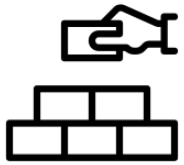
# CUSP Early Foundations

Foundational Knowledge
and
Opportunities and Experiences

**Understanding the World: Science**

The **CUSP Early Foundations** offer is presented in three parts:

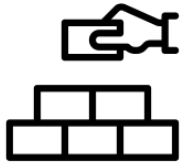


**1. Foundational knowledge:** what pupils should know and be able to do throughout the EYFS and how this will support their development and prepare them for success in Key Stage 1 and beyond

**2. Opportunities and experiences:** how this foundational knowledge can be learnt through play and through guided activities that will allow pupils to explore, experiment with and think hard about new and important concepts

**3. Structured Story Time:** core texts that will introduce key language, ideas and themes that pupils will need to access the foundational knowledge, built into a framework that uses all that we know about effective literacy instruction

# What does this look like in practice?



**Foundational Knowledge**

For each area of learning, granular detail about what pupils should know and be able to do as they move through the phases of the EYFS

The ‘end points’

**Structured Story Time**

The core texts that will introduce pupils to the language, ideas and concepts that they will need to secure at different points through the EYFS

The ‘hook’

**Opportunities and Experiences**

Ideas for how pupils will embed the foundational knowledge through direct teaching, guided activity and independent play

The ‘menu’

# What do we mean by Opportunities and Experiences?

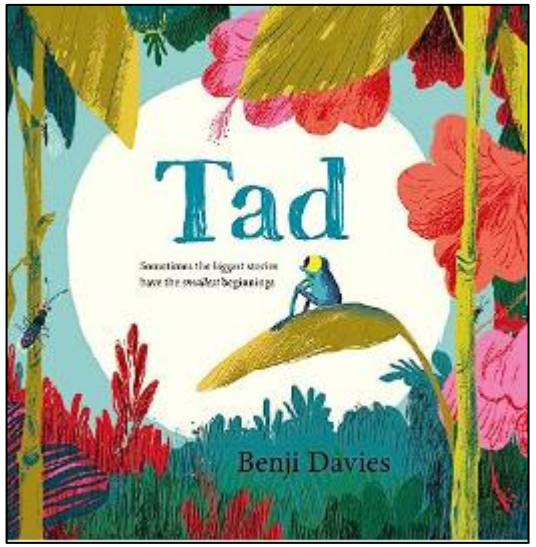
The **Foundational Knowledge** and **Progression** documents outline the key concepts that we want pupils to learn and how their application of knowledge will become more advanced throughout the EYFS.

The **Opportunities and Experiences** document acts as a menu for practitioners to select ideas for how core aspects of learning can be built into provision so that pupils can develop their understanding of the key concepts that they have learned. This is not exhaustive and practitioners will need to be responsive to the young people in their care.

We have deliberately built this around **learning**, not activity, so that we keep the focus on how pupils **interact** with the knowledge and skills acquired through the curriculum.

## Foundational Knowledge

Name some common plants / vegetation, e.g. grass, tree, bush, daisy, dandelion (and other plants and tree names local to their environment, e.g. reeds / lily pads in a school pond). Examine change over time, for example, the life cycle of different plants / fruit / vegetables, growing plants from seeds and plants which go to seed (collect seeds). Talk about simple plant parts and what happens to them. Use language such as leaves, roots, stem and petal. Talk about simple similarities and differences in plants.




**Structured Story Time**

**EYFS**

**rich mathematics**

**+**

**exemplary phonics**

## Opportunities and Experiences

What will I explicitly teach?

Where will pupils meet this in continuous provision?

How will it progress throughout the year?

How will I enhance this provision?

What does effective interaction look like?

When will pupils meet this learning and vocabulary again?

What will it look like if pupils have secured their understanding?

