Science yearly overview	Autumn A	Autumn B	Spring A	Spring B	Summer A	Summer B
EYFS	Changing states of mater: ice Changing states of matter: ice. To use the words freezing and melting. Body Parts; naming head, shoulders, knees and toes. (Funnybones story) Seasons- identify changes in Autumn. Resilience		Name animals and their young. Seasons- identify changes in Spring. Respect Kindness		Life cycle of frog and butterfly. Minibeasts. Name some minibeasts. Looking after plants. Seasons- identify changes in Summer Inclusivity Kindness Respect	
Year 1	Animals including Humans Respect Kindness	Seasonal Change Senses Inclusivity	Seasonal Change Materials Resilience	Seasonal Change Materials Resilience	Seasonal Change Plants Ambition Kindness	Plants Ambition Kindness
Year 2	Animals including Humans Seasonal Change Respect Kindness	Animals including humans Seasonal change Respect Kindness	Materials Resilience	Animals and Habitats Resilience Respect	Plants Ambition Kindness	Plants Seasonal Change Ambition Kindness

Year 3	Rocks and soil Ambition Resilience	Rocks and soil Ambition Resilience	Light Resilience	Plants Ambition Kindness	Forces and magnets Resilience	Animals including Humans Respect Kindness
Year 4	Humans and the Digestive System Respect	Humans and the Digestive System Respect	Sound Resilience	Electricity Resilience	Animals and Habitats Respect Kindness	States of matter The Water Cycle Resilience
Year 5	Forces Resilience	Materials Resilience	Space Ambition Resilience	Animals including Humans Kindness Respect	Animals and Habitats Kindness Respect	Working Scientifically Resilience Ambition
Year 6	Evolution and Inheritance Inclusivity Kindness	Animals including Humans Kindness Respect	Electricity Resilience	Light Resilience	Living things and Habitats Kindness Respect	Working Scientifically Resilience Ambition

Science Curriculum

Respect **Ambition** **Kindness** **Resilience** **Inclusivity**

Our school values underpin our science curriculum, especially the values of ambition, resilience and respect. We hope to give our children the confidence to be ambitious in their outlook and believe that they can be the scientists of the future. We would like to develop their skills of resilience to investigate the world around them and to realise that scientists are always discovering new concepts and ways of doing things. The teaching of science develops in children an interest and curiosity about the world around them; along with this we will ensure that they develop a respect for the world around them. For example, when studying habitats, being careful not to disturb or destroy animal habitats; an awareness of environmental issues such as climate change which is affecting our seasons.

Intent

We have planned a Science curriculum from EYFS to Year 6 which is coherent, progressive and inclusive. We provide pupils with the appropriate opportunities to build their substantive and disciplinary knowledge, master and apply subject concepts, skills and techniques. We aim to have a coherent and relevant curriculum for the children within our school making local links where possible, e.g. secondary school, local industries and STEM ambassadors. As a school to aim to make the Science Curriculum progressive and challenging in terms of the complexity of subject knowledge and skills we want children to acquire. Where possible we enhance learning by visiting museums, visitors into school, workshops and STEM ambassadors, visits to local secondary school.

We want children:

- To develop a love of Science to promote the skills and knowledge pupils will need to succeed in school and beyond.
- We create an enthusiasm for Science so that pupils are prepared for their next steps to Secondary School; we have strong links with our local Secondary School, sharing resources and pupil/teacher visits.
- There is a focus on both substantive knowledge and also practical science. Children are encouraged to ask questions and be curious about the world around them.
- Pupils have the opportunities to plan investigations and understanding concepts such as fair testing. Science also develops and enhances English and Maths skills, for example when writing investigations or recording results of experiments.
- When teaching the foundations of scientific enquiry, we hope to promote and enthuse a desire to choose a scientific career.

Substantive Knowledge- what our pupils will know by the end of each enquiry.

Disciplinary Knowledge- the subject skills and techniques our pupils will master and apply in order to understand the significance of what they know.

All of areas of Science within Vane Road are linked to a key concept or theme. (Substantive Knowledge)

- Biology- Plants, animals including humans, seasonal change, living things and their habitats, evolution and inheritance.
- Physics- light, forces and magnets, sound, electricity, earth and space.
- Chemistry- states of matter, materials, rocks.

Working Scientifically- key skills (Disciplinary Knowledge)
Key Stage One- pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions.

Key Stage Two- During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- 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 and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- 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
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- 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

Key concepts EYFS Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments.	Explore the natural world around them, making observations and drawing pictures of animals and plants. 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.
Key concepts Key Stage 1 • Asking simple questions and recognising that they can be answered in different ways. • Observing closely using simple equipment.	• Performing simple tests. • Identifying and classifying. • Using their observations and ideas to suggest answers to questions.	• Gathering and recording data to help in answering questions.
Key Concepts Key Stage 2 • Asking different kinds of questions. • Plan scientific enquiries to answer questions. • Use scientific knowledge to support conclusions.	• Make predictions. • Observe closely. • Know how to record data and results. • Know how to use scientific diagrams, , labels, classifications, keys, tables, scatter, bar and line graphs. • Know how to report/present findings.	• Know how to use different scientific equipment to measure with precision and take repeat readings where appropriate. • Know how to identify scientific evidence used to support or refute ideas or arguments.

EYFS:
Early Learning Goals:

- Children at the expected level of development will: - Explore the natural world around them, making observations and drawing pictures of animals and plants;
- 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;
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

EYFS Autumn Term	EYFS Spring Term	EYFS Summer Term.
Changing states of matter: ice. To use the words freezing and melting. Seasons- identify changes in Autumn **Vocabulary** Spring Summer Autumn Winter Changes Hibernating freezing melting	To name animals and their young. Lamb – sheep Ducking – duck Chick – hen Calf – cow Seasons- identify changes in Spring **Vocabulary** Spring Buds New growth Growing Bulbs Hatching calf lamb ducking chick head shoulders knees toes	Life Cycle of a frog and butterfly Mini-beasts To talk about parts of the life cycle and name some minibeasts. Seasons- identify changes in Summer **Vocabulary** Summer Growing Hatching life cycle metamorphosis mini-beasts

