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| **Science Long-Term Plan 2022-23** |
| ***Equipping Children for a World of Possibilities*** |



**SCIENCE INTENT**



**Curriculum Intent:** Equipping Children for a World of Possibilities.

**Science Subject Intent:** To inspire children through first-hand experiences to become scientists of the future. Children will have a secure understanding of scientific knowledge, processes and have the vocabulary to explain and question the world around them.

**SCIENCE IMPLEMENT**



How is your subject taught?

Science is taught through both small group and whole class sessions by class teachers, with the support of teaching assistants. In Reception, Science learning is interwoven through thematic learning and all children participate in small group Science learning each half term. In key stage 1, Science is taught at least once each week, for a whole afternoon session, and in addition is interwoven within other curriculum areas where possible. Each child participates in Forest Schools for 1 afternoon every other week, for 3 half terms per year. All children participate in Taking Care where they learn the names associated with different body parts. Teachers ensure that DAP, SEND and EAL children receive additional support where necessary, especially with vocabulary, through the use of additional adults and resources. We have a good range Science resources available to staff, which are easily accessible in a centralised area. Teachers have lists of the resources available and know that they can borrow resources from other schools in our MAT if required.

For each topic of the science National Curriculum for Years 1 and 2, and for the Science related statements in the EYFS, this document includes:

* the key learning and vocabulary that the children need to have acquired
* activities that enable pupils to learn or apply the knowledge
* evidence that would indicate that children are secure in the learning and vocabulary

Where appropriate, common misconceptions that the children may have, are included to alert the teachers to be aware of these.

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When children have engaged in sufficient activities to have become secure in the required knowledge, it is time to reflect on their learning. Children that are not secure can then be given additional activities to provide them with further opportunities to show that they are secure, possibly gathering evidence in a different way, for example verbally in a small group context. Children that are secure can be given enrichment activities to broaden their thinking, while being careful not to stray into the content taught in later years.