# Curriculum end goals

| ELGs | KS1 Science |
|---|---|
| **The Natural World**<br><br>Children at the expected level of development will:<br><br>• explore the natural world around them, making observations and drawing pictures of animals and plants<br><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<br><br>• understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. | **Plants**<br>Pupils should be taught to:<br>• identify and name a variety of common wild and garden plants, including deciduous and evergreen trees<br>• identify and describe the basic structure of a<br>• variety of common flowering plants, including trees.<br><br>**Animals Including Humans:**<br>Pupils should be taught to:<br>• identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals identify and name a variety of common animals that are carnivores, herbivores and omnivores<br>• describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)<br>• identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.<br><br>**Everyday Materials**<br>Pupils should be taught to:<br>• distinguish between an object and the material from which it is made<br>• 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<br>• compare and group together a variety of everyday materials on the basis of their simple physical properties.<br><br>**Seasonal Change**<br>Pupils should be taught to:<br>• observe changes across the four seasons<br>• observe and describe weather associated with the seasons and how day length varies.<br><br>**Working Scientifically**<br>Pupils should be taught the following skills:<br>• asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment<br>• performing simple tests<br>• identifying and classifying<br>• using their observations and ideas to suggest answers to questions<br>• gathering and recording data to help in answering questions. |

# Understanding the World: Science focus

| What will pupils know and be able to do? | 2 – 3 years | 3 – 4 years | 4 – 5 years |
|---|---|---|---|
| **Plants** | ▪ Talk about some of the things they have observed such as plants / trees.<br>▪ Notice features of plants.<br>▪ Know that plants grow.<br>▪ Know that plants often grow in the ground or in pots. | ▪ Know that fruit and vegetables are plants.<br>▪ Know that some vegetables grow underground and they look different above and below the ground.<br>▪ Understand the key features of the life cycle of a plant.<br>▪ Develop an understanding of growth, decay and changes over time, e.g. observing an apple / banana rotting / school compost heap, wet pile of leaves.<br>▪ Show care and concern for living things and the environment, e.g. keep plants alive by watering them. | ▪ Name some common plants / vegetation, e.g. grass, tree, bush, daisy, dandelion (and other plants and tree names local to their environment, e.g. reeds / lily pads in a school pond).<br>▪ Examine change over time, for example, life cycle of different plants / fruit / vegetables, growing plants from seeds, plants which go to seed (collect seeds).<br>▪ Talk about simple plant parts and what happens to them. Use language, e.g. leaves, roots, stem, petal.<br>▪ Talk about simple similarities and differences in plants. |
| **Essential vocabulary** | plant, tree, grass, leaves, twig / stick, ground, grow | seeds, rot, change, fruit, vegetable, die underground | leaves, roots, stem, petal, familiar plant names, life cycle |

| What will I explicitly teach? | Where could pupils meet this in provision (this is not exhaustive)? | | | |
|---|---|---|---|---|
| | **Specific provision** | | | **Wider provision** |
| ▪ how to observe plants carefully, modelling the correct vocabulary<br>▪ noticing plants and trees in the environment through observation and dialogue, e.g. *look – a tree with xxx shaped leaves, look at its branches*<br>▪ where plants usually grow<br>▪ the life cycle of plants<br>▪ how to care for plants<br>▪ the names of plants and trees in the local environment<br>▪ similarities and differences in plants | **Gardening and Growing Area**<br>▪ wheelbarrow<br>▪ brushes, rakes, spades,<br>▪ watering cans, buckets, hose<br>▪ gardening gloves<br>▪ plant pots / reclaimed bottles / fruit juice cartons<br>▪ raised bed (if room)<br>▪ soil, compost<br>▪ seasonal seeds, bulbs, plants<br>▪ mark-making equipment<br>▪ gardeners' calendar | **Mud Kitchen**<br>▪ pots of herbs<br>▪ growing flowers / plants in pots<br>▪ leaves<br>▪ scissors, blunt safety knives, whisks, spoons, stirrers<br>▪ fruit and vegetables (whole and chopped)<br>▪ cauldrons<br>▪ water / different coloured water | **Themed Role Play**<br>▪ till<br>▪ seed packets<br>▪ real and fake plants and flowers<br>▪ gardening gloves<br>▪ wellies<br>▪ pots, compost, seeds,<br>▪ buckets<br>▪ gardening books<br>▪ flower presses<br>▪ mark-making materials<br>▪ magnifying glasses | Pupils will also meet this in other aspects of the provision, for example: when taking part in forest school activities; when on sounds walks in the environment and when out visiting local parks and garden centres. It is useful to make links in the community, e.g. with local garden centres (for cast off plants) or with parents / grandparents who are expert gardeners. |

