HILLCREST EARLY YEARS ACADEMY

Aim High & Achieve

# Science Curriculum

# EYFS, Year 1 and 2

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| Intent | The Science curriculum is designed in a way in which our children can develop a strong understanding of the world around them whilst acquiring specific skills and knowledge to hep them think scientifically, to gain understanding of scientific processed and an understanding of scientific processed and also an understanding of the uses and implications of Science. At Hillcrest Early Years Academy, we use Snap Science as the basis of our Science teaching. Scientific enquiry is embedded into each lesson and as the children move through the academy, these skills are built upon. On leaving Hillcrest Early Years Academy, children will have developed strong foundations on which they can continue to build scientific knowledge and skills. |
| Implementation | Snap Science is used as a basis on which to plan Science. Lessons have a clear three-part structure; explore, enquire and reflect and review. As much as possible, we ensure that children learn through first-hand experiences and practical activities which make Science learning fun and interactive. The modules are designed in a way in which key ideas and vocabulary are revisited over the course of a series of lessons and are built on as topics progress between years and key stages. Children will be able to review and build upon prior skills, knowledge and vocabulary to allow them to work scientifically and become enquiry-based learners. Where appropriate, cross-curricular links are evident in the weekly teaching of science where children are encouraged to practise their maths, English and represent our values-based learning, SMSC and British Values. |
| Impact | Through a consistent and practical approach to teaching science, children acquire the knowledge, skills and understanding they need to become young scientists. Snap Science is constructed in a way that ensures broad and deep engagement of the Programme of Study for Science and that assessment strategies and resources measure what children have been taught and learned. The framework is shaped by a clear progression of scientific knowledge and skills from FS to KS1, which will give children a strong foundation on which to build upon as they leave Hillcrest Early Years Academy. |

# KS1 Long Term Plan

| | Autumn | Spring | Summer |
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| Year 1 | Module 4 – Everyday materials | Module 2 – Looking at animals | Module 1 – Plant detectives |
| | Lessons 1, 2, 3, 4 | Lessons 1, 2, 3, 4, 7 | Lessons 1, 2, 3, 4, 5 |
| | Module 3 – Using our senses | Return to Module 4 – Everyday Materials | Return to Module 2 – Looking at Animals |
| | Lessons 1, 2, 3, 4, 5, 6 and E1 | Lessons 5, 7, 6, 10 and E1 | Lessons 6, E1 and E4 |
| | **Our Changing World – Plants**<br>Lessons 1, 2<br>**Our Changing World – Animal Antics**<br>Lesson 1<br>**Our Changing World – Sensing seasons (link with Using our senses module)**<br>Lessons 2 and 3 | **Our Changing World – Plants**<br>Lessons 3, 4<br>**Our Changing World – Animal Antics**<br>Lesson 2<br>**Our Changing World – Sensing seasons**<br>Lesson 4 | **Our Changing World – Plants**<br>Revisit Lessons 3 and 4, teach lesson 5<br>**Our Changing World – Sensing seasons**<br>Revisit Lessons 2 and 3 |
| Year 2 | Module 1 – What is in your habitat? | Module 4 – Materials: Shaping up | Module 6 – Growing up |
| | Lessons 1, 2, 3 | Lessons 1, 2, 3, 4 | Lessons 1, 2, 3, 4 |
| | Module 3 – Materials: Good choices | Module 2- The apprentice gardener | Module 5- Take care |
| | Lessons 1, 3, 4, 5, 6, 7 | Lessons 1, 2, 3, 4, 5, 6, 7, 8 | Lessons 1, 2, 3, 4 |
| | | | Module 2 – The apprentice gardener (continued) |
| | | | Lessons 9 and 10 |
| | **Our Changing World – teach with What is in your habitat**<br>Lessons 1, 2, 3 | **Our Changing World – teach with What is in your habitat**<br>Lessons 5 and 6 | **Our Changing World – teach with What is in your habitat**<br>Lessons 6 and 7<br>**Our Changing World – teach with Growing up Lesson 4** |