**Science Long-term Plan**



|  | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
| --- | --- | --- | --- | --- | --- | --- |
| Year R | Humans  Classification  Identify, sort and group.  Animals (Pets)  Identifying and classifying  Researching using secondary sources  Make direct comparisons  Seasonal changes  Use their observations to help them to answer their questions | Materials  Comparative testing  Observing over time  Make direct comparisons  Identify, sort and group  Seasonal Changes (Autumn)  Observing over time  Use their observations to help them to answer their questions  Planting bulbs Performing simple tests  Observing over time | Seasonal Changes (Winter)  Classification  Observing over time  Researching using secondary sources  Record their observations by drawing, taking photographs  Freezing and melting Make observations using their senses and simple equipment | Seasonal Changes(Spring)  Observing over time  talk about what they are doing and have found out  Animals  Classification  Researching using secondary sources  identify, sort and group.  Science Week  Show curiosity and ask questions  Use equipment to measure  Make observations using their senses and simple equipment | Space  Pattern seeking  Use their observations to help them to answer their questions | Humans  Classification  Identify, sort and group  Plants  Classification  Pattern seeking  Identify, sort and group  Life cycles (caterpillar)  Observing over time  Show curiosity and ask questions  Record their observations by drawing, taking photographs, using sorting rings or boxes and on simple tick sheets |
|  | Equipment: eyes, magnifying glasses, binoculars, pooters, lab coats, magnets  Recording data: simple tables with support, teachers scribe children’s comments, photos.  Scientific Enquiry: Observing over time, identifying, grouping and classifying, pattern seeking, research, comparative and fair testing  In the EYFS, the characteristics of effective learning from the EYFS are the foundations on which the working scientifically skills build in Key Stage 1. While children are playing and exploring, teachers should be modelling, encouraging and supporting them to do the following: • show curiosity and ask questions • make observations using their senses and simple equipment • make direct comparisons • use equipment to measure • record their observations by drawing, taking photographs, using sorting rings or boxes and on simple tick sheets • use their observations to help them to answer their questions • talk about what they are doing and have found out • identify, sort and group. | | | | | |
| Year 1 | **Seasonal Changes**  **Everyday Materials**  Observing closely, using simple equipment  Using their observations and ideas to suggest answers to questions  Identifying and classifying  Performing simple tests.  (Identifying, grouping and classifying)  (Research)  (Comparative and fair testing)  (Observing over time) | **Everyday Materials**  Observing closely, using simple equipment  Using their observations and ideas to suggest answers to questions  Identifying and classifying  Performing simple tests.  (Identifying, grouping and classifying)  (Research)  (Comparative and fair testing)  (Observing over time)  **Seasonal Changes - Autumn**  Asking simple questions and recognising that they can be answered in different ways  Observing closely, using simple equipment  (Identifying, grouping and classifying)  (Observing over time)  (Comparative and fair testing)  (Pattern Seeking) | **Seasonal Changes** Animals **(including humans)**  Observing closely, using simple equipment  Performing simple tests  Gathering and recording data to help in answering questions  Identifying and classifying  (Identifying, grouping and classifying)  (Comparative and fair testing)  (Pattern Seeking) | Animals **(including humans)**  Observing closely, using simple equipment  Performing simple tests  Gathering and recording data to help in answering questions  Identifying and classifying  (Identifying, grouping and classifying)  (Comparative and fair testing)  (Pattern Seeking)  **Seasonal Changes - Spring**  Asking simple questions and recognising that they can be answered in different ways  Observing closely, using simple equipment  Identifying and classifying  Gathering and recording data to help in answering questions.  (Identifying, grouping and classifying)  (Observing over time)  (Comparative and fair testing)  (Pattern Seeking) | **Seasonal Changes**  **Plants**  Identifying and classifying  Observing closely, using simple equipment.  (Identifying, grouping and classifying)  (Observing over time)  (Pattern Seeking)  (Research) | **Animals**  Identifying and classifying  Asking simple questions  (Identifying, grouping and classifying)  (Research)  **Seasonal Changes - Summer**  Asking simple questions and recognising that they can be answered in different ways  Observing closely, using simple equipment  Identifying and classifying  Gathering and recording data to help in answering questions.  (Identifying, grouping and classifying)  (Observing over time)  (Comparative and fair testing)  (Pattern Seeking) |
|  | Equipment: Magnifying glasses, pipettes, syringes, ipads, non-standard measures, meter rulers, lab coats.  Scientific Enquiry: Observing over time, identifying, grouping and classifying, pattern seeking, research, comparative and fair testing  Recording data: Simple prepared tally charts/ tables, venn diagrams, drawings, teachers scribe children’s comments. | | | | | |
| Year 2 | Living things and their habitats  Identifying and classifying.  Using their observations and ideas to suggest answers to questions.  Observing closely, using simple equipment. (Researching using secondary resources researching which animals live in a habitat)  (Pattern seeking any features that animals have the same within a habitat)  (Grouping and classifying). | Animals (including humans)  Identifying and classifying.  Using their observations and ideas to suggest answers to questions.  (Identifying, grouping and classifying)  (Research)  (Pattern seeking) | Uses of everyday materials  Identifying and classifying.  Gathering and recording data to help in answering questions.  Perform simple tests.  (Identifying, Grouping and Classifying)  (Observation over time)  (Research) (Comparative testing)  (Identifying, grouping and classifying) | Uses of everyday materials  Identifying and classifying.  Gathering and recording data to help in answering questions.  Perform simple tests.  (Identifying, Grouping and Classifying)  (Observation over time)  (Research) (Comparative testing)  (Identifying, grouping and classifying) | Animals (including humans)  Life cycles (tadpoles)  Using their observations and ideas to suggest answers to questions.  (Researching using secondary sources) (Pattern Seeking) (Observation over time) (Identifying, Grouping and Classifying) | Plants  Animals (**including humans)**  Perform simple tests  Gathering and recording data to help in answering questions.  Asking simple questions and recognising they can be answered in different ways.  (Observation over time)  (Comparative testing).  (Identifying, Grouping and Classifying)  (Research)  (Pattern Seeking) |
|  | Equipment: Microscopes, stop watches, thermometers, pipettes, syringes, Ipads, non-standard measures, gardening equipment, measuring jugs, pulse oximeter, peak flow meter, tape measure, lab coats.  Scientific Enquiry: Observing over time, identifying and classifying, pattern seeking, research, comparative and fair testing  Recording data: Beginning to create their own charts and tables, diary, drawings, pictograms, blank graphs, tally charts, Venn and Carroll diagrams. | | | | | |