# Understanding the World: Science focus

| Prompting questions for Thinking Hard | 2 – 3 years | 3 – 4 years | 4 – 5 years |
|---|---|---|---|
| **Plants** | ▪ What can you see on this plant?<br>▪ Can you spot plants and trees in our school / nursery?<br>▪ Where do plants usually grow? How do you know / show me? Where did Oliver's plants come from? (*Oliver's Vegetables*) | ▪ Where do you think this vegetable came from? How do you know? Where did Errol's carrots come from? (*Errol's Garden*)<br>▪ Tell me, what is happening to this plant?<br>▪ How is the banana changing? Why? | ▪ How are seeds the same and different? (Link to *Squirrels who Squabbled,* e.g. pinecones versus sunflower seeds.)<br>▪ Tell me, how does the plant stay alive?<br>▪ How many different plants can you name in our outdoor area? |

# Understanding the World: Science focus

| What will pupils know and be able to do? | 2 – 3 years | 3 – 4 years | 4 – 5 years |
|---|---|---|---|
| **Animals including humans** | ▪ Talk about some of the things they have observed such as people and animals.<br>▪ Name facial features on humans and know what they have on their bodies, e.g. arms, legs, body, feet, toes, hands, fingers.<br>▪ Know how they are similar and different to their friends, e.g. eye colour / hair colour.<br>▪ Name some more familiar animals, e.g. farm and domestic animals.<br>▪ Name human and animal excretions, e.g. poo, wee, sick. | ▪ Show care and concern for living things and the environment.<br>▪ Name obvious body parts on humans and animals.<br>▪ Understand the key features of the life cycle of an animal.<br>▪ Name some differences between animals, e.g. fur / colour / markings.<br>▪ Name more excretions, e.g. snot, tears, blood. | ▪ Talk about some similarities and differences in animals including humans.<br>▪ Name all basic parts of the human body that they can see and the brain and heart.<br>▪ Observe different animals and their body parts and talk about why they have them, e.g. beak, wings, legs.<br>▪ Name some habitats, e.g. homes of birds (garden, forest, wood and water).<br>▪ Begin to talk about what their body needs, e.g. food, water exercise and sleep. |
| **Essential vocabulary** | eyes, ears, nose, mouth, hair, arms, hands, fingers, legs, feet, toes, same, different, (some animal names), poo, wee, sick | shoulders, elbow, neck back, stomach, knees, ankles, tail, fur, whiskers, markings, grow, baby, child, adult, snot, tears, blood, differences | similarities, brain, heart, bones, bottom, hips. collar bone, wrist, beak, wings, feathers, gills, |

| What will I explicitly teach? | Where could pupils meet this in provision (this is not exhaustive)? | | | |
|---|---|---|---|---|
| | **Specific provision** | | | **Wider provision** |
| ▪ names of different body parts on both humans and animals<br>▪ the vocabulary same / different / similar / similarities / differences<br>▪ modelling talking about and celebrating similarities and differences, e.g. *This animal has a long tail and this one has a short one. You have blue eyes and I have brown eyes.*<br>▪ modelling observation, e.g. *I can see a long nose, a brown body, a black mane and a black tail.*<br>▪ different simple bodily functions<br>▪ how to care for animals<br>▪ the basic human life cycle | **Investigation / Science Area**<br>▪ magnifying glasses<br>▪ body parts games<br>▪ matching games, e.g. animals<br>▪ sorting hoops (link to small world)<br>▪ photos of themselves<br>▪ images of eyes, ears, noses, mouths, hair<br>▪ matching to their young<br>▪ skeleton<br>▪ X rays | **Themed Role Play** (doctors)<br>▪ doctor's coat<br>▪ first aid kit / medical bag<br>▪ body parts poster (doesn't have to have words but could)<br>▪ X rays<br>▪ mini skeleton<br>▪ my body books<br>▪ bandages, plasters<br>▪ bed<br>▪ picture cards showing things that could be wrong, e.g. nosebleed, broken leg, vomiting<br>▪ notebooks and other mark making | **Small World**<br>▪ domestic pets<br>▪ farm animals<br>▪ sea creatures<br>▪ birds<br>▪ jungle / safari / polar animals<br>▪ people of different sizes and ages<br>▪ insects and amphibians<br>▪ small loose parts | Pupils will also meet this in other aspects of the provision, for example: in weekly PE lessons where they are discussing which parts of their body to move / how to carry out specific movements; in PSED lessons when discussing how to keep their bodies healthy; when riding the bikes / trikes – discussing how to pedal, *e.g. push with your foot, use your legs, put your hands on the handlebars;* or when moving on obstacle courses and larger climbing equipment. |