Year 1 Autumn term A	Seasonal Change Animals including Humans	Key concepts
Substantive Knowledge What do they know and can recall? Seasonal Change (throughout the year) • **I know what is different about each season.** • **I know the kind of weather we get in each season.** • **I can observe and discuss changes in the weather in each of the seasons.** Animals including Humans • **I know the names of some common amphibians, fish, reptiles, birds and mammals.** • **I know the names of some common carnivores. herbivores and omnivores.** • **I know differences between some common fish, amphibians, reptiles, birds and mammals.** • **I know what kind of animals are kept as pets.**	**Disciplinary Knowledge** **Working Scientifically** • I know how to ask questions. • I know how to use simple scientific language. • **I can talk about what I have found out.** • I know how to collect numbers and use them in different ways. • I know how to use simple equipment to make measurements. • I know how to observe closely using my senses. • **I know how to compare, sort and group things.** • I know how to carry out simple tests. • I know that questions can be answered in different ways. **Transferable Vocabulary** **Questions, answers, equipment, results, Sort, explore, observe, Similar, egg timers, ruler, Tape measure, metre stick**	**Working Scientifically** **Disciplinary knowledge** Talk about what I have found out Compare, sort and group
Vocabulary **Season, spring, summer, autumn, winter. Weather and names of common weather features.** **Reptiles, mammals, amphibians, birds, fish, omnivores, carnivores, Herbivores, beak, fur, feather, fin, eyebrows, eyelashes, legs, elbows,**	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** https://www.stem.org.uk/ https://www.planassessment.com/ Animalstory.co.uk

knees, wrist, ankle, ears,hair, feet, fingers, Skelton, sing, claw, tail, scales		
Year 1 Autumn term B	Seasonal Change Senses	**Key concepts**
Substantive Knowledge What do they know and can recall? Seasonal Change • **I know what is different about each season.** • **I know the kind of weather we get in each season.** • **I know how the length of the daylight hours changes in each season.** • **I can observe and discuss changes in the weather in each of the seasons.** • Senses • **I know how to label the human body and say which part of the body is connected with which sense.**	**Disciplinary Knowledge** **Working Scientifically** • **I know how to ask questions.** • I know how to use simple scientific language. • I can talk about what I have found out. • I know how to collect numbers and use them in different ways. • I know how to use simple equipment to make measurements. • **I know how to observe closely using my senses**. • I know how to compare, sort and group things. • I know how to carry out simple tests. • I know that questions can be answered in different ways. **Transferable Vocabulary** **Questions, answers, equipment, results, Sort, explore, observe, Similar, egg timers, ruler, Tape measure, metre stick**	**Working Scientifically** **Disciplinary knowledge** Asking questions Observing closely using my senses
Vocabulary **Season, spring, summer, autumn, winter. Weather and names of common weather features. Days, hours, months. Light, dark, shadow, moon, movement.**	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** https://www.stem.org.uk/ https://www.planassessment.com/

Head, neck, arm, face, eyes, teeth, hand. Sight, hearing, touch, taste and smell		
Year 1 Spring term A and B	**Seasonal Change** **Materials**	**Key concepts**
Substantive Knowledge What do they know and can recall? **Seasonal Change** • **I know what is different about each season.** • **I know the kind of weather we get in each season.** • **I know how the length of the daylight hours changes in each season.** • **I can observe and discuss changes in the weather in each of the seasons.** **Materials** • **I know the difference between an object and what it is made from.** • **I know the names of some materials.** • **I know some of the properties of everyday materials.** • **I know how to group materials together by their features.**	**Disciplinary Knowledge** **Working Scientifically** • I know how to ask questions. • **I know how to use simple scientific language.** • **I can talk about what I have found out**. • I know how to collect numbers and use them in different ways. • I know how to use simple equipment to make measurements. • I know how to observe closely using my senses. • I know how to compare, sort and group things. • I know how to carry out simple tests. • I know that questions can be answered in different ways. **Transferable Vocabulary** **Questions, answers, equipment, results, Sort, explore, observe, Similar, egg timers, ruler, Tape measure, metre stick**	**Working Scientifically** **Disciplinary knowledge** Use correct vocabulary Can talk about findings

Vocabulary	**National Curriculum Links**	**Useful links or sources of information**
Season, spring, summer, autumn, winter. Weather and names of common weather features. Days, hours, months. Light, dark, shadow, moon, movement. **Object, material, wood, plastic, glass, metal liquid, rough, smooth, bright/shiny, dull, dim, absorbent, waterproof, bendy, stiff, soft, hard, squashing, stretching,** **see through, solid, names of common materials, properties, transparent, textures**	https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	https://www.stem.org.uk/ https://www.planassessment.com/

Year 1 Summer term A and B	**Seasonal Change** **Plants**	**Key concepts**
Substantive Knowledge What do they know and can recall? Seasonal Change • **I know what is different about each season.** • **I know the kind of weather we get in each season.** • **I know how the length of the daylight hours changes in each season.** • **I can observe and discuss changes in the weather in each of the seasons.** Plants • **I know the names of some annual and evergreen plants.**	**Disciplinary Knowledge** **Working Scientifically** • **I know how to ask questions.** • I know how to use simple scientific language. • I can talk about what I have found out. • I know how to collect numbers and use them in different ways. • I know how to use simple equipment to make measurements. • I know how to observe closely using my senses. • I know how to compare, sort and group things. • **I know how to carry out simple tests.** • I know that questions can be answered in different ways. **Transferable Vocabulary** **Questions, answers, equipment, results, Sort, explore, observe, Similar, egg timers, ruler, Tape measure, metre stick**	**Working Scientifically** **Disciplinary knowledge** Asking questions Carry out simple tests

• **I know how to identify and describe the basic structure of a variety of common plants including trees.**		
Vocabulary **Season, spring, summer, autumn, winter. Weather and names of common weather features. Days, hours, months. Light, dark, shadow, moon, movement.** **Garden, flower, names of vegetables** **Names of local and wild plants** **Seed, petal, deciduous, evergreen** **Plant, wild. Local, leaf, blossom, stem/stalk, branch, trunk, root, bulb,**	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** Steve Cooper GATC https://www.stem.org.uk/ https://www.planassessment.com/

Year 2 Autumn term A and B	**Animals Including humans**	**Key concepts**
Substantive Knowledge What do they know and can recall? **Seasonal Change** • **I can observe and discuss the effects of seasonal change on plants and animals.** • **I can match and identify some leaves and fruit from common trees.** **Animals including Humans**	**Disciplinary Knowledge** **Working Scientifically** • **I know how to ask questions.** • I know how to use simple scientific language. • **I can talk about what I have found out**. • I know how to collect numbers and use them in different ways. • I know how to use simple equipment to make measurements. • I know how to observe closely using my senses. • I know how to compare, sort and group things. • I know how to carry out simple tests. • I know that questions can be answered in different ways.	Disciplinary Knowledge Working Scientifically. Ask questions Talk about observations.