# Science Subject Progression

| Nursery | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
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| Development Matters | Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary. Begin to understand the need to respect and care for the natural environment and all living things. | Talk about what they see, using a wide vocabulary. Begin to understand the need to respect and care for the natural environment and all living things. Explore and talk about different forces they can feel. Make healthy choices about food, drink, activity and toothbrushing. | Talk about what they see, using a wide vocabulary. | Use all their senses in hands-on exploration of natural materials. Talk about what they see, using a wide vocabulary. Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things | Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary. Talk about the differences between materials and changes they notice. | Talk about what they see, using a wide vocabulary. Begin to understand the need to respect and care for the natural environment and all living things. |
| Knowledge/ Skills/ Understanding | Explore, sort and name natural materials. | Name and make observations of different types of weather. Understand clothing choices for different types of weather. Understand the importance of tooth brushing. | Make healthy choices about food and drink. | Plant seeds and care for growing plants. Observe how plants grow. Name some parts of a plant. Understand the key features of the life cycle of a caterpillar. | Name some materials. Talk about differences in materials. Talk about changes they observe. Make healthy choices in relation to exercise. | Name different parts of animals Talk about similarities and differences between animals |

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| | | | | Understand how humans change as they grow. | | |

| Reception | Who are the people that are important to me? | Where does our food come from? | Is everyone asleep at night? | Who can I ask for help? | Good choice, bad choice? | Are all scary looking creatures bad? |
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| Development Matters<br>ELG (Bold) | Explore the natural world around them.<br>Describe what they see, hear and feel while they are outside.<br>Understand the effect of changing seasons on the natural world around them.<br>**Explore the natural world around them, making observations and drawing pictures of animals and plants.**<br>**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.<br>**Explore the natural world around them, making observations and drawing pictures of animals and plants.** | Explore the natural world around them.<br>Recognise some environments that are different to the one in which they live.<br>**Explore the natural world around them, making observations and drawing pictures of animals and plants.**<br>**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.** | Describe what they see, hear and feel while they are outside.<br>**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.** | Explore the natural world around them.<br>**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.<br>Describe what they see, hear and feel while they are outside.<br>**Explore the natural world around them, making observations and drawing pictures of animals and plants.**<br>**Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.** |

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| Knowledge/ Skills/ Understanding | Name and identify body parts of a human. Name the season Autumn and describe some features of the season. Name and describe natural objects such as leaves and acorns. | Understand where fruits and vegetables can from. Observe changes as seeds grow. Make healthy choices in relation to food. Understand the importance of toothbrushing. | Understand the differences between day and night. Talk about things that happen during the day and things that happen at night. Name and describe nocturnal animals. | Name the season Spring and describe some features of the season. Understand healthy choices in relation to exercise and screen time. | Explore and observe changes in states of matter. Explore floating and sinking and magnets. | Name the season Summer and describe some features of the season. Name, describe and observe animals. |

| Year 1 | Everyday Materials | Our Changing World: Sensing Seasons | Animal Antics | Using our senses | Looking at animals | Plant detectives |
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| National Curriculum | **Everyday materials** Distinguish between the object and the material from which it is made Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. Describe the physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties. | **Seasonal changes** Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies | **Animals, including humans** Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals | **Animals, including humans** Identify, name, draw and label basic parts of the human body and say which part of the body is associated with each sense | **Animals, including humans** Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) Identify and name a variety of common animals | **Plants** Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees |

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| | | | | | that are carnivores, he | |
| Knowledge/ Skills/ Understanding | Name and identify wood, plastic, metal, glass, rock, brick, water and other materials. Understand that these materials can be made into many different objects e.g. spoons made of plastic, wood or metal. Distinguish between an object and the material from which it is made, and to define an object by the material from which it is made e.g. a wooden spoon. | Observe the effects that changing seasons and weather have on them and on the world around them. Use their senses as they consider what clothing they should wear in different weather conditions and during different seasons of the year. Keep their own weather records and look for patterns in the data that they have collected. | Visits to the school grounds and the local area and make observations of any animal life. | Identify and name the parts of their bodies, as they draw and label a life-size version of themselves or a classmate. Use their sense of taste as they test, describe and compare a variety of flavours. Complete a sound walk around the school buildings and grounds. Explore using the sense of touch to discover more about the world around them. Explore their sense of smell, testing a range of 'smell makers' and recording data | Explore the variety of animals living on the Earth. Examine the structures of animals' bodies, particularly reptiles and amphibians Observe and compare fish, looking at real examples. Observe and compare different birds and in particular examine feathers. Group animals: carnivore, herbivore or omnivore. | Look closely at garden plants around the school, including flowering plants, learn their names and make simple comparisons. |
| Working Scientifically | When working scientifically there is a strong emphasis throughout the module on children using their senses to | Using observations and ideas to suggest answers to questions. Gathering and recording data to help in answering questions | Gathering and recording data to help in answering questions. Using observations and ideas to suggest | When working scientifically in this module children will carry out a variety of comparative tests | Observing closely using simple equipment. Use observations and ideas to suggest answers to | Observing closely using simple equipment. Grouping and classifying |

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| | observe closely. identifying, naming and sorting materials. group and classify materials using separate and overlapping sorting rings, simple tables and Carroll diagrams. Children find ways to compare the properties of different materials. Design and carry out simple tests to make fair comparisons | | answers to questions Observing closely, using simple equipment Asking simple questions and recognising that they can be answered in different ways. | and identifying and classifying enquiries. Ask simple questions: Communicate learning in different ways, including orally, and using talk tools to help them to record their responses. Organise any data that they collect using tables and tally charts as appropriate, and look for simple patterns, for example, about their likes and dislikes | questions. Identifying and classifying. | |

| Year 2 | Our Changing World (lessons 1-3) What's in your habitat | Materials – Good Choices | The Apprentice Gardener | The Apprentice Gardener (continued) Our Changing World (lessons 4-7) | Growing up | Materials – Shaping up |
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| National Curriculum | **Living things and their habitats**<br>Identify and name a variety of plants and animals in their habitats, including microhabitats. Describe how animals, obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. | **Everyday materials**<br>Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties | **Living things and their habitats**<br>Explore and compare the differences between things that are living, dead, and things that have never been alive. Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including microhabitats. Describe how animals obtain their food from | **Plants**<br>Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. | **Animals, including humans**<br>Notice that animals, including humans, have offspring which grow into adults. Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. | **Everyday materials**<br>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching |

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| | | | plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. | | | |
| Knowledge/ Skills/ Understanding | Talk about the types of animals and plants that live in different habitats. Observe animals in their habitats and notice how they change through the year. Sequence animals in a food chain. Create food chains based on information that they are given | Consolidate their understanding that one type of object can be made from different materials and also that one material can be used for a number of different objects. Continue to develop their understanding of the simple physical properties of materials and consider in more detail how these properties make materials useful for particular purposes. Test a range of different materials for different purposes. Think about creative and unusual uses of everyday materials and find out about John Dunlop, who invented rubber pneumatic tyres. | Recognise that different seeds grow into different plants. Ask questions, considered how some of them can be answered and set up an observing over time enquiry. Set up comparative tests that help them to answer questions about which way up to plant their seeds and whether seeds need light to germinate. | Set up comparative tests that help them to answer questions about which way up to plant their seeds and whether seeds need light to germinate. Make a bar chart and use the chart to decide whether or not there is a connection between seed size and height of plant. Plan how to care for a plant to keep it healthy and how to improve the condition of an unhealthy one. | Compare a doll and a baby and identify the potential needs of a baby. Draw on a range of information sources to identify the changes that have occurred from a baby into a child. Learn about stages in human life. Carry out a pattern-seeking investigation based on measuring the head sizes of children of different ages. Question an expert (a parent or health professional). They may also meet a baby. | Use actions, gestures and drama to develop their understanding of the words squash, stretch, bend and twist. Test different objects and sort them according to which actions can be used to change their shapes. Link the actions (from previous lessons) to the properties of materials, and test materials for those properties. Use their charts and tables to help them to decide suitable uses for different materials Test different types of elastic to see how well they stretch. |