# Understanding the World: Science focus

| Prompting questions for Thinking Hard | 2 – 3 years | 3 – 4 years | 4 – 5 years |
|---|---|---|---|
| **Animals including humans** | • Tell me, which animal have you got there?<br>• Can you tell me about faces / your face?<br>• How is your face the same as / different from my face? | ▪ I'm wondering, how is this animal different to that one?<br>▪ Tell me, which body parts can you see on this person / animal?<br>▪ What is happening in this picture? What could we do to help that person / animal? | ▪ I'm wondering, how are animals and humans the same and different?<br>▪ Tell me, why do birds have beaks / wings / feathers?<br>▪ What do our bodies need to stay healthy? |

# Understanding the World: Science focus

| What will pupils know and be able to do? | 2 – 3 years | 3 – 4 years | 4 – 5 years |
|---|---|---|---|
| **Everyday materials** | ▪ Talk about some of the things they have observed such as natural and found objects.<br>▪ Explore natural materials, indoors and outside.<br>▪ Manipulate and play with different materials, e.g. dough, shaving foam, sand. | ▪ Explore different materials freely, to develop their ideas about how to use them and what to make.<br>▪ Talk about the differences between materials and changes they notice.<br>▪ Use all their senses in hands-on exploration of natural materials.<br>▪ Explore collections of materials with similar and / or different properties. | ▪ Know about similarities and differences in materials.<br>▪ Sort materials using criteria such as soft, hard, flexible, plastic, wood, metal.<br>▪ Develop their own ideas through experimentation with a diverse range of materials. (EAD Link)<br>▪ Increasingly choose more appropriate materials for the job, e.g. cotton reels / lids for wheels, wool for hair. (EAD Link)<br>▪ Look at how materials change, e.g. when cooking. |
| **Essential vocabulary** | wood (twigs / sticks), leaves, soil, dough, | change, senses, explore, mixture, pinecones, conkers, bark, moss | sort, materials, flexible, experiment, change |

| What will I explicitly teach? | Where could pupils meet this in provision (this is not exhaustive)? | | | |
|---|---|---|---|---|
| | **Specific provision** | | | **Wider provision** |
| ▪ how to observe – narrating what you see using appropriate vocabulary<br>▪ using senses to explore a range of natural loose parts, e.g. *It feels bumpy … It looks brown and grey …*<br>▪ teaching pupils how to play with different materials, e.g. dough, sand<br>▪ modelling noticing similarities and differences between materials, e.g. *The wood is brown and rough. The plastic is white and smooth.*<br>▪ how to sort using simple criteria | **Transient Art**<br>▪ natural resources such as moss, flowers, petals, grass, stones, seeds, fir cones, twigs, small pieces of wood, shells, feathers ...<br>▪ seasonal resources such as pumpkin seeds, conkers, horse chestnuts, acorns, autumn leaves<br>▪ mini pom poms , cotton wool, plain or coloured pasta, beads, buttons, pieces of cut up drinking straws, coloured aquarium gravel, cotton reels, craft sticks, corks and other small loose parts | **Workshop / Junk modelling area**<br>▪ range of materials including paper, fabric, foil, plastic, wool, glitter, sequins, tissue paper, paper<br>▪ joining equipment including clips, tape, glue<br>▪ junk modelling equipment – bottles, boxes, cartons<br>▪ natural materials – twigs, sticks, straw, bark, moss, feathers | **Water Area**<br>▪ natural loose parts, e.g. shells, pebbles, sticks / twigs, corks<br>▪ different materials<br>▪ transparent tubing – different lengths and widths<br>▪ guttering, stands and chutes<br>▪ bubbles<br>▪ different materials to mix in water, e.g. flour, porridge, salt | Pupils will also meet this in other aspects of the provision, for example: in the dough area; in sensory areas, e.g. playing with shaving foam, jelly, water beads; when exploring sand and water and how they behave in different containers and mixed with other materials. |

# Understanding the World: Science focus

| Prompting questions for Thinking Hard | 2 – 3 years | 3 – 4 years | 4 – 5 years |
|---|---|---|---|
| **Everyday materials** | ▪ Tell me, what have you used in your transient art / to make your model?<br>▪ What did you find outside? Can you tell me about it?<br>▪ How does the sand feel? What happens when we put water in the sand? | ▪ How would you describe this?<br>▪ How did the pasta change when it went in the water?<br>▪ How are these materials / objects similar? | ▪ Which material would be best for xxx? Why do you think this?<br>▪ Tell me, what happened to the mixture when we cooked / baked it? How did it change?<br>▪ Can you sort the materials that float? How could you test this? |