Working scientifically in Years 1 and 2

| **Asking simple questions and recognising that they can be answered in different ways**  • While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions.  • The children answer questions developed with the teacher often through a scenario.  • The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered. | **Observing closely, using simple equipment**  • Children explore the world around them. They make careful observations to support identification, comparison and noticing change. They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations.  • They begin to take measurements, initially by comparisons, then using non-standard units | **Performing simple tests**  • The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time. Identifying and classifying  • Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting.  • They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing. |
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| **Gathering and recording data to help in answering questions**  • The children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing.  • They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs.  • They classify using simple prepared tables and sorting rings. | **Using their observations and ideas to suggest answers to questions**  • Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources.  • The children recognise ‘biggest and smallest’, ‘best and worst’ etc. from their data. |  |

**Science Medium-term Plan** 

**Reception**

\* Year R – Seasonal changes to be taught throughout the year.

| Year Group: Reception | Term: Autumn 1 - Marvellous me! Inc pets and Autumn | | Unit of Learning:  **Humans (See this table)**  Animals - pets (See table below)  Autumn - Seasonal Changes (See table below) |
| --- | --- | --- | --- |
| **Understanding of the World** | | | |
| • Talk about members of their immediate family and community.  • Name and describe people who are familiar to them. | | | |
| **Links with other areas of learning** | | | |
| Personal, Social and Emotional Development  • See themselves as a valuable individual.  • Manage their own needs.  Physical Development  • Know and talk about the different factors that support their overall health and wellbeing: regular physical activity; healthy eating; toothbrushing; sensible amounts of ‘screen time’; having a good sleep routine; being a safe pedestrian.  • Further develop the skills they need to manage the school day successfully: lining up and queuing; mealtimes; personal hygiene. Mathematics • Compare length, weight and capacity. | | | |
| About the unit:  During this term the children are settling into Reception and getting to know more about each other. Staff welcome parents into school for a stay and play session. Children learn more about each other's families and family life, talk about places they have visited and about their pets. The children learn more about pets during a Pet morning, where parents bring pets from different habitats into school and talk to the children about how they care for them. Children also learn about the autumn and harvest. They learn the story The Little Red Hen and then make their own bread.  Where this unit fits in:  The children will build on their knowledge of humans in Autumn 2 where they will look at the human skeleton in more detail. During the theme Changes (Summer 2) the children will learn more about how humans grow and change over time from a baby to an adult.  Common misconceptions  Some children may think:  • sons look like their fathers and daughters look like their mothers. | | | |
| Prior Learning: Use all their senses in hands-on exploration of natural materials. (Nursery)  • Begin to make sense of their own life-story and family’s history. (Nursery)  • Understand the key features of the life cycle of a plant and an animal. (Nursery)  • Begin to understand the need to respect and care for the natural environment and all living things. (Nursery) | Future Learning: Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 – Animals, including humans) | | Vocabulary:  Model and encourage children to use vocabulary such as:  • hair (black, brown, dark, light, blonde, ginger, grey, white, long, short, straight, curly), eyes (blue, brown, green, grey), skin (black, brown, white), big/tall, small/short, bigger/smaller, baby, toddler, child, adult, old person, old, young, brother, sister, mother, father, aunt, uncle, grandmother, grandfather, cousin, friend, family, boy, girl, man, woman  Expose children to supplementary vocabulary such as:  • bald, elderly, wrinkles, male, female, freckles |
| **CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING** | | | |
| What adults might provide | | What adults might do | |
| Opportunities to describe people who are familiar to them  • Talking about themselves, friends, family and community using photographs  • Using mirrors to look at their faces  • Creating pictures or collages of themselves, friends, family and community  • Making hand and footprints using paint  • Making fingerprints using ink pads  • Using a ‘magic’ mirror which shows everything about them and getting children to describe themselves and how they are special  • Sharing books about different types of families  **Opportunities to learn about how to take care of themselves**  • Demonstrating and talking about how they look after themselves  • Talking about other people that look after them  • Talking to a dentist, nurse  • Sharing videos of people who care for us and how we look after ourselves | | • Encourage children to look at photographs of different people and to describe them.  • Encourage children to describe their friends and family using photographs to help them.  • Encourage children to talk about how their friends and family are the same and different.  • Encourage children to compare themselves to characters in books.  • Encourage children to compare their hand, foot and fingerprints with their friends.  • Encourage children to talk about the people who look after them, both within their family and the wider community e.g. teachers, doctors, dentists etc.  • Encourage children to ask a dentist, nurse, meal supervisor/school cook, road crossing supervisor etc. questions.  **Encouraging scientific enquiry**  *Classification*  • Sort images of people according to their characteristics.  *Researching using secondary sources*  • Find out information from visitors (dentist, nurse etc.).  *Pattern seeking*  • Are taller children faster?  • Are taller children stronger? | |
| Linked texts | | Linked careers | |
| Texts used  • Peepo  • Funny Bones  Other texts that may be useful  • I Love My Hair by Natasha Anastasia Tarpley  • What I Like About Me by Alia Zobel-Nolan | | Opportunities in the role-play corner to show how people take care of them  • Doctor  • Nurse  • Dentist  • Optician | |
| **HOW CHILDREN MIGHT SHOW THEIR LEARNING** | | | |
| **Characteristics of effective teaching and learning** | | | |
| • Playing and exploring – children investigate and experience things, and ‘have a go’  • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements  • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things | | | |
| **Demonstrating skills and showing understanding** | | | |
| **What a child might be doing** | | **Possible evidence of learning** | |
| **Children ask questions, make observations using simple equipment and talk about what they are doing and have found out while carrying out a range of activities, such as:**  • describing people who are familiar to them • learning about how to take care of themselves.  **Children sort:**  • humans by their characteristics.  **Children record their observations when:**  • drawing themselves, their family, friends and community. | | • Can describe themselves, family, friends and community.  • Can create pictures of themselves, family, friends and community and identify their distinguishing features.  • Can talk about what they see when using a mirror.  • Can compare hand, foot and fingerprints and talk about how they are different. • Can talk about how they look after themselves and how other people look after them. | |

