Stanley Primary School
Science Curriculum map

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	**K&UW** Naming and describing similarities between people How I change and grow over time	**K&UW** Understanding the change in Seasons	**K&UW** Differences and similarities between people who help us	**K&UW** Life cycle of worms, butterflies and frogs. Name baby to adult animals, explore changes	**K&UW – New life** Farm animals and their young. Healthy and Unhealthy food	**K&UW** Comparing weather and looking at environment.
Year 1	***Forces, Earth & Space*** **Seasonal Changes (revisited each half term)**	***Materials*** **Everyday Materials**	***Animals incl humans*** **Sensitive animals**	***Animals incl humans*** **Comparing animals**	***Plants*** **Introduction to plants**	***Making Connections***
Year 2	***Living things and habitats*** **Habitats**	***Living things and habitats*** **Microhabits**	***Materials*** **Uses of everyday materials**	***Animals incl humans*** **Life cycles and health**	***Plants*** **Plant growth**	***Making Connections***
Year 3	***Animals including humans*** **Movement and Nutrition**	***Forces, Earth & Space*** **Forces and Magnets**	***Materials*** **Rocks and soils**	***Energy*** **Light and Shadows**	***Plants*** **Plant reproduction**	***Making Connections***
Year 4	***Animals including humans*** **Digestion and food**	***Energy*** **Electricity and circuits**	***Materials*** **States of matter**	***Energy*** **Sound and vibrations**	***Living things and their habitats*** **Classification and changing habitats**	***Making Connections***
Year 5	***Materials*** **Mixtures and separation**	***Materials*** **Properties and change**	***Forces, Earth & Space*** **Earth and space**	***Living things and their habitats*** **Life cycles and reproduction**	***Forces, Earth & Space*** **Imbalanced forces**	***Animals including humans*** **Human timelines** ***Making Connections***
Year 6	***Living things and their habitats*** **Classifying big and small**	***Energy*** **Light and reflection**	***Living things and their habitats*** **Evolution and inheritance**	***Energy*** **Circuits, batteries and switches**	***Animals incl humans*** **Circulation and exercise**	***Making Connections***
Whole school	**Science Day**					

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Year 1	***Working Scientifically.*** *Children will:* • *Ask simple questions and recognising that they can be answered in different ways* • *Observe closely, using simple equipment* • *Perform simple tests* • *Identify and classifying* • *Use their observations and ideas to suggest answers to questions* • *Gather and record data to help in answering questions*					
	Forces, Earth & Space **Seasonal Changes** Reflecting on their own experiences, children learn about the four seasons and the weather associated with each. Pupils explore how seasonal changes affect trees, daylight hours and our choices about outfits. They plan and carry out their own weather reports, considering the knowledge required for this job	***Materials*** **Everyday Materials** Identifying the difference between objects and materials, children explore their surroundings to find examples of each. They scientifically investigate the properties of materials and begin to sort and group materials by their properties. Pupils discover that some materials are a result of scientific experimentation and that some materials can be recycled to conserve resources.	***Animals incl humans*** **Sensitive animals** Familiarising themselves with the basic parts of the human body, children investigate their senses through stimulating experiences that highlight how we interact with the world around us. They develop an understanding of the importance of our senses and how science can support those who have lost sensory function.	***Animals incl humans*** **Comparing animals** Studying both local and global animals, children recognise common features and use this information to make comparisons and begin to classify animals. Pupils collect data by surveying class pets, to then explore ways in which this information can be recorded. They develop their understanding of classification by comparing the dietary habits of different animals and use their knowledge and imaginations to take on the role of a zookeeper.	***Plants*** **Introduction to plants** Identifying the key features of a plant, children describe important structures and make comparisons between different plants. Pupils use investigative skills to record the growth of a plant over time and begin to reflect on factors that will affect its development. They begin to explore how plants are used by humans and grow their own herb garden.	***Making Connections*** Bringing together pupils' learning from multiple Science units, helping them to make connections between the key concepts and skills.
	Working Scientifically. *Children will:* • *Ask simple questions and recognising that they can be answered in different ways*					

<table>
<tr><td rowspan="2">Year 2</td><td colspan="6">

Observe closely, using simple equipment
Perform simple tests
Identify and classifying
Use their observations and ideas to suggest answers to questions
Gather and record data to help in answering questions