- **I know what happens to animals over time.**
- **I know the names of different animals' young.**
- **I know what animals and humans need to survive.**
- **I know why exercise and a healthy diet is important.**
- I know why it is important to make sure you are clean.

Transferable Vocabulary

Questions, answers, equipment, results, Sort, explore, observe, Similar, egg timers, ruler, Tape measure, metre stick

Vocabulary

As year 1 plus:
Adult, young, baby, toddler, child, teenager, grow, offspring, survival, basic needs- water, food, air.
Food types- name common examples, hygiene, infection, exercise, unhealthy.

National Curriculum Links

https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study

Useful links or sources of information

Steve Cooper GATC
https://www.stem.org.uk/
https://www.planassessment.com/

Year 2 Spring term A

Materials

Key concepts

Substantive Knowledge

What do they know and can recall?

Materials

- **I know the difference between an object and what it is made from.**
- **I know the names of some materials.**

Disciplinary Knowledge

Working Scientifically

- I know how to ask questions.
- **I know how to use simple scientific language**.
- **I can talk about what I have found out.**
- I know how to collect numbers and use them in different ways.
- I know how to use simple equipment to make measurements.
- I know how to observe closely using my senses.
- **I know how to compare, sort and group things.**

Disciplinary Knowledge

Working Scientifically

Use appropriate vocabulary
Talk about findings
Compare, sort and group

• **I know some of the properties of everyday materials.** • **I know how to group materials together by their features**	• I know how to carry out simple tests. • I know that questions can be answered in different ways. **Transferable Vocabulary** **Questions, answers, equipment, results, Sort, explore, observe, Similar, egg timers, ruler, Tape measure, metre stick**	
Vocabulary **Object, material, wood, plastic, glass, metal, liquid, gas, water, rough, smooth, bright/shiny, dull, dim, absorbent, waterproof, bendy, stiff, soft, hard, squashing, stretching, see through, solid, names of common materials, reflection, properties, transparent, textures**	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** STEM Ambassadors https://www.stem.org.uk/ https://www.planassessment.com/
Year 2 Spring term B	Animals and their Habitats	**Key concepts**
Substantive Knowledge What do they know and can recall? Animals and Habitats • **I know the differences between something that is living, things that are no longer alive and things that have never been alive.**	**Disciplinary Knowledge** **Working Scientifically** • I know how to ask questions. • I know how to use simple scientific language. • I can talk about what I have found out. • I know how to collect numbers and use them in different ways. • I know how to use simple equipment to make measurements. • **I know how to observe closely using my senses.** • **I know how to compare, sort and group things.**	**Disciplinary Knowledge** **Working Scientifically** Observe closely using senses Compare, sort and group

• **I know how different habitats provide for animals and plants.** • **I know how different animals and plants depend on each other.** • **I know about different animals/plants in their habitats.** • I know how a simple food chain works. • I know about and can name different food sources for different animals.	• I know how to carry out simple tests. • I know that questions can be answered in different ways. **Transferable Vocabulary** **Questions, answers, equipment, results, Sort, explore, observe, Similar, egg timers, ruler, Tape measure, metre stick**	
Vocabulary Living, alive, non-living, dead, move, grow, feed, breath, have young, needs, shelter, heat. Habitats, conditions, characteristics, adaptation, food chain. Name micro-habitats- log, bush etc Describes conditions- damp, dark etc Food chain, carnivore, herbivore, omnivore. Name local habitats- pond, woodland	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** Zoolab/animal story https://www.stem.org.uk/ https://www.planassessment.com/
Year 2 Summer term A and B	Plants Seasonal Change	**Key concepts**
Substantive Knowledge What do they know and can recall? **Seasonal Change** • **I can observe and discuss the effects of seasonal change on plants and animals.** • **I can match and identify some leaves and fruit from common trees**.	**Disciplinary Knowledge** **Working Scientifically** • I know how to ask questions. • I know how to use simple scientific language. • I can talk about what I have found out. • **I know how to collect numbers and use them in different ways.** • **I know how to use simple equipment to make measurements.** • I know how to observe closely using my senses. • I know how to compare, sort and group things.	**Disciplinary Knowledge** **Working Scientifically** Collect numbers and use them in different ways. Use equipment to make measurements

Plants • **I know how seeds and bulbs grow into plants.** • **I know why plants need water, light and heat to grow and stay healthy.**	• I know how to carry out simple tests. • I know that questions can be answered in different ways. **Transferable Vocabulary** **Questions, answers, equipment, results, Sort, explore, observe, Similar, egg timers, ruler, Tape measure, metre stick**	
Vocabulary As year 1 plus: Seedling, shoot, fully grown, growth, healthy, wither, soil, earth, water, light, cold/hot, nutrients.	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** Steve Cooper GATC https://www.stem.org.uk/ https://www.planassessment.com/

Year 3 Autumn Term A and B	**Rocks**	**Key concepts**
Substantive Knowledge **Rocks** What do they know and can recall? • **I know how to compare and group different kinds of rocks according to their, appearance and physical properties.** • **I know how fossils are formed.** • **I know what soil is made from.**	**Disciplinary Knowledge** **Working Scientifically** • **I know how to ask my own questions and use different ways to answer them.** • I know how to suggest improvements and raise further questions. • I know how to set up my own simple tests. • **I know how to make careful observations.** • I know how to use different equipment to measure accurately in standard units.	**Disciplinary Knowledge** **Working Scientifically** Asking questions. Careful observations