| Year Group: Reception | Term: Autumn 1 - Marvellous me! Inc pets and Autumn  Spring 2 - Animals continued | | Unit of Learning:  **Animals - pets (See this table)**  Humans (See table above)  Autumn - Seasonal Changes (See table below) |
| --- | --- | --- | --- |
| **Understanding of the World** | | | |
| • Recognise some environments that are different to the one in which they live | | | |
| **Links with other areas of learning** | | | |
| Physical Development  • Revise and refine the fundamental movement skills they have already acquired: rolling; crawling; walking; jumping; running; hopping; skipping; climbing. | | | |
| About the unit: Children will be taught observational skills and how to use simple scientific equipment. They will use their new skills to help them learn all about pets. The children will engage in a variety of hands- on experiences including a pet morning where the children's parents bring pets into school and talk to the children about how to look after them. The children will build on their knowledge and understanding of animals during the Spring term where they will learn more about animals in other countries and their habitats.  Where the unit fits in: Throughout the school year, the children will build on their knowledge to learn more about animals and their habitats.  Common misconceptions  Some children may think:  • animals are furry and have four legs  • a bee is not an animal because it is an insect  • animals adapt to their surroundings, e.g. a brown bear turns white and becomes a polar bear  • animals living in the soil breathe by coming to the surface  • dragons and other mythical creatures are real animals. | | | |
| Prior Learning:  • Understand the key features of the life cycle of a plant and an animal. (Nursery)  • Begin to understand the need to respect and care for the natural environment and all living things. (Nursery) | Future Learning:  • Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 – Animals, including humans)  • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 – Animals, including humans)  • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Animals, including humans) | | Vocabulary  Model and encourage children to use vocabulary such as:  • names of animals, live, on land, in water, jungle, desert, North Pole, South Pole, sea, hot, cold, wet, dry, snow, ice  Expose children to supplementary vocabulary such as:  • environment, polar regions, ocean, camouflage |
| **CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING** | | | |
| What adults might provide | | What adults might do | |
| Opportunities to learn about animals from a different habitat  • Pet morning - parents bring pets from different habitats into school and talk to the children about how they care for them e.g. tropical fish, bearded dragon, hamster  • Sharing books about animals in the local area and animals in other countries e.g. jungle, polar regions, desert, ocean  • Looking at pictures of animals in different habitats  • Watching videos of animals in different habitats  • Playing games involving matching animals to their habitats  • Playing with small world animals in different habitats  • Creating pictures of animals in their habitats  • Pretending to be animals  • Naming and describing animals they see in books, pictures, videos or while on a trip • Describing different habitats | | • Encourage children to name and describe animals that live in different habitats while reading books, watching videos, looking at pictures or playing matching games.  • Encourage children to ask questions about different animals and the habitats they live in.  • Encourage children to describe habitats.  • Encourage children to talk about how animals are cared for when they live outside their natural habitat.  • Encourage children to move like different animals.  **Encouraging scientific enquiry**  *Classification*  • Sort animals according to where they live.  Researching using secondary sources  • Learn how animals from a different habitat are cared for.  • Learn about animals in a different habitat. | |
| Linked texts | | Linked careers | |
| Texts used  • Little Red Hen  • Lost and Found by Oliver Jeffers  • One Day on our Blue Planet: In the Antarctic by Ella Bailey  • One Day on our Blue Planet: In the Savannah by Ella Bailey  • Poles Apart by Jeanne Willis  •We’re Going on a Bear Hunt by Michael Rosen and Helen Oxenbury  Other texts that may be useful  • How many legs? by Kes Gray  • What do you do with a tail like this? by Steve Jenkins | | Opportunities in the role-play corner to care for animals that live in different environments  • Zookeeper  • Safari centre  • Aquarium  • Explorer | |
| **HOW CHILDREN MIGHT SHOW THEIR LEARNING** | | | |
| **Characteristics of effective teaching and learning** | | | |
| • Playing and exploring – children investigate and experience things, and ‘have a go’  • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements  • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things | | | |
| **Demonstrating skills and showing understanding** | | | |
| **What a child might be doing** | | **Possible evidence of learning** | |
| Children ask questions, make observations and talk about what they have found out about:  • animals from a different habitat.  Children sort:  • animals.  • Can name and describe animals that live in different habitats.  • Can describe different habitats. | | • Can name and describe animals that live in different habitats.  • Can describe different habitats. | |



