Hedgehogs and Butterflies Class | **People Who Help us**  **Everyday Materials**  **Pupils should be taught to:**  • describe the simple physical   properties of a variety of   everyday materials;  • compare and group together a   variety of everyday materials on   the basis of their simple   physical properties. | **Fantasy**  **Seasonal Changes**  **Pupils should be taught to:**  • observe and describe weather   associated with the seasons   and how day length varies. | **Places**  **Animals including humans**  **Pupils should be taught to:**  identify, name, draw and label   the basic parts of the human   body and say which part of   the body is associated with   each sense. |
| Squirrels Class | School Days  **Scientists and Inventors**  **Pupils should be taught to:**  • describe how animals obtain   their food from plants and other   animals, using the idea of a   simple food chain, and identify   and name different sources   of food;  • find out and describe how   plants need water, light and a   suitable temperature to grow   and stay healthy;  • describe the importance for   humans of exercise, eating the   right amounts of different types   of food, and hygiene; | Get Out of My Swamp  Plants  **Pupils should be taught to:**  • find out and describe how   plants need water, light and a   suitable temperature to grow   and stay healthy. | Heroes  Animals including humans  **Pupils should be taught to:**  • notice that animals, including   humans, have offspring which   grow into adults;  • describe the importance for   humans of exercise, eating   the right amounts of different   types of food, and hygiene. |
| Squirrels Class | Toys  **Materials**  **Uses of Everyday Materials**  **Pupils should be taught to:**  • identify and compare the   suitability of a variety of   everyday materials, including   wood, metal, plastic, glass, brick,   rock, paper and cardboard for   particular uses; | Poles Apart  **Living things and their habitats**  **Pupils should be taught to:**  • explore and compare the   differences between things that   are living, dead, and things that   have never been alive;  • identify that most living things   live in habitats to which they are   suited and describe how   different habitats provide for   the basic needs of different   kinds of animals and plants, and   how they depend on each other.  • describe how animals obtain   their food from plants and other   animals, using the idea of a   simple food chain, and identify   and name different sources   of food. | Flight  **Scientists and Inventors**  **Pupils should be taught to:**  • identify and compare the   suitability of a variety of   everyday materials, including   wood, metal, plastic, glass,   brick, rock, paper and cardboard   for particular uses;  • find out about people who have   developed new materials   (non-statutory). |
| Badgers Class | The Victorian Times  **Scientists and Inventors**  **Pupils should be taught to:**  • describe the importance for   humans of exercise, eating the   right amounts of different types   of food, and hygiene; | Africa  Plants  **Pupils should be taught to:**  • observe and describe how   seeds and bulbs grow into   mature plants; | Dinosaurs  Animals including humans  **Pupils should be taught to:**  • find out about and describe the   basic needs of animals,   including humans, for survival   (water, food and air); |
| Badgers Class (2022-2023) | Travel and Transport  **Materials**  **Uses of Everyday Materials**  **Pupils should be taught to:**  • find out how the shapes of solid   objects made from some   materials can be changed by   squashing, bending, twisting   and stretching. | Food  **Living things and their habitats**  **Pupils should be taught to:**  • identify and name a variety of   plants and animals in their   habitats, including   microhabitats; | Castles and Knights  **Scientists and Inventors**  **Pupils should be taught to:**  • identify and compare the   suitability of a variety of   everyday materials, including   wood, metal, plastic, glass,   brick, rock, paper and cardboard   for particular uses; |
| Blackbirds Class (2021-2022) | The Home Front  **Forces and Magnets**  **Pupils should be taught to:**  • compare how things move on   different surfaces;  • notice that some forces need   contact between 2 objects, but   magnetic forces can act at   a distance;  • observe how magnets attract   or repel each other and attract   some materials and not others;  • compare and group together   a variety of everyday materials   on the basis of whether they   are attracted to a magnet,   and identify some   magnetic materials;  • describe magnets as having   2 poles;  • predict whether 2 magnets will   attract or repel each other,   depending on which poles   are facing. | Indian Spice  **Plants**  **Pupils should be taught to:**  • identify and describe the   functions of different parts of   flowering plants: roots,   stem/trunk, leaves and flowers;  • explore the requirements of   plants for life and growth (air,   light, water, nutrients from soil,   and room to grow) and how   they vary from plant to plant;  • investigate the way in which   water is transported   within plants;  • explore the part that flowers   play in the life cycle of   flowering plants, including   pollination, seed formation   and seed dispersal. | North and South America  **Rocks**  **Pupils should be taught to:**  • compare and group together   different kinds of rocks on the   basis of their appearance and   simple physical properties;  • describe in simple terms how   fossils are formed when things   that have lived are trapped   within rock;  • recognise that soils are made   from rocks and organic matter. |
| Blackbirds Class 2 (2022-2023) | London’s Burning  **Animals Including Humans**  **Pupils should 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. | Wonder Women  **Sound**  **Pupils should be taught to:**  • recognise that they need light   in order to see things and that   dark is the absence of light;  • notice that light is reflected   from surfaces;  • recognise that light from the   sun can be dangerous and that   there are ways to protect   their eyes;  • recognise that shadows are   formed when the light from a   light source is blocked by an   opaque object;  • find patterns in the way that the   size of shadows change. | Pioneers  **Electricity**  **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. |
| Foxes Class (2021-2022) | The Great War  **Living Things and Their Habitats**  **Pupils should be taught to:**  • describe the differences in   the life cycles of a mammal,   an amphibian, an insect and   a bird;  • describe the life process of   reproduction in some plants   and animals. | China  **Sound**  **Pupils should be taught to:**  • identify how sounds are made,   associating some of them   with something vibrating;  • recognise that vibrations from   sounds travel through a   medium to the ear;  • find patterns between the pitch   of a 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 distance from the   sound source increases. | Ancient Greeks and the Olympics  **States of Matter**  **Pupils should be taught to:**  • compare and group materials   together, according to whether   they are solids, liquids or gases;  • observe that some materials   change state when they are   heated or cooled, and measure   or research the temperature at   which this happens in degrees   Celsius (°C);  • identify the part played by   evaporation and condensation   in the water cycle and associate   the rate of evaporation   with temperature. |
| Foxes Class 2 (2022-2023) | Meet the Flintstones  **Evolution and Inheritance**  **Pupils should be taught to:**  • recognise that living things   have changed over time and   that fossils provide   information about living   things that inhabited the Earth   millions of years ago;  • recognise that living things   produce offspring of the same   kind, but normally offspring   vary and are not identical to   their parents;  • identify how animals and   plants are adapted to suit   their environment in different   ways and that adaptation may   lead to evolution. | A Journey Through Europe  **Earth and Space**  **Pupils should be taught to:**  • describe the movement of the   Earth and other planets relative   to the sun in the solar system;  • describe the movement of the   moon relative to the Earth;  • describe the sun, Earth and   moon as approximately   spherical bodies;  • use the idea of the Earth’s   rotation to explain day and   night and the apparent   movement of the sun across   the sky. | Extreme Survival  **Forces**  **Pupils should be taught to:**  • explain that unsupported   objects fall towards the Earth   because of the force of gravity   acting between the Earth and   the falling object;  • identify the effects of air   resistance, water resistance   and friction, that act between   moving surfaces;  • recognise that some   mechanisms including levers,   pulleys and gears allow a   smaller force to have a   greater effect. |
| Enrichment Activities | Science Wow day | | |