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| Working Scientifically | Our changing world Noticing patterns Grouping and classifying Finding things out using secondary sources of information Making careful observations over time, using simple equipment and recording their observations in a range of different ways, and use their data to suggest answers to questions. What is your habitat? Children work scientifically by making careful observations over time, using simple equipment and recording their observations in a range of different ways, and use their data to suggest answers to questions. | Identifying and classifying – naming objects and describing the properties of them. Classify materials, carrying out comparative tests for different properties. Using the results of their tests to suggest suitable (good) choices for a particular purpose | What shall we plant for our soup? Asking simple questions and recognise that they can be answered in different ways. Resources for planting. Observing closely, using simple equipment. | Observing closely, using simple equipment. Asking simple questions and recognising that they can be answered in different ways. Perform simple tests. Gather and record data to help in answering questions. | Identify and classify. Use observations and ideas to suggest answers to questions. Gathering and recording data to help in answering questions | Carry out identifying and classifying enquiries and comparative tests. Record using photographs, labelled drawings, Venn diagrams, tables and bar charts. Measure using non-standard or standard measures and to compare findings. |

# Vocabulary – EYFS

## Working Scientifically

same, different

## Animals Including Humans

animal, head, arms, legs, hands, feet, toes, fingers, human, adult, baby

## Seasonal Change

seasons, autumn, winter, spring, summer, day, night

## Materials and states of matter

material, soft, hard, smooth, rough, liquid, solid, melt

## Plants

plant, tree, leaf, flower, seed, grow

## Light

neck, elbows, knees, nostrils, senses, taste, hearing, touch, smell, sight, bitter, sweet, sour, sharp, tingly, fizzy, milky, creamy, buzzer, doorbell, tocker timer, peaceful, silent, silence, whistle, buzz, squeak, creak, rattle, chime, sensitive, sense, sensory, pinch, prod, rough, smooth, bumpy, wrinkled, grooved, shiny, smooth, crunchy, slippery, slimy, fragrance, scent, pong, flowery, fruity, sour, bitter, sharp, gentle, smelly, delicate, sensitive, fabric, material, layers, floorboards

## Everyday Materials

materials, wrapping, shiny, display, greaseproof, kitchen towel, handkerchief, wallpaper, sand paper, fabric, wool, nylon, silk, fleece fibre, properties, fluffy, rough, smooth, shiny, dull, light, transparent (seethrough), opaque (can't see-through), translucent (see something through), stretch, stretchy, elastic, stiff, bend, bendy, not bendy, press, squash, twist, shape, waterproof, absorb, absorbent, soak up, mop up; frozen, freeze, melt, tissue paper, button, glass bead, marble, pebble

# Vocabulary – Year 1

## Our Changing World: plants

bud, twig, branch, roots, stem, shoot, rough, smooth, shiny, glossy, wrinkled, crinkled, crunchy, crisp, olive, rust, blossom, petals, stem, stalk, single, deciduous, evergreen, plug plant, compost, manure, prepare, watering, names of vegetables and fruits, peel, grate, sprinkle, combine

## Our Changing World: animal antics

names of insects and small mammals and birds including: wasp, woodlice, ladybird, squirrel, kitten, blackbird, house sparrow, starling, pigeon, seagull, robin, thrush, wagtail, blue tit, chaffinch, great tit, collared dove, magpie, wood pigeon, bird table, feeder, types of seed, fat ball, slime, slimy, striped, stripy, ridged, spiral, terrarium, dandelion, lettuce, paws, claws, fur, whiskers, furry, fluffy, silky, smooth, rough, brush, comb, lead, collar, chews

## Our Changing World: sensing seasons

seasons, autumn, winter, spring, summer, evidence, similar, different, group, compare, change, names of the months of the year, temperature, warm, cool, freezing, frosty, cloudy, showery, stormy, breeze, gale, shower, drizzle, puddle, breeze, gale, thunder, lightning, sleet, fog, mist, windmill, woolly, furry, waterproof

## Plant Detectives

pansy, geranium, busy Lizzie, petunia, begonia, daisy, snapdragon, fuchsia, lily, daffodil, tulip, buddleia, weed, buttercup, thistle, nettle, foxglove, poppy, dandelion, daisy, cornflower, periwinkle, bluebell, stem, bud, root, root system, tap root, fibrous roots, tree, trunk, branch, twig, taller, shorter, tallest, shortest, similar, different, compare, group, measure