	• I know how to gather, record, classify and present data in different ways. • I know how to explain what I have found out using speaking and writing. • I know how to draw simple conclusions and make predictions for new values. • I know how to use relevant scientific language. **Vocabulary** **As KS1 Plus** **Scientific Enquiry, similarities, differences, observations, keys, Bar, charts, thermometer, data logger, changes over time, identify, classify, evidence, conclusion, magnifying glass, microscope, comparative test, fair test, data, result**	
Vocabulary **Rock, stone, pebble, boulder, absorb water, let water through, soil, fossil, grains. Crystals, texture, layers, molten, magma. Name properties of. such as hard, soft. Name common rocks/soil types- marble, chalk. Clay, sandy.**	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** Rocks workshop https://www.stem.org.uk/ https://www.planassessment.com/
Year 3 Spring term A	**Light**	**Key concepts**
Substantive Knowledge Light What do they know and can recall? • **I know why we need light to see things.** • **I know that dark is the absence of light.** • **I know why the sun is dangerous to the eyes.**	**Disciplinary Knowledge** **Working Scientifically** • I know how to ask my own questions and use different ways to answer them.	**Disciplinary Knowledge** **Working Scientifically** Set up own simple tests and make careful observations.

• **I know shadows are formed and find patterns in the way the size of the shadows are formed.** • **I know about reflected light.**	• I know how to suggest improvements and raise further questions. • **I know how to set up my own simple tests.** • **I know how to make careful observations** • I know how to use different equipment to measure accurately in standard units. • I know how to gather, record, classify and present data in different ways. • I know how to explain what I have found out using speaking and writing. • I know how to draw simple conclusions and make predictions for new values. • I know how to use relevant scientific language. **Vocabulary** **As KS1 Plus** **Scientific Enquiry, similarities, differences, observations, keys, Bar, charts, thermometer, data logger, changes over time, identify, classify, evidence, conclusion, magnifying glass, microscope, comparative test, fair test, data, result**	
Vocabulary **Light, light source, names of light sources, torch etc, dark/darkness, reflect, reflective, mirror, shadow, block, absorb, direction of light, transparent, opaque, translucent, bright, dim, light beam, sunlight.**	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** Centre for Life Newcastle https://www.stem.org.uk/ https://www.planassessment.com/

Year 3 Spring term B

Plants

Key concepts

Substantive Knowledge

Plants
What do they know and can recall?

- **I know what the roots, stem or trunk, leaves, flowers of a plant do.**
- **I know why plants need different amounts of water, light and heat to grow and stay healthy.**
- **I know how water is transported inside plants.**
- **I know about the lifecycle of a flowering plant.**

NOTE; progression from year 2, year 2 children need to know plant parts and their function.

Disciplinary Knowledge

Working Scientifically

- I know how to ask my own questions and use different ways to answer them.
- **I know how to suggest improvements and raise further questions.**
- I know how to set up my own simple tests.
- I know how to make careful observations
- I know how to use different equipment to measure accurately in standard units.
- I know how to gather, record, classify and present data in different ways.
- **I know how to explain what I have found out using speaking and writing.**
- I know how to draw simple conclusions and make predictions for new values.
- I know how to use relevant scientific language.

Vocabulary

As KS1 Plus
Scientific Enquiry, similarities, differences, observations, keys, Bar, charts, thermometer, data logger, changes over time, identify, classify, evidence, conclusion, magnifying glass, microscope, comparative test, fair test, data, result

Disciplinary Knowledge

Working Scientifically

Ask and answer questions, suggest improvements
Explain what I have found out using speaking and writing.

Vocabulary Nutrition, nutrients, dietary fibre, balanced diet, carbohydrate, protein, vitamins. Minerals, fat, skeleton, muscles, support, protection, movement, brain, blood vessels, heart, skulls, ribs, spine, backbone, joints, sockets, bones, tendons.	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** Link with PE https://www.stem.org.uk/ https://www.planassessment.com/
Year 3 Summer term A	**Forces and Magnets**	**Key concepts**
Substantive Knowledge **Forces** What do they know and can recall? • **I know how things move on different surfaces.** • **I know that some forces need contact between objects, but magnetic forces can act at a distance.** • **I know how magnets attract and repel each other and that magnets have poles.** • **I know some materials that are magnetic/not magnetic and know how to group them.**	**Disciplinary Knowledge** **Working Scientifically** • I know how to ask my own questions and use different ways to answer them. • I know how to suggest improvements and raise further questions. • I know how to set up my own simple tests. • I know how to make careful observations • I know how to use different equipment to measure accurately in standard units. • **I know how to gather, record, classify and present data in different ways.** • I know how to explain what I have found out using speaking and writing.	**Disciplinary Knowledge** **Working Scientifically** Gather, record, classify and present data in different ways. Use of relevant scientific language.

	• I know how to draw simple conclusions and make predictions for new values. • **I know how to use relevant scientific language.** **Vocabulary** **As KS1 Plus** **Scientific Enquiry, similarities, differences, observations, keys, Bar, charts, thermometer, data logger, changes over time, identify, classify, evidence, conclusion, magnifying glass, microscope, comparative test, fair test, data, result**	
Vocabulary **Force, gravity, push/pull, direction of force, air resistance, streamlined, float/sink, friction, force-metre. Magnet, magnetic, force, strength, attract, repel, poles, North pole, South pole. Bar magnet, ring magnet, button magnet, horse-shoe magnet,. Name common magnetic/non-magnetic materials.**	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** https://www.stem.org.uk/ https://www.planassessment.com/
Year 3 Summer term B	**Animals including humans**	**Key concepts**
Substantive Knowledge Animals including humans What do they know and can recall? • **I know that animals, including humans have offspring which grow into adults.** • **I know that the basic needs of adults, including humans are water, food and**	**Disciplinary Knowledge** **Working Scientifically** • I know how to ask my own questions and use different ways to answer them. • I know how to suggest improvements and raise further questions.	**Disciplinary Knowledge** **Working Scientifically** Use of different scientific equipment to measure accurately in standard units. Draw simple conclusions and make predictions.

air. I can find out about these and describe them. • **I know about and can describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene.** • **Identify that humans and some other animals have skeletons and muscles for support, protection and movement.**	• I know how to set up my own simple tests. • I know how to make careful observations • **I know how to use different equipment to measure accurately in standard units.** • I know how to gather, record, classify and present data in different ways. • I know how to explain what I have found out using speaking and writing. • **I know how to draw simple conclusions and make predictions for new values.** • I know how to use relevant scientific language. **Vocabulary** **As KS1 Plus** **Scientific Enquiry, similarities, differences, observations, keys, Bar, charts, thermometer, data logger, changes over time, identify, classify, evidence, conclusion, magnifying glass, microscope, comparative test, fair test, data, result**	
Vocabulary **Part, role temperature, absorb, soil, well-drained, fertiliser, nutrients, plant life-cycle, transported, pollination, formation, seed dispersal**	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** Steve Cooper GATC https://www.stem.org.uk/ https://www.planassessment.com/
Year 4 Autumn Term A and B	**Humans and the Digestive System**	**Key concepts**

Substantive Knowledge

Humans and the Digestive System

What do they know and can recall?