| Year Group: Reception | Term: Autumn 2 | | Materials, including changing materials |
| --- | --- | --- | --- |
| **Understanding of the World** | | | |
| • Explore the natural world around them.  • Describe what they see, hear and feel whilst outside. | | | |
| About the unit: The children will be learning how to put on a Christmas show.  They will be selecting materials to make scenery, props and puppets for the production. They will also be choosing materials to make christmas decorations.  Common misconceptions  Some children may think:  • material only means fabric  • all plastic/wood etc. is the same. | | | |
| Prior Learning:  • Use all their senses in hands-on exploration of natural materials. (Nursery)  • Explore collections of materials with similar and/or different properties. (Nursery)  • Talk about the differences between materials and changes they notice. (Nursery) | Future Learning:  Distinguish between an object and the material from which it is made. (Y1 – Everyday materials)  • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 – Everyday materials)  • Describe the simple physical properties of a variety of everyday materials. (Y1 – Everyday materials)  • Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 – Everyday materials) | | Model and encourage children to use vocabulary such as:  • ice, water, frozen, icicle, snow, melt, wet, cold, slippery, smooth, big, bigger, biggest, smaller, smaller, smallest, hard, soft, bendy, rigid, wood, plastic, paper, card, metal, strong, weak, hot, apply heat, waterproof, soggy, not waterproof, best, change, change back  Expose children to supplementary vocabulary such as: • solid, liquid, gas, most suited |
| **CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING** | | | |
| What adults might provide | | What adults might do | |
| **Opportunities to explore a range of materials in a sensory way, including natural materials**  • Opportunities to explore different materials  • Opportunities to test a range of spoons made of different materials, when making their spoon puppet to identify which would be most suitable  • Looking for dew, ice, icicles and frost in the playground  • Using their senses to explore natural materials in the environment, such as stones, twigs, leaves, feathers, seeds, flowers etc.  • Gathering natural materials to make collections  **Opportunities to make objects from different materials, including natural materials**  • Making props for the christmas production, spoon puppets and christmas decorations using different materials  • Making pictures using natural materials they have gathered from the environment  • Making dens, nests, bug hotels etc. using natural materials  • Making junk models with a range of materials, including natural materials they have gathered from the environment  **Opportunities to compare how materials change**  • Baking bread rolls (linked with The Little Red Hen) and removing one after every five minutes.  • Choosing where to put ice cubes in the playground and observing how quickly they melt  • Making a snowman and observing how it changes over time  • Making snowballs and putting them in different parts of the playground and observing how they change over time | | • Encourage children to test a range of spoons made of different materials, when making their spoon puppet and identify which would be most suitable  • Encourage children to create their own prop and spoon puppet out of different materials.  •Encourage children to talk about the natural materials they explore, using their senses.  • Encourage children to talk about the materials they are using when making pictures.  • Encourage children to reuse materials and talk about what can be recycled to care for the natural world.  • Support children to list the properties the material has.  • Encourage children to test that their model is fit for purpose and that the materials are suitable.  • Encourage children to compare and describe how materials change over time and in different conditions.  •Encourage children to take photographs or draw pictures to record how materials change.  • Encourage children to measure how objects change when they melt.  • Encourage children to ask questions about materials and how they change.  **Encouraging scientific enquiry**  *Comparative testing*  • How quickly do ice cubes melt in different areas of the playground?  *Observing over time*  • How does the block of ice change over time?  • How does a snowman change over time?  • How does bread dough change as it is cooked? Making bread linked to little red hen (Autumn 1) | |
| Linked texts | | Linked careers | |
| Little Red Hen | | Opportunities in the role-play corner to compare materials and explore how they change  • Recycling centre worker  • Product designer  • Builder  • Chef | |
| **HOW CHILDREN MIGHT SHOW THEIR LEARNING** | | | |
| **Characteristics of effective teaching and learning** | | | |
| • Playing and exploring – children investigate and experience things, and ‘have a go’  • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements  • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things | | | |
| **Demonstrating skills and showing understanding** | | | |
| **What a child might be doing** | | **Possible evidence of learning** | |
| **Children ask questions, make observations using simple equipment and talk about what they are doing and have found out while carrying out a range of activities, such as:**  • exploring a range of materials in a sensory way, including natural materials  • making objects from different materials, including natural materials  • comparing how materials change.  **Children use equipment to measure when:**  • observing how objects melt.  **Children sort:**  • materials, including natural materials.  **Children record their observations when:**  • materials are changing over time or in different conditions | | • Can name the material they are using and why.  • Can talk about multiple properties of the material and why it is suited for its purpose.  • Can observe changes in their natural world and say why it is different now or will change in the future.  • Can compare and describe how materials change over time and in different conditions | |