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<tr>
<td>Living things and habitats
Habitats
Considering the life processes that all living things have in common, pupils classify objects into alive, was once alive or has never been alive. Pupils explore global habitats, naming plants and animals that can be found there. They learn how a range of different living things depend on each other for food or shelter. Pupils explore this further by creating food chains to show the sequence that living things eat each other for energy to grow and stay healthy</td>
<td>Living things and habitats
Microhabits
Developing their understanding of scientific enquiry, pupils learn that scientists use a range of skills to answer questions. They discover that microhabitats provide what minibeasts need to survive and carry out a survey to find out where different minibeasts live in the school grounds. They practise asking scientific questions and follow a method to investigate which conditions woodlice prefer. Pupils explore the job role of a botanist by identifying flowering plants.</td>
<td>Materials
Uses of everyday materials
Reflecting on their knowledge of different materials, children begin to explain why materials are used in certain contexts. They develop enquiry skills to investigate the properties of materials and explore the science of inventing new ones.</td>
<td>Animals incl humans
Life cycles and health
Studying the life cycles of various animals, children learn what animals need to survive and how they change over time. Pupils collect data that allows them to observe changes in their peers, while also developing their ability to take measurements and record data. They consider the role of expert scientific knowledge in careers that inform people to make healthy choices.</td>
<td>Plants
Plant growth
Using their prior knowledge of important plant structures, children explain what factors are needed for successful growth and compare how those needs vary across different plants. They grow plants from seeds and bulbs to ascertain the needs for initial development and compare this to the survival needs of plants in later growth phases. Pupils take their own measurements and reflect on historical examples to understand how conclusions can be drawn.</td>
<td>Making Connections
Bringing together pupils' learning from multiple Science units, helping them to make connections between the key concepts and skills.</td>
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<tr><td>Year 3</td><td colspan="6">
Working Scientifically.
Children will:

Ask relevant questions and using different types of scientific enquiries to answer them
Set up simple practical enquiries, comparative and fair tests
Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
Gather, record, classify and present data in a variety of ways to help in answering questions
Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
Identify differences, similarities or changes related to simple scientific ideas and processes
Use straightforward scientific evidence to answer questions or to support their findings.

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	Animals including humans **Movement and Nutrition** Studying the human skeleton, children identify key bones and compare them to other animals explaining the role within the body. Pupils explore how changes in muscles result in movement and the implications these discoveries have in the scientific development of prosthetic limbs. They study how energy is used by the body, what constitutes a balanced diet in humans and how research contributes to nutritionist expertise.	***Forces, Earth & Space*** **Forces and Magnets** Investigating the movement of vehicles on different surfaces, children learn about the impact of friction and compare uses and drawbacks. They broaden their experience in writing scientific methods and recording data as they investigate contact and non-contact forces. Pupils explore the properties of different magnets and use this to understand their uses.	***Materials*** **Rocks and soils** Studying rocks and their properties, children learn that rock properties support classification and tell us about how rocks were formed. Pupils look at the work of palaeontologists to learn about how fossils form and use models to explain the rock cycle. They plan an investigation to test rocks for particular uses and form conclusions about which soil type is most suitable for UK farmers.	***Energy*** **Light and Shadows** Identifying examples of luminous objects, children learn about how light travels around us and how that enables us to see. Children investigate reflection and shadow formation, creating their own shadow puppets and exploring how shadows can be used to entertain in the arts. They look at examples of pivotal scientific discoveries and the scientific methods that led to those successes.	***Plants*** **Plant reproduction** Building on their prior knowledge of plant structures, children describe the functions of named parts and use evidence to explain their significance in plant development. Pupils investigate further factors that may affect the growth of plants and compete with their peers to disperse seeds in a variety of ways. They explore how seeds vary and define the type of plant they are studying, as well as looking at how seed shapes have inspired modern technologies.	***Making Connections*** Bringing together pupils' learning from multiple Science units, helping them to make connections between the key concepts and skills.
Year 4	**Working Scientifically.** *Children will:* • Ask relevant questions and using different types of scientific enquiries to answer them • Set up simple practical enquiries, comparative and fair tests • Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • Gather, record, classify and present data in a variety of ways to help in answering questions • Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Identify differences, similarities or changes related to simple scientific ideas and processes • Use straightforward scientific evidence to answer questions or to support their findings.					
	Animals including humans **Digestion and food** Using models, children describe the function of key organs in the digestive system. Pupils identify the types of	***Energy*** **Electricity and circuits** Exploring appliances that use electricity in their setting, children learn how to work with electricity safely and build circuits. Pupils	***Materials*** **States of matter** Investigating the properties of solids, liquids and gases, children learn about the different states of matter. They explore changes of state using	***Energy*** **Sound and vibrations** Exploring different ways of producing sounds, children learn about the relationship between vibrations and what they hear. They use examples	***Living things and their habitats*** **Classification and changing habitats** Identifying different ways living things can be grouped, children make classification keys to	***Making Connections*** Bringing together pupils' learning from multiple Science units, helping them to make connections between the key concepts and skills.

