Year Three/Four

Autumn

Crucial Knowledge (Rocks) – Autumn	Expanded Knowledge	Intent/Prove
Background knowledge: - Science is the study of the natural world through observation and experiment. - Scientists study science, setting up investigations and experiments to prove their scientific ideas. - Rocks are a natural material found in the Earth. • Different rocks look different. • Different rocks have different properties, such as hard, soft, rough, smooth, porous, non-porous etc. • There are 3 different types of naturally occurring rocks: igneous, sedimentary and metamorphic • Igneous rocks have been formed when magma or lava cools. • Sedimentary rocks are formed by layers of sediment (tiny pieces of rocks and animal skeletons) pressed down on top of each other • Metamorphic rocks started as igneous or sedimentary but changed as a result of extreme heat or pressure • Fossils are formed when things that have lived are trapped within rock. • Soil is made from rocks and organic matter (minerals, air, water and organic matter)	• Pupils can names some different types of rocks that make up soil. • Pupils can explain why specific rocks are used for different purposes. • Pupils can explain how rocks change over time due to corrosion and erosion. • Rocks are altered to create items of use for people e.g. bricks for buildings and salt for cooking • Paleontology is the scientific study of life in the past that involves the analysis of plant and animal fossils	• Pupils will demonstrate their understanding of the topic through their own investigations., e.g. investigating the properties of rocks. • Pupils will use systematic and careful observation skills to discover differences and similarities between rocks, e.g. observing crystals in rocks. • Pupils will gather, classify record and present data in a variety of ways, e.g. classifying rocks or recording and presenting information from investigations • Report findings from enquiries, e.g. reporting findings from investigations.

Crucial Knowledge (animals including Humans)- Autumn	Expanded Knowledge	Intent/Prove
Background knowledge: • Science is the study of the natural world through observation and experiment. • Scientists study science, setting up investigations and experiments to prove their scientific ideas. • Animals are living things that feed themselves • Nutrition is giving your body the food it needs for it to grow and be healthy. • Animals including humans need the right type of nutrition. • Animals including humans need the right amount of nutrition. • Animals including humans cannot make their own food, they have to hunt, prepare and eat food. • Humans and some animals have skeletons and muscles. • Humans and animals have muscles and skeletons for support, protection and movement.	• Pupils can identify animals without skeletons. • Pupils can group animals based on diet, e.g. herbivores, omnivores and carnivores. • Pupils can name specific bones and muscles. • Pupils can explain how these bones and muscles support, protect and aid movement for our bodies.	• Pupils will gather, classify record and present data in a variety of ways, e.g. gathering information about animals' skeletons. • Use scientific evidence to answer questions, e.g. looking at the evidence behind mu7scles, diet or skeletons. • Identify differences, similarities or changes related to scientific ideas, e.g. looking at different skeletons or diets. • Ask relevant questions to answer scientific enquiries.

Spring

Crucial Knowledge Spring (Forces)	Expanded Knowledge	Intent/Prove
Background knowledge:	• Magnets are used in everyday life, e.g. a compass or an MRI scanner.	• Pupils will use systematic and careful observation skills, e.g. to observe what materials are

• Science is the study of the natural world through observation and experiment. • Scientists study science, setting up investigations and experiments to prove their scientific ideas. • Forces are a push or a pull in a particular direction. • Friction is the force that's created when 2 surfaces make contact with each other. • Friction slows objects down. • Different objects and surfaces create different amounts of friction. • Most forces need contact between 2 objects. • Magnetic forces do not need contact but can act from a distance. • Some materials are magnetic but some are not. • Magnets can attract or repel each other. • Magnets have 2 poles (North and South).	• Pupils can explain why some objects are purposefully made magnetic and others are not. • Pupils can group how different objects move. • Pupils can suggest creative uses for different magnets.	magnetic or how objects move across surfaces. • Setting up simple, practical enquiries and fair tests, e.g. pushes and pulls, magnetism • Record and report findings from enquiries in different ways, e.g. reporting findings from investigations. • Use results to draw simple conclusions and make new predictions, e.g. from investigations/tests

Crucial Knowledge (Plants) - Spring	Expanded Knowledge	Intent/Prove
Background knowledge: • Science is the study of the natural world through observation and experiment. • Scientists study science, setting up investigations and experiments to prove their scientific ideas. • Plants are living things found on the Earth, which produce their own food.	• Pupils can explain how each part of a plant has a different function. • Pupils can explain how each part of a plant has a different purpose. • Pupils can explain how if a requirement is missing, it will affect the plant in certain ways, e.g. no light means a plant will be frail. • Plants have adaptations in order to grow in certain environments.	• Pupils will use systematic and careful observation skills to discover differences and similarities between plants, e.g. the life cycle of plants or water transportation in plants. • Identify differences, similarities or changes related to scientific ideas, e.g. looking at different plants and how they need different amounts of light/water/nutrition etc.

• Plants have roots, stems, leaves and a flower (made up from petals and pollen). • Roots anchor the plant and suck up water and absorb nutrients from the soil. • Stems hold up the flower and transports the water and nutrients. • Leaves produce food for plants, which is known as photosynthesis. • Petals attract bees to pollinate the flowers. • Pollen is passed on from bees to create more flowers. • Plants need light, water, space, CO2 and nutrients to grow and need different amounts of these requirements to grow. • Plants have a life cycle: the seed, germination, growth, reproduction, pollination, and seed spreading.		• Setting up simple, practical enquiries and fair tests, e.g. water transportation. • Report findings from enquiries, e.g. reporting findings from investigations. • Use results to draw simple conclusions and make new predictions, e.g. from investigations/tests.

Summer

Crucial Knowledge Summer (Light)	Expanded Knowledge	Intent/Prove
Background knowledge: • Science is the study of the natural world through observation and experiment. • Scientists study science, setting up investigations and experiments to prove their scientific ideas. • Light is a type of energy that makes it possible for us to see the world around us • We need light to see.	• Pupils can explain what happens when light reflects off a mirror or another reflective surface. • Pupils can explain the term reflective, opaque, transparent and translucent. • Pupils know that light travels is straight lines.	• Pupils will use systematic and careful observation skills, e.g. to observe shadows and how they change. • Record and report findings from enquiries in different ways, e.g. reporting findings from investigations. • Use results to draw simple conclusions and make new predictions, e.g. from investigations/tests.

• Darkness is the absence of light. • Light comes from light sources, e.g. the sun. • Light can be reflected from surfaces. • The light from the sun can be dangerous. • We should protect our eyes from the sun. • Shadows are formed when light is blocked by an opaque object. • Shadows change based on distance from the light source. • Shadows change based on the strength of the light source.		• Setting up simple, practical enquiries and fair tests, e.g. shadows.