| Year Group: Reception | Term: Spring - Ongoing throughout the year | | Topic: WHAT A WONDERFUL WORLD - Seasonal Changes |
| --- | --- | --- | --- |
| **Understanding of the World** | | | |
| • Explore the natural world around them.  • Describe what they see, hear and feel whilst outside.  • Understand the effect of changing seasons on the natural world around them. | | | |
| About the unit:  This unit will run throughout the school year.  Common misconceptions  Some children may think:  • it always snows in winter  • it is always hot in the summer  • all babies and young animals are born in spring  • plants only have flowers in the spring and summer  • animals sleep during winter  • it rains to help the plants grow  • when it is hotter, it is because the Sun is closer  • God controls the weather. | | | |
| Prior Learning: Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants & Animals, excluding humans) | Future Learning: Observe changes across the four seasons. (Y1 – Seasonal changes)  • Observe and describe weather associated with the seasons and how day length varies. (Y1 – Seasonal changes) | | Vocabulary:  Model and encourage children to use vocabulary such as:  • spring, summer, autumn, winter, seasons, sunny, cloudy, hot, warm, cold, shower, raining, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, windy, rainbow, animals, young, plants, flowers  Expose children to supplementary vocabulary such as:  • hibernate, migrate, snowflake |
| **CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING** | | | |
| What adults might provide | | What adults might do | |
| **Opportunities to play and explore outside in all seasons and in different weather**  • Playing in the rain and snow  • Drawing around puddles  • Catching rain and hail in buckets  • Catching snowflakes on frozen black paper and looking at them with magnifying glasses or an app on a tablet  • Making icicles  • Using scarves or pinwheels to explore the strength and direction of the wind  • Looking at photographs of different seasons and types of weather  • Sharing books about different seasons and types of weather Opportunities to observe living things throughout the year  • Sharing books about the seasons  • Going on seasonal walks to observe key features of the seasons  • Making artwork with seasonal found objects  • Visiting a farm / watching video clips to see the young animals in spring  • Finding minibeasts in the school grounds at different times in the year  • Taking photographs of the minibeasts they find in the school grounds at different times in the year  • Looking for birds and other animals throughout the year using binoculars  • Sharing books and videos about animals that migrate or hibernate over winter, gather food in autumn, build nests and lay eggs in spring etc.  • Taking photographs of the plants they find in the school grounds at different times in the year  • Observing closely and drawing the plants in the school grounds at different times in the year  • Matching animals and plants they find to pictures that identify them | | •Encourage children to talk about how they feel in different types of weather/seasons.  • Encourage children to talk about the clothes they wear in different seasons and why.  • Encourage children to talk about the weather throughout the year.  • Encourage children to find shelter or make shelters to keep themselves dry in the rain or shade themselves when it is sunny.  • Encourage children to talk about how the ground changes when it rains.  • Encourage children to measure the size of puddles using their feet after it rains. • Encourage children to talk about how puddles change over time after it rains.  • Encourage children to talk about the animals and plants that they find in different seasons.  •Encourage children to ask questions about the weather and seasonal changes.  **Encouraging scientific enquiry**  *Classification*  • Which clothes are suitable for each season?  *Observing over time*  • How does a puddle change over time?  • How does a snowman change as it melts?  • How does the natural world change with the seasons?  *Researching using secondary sources*  • Find out about how animals behave in different seasons.  • Find out about the weather and seasons. | |
| Linked texts | | Linked careers | |
| Traditional stories and nursery rhymes  • Rain, Rain Go Away  • Rain on the Green Grass  •It’s Raining, It’s Pouring  • I Hear Thunder  Texts used  •Sneezy the snowman (links to changing states of matter)  •One day on our blue planet  •Tree - Seasons Come, Seasons Go by Britta Teckentup  •Leaf Man  •The Leaf Theaf  •Living on a small planet  • The Snowman by Raymond Briggs  Other texts that may be useful  • Seasons by Anna Pang  • Autumn is Here by Heidi Pross Gray  • Spring is Here by Will Hillenbrand  • One Springy Day by Nick Butterworth  • The Snowy Day by Ezra Jack Keats | | Opportunities in the role-play corner to talk about the weather throughout the year  • Meteorologist  • Weather presenter | |
| **HOW CHILDREN MIGHT SHOW THEIR LEARNING** | | | |
| **Characteristics of effective teaching and learning** | | | |
| • Playing and exploring – children investigate and experience things, and ‘have a go’  • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements  • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things | | | |
| **Demonstrating skills and showing understanding** | | | |
| **What a child might be doing** | | **Possible evidence of learning** | |
| **Children ask questions, make observations using simple equipment and talk about what they are doing and have found out while carrying out a range of activities, such as:**  • playing and exploring outside in all seasons and in different weather  • observing living things throughout the year.  Children use equipment to measure when:  • exploring the size of puddles.  **Children sort:**  • clothes for different seasons.  **Children record their observations when:**  • observing plants, animals and puddles | | •Can talk about different types of weather.  • Can talk about the four seasons.  • Can talk about the living things they see in the playground and on visits during each season. | |