	human teeth to create their own model and investigate factors that impact our dental health. They compare human teeth to other animals' and consider this in the light of prior knowledge about predators, prey and food chains. Children take on the role of a naturalist investigating animal faeces for clues about diet, digestion and dentition.	investigate electrical conductors and insulators and explore the relationship between the number of bulbs and bulb brightness. Real scenarios and historical discoveries inform children about scientific progression and home safety.	relatable examples and use this to explain changes to water through the water cycle. Pupils investigate the relationship between temperature and rate of evaporation while broadening their experience of working scientifically.	of echolocation to develop their understanding of how sound travels between objects and investigate the role of insulation to protect our ears. Pupils explore how pitch and volume can be altered and make their own musical instruments to demonstrate these principles.	explore which grouping methods are most effective. Pupils study ways that habitats may change over time and understand that humans can have both positive and negative effects on their surroundings. They play the role of naturalists and review the impact of conservation programmes	
Year 5	**Working Scientifically.** *Children will:* • Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Take 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 • Use test results to make predictions to set up further comparative and fair tests • Report and present 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 • Identify scientific evidence that has been used to support or refute ideas or arguments.					
	Materials **Mixtures and separation** Pupils explore different types of mixtures and the different methods that can be used to separate them. They dissolve a range of substances, identify different solutions and investigate how temperature affects the time taken to dissolve. They design and create a water filter, sieve soil and evaporate solutions.	***Materials*** **Properties and change** Broadening their experience of the properties of materials, children investigate hardness, transparency and conductivity and consider how these properties influence the uses of materials. They explore reversible changes, including dissolving and changes of state. Children compare these to irreversible changes, including rusting,	***Forces, Earth & Space*** **Earth and space** Exploring some of the key celestial bodies in our solar system, children learn the names and compare their movements. Pupils discover the relationship between the Earth's rotation and day and night, making models to represent their knowledge. They make their own sundials and consider how and why our ideas about the universe have changed so much over history	***Living things and their habitats*** **Life cycles and reproduction** Studying different animals' life cycles, children learn about the significance of reproduction for a species' survival. Pupils calculate the probability of male and female turtles hatching and grow plants to compare asexual and sexual reproduction. Pupils compare fertilisation across different animals	***Forces, Earth & Space*** ***Imbalanced forces*** Building on their knowledge of contact forces, children explore gravity, air resistance and water resistance in more depth and consider the effect of these forces being imbalanced. They demonstrate key principles in the classroom and plan investigations to further their understanding of the effects of these forces. Pupils test their ideas using models and compete	***Animals incl humans*** **Human timelines** Studying human development and changes, children identify key stages and consider what data may help determine if a child is growing normally. They describe how puberty affects girls and boys and produce graphs to record how gestation periods vary across different animals. ***Making Connections***

		burning and mixing vinegar and bicarbonate of soda.		and explore the needs of a fetus. Children narrate their own documentary in the style of an inspirational naturalist.	to build the most effective pulley system.	Bringing together pupils' learning from multiple Science units, helping them to make connections between the key concepts and skills.
Year 6	**Working Scientifically.** *Children will:* • Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Take 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 • Use test results to make predictions to set up further comparative and fair tests • Report and present 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 • Identify scientific evidence that has been used to support or refute ideas or arguments.					
	Living things and their habitats **Classifying big and small** Children broaden their knowledge of how vertebrates, invertebrates, plants and micro-organisms are grouped using shared characteristics. They discover how Carl Linnaeus developed the Linnaean and binomial systems for classifying and naming living things. Pupils use and produce classification keys to sort and identify organisms.	***Energy*** **Light and reflection** Proving that light travels in a straight line, children use this information to explain observations of reflection and shadows. They explore how our eyes allow us to see and how mirrors can be used in a variety of ways. Pupils investigate factors affecting the size of shadows and the laws of reflection. Exploring real uses of mirrors allow children to apply what they have learned about light throughout the unit.	***Living things and their habitats*** **Evolution and inheritance** Studying patterns through families, children learn about features that are inherited from parents and those that are environmental. Through the eyes of Darwin and Wallace, pupils understand how observations lead to theories and explore the survival of the fittest. They model the variation and natural selection of Darwin's finches and use this information to begin to explain how species evolve over time and how human input may affect the process.	***Energy*** **Circuits, batteries and switches** Using their prior knowledge of electrical circuits, children learn to draw conventional circuit diagrams and use models to explain current and voltage. They make their own batteries, relate this to their knowledge of voltage and explore how battery research has impacted other scientific progress. Pupils investigate the use of switches and fuses and apply their electrical knowledge to design and produce their own electrical device.	***Animals incl humans*** ***Studying the human*** **Circulation and exercise** circulatory system, children learn about the role of the heart, blood and blood vessels and use models to demonstrate their function. They play the role of healthcare professionals to diagnose patients and play games to explore how lifestyle choices affect our health. Pupils devise their own investigation to look at the relationship between exercise and heart and breathing rates, applying their knowledge of variables	***Making Connections*** Bringing together pupils' learning from multiple Science units, helping them to make connections between the key concepts and skills.