- **I know about the different parts of the human digestive system.**
- **I know about the different types of teeth in humans and their simple functions.**
  I know how to draw and interpret a variety of food chains identifying producers, predators and prey.

Disciplinary Knowledge

Working Scientifically

- **I know how to ask my own questions and use different ways to answer them.**
- **I know how to suggest improvements and raise further questions.**

- I know how to set up my own simple tests.
- I know how to make careful observations
- I know how to use different equipment to measure accurately in standard units.
- I know how to gather, record, classify and present data in different ways.
- I know how to explain what I have found out using speaking and writing.
- I know how to draw simple conclusions and make predictions for new values.
- I know how to use relevant scientific language.

Vocabulary

As KS1 Plus
Scientific Enquiry, similarities, differences, observations, keys, Bar, charts, thermometer, data logger, changes over time, identify, classify, evidence, conclusion, magnifying glass, microscope, comparative test, fair test, data, result, increase, decrease, accurate, appearance.

Disciplinary Knowledge

Working Scientifically

Ask own questions and use different ways to answer them.
Suggest improvements and raise further questions.

Vocabulary
As previous plus:
Digestive system, saliva, oesophagus, stomach, small intestine, large intestine, absorb into bloodstream, swallowing, chewing, rectum, anus, faeces, consumer, predator, prey, producers, canines, incisors, pre-molar, molars, cavities, dentine, plaque, pulp-cavity, fluoride, tooth decay, gums, nerves, enamel.

National Curriculum Links

https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study

Useful links or sources of information
https://www.stem.org.uk/
https://www.planassessment.com/

Year 4 Spring Term A	Sound	Key concepts
Substantive Knowledge **Sound** What do they know and can recall? • **I know how sounds are made.** • **I know how sound travels to your ear.** • **I know how the pitch of a sound depends on the object that produced it.** • **I know how to describe volume in terms of vibrations.** • **I know what happens to a sound when you get further away from it.**	**Disciplinary Knowledge** **Working Scientifically** • I know how to ask my own questions and use different ways to answer them. • I know how to suggest improvements and raise further questions. • **I know how to set up my own simple tests.** • **I know how to make careful observations** • I know how to use different equipment to measure accurately in standard units. • I know how to gather, record, classify and present data in different ways. • I know how to explain what I have found out using speaking and writing. • I know how to draw simple conclusions and make predictions for new values. • I know how to use relevant scientific language. **Vocabulary** **As KS1 Plus** **Scientific Enquiry, similarities, differences, observations, keys, Bar, charts, thermometer, data logger, changes over time, identify, classify, evidence, conclusion, magnifying glass, microscope, comparative test, fair test, data, result, increase, decrease, accurate, appearance.**	**Disciplinary Knowledge** **Working Scientifically** Set up own simple tests and make careful observations.

Vocabulary **Sound, sound source, noise, vibrate/vibration, travel, sound wave, pitch, volume, loud/quiet, tune, high/low, echo, tuning fork, insulation, instrument, percussion, string, brass, woodwind, tunes, instrument.**	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** https://www.stem.org.uk/ https://www.planassessment.com/
Year 4 Spring term B	**Electricity**	**Key concepts**
Substantive Knowledge Electricity What do they know and can recall? • **I know some appliances that run on electricity.** • **I know how to build a series electrical circuit and name each element.** • **I know how switches work in a circuit.** • **I know some common conductors/ Insulators.** **Vocabulary** **Electricity, electrical device/appliances, mains, plug, components, conductor, insulator, circuit**	**Disciplinary Knowledge** **Working Scientifically** • I know how to ask my own questions and use different ways to answer them. • I know how to suggest improvements and raise further questions. • I know how to set up my own simple tests. • I know how to make careful observations • I know how to use different equipment to measure accurately in standard units. • I know how to gather, record, classify and present data in different ways. • **I know how to explain what I have found out using speaking and writing.** • **I know how to draw simple conclusions and make predictions for new values.** • I know how to use relevant scientific language.	**Disciplinary Knowledge** **Working Scientifically** Explain what I have found out using speaking and writing. Draw simple conclusions and make predictions. Use relevant scientific language when giving explanations

symbol, cell, battery, wire, bulb, switch, buzzer, motor, connection, electrical/simple circuit, complete circuit, closed circuit, open circuit, positive, negative, crocodile clip.	**Vocabulary** **As KS1 Plus** **Scientific Enquiry, similarities, differences, observations, keys, Bar, charts, thermometer, data logger, changes over time, identify, classify, evidence, conclusion, magnifying glass, microscope, comparative test, fair test, data, result, increase, decrease, accurate, appearance.**	
	National Curriculum Links https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** https://www.stem.org.uk/ https://www.planassessment.com/
Year 4 Summer term A	**Animals and Habitats**	**Key concepts**
Substantive Knowledge **Animals and Habitats** What do they know and can recall? • I know how living things can be grouped together. • I know about how environmental changes can affect living things and pose dangers.	**Disciplinary Knowledge** **Working Scientifically** • I know how to ask my own questions and use different ways to answer them. • I know how to suggest improvements and raise further questions. • I know how to set up my own simple tests. • I know how to make careful observations • I know how to use different equipment to measure accurately in standard units. • **I know how to gather, record, classify and present data in different ways.**	**Disciplinary Knowledge** **Working Scientifically** Gather, record, classify and present data in different ways. Use of relevant scientific language.