# Understanding the World: Science focus

| What will pupils know and be able to do? | 2 – 3 years | 3 – 4 years | 4 – 5 years |
|---|---|---|---|
| **Seasonal Change** | ▪ Observe the weather through first hand experiences.<br>▪ Name simple weather types, e.g. rain, snow, sun, wind.<br>▪ Know the difference between hot and cold, wet and dry. | ▪ Know the difference between day and night, dark and light.<br>▪ Name more weather types, e.g. storm, thunder, lightning, rainbow, cloudy.<br>▪ Know that we wear different clothes for different weather. | ▪ Know the names of the seasons and what the weather is / can be like in each.<br>▪ Talk about the changes that each seasons brings in relation to their environment: the clothes they wear, the weather and the plants.<br>▪ Describe how trees and plants change in different seasons.<br>▪ Know that some animals store food for the winter.<br>▪ Know that some animals hibernate in the winter. |
| **Essential vocabulary** | rain, snow, sun, wind, wet, dry, hot, cold | weather, day, night, light, dark, storm, thunder, lightning, rainbow, cloudy | autumn, winter, spring, summer, season, hibernate |

| What will I explicitly teach? | Where could pupils meet this in provision (this is not exhaustive)? | | | |
|---|---|---|---|---|
| | Specific provision | | | Wider provision |
| ▪ the different types of weather<br>▪ the different types of clothing we wear for different weather types<br>▪ the difference between hot and cold, including items that are hot and cold<br>▪ the difference between day and night and what we do during the day / at night<br>▪ the seasons and what happens in each linked to weather, trees, animals and themselves, celebrations and clothing | **Outdoor Science Area**<br>▪ thermometer<br>▪ windmills, twisters, turbines, ribbons, scarves to explore movement and wind<br>▪ rain collectors / rain gauge<br>▪ cameras / iPads | **Water Area**<br>▪ warm and cold water<br>▪ dolls<br>▪ small world people and sea creatures<br>▪ towels<br>▪ paper towels<br>▪ different materials<br>▪ ice | **Investigation Area**<br>▪ magnifying glasses<br>▪ sorting hoops (sorting seasonal clothes)<br>▪ light board / light panel, coloured Perspex blocks / paddles, mirrors, telescopes, kaleidoscopes<br>▪ torches, fabric, dark tent<br>▪ natural and interesting seasonal artefacts, e.g. pinecones, acorns, conkers | Pupils will also meet this in other aspects of the provision, for example: when reading seasonal stories / stories about day and night; when washing their hands (wet and dry and hot and cold); and when walking to and from school. Routines should also incorporate daily conversation about the days / month / season / weather. |

# Understanding the World: Science focus

| Prompting questions for Thinking Hard | 2 – 3 years | 3 – 4 years | 4 – 5 years |
|---|---|---|---|
| **Seasonal change** | ▪ Let's go outside. What is the weather like today? What do we need to wear?<br>▪ Tell me, which of these clothes do we need for hot weather and which do we need for cold weather?<br>▪ Tell me, how do we get water? (Linked to *Hey, Water!*) | ▪ How are night and daytime different? What do we do at night that we don't do in the day?<br>▪ Let's look at some pictures of the weather. What can you see? Can you describe what the weather is doing here?<br>▪ Why does Pete need to be in a boat in our story *Tidy*? | ▪ Tell me, what season is it in the *Squirrels who Squabbled*? How do you know? How do you know it isn't summer? Why do squirrels store food?<br>▪ Can you sort the objects into the season they belong to?<br>▪ What sort of weather might we have in the winter? |

# Understanding the World: Science focus

| What will pupils know and be able to do? | 2 – 3 years | 3 – 4 years | 4 – 5 years |
|---|---|---|---|
| **Environmental change** | ▪ Play with small world reconstructions, building on first-hand experiences of the natural world e.g. visiting farms, walking by a river or lake, visiting the seaside.<br>▪ Begin to understand that places are different and have different things in them. | ▪ Begin to understand the effect their behaviour can have on the environment.<br>▪ Begin to understand the need to respect and care for the natural environment and all living things. | ▪ Talk about the features of their own immediate environment and how environments might vary from one another.<br>▪ Know some ways in which humans are harming the world and how to help. |
| **Essential vocabulary** | garden, farm, seaside, park, river, lake | forest, concrete, tidy, ruin, care, places, wildlife | harm , humans, nature, island, pollution |