## Looking at Animals

amphibian, reptile, bird, mammal, goldfish, tropical fish, budgerigar, parrot, rabbit, gerbil, hamster, mouse, chinchilla, lizard, feather, fur, scales, fins, fish, tail, gills, scales, eyes, mouth, bill, beak, claws, wings, down quill, webbed feet, scaly skin, claws on feet, mackerel, trout, hake, sea bass, whitebait, flat fish, plaice, robin, blackbird, blue tit, hawk, peacock, seagull, magpie, eagle, jump, hop, leap, climb, clamber, swing, pad, pace, prowl, pounce, spring, flap, flutter, flop, splash, splosh, dive, slither, nocturnal, senses, sight, smell, sonar, roost, sett, burrow, tunnel, surgery, vet, patient, care, , treat, injury, injured, illness, medicine, bandage, stethoscope, cockerel, goose, harvest mouse, barn owl, carnivore, herbivore, omnivore, hooves, horns, troll, medium, menu, hamper, appetite

## Using our Senses

neck, elbows, knees, nostrils, senses, taste, hearing, touch, smell, sight, bitter, sweet, sour, sharp, tingly, fizzy, milky, creamy, buzzer, doorbell, tocker timer, peaceful, silent, silence, whistle, buzz, squeak, creak, rattle, chime, sensitive, sense, sensory, pinch, prod, rough, smooth, bumpy, wrinkled, grooved, shiny, smooth, crunchy, slippery, slimy, fragrance, scent, pong, flowery, fruity, sour, bitter, sharp, gentle, smelly, delicate, sensitive, fabric, material, layers, floorboards

## Everyday Materials

materials, wrapping, shiny, display, greaseproof, kitchen towel, handkerchief, wallpaper, sand paper, fabric, wool, nylon, silk, fleece fibre, properties, fluffy, rough, smooth, shiny, dull, light, transparent (seethrough), opaque (can't see-through), translucent (see something through), stretch, stretchy, elastic, stiff, bend, bendy, not bendy, press, squash, twist, shape, waterproof, absorb, absorbent, soak up, mop up; frozen, freeze, melt, tissue paper, button, glass bead, marble, pebble

# Vocabulary – Year 2

## Our Changing World

offspring, habitat, food chain, tally chart, pattern, baby animal terms, seeds, bulbs, plant, root, stem, fruit, shoot(s), bud, flower, compost, manure, prepare, watering, herbs, names of vegetables and herbs, blend, puree, boil, simmer, fry

## What is in your habitat?

habitat, decay, rocks, food chain, plants, animals, herbivores (eat plants and parts of plants), carnivores (eat other animals), omnivores (eat plants/parts of plants and other animals), direction, source of food, suited, habitat, features, names of habitats, living things and animal body parts

## The Apprentice Gardener

observe, observations, describe, identify, expert, question, predict, prediction, compare, investigate, surface, bury, germinate, fair, suitable, radicle, shoot, evidence, bar chart, scale, connection, seedling, mature plant, wilting, , warmth, care, block, order, conclusion

## Materials: Good Choices

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| Property, fabric, bendy, squashy, stiff, rigid, crease, waterproof, absorb, absorbent, lenses, transparent, opaque, translucent, stretchy, , frame, flexible, measure, record |
| Materials: Shaping up |
| twist, squash, bend, stretch, squashing, bending, twisting, stretching, pinch, press, flexible, rigid, stretchy, squashy, elastic, properties, suitable, stretchiness, weight, catapult, missile, column, Venn diagram, measure, record, bar chart |
| Take Care |
| classify, Venn diagram, Carroll diagram, dairy, exercise, physical activity, pulse, aching, muscles, hygiene, hygienic |
| Growing up |
| essential, , breathe, shelter, warmth, survival, depend, toddler, compare, differences, dependent, independent, appearance, annotate, life cycle, stages, order, pregnancy, birth, teenager, adult, parent, elderly person, measure, compare, table, scatter graph, plot, pattern, evidence, observation, question, record |