- I know how to use a classification key to name a variety of living things in the wider and local environment.

Vocabulary
As previous plus:
Classification keys, environment, fish, reptiles, amphibians, mammals, birds, vertebrates, invertebrates, human impact, plant groups (trees, grasses, flowering and non-flowering plants) Name some common invertebrates.

- I know how to explain what I have found out using speaking and writing.
- I know how to draw simple conclusions and make predictions for new values.
- **I know how to use relevant scientific language**.

Vocabulary

As KS1 Plus
Scientific Enquiry, similarities, differences, observations, keys, Bar, charts, thermometer, data logger, changes over time, identify, classify, evidence, conclusion, magnifying glass, microscope, comparative test, fair test, data, result, increase, decrease, accurate, appearance.

Year 4 Summer term B

States of Matter (The Water Cycle)

Key concepts

Substantive Knowledge

States of Matter: The Water Cycle

What do they know and can recall?

- **I know how to group materials by state- solid, liquid, gas.**
- **I know that some materials change state when they are heated/cooled and observe/ research the temperature at which this happens in degrees Celsius.**
- **I know part played by evaporation/ condensation in the water cycle, associate the rate of evaporation with temperature.**

Disciplinary Knowledge

Working Scientifically

- I know how to ask my own questions and use different ways to answer them.
- I know how to suggest improvements and raise further questions.

- I know how to set up my own simple tests.
- I know how to make careful observations
- **I know how to use different equipment to measure accurately in standard units.**
- **I know how to gather, record, classify and present data in different ways.**
- I know how to explain what I have found out using speaking and writing.
- I know how to draw simple conclusions and make predictions for new values.
- I know how to use relevant scientific language.

Disciplinary Knowledge

Working Scientifically

Use of different scientific equipment to measure accurately in standard units.
Gather, record, classify and present data in different ways.

	Vocabulary **As KS1 Plus** **Scientific Enquiry, similarities, differences, observations, keys, Bar, charts, thermometer, data logger, changes over time, identify, classify, evidence, conclusion, magnifying glass, microscope, comparative test, fair test, data, result, increase, decrease, accurate, appearance.**	
Vocabulary **As previous plus:** **Air, oxygen, powder, grain/granular, changes state, gaseous, particles, water vapour, water cycle, heating/cooling, degree Celsius, melt, freeze, boil, evaporation, condensation, energy, transfer.**	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** https://www.stem.org.uk/ https://www.planassessment.com/

Year 5 Autumn term A	**Forces**	**Key concepts**
Substantive Knowledge **Forces** What do they know and can recall? • **I know why objects fall to Earth.** • **I know about the effects of air/water resistance and friction.**	**Disciplinary Knowledge** **Working Scientifically** • I know how to ask different kinds of questions. • **I know how to plan different types of scientific enquiries to answer questions.** • I know how to use scientific knowledge to support my conclusions. • I know how to use results to make predictions and set up more tests.	**Disciplinary Knowledge** **Working Scientifically** Ask different kinds of questions. Plan different types of scientific enquiry to answer questions. Use different scientific equipment with precision and take repeat readings where necessary.

• **I know how mechanisms allow a smaller force to have a greater effect.**	• I know how to set up a fair test when necessary and decide what observations and measurements to make. • I know how to decide how to record data and results. • I know how to use scientific diagrams, labels, classifications, keys, tables, scatter, bar and line graphs. • **I know how to use different scientific equipment to measure with precision and take repeat readings where appropriate.** • I know how to report and present findings. • I know how to identify scientific evidence used to support or refute ideas or arguments. **Vocabulary** **As previous plus:** **Variable, independent, dependent, controlled, precision, opinion, prediction, fact, Classification, keys, relationships, experiment, research, data, observe, conclusions, prove.**	
Vocabulary **Forces:** **Buoyancy, mechanisms,** **Air resistance, water resistance, gravity,** **Friction, streamlined,** **Levers, pulleys, gears** **Springs, drag force,** **Motion.**	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** https://www.stem.org.uk/ https://www.planassessment.com/

Year 5 Autumn term B

Materials

Key concepts

Substantive Knowledge

Materials

What do they know and can recall?

- **I know how to classify materials by transparency, hardness, solubility, Electrical/ Thermal conductivity and response to magnets.**
- **I know how some materials dissolve to form a solution.**
- **I know how best to separate mixtures including filtering, sieving and evaporating.**
- I know how to give reasons based on evidence from comparative and fair testing for the uses of everyday materials.
- **I know how to demonstrate that dissolving, mixing and changes of state are reversible changes.**
- **I know that some changes result in the formation of new materials and this change is not usually reversible.**

Disciplinary Knowledge

Working Scientifically

- I know how to ask different kinds of questions.
- I know how to plan different types of scientific enquiries to answer questions.
- I know how to use scientific knowledge to support my conclusions.
- I know how to use results to make predictions and set up more tests.
- **I know how to set up a fair test when necessary and decide what observations and measurements to make.**
- I know how to decide how to record data and results.
- I know how to use scientific diagrams, labels, classifications, keys, tables, scatter, bar and line graphs.
- I know how to use different scientific equipment to measure with precision and take repeat readings where appropriate.
- I know how to report and present findings.
- I know how to identify scientific evidence used to support or refute ideas or arguments.

Vocabulary

As previous plus:

Variable, independent, dependent, controlled, precision, opinion, prediction, fact, Classification, keys, relationships, experiment, research, data, observe, conclusions, prove.

Disciplinary Knowledge

Working Scientifically

Set up a fair test (when necessary) and deicide what observations and measurements to make.

Vocabulary **Dissolve, solution** **Conductor, insulator** **State, thermal,** **Reaction/react,** **Reversible, irreversible,** **Soluble, insoluble,** **Suspension, solvent,** **Filtering, sieving,** **Mixture.**	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** https://www.stem.org.uk/ https://www.planassessment.com/
Year 5 Spring Term A	**Space**	**Key concepts**
Substantive Knowledge Space What do they know and can recall? • **I know how the planets in our solar system move in relation to the sun.** • **I know how the moon moves in relation to the Earth.** • **I know the shape of the Sun, Moon and Earth.** • **I know how day turns into night.**	**Disciplinary Knowledge** **Working Scientifically** • **I know how to ask different kinds of questions.** • I know how to plan different types of scientific enquiries to answer questions. • I know how to use scientific knowledge to support my conclusions. • I know how to use results to make predictions and set up more tests. • I know how to set up a fair test when necessary and decide what observations and measurements to make. • I know how to decide how to record data and results.	**Disciplinary Knowledge** **Working Scientifically** Ask different kinds of questions. Use scientific diagrams. Labels, classification keys, tables, scatter bar and line graphs.