| What will I explicitly teach? | Where could pupils meet this in provision (this is not exhaustive)? | | | |
|---|---|---|---|---|
| | Specific provision | | | Wider provision |
| ▪ the different places in the school locality, e.g. park, shops, river, seaside, forest / wood<br>▪ similarities and differences between school / their homes and other places<br>▪ how we can look after the local environment, e.g. putting litter in bins, litter picking, walking instead of taking the car<br>▪ how to care for plants and animals<br>▪ how humans are harming the world and how they can help (simple ways), e.g. litter, walking not driving, wasting less food | **Small World**<br>▪ farm<br>▪ farm animals<br>▪ trees<br>▪ woodland animals<br>▪ sea creatures<br>▪ sand and ocean, e.g. in tough tray /<br>▪ jungle / safari / polar animals<br>▪ people of different sizes and ages<br>▪ small loose parts, e.g. stones for riverbed | **Water Area**<br>▪ sea creatures<br>▪ materials for floating islands (e.g. *Clean up!)*<br>▪ soil to mix in (like flood in *Tidy*)<br>▪ tough tray seaside (sand and water)<br>▪ salt<br>▪ people and boats<br>▪ oils (Can they get the oil out of the water?) | **Outdoor Science Area**<br>▪ recycling boxes<br>▪ sorting hoops<br>▪ different materials / litter<br>▪ litter pickers<br>▪ rotting food for observation<br>▪ plants<br>▪ soil<br>▪ reclaimed material containers for planting | Pupils will also meet this in other aspects of the provision, for example: watching clips of pollution; litter picking in local parks / wider school grounds / visitors, e.g. The Woodland Trust, Surfers against Sewage, Friends of the Earth.<br>There should also be planned experiences for pupils to ensure they experience different environments, e.g. farm visits, forest, river, seaside visits (linked to locality), visits to the local park. |

# Understanding the World: Science focus

| Prompting questions for Thinking Hard | 2 – 3 years | 3 – 4 years | 4 – 5 years |
|---|---|---|---|
| **Environmental Change** | • What is Oliver's Grandad's garden like? Have you got a garden / ever visited a garden?<br>▪ Who has been to the seaside / to a farm? What did you see there?<br>▪ What is our local park like? | ▪ Why did Pete (*Tidy*) make a mistake? What did he do to the forest and why was this wrong?<br>▪ How did the animals help him to make it right? | ▪ In *Clean up!* humans have not looked after the world. Can you tell me what we are doing wrong?<br>▪ How did Rocket (*Clean up!)* help the sea creatures?<br>▪ Tell me, how can we help look after the world? |

# Understanding the World: Science focus

| What will pupils know and be able to do? | 2 – 3 years | 3 – 4 years | 4 – 5 years |
|---|---|---|---|
| **Forces and how things work** | ▪ Repeat actions that have an effect, e.g. splashing in water, handprints in sand, building and knocking over towers. | ▪ Explore how things work, e.g. wind-up toys, pulleys, sets of cogs with pegs and boards.<br>▪ Explore and talk about different forces they can feel. | ▪ Know how to use a variety of different tools and equipment and how they work.<br>▪ Know the effect of simple push and pull forces. |
| **Essential vocabulary** | splash, print, mark, build, knock down | cogs, gears, join,, work, turn | push, pull, action, tools, together, apart, connect, electricity, battery |

| What will I explicitly teach? | Where could pupils meet this in provision (this is not exhaustive)? | | | |
|---|---|---|---|---|
| | Specific provision | | | Wider provision |
| ▪ how to make observations, e.g. *Look the jelly wobbles when we touch it! Let's look at the windmill. What is it made of? How can we make our own?*<br>▪ modelling how to explore how to make things work, e.g. remote controlled toys, switches, different push / pull forces<br>▪ modelling how to use different construction kits<br>▪ modelling how to use different tools, including safety aspects | **Woodwork Area**<br>▪ hand drill<br>▪ clamp<br>▪ vice<br>▪ screwdriver (safety)<br>▪ hammer (safety)<br>▪ spirit level<br>▪ dowels<br>▪ balsa wood<br>▪ wooden cogs / cams<br>▪ screws / nails / rubber bands<br>▪ gloves, goggles | **Sensory Play**<br>▪ sand<br>▪ water<br>▪ shaving foam<br>▪ jelly<br>▪ water beads<br>▪ paint<br>▪ small loose parts<br>▪ transient art<br>▪ blocks | **Construction Area**<br>▪ Meccano (or similar)<br>▪ Duplo (Nursery) Lego (or similar)<br>▪ cogs, nuts and bolts sets<br>▪ gears, e.g. Gears Mega Builds<br>▪ pulleys (these may already part of provision in the outdoor area)<br>▪ pegs and boards<br>▪ Connetix (or similar)<br>▪ Stickle Brix (or similar) | Pupils will also meet this in other aspects of the provision, for example: in the mathematics area when using Rekenreks interlinking cubes, balance scales; in the outdoor science area when exploring things like thermometers, windmills, twisters, turbines, rain collectors / rain gauges; and when on the bikes and trikes / exploring push-a-long toys. This should also link to computing and control technology, e.g. Bee Bots, torches etc. |

