**Long Term Overview for Science at Springfield**

|  |  |
| --- | --- |
| **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 AdventureAnimals 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 |