	• **I know how to use scientific diagrams, labels, classifications, keys, tables, scatter, bar and line graphs.** • I know how to use different scientific equipment to measure with precision and take repeat readings where appropriate. • I know how to report and present findings. • I know how to identify scientific evidence used to support or refute ideas or arguments. **Vocabulary** **As previous plus:** **Variable, independent, dependent, controlled, precision, opinion, prediction, fact, Classification, keys, relationships, experiment, research, data, observe, conclusions, prove.**	
Vocabulary **Orbit, rotation, axis** **Solar system, spherical** **Celestial body, earth** **Planet, moon, night, day** **Revolve, sundials, Shadow, light, elliptical.**	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** https://www.stem.org.uk/ https://www.planassessment.com/
Year 5 Spring B	**Animals including humans**	
Substantive Knowledge Animals including humans What do they know and can recall?	**Disciplinary Knowledge** **Working Scientifically** • I know how to ask different kinds of questions.	**Disciplinary Knowledge** **Working Scientifically** Use scientific knowledge to support my conclusions.

• **I know how to describe humans change as they age.**	• I know how to plan different types of scientific enquiries to answer questions. • **I know how to use scientific knowledge to support my conclusions.** • I know how to use results to make predictions and set up more tests. • I know how to set up a fair test when necessary and decide what observations and measurements to make. • I know how to decide how to record data and results. • I know how to use scientific diagrams, labels, classifications, keys, tables, scatter, bar and line graphs. • I know how to use different scientific equipment to measure with precision and take repeat readings where appropriate. • I know how to report and present findings. • **I know how to identify scientific evidence used to support of refute ideas or arguments.** **Vocabulary** **As previous plus:** **Variable, independent, dependent, controlled, precision, opinion, prediction, fact, Classification, keys, relationships, experiment, research, data, observe, conclusions, prove.**	Identify scientific evidence used to support or refute ideas or arguments.
Vocabulary **Reproduce, birth,** **Fertilisation, menstrual cycle,** **Puberty, adolescence** **Gestation, hormones,** **Penis, vagina, testes** **Embryo, ovary, egg cell** **live, young**	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** https://www.stem.org.uk/ https://www.planassessment.com/

Year 5 Summer

Animal Habitats

Substantive Knowledge

Animals and habitiats

What do they know and can recall?

- **I know the differences between the lifecycles of a mammal, bird, insect and amphibian.**
- **I know how to describe the reproductive cycle of a plant/animal.**

Disciplinary Knowledge

Working Scientifically

- I know how to ask different kinds of questions.
- **I know how to plan different types of scientific enquiries to answer questions.**
- I know how to use scientific knowledge to support my conclusions.
- I know how to use results to make predictions and set up more tests.
- I know how to set up a fair test when necessary and decide what observations and measurements to make.
- **I know how to decide how to record data and results.**
- I know how to use scientific diagrams, labels, classifications, keys, tables, scatter, bar and line graphs.
- **I know how to use different scientific equipment to measure with precision and take repeat readings where appropriate.**
- I know how to report and present findings.
- I know how to identify scientific evidence used to support of refute ideas or arguments.

Vocabulary

As previous plus:

Variable, independent, dependent, controlled, precision, opinion, prediction, fact, classification, keys, relationships, experiment, research, data, observe, conclusions, prove.

Disciplinary Knowledge

Working Scientifically

Plan different types of scientific enquiry to answer questions.
Decide how to record data and results.

Vocabulary **Seed dispersal, seed formation, pollen, stamen, Stigma, anther, filament, Style, sepal, carpel, ovum, Reproduce, sexual, asexual Germination, pollination**	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** https://www.stem.org.uk/ https://www.planassessment.com/
Year 6 Autumn term A	**Evolution and Inheritance**	**Key concepts**
Substantive Knowledge Evolution and Inheritance What do they know and can recall? • **I know how fossils provide information about living things on the Earth millions of years ago.** • **I know why the offspring of living things are similar but not identical to their parents.** • **I know how animals and plants adapt to suit their environment.** • **I know how to explain that evolution is caused by the ability to adapt to environments**	**Disciplinary Knowledge** **Working Scientifically** • **I know how to ask different kinds of questions.** • I know how to plan different types of scientific enquiries to answer questions. • **I know how to use scientific knowledge to support my conclusions**. • I know how to use results to make predictions and set up more tests. • I know how to set up a fair test when necessary and decide what observations and measurements to make. • I know how to decide how to record data and results. • I know how to use scientific diagrams, labels, classifications, keys, tables, scatter, bar and line graphs.	**Disciplinary Knowledge** **Working Scientifically** Ask different types of questions. Use scientific knowledge to support conclusions.

	• I know how to use different scientific equipment to measure with precision and take repeat readings where appropriate. • I know how to report and present findings. • I know how to identify scientific evidence used to support of refute ideas or arguments. **Vocabulary** **As previous plus:** **Variable, independent, dependent, controlled, precision, opinion, prediction, fact, classification, keys, relationships, experiment, research, data, observe, conclusions, prove, Systematic, causal relationships, refute, degree of trust.**	
Vocabulary	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** https://www.stem.org.uk/ https://www.planassessment.com/
Year 6 Autumn term B	**Animals including humans**	**Key concepts**
Substantive Knowledge Animals including humans What do they know and can recall? • **I know how to identify and name the main parts of the human circulatory system.**	**Disciplinary Knowledge** **Working Scientifically** • I know how to ask different kinds of questions. • I know how to plan different types of scientific enquiries to answer questions. • **I know how to use scientific knowledge to support my conclusions.**	**Disciplinary Knowledge** **Working Scientifically** Use scientific knowledge to support conclusions. Use result to make predictions and set up more tests.