# Understanding the World: Science focus

| Prompting questions for Thinking Hard | 2 – 3 years | 3 – 4 years | 4 – 5 years |
|---|---|---|---|
| **Forces and how things work** | ▪ Tell me, what is happening to the sand?<br>▪ What happens when I drop the pebbles into the water?<br>▪ How tall can you make your tower before it falls over? | ▪ Tell me, how do you think this works?<br>▪ How did you make that move?<br>▪ What did you need to do to make the trike go up the hill? | ▪ Tell me, which action do I need to do to make this work? Push / pull / both?<br>▪ How does the windmill work? Can you make a windmill? How will you make it go round? |

# Understanding the World: Science focus

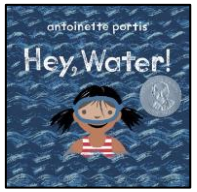
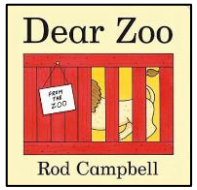
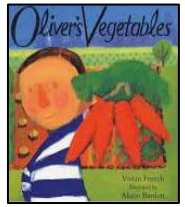
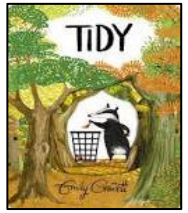
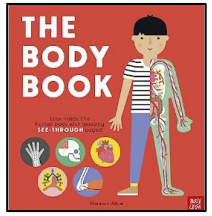
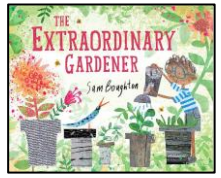
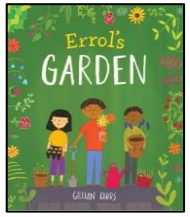
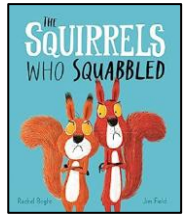
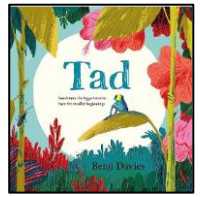
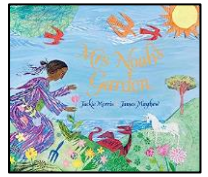
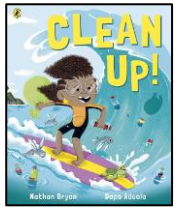
| What will pupils know and be able to do? | 2 – 3 years | 3 – 4 years | 4 – 5 years |
|---|---|---|---|
| **Working scientifically** | ▪ Use all of their senses to explore the natural world and materials.<br>▪ Begin to ask simple *why* questions about what they see, hear, smell and hear.<br>▪ Talk about what they see happening, e.g. xxx got wet.<br>▪ Recognise similarities and differences. | ▪ Comment and ask questions about aspects of their familiar world such as the place where they live or the natural world.<br>▪ Make observations and talk about what they see, using a wide vocabulary.<br>▪ Ask simple why, when, what questions.<br>▪ Show interested in why things happen.<br>▪ Describe similarities and differences.<br>▪ Begin to group and sort. | ▪ Question why things happen, having their own ideas.<br>▪ Carry out observations on changes, e.g. growing plants, floating and sinking, ice melting, magnets, sponges in water.<br>▪ Look closely at similarities, differences, patterns and change.<br>▪ Make observations and explain observations.<br>▪ Explore the natural world around them.<br>▪ Make predictions about what might happen .<br>▪ Make decisions about what to do.<br>▪ Describe what they see, hear and feel whilst outside |
| **Essential vocabulary** | look, see, same, different, why | group, sort, objects, compare, why, when, what, | try, test, ideas, explore, find, out, how |

| What will I explicitly teach? | Where could pupils meet this in provision (this is not exhaustive)? | | | |
|---|---|---|---|---|
| | **Specific provision** | | | **Wider provision** |
| ▪ using senses to explore a range of objects, materials and natural phenomenon<br>▪ how to ask questions and question words, e.g. why, when, what, how<br>▪ observation skills, narrating what you see using correct vocabulary<br>▪ why things happen<br>▪ grouping, sorting, similarities, differences.<br>▪ how to make predictions, e.g. *I think x will happen… what do you think?*<br>▪ decision making, e.g. *I am going to try this out to see if it works…* | **Water Area**<br>▪ natural loose parts, e.g. shells, pebbles, sticks / twigs<br>▪ transparent tubing – different lengths and widths<br>▪ guttering, stands and chutes<br>▪ kitchen utensils – some with holes, e.g. cullender, sieve,<br>▪ small world, e.g. people, boats, sea creatures<br>▪ bubbles<br>▪ different materials to mix in water, e.g. flour, porridge, salt | **Investigation Area**<br>▪ magnifying glasses<br>▪ sorting hoops<br>▪ light board / light panel, colour Perspex blocks / paddles, mirrors, telescopes, kaleidoscopes<br>▪ natural and interesting artefacts, e.g. petrified wood, skull / bones, teeth, natural loose parts, insects in resin, seasonal objects<br>▪ magnets, metallic and non-metallic objects | **Outdoor Science Area**<br>▪ insect / plant collecting, e.g. pots, sorting trays, pooters, jars, tweezers,<br>▪ magnifying glasses<br>▪ thermometer<br>▪ windmills, twisters, turbines, ribbons, scarves to explore movement and wind<br>▪ rain collectors / rain gauge<br>▪ stretchy telephones / string and cans / cups | Pupils will also meet this in other aspects of the provision, for example: in the mud kitchen when experimenting with different materials; experimenting with natural loose parts; mathematics - when describing similarities and differences in representations, describing pattern, shapes etc.; in the painting / creative / workshop areas when exploring different materials and media; and whilst exploring the outdoor area. |

# Understanding the World: Science focus

| Prompting questions for Thinking Hard | 2 – 3 years | 3 – 4 years | 4 – 5 years |
|---|---|---|---|
| **Working scientifically** | ▪ Tell me what is happening here?<br>▪ How are these two things the same / different?<br>▪ Let's look outside in the xxx. What can you see? | ▪ Tell me, how would you describe this?<br>▪ This mixture isn't working; can you help me?<br>▪ How can we sort out the seeds for Errol (*Errol's Garden*)? | ▪ Tell me, what happened to the turtle? Why? (*Clean up!)*<br>▪ I wonder what happens when we mix xxx with xxx.<br>▪ How has this plant changed over time? Why? |

# Understanding the World: Science focus

| | 2 – 3 years | 3 – 4 years | 4 – 5 years |
|---|---|---|---|
| **Stories that could unlock this learning include:** |     |     |     |
| **Five ideas for enhancements** | 1. Put their eye colour and hair colour on a photo of themselves – looking in mirrors to help them.<br>2. Taste the different fruit and vegetables from Oliver's Garden. Grow and harvest one of them.<br>3. Explore all the different sources of water in the Nursery setting. Over time: stamp in puddles, look for dew drops on grass, observe and play in the rain. Play with ice.<br>4. Collect different natural materials in the environment. Organise in different ways.<br>5. Explore different materials, e.g. dough, shaving foam, sand. | 1. Clean, peel and chop different vegetables, e.g. carrots that Erroll grew.<br>2. Make a boat for Pete the badger to avoid the flood. What materials will you use?<br>3. Draw around themselves and draw on body parts / facial features.<br>4. Hunt for beetles and worms for Pete to eat. Observe other creatures that live in the Nursery environment.<br>5. Mix soil and water – what happens the more water you add? | 1. Sort out the acorns /conkers / seeds / buds / bulbs / mushrooms / pinecones (take care with allergies) for the squirrels. Share them equally between Cyril and Bruce.<br>2. Order the life cycle of a frog / observe tadpole change.<br>3. Plant seeds in shallow drills like Mrs Noah. Observe growth.<br>4. Sort animals / creatures into their habitats, e.g. farm, forest, pond, home or into family groups – old and young.<br>5. Collect the litter and sort into recycling boxes, e.g. plastic, cardboard, paper. |