- **I know how to describe the functions of the heart, blood vessels and blood.**
- **I know about the impact of diet, exercise, drugs and lifestyle on the function of the human body.**
- **I know how to describe the ways in which nutrients and water are transported within animals and humans.**

- **I know how to use results to make predictions and set up more tests.**
- I know how to set up a fair test when necessary and decide what observations and measurements to make.
- I know how to decide how to record data and results.
- I know how to use scientific diagrams, labels, classifications, keys, tables, scatter, bar and line graphs.
- I know how to use different scientific equipment to measure with precision and take repeat readings where appropriate.
- I know how to report and present findings.
- I know how to identify scientific evidence used to support of refute ideas or arguments.

Vocabulary

As previous plus:

Variable, independent, dependent, controlled, precision, opinion, prediction, fact, classification, keys, relationships, experiment, research, data, observe, conclusions, prove, Systematic, causal relationships, refute, degree of trust.

Vocabulary

Circulatory system, arteries, veins, chambers, blood vessels, Oxygenated, deoxygenated, Aorta, capillaries, pulmonary, ventricle, red and white blood cells, plasma, respiratory system, trachea, pulse, heart rate.

National Curriculum Links

https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study

Useful links or sources of information

https://www.stem.org.uk/
https://www.planassessment.com/

Year 6 Spring term A	Electricity	Key concepts
Substantive Knowledge Electricity What do they know and can recall? • **I know how the brightness of a lamp or volume of a buzzer is associated with the number and voltage of cells used in a circuit.** • **I know how to compare and give reasons for variations in how components function in circuits.** • **I know how to use recognised symbols to represent a simple circuit in a diagram.**	**Disciplinary Knowledge** **Working Scientifically** • I know how to ask different kinds of questions. • I know how to plan different types of scientific enquiries to answer questions. • I know how to use scientific knowledge to support my conclusions. • I know how to use results to make predictions and set up more tests. • **I know how to set up a fair test when necessary and decide what observations and measurements to make.** • **I know how to decide how to record data and results.** • **I know how to use scientific diagrams, labels, classifications, keys, tables, scatter, bar and line graphs.** • I know how to use different scientific equipment to measure with precision and take repeat readings where appropriate. • I know how to report and present findings. • I know how to identify scientific evidence used to support of refute ideas or arguments. **Vocabulary** **As previous plus:** **Variable, independent, dependent, controlled, precision, opinion, prediction, fact, classification, keys, relationships, experiment, research, data, observe, conclusions, prove, Systematic, causal relationships, refute, degree of trust.**	**Disciplinary Knowledge** **Working Scientifically** Set up a fair test (when necessary) and deicide what observations and measurements to make. Decide how to record data and results. Use scientific diagrams, labels, classification keys, scatter, bar and line graphs.

Vocabulary **Series circuit, terminal,** **Voltage, volume, Current, resistance,** **Circuit diagrams,** **Parallel circuits,** **Component (Y4 List),** **Conductor and insulator (Y4 List)**	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** https://www.stem.org.uk/ https://www.planassessment.com/
Year 6 Spring term B	**Light**	**Key concepts**
Substantive Knowledge Light What do they know and can recall? • **I know and can talk about how light appears to travel.** • **I know how objects need to reflect light to be visible.** • **I know how we are able to see things because of light travelling.** • **I know why shadows are the same shape as the objects that cast them.**	**Disciplinary Knowledge** **Working Scientifically** • I know how to ask different kinds of questions. • I know how to plan different types of scientific enquiries to answer questions. • I know how to use scientific knowledge to support my conclusions. • I know how to use results to make predictions and set up more tests. • I know how to set up a fair test when necessary and decide what observations and measurements to make. • I know how to decide how to record data and results.	**Disciplinary Knowledge** **Working Scientifically** Use scientific measuring equipment accurately and take repeat reading where necessary. Report and present findings. .

	• I know how to use scientific diagrams, labels, classifications, keys, tables, scatter, bar and line graphs. • **I know how to use different scientific equipment to measure with precision and take repeat readings where appropriate.** • **I know how to report and present findings.** • I know how to identify scientific evidence used to support of refute ideas or arguments. **Vocabulary** **As previous plus:** **Variable, independent, dependent, controlled, precision, opinion, prediction, fact, classification, keys, relationships, experiment, research, data, observe, conclusions, prove, Systematic, causal relationships, refute, degree of trust.**	
Vocabulary **Absorption, transmission** **Lenses, optics, prism** **Refraction, spectrum,** **Retina, cornea, pupil,** **Iris, sclera.**	**National Curriculum Links** https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	**Useful links or sources of information** https://www.stem.org.uk/ https://www.planassessment.com/
Year 6 Summer term	**Living Things and their habitats**	**Key concepts**

Substantive Knowledge

Living things and their habitats

What do they know and can recall?

- **I know how living things are classified into broad groups according to common observable characteristics.**
- **I know how to classify plants and animals into groups and know why they have been classified into those groups**.

Disciplinary Knowledge

Working Scientifically

- I know how to ask different kinds of questions.
- I know how to plan different types of scientific enquiries to answer questions.
- **I know how to use scientific knowledge to support my conclusions**.
- I know how to use results to make predictions and set up more tests.
- I know how to set up a fair test when necessary and decide what observations and measurements to make.
- I know how to decide how to record data and results.
- I know how to use scientific diagrams, labels, classifications, keys, tables, scatter, bar and line graphs.
- I know how to use different scientific equipment to measure with precision and take repeat readings where appropriate.
- I know how to report and present findings.
- **I know how to identify scientific evidence used to support of refute ideas or arguments.**

Vocabulary

As previous plus:

Variable, independent, dependent, controlled, precision, opinion, prediction, fact, classification, keys, relationships, experiment, research, data, observe, conclusions, prove, Systematic, causal relationships, refute, degree of trust.

Disciplinary Knowledge

Working Scientifically

Use scientific knowledge to support conclusions. Identify scientific evidence used to support or refute ideas or arguments.

Vocabulary	**National Curriculum Links**	**Useful links or sources of information**
Organism, micro-organism, Invertebrates/vertebrates, Arachnid, mollusc, insect and crustacean, kingdoms, amphibian, classification key.	https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study	https://www.stem.org.uk/ https://www.planassessment.com/