| Year Group: Reception | Term: Summer 1 | | Topic: SPACE - Earth and space |
| --- | --- | --- | --- |
| **Understanding of the World** | | | |
| • Explore the natural world around them.  • Describe what they see, hear and feel whilst outside. | | | |
| **Links with other areas of learning** | | | |
|  | | | |
| About the unit: The children learn about what astronauts do, the first moon landing, about Tim Peake and life on the ISS. They also learn about Katherine Johnson and Helen Sharman. The children learn about Earth, Sun, Moon, planets and stars and participate in an astronaut training day.  Common misconceptions  Some children may think:  • the Earth is flat  • the Moon and Sun are discs  • stars are a pointed ‘star’ shape  • the Moon appears only at night  • at night, the Sun is turned off  • at night, the Sun goes behind the clouds. | | | |
| Prior Learning:  Explore and respond to different natural phenomena in their setting and on trips. (Birth to three) | Future Learning:  Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. (Y5 – Earth and space) • Describe the movement of the Moon relative to the Earth. (Y5 – Earth and space)  • Describe the Sun, Earth and Moon as approximately spherical bodies. (Y5 – Earth and space)  • Use the idea of the Earth’s rotation to explain day and night and the apparent movement of the Sun across the sky. (Y5 – Earth and space) | | Vocabulary:  Model and encourage children to use vocabulary such as:  • Sun, Moon, Earth, star, planet, sky, day, night, space, round, bounce, float  Expose children to supplementary vocabulary such as:  • sunrise, sunset, astronaut, astronomer, constellation, orbit, nocturnal, slow-motion, magnify |
| **CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING** | | | |
| What adults might provide | | What adults might do | |
| **Opportunities to learn about the Earth, Sun, Moon, planets and stars**  • Observing that the Sun appears to move across the sky  • Observing that it is warmer and brighter when the Sun is shining than when it is behind the clouds  • Observing that they can see the Moon at night and sometimes in the day  • Observing that they can only see the stars at night  • Sharing books and video clips about the Earth, Sun, Moon, planets and stars  • Talking about what happens and what they can see and hear in the daytime and at night Sorting small world animals into those that are active in the daytime and those that are active at night  **Opportunities to learn about space travel**  • Joining materials to make model rockets, Moon buggies/Mars rovers and space stations  • Sharing books and video clips about space exploration including video clips of astronauts walking on the Moon and floating in the space station | | •Encourage children to safely observe changes in the sky at different times of the day.  • Support children to link changes in the sky to other observations e.g. changes in temperature and brightness.  • Encourage children to observe the evening/night sky with their family.  • Model asking questions about space and space travel.  • Encourage children to ask questions about space and space travel.  • Encourage children to move as if they were in space or on the Moon.  • Encourage children to use observations from books and video clips when painting their model planets.  • Encourage children to talk about how binoculars or a telescope make distant objects appear larger and closer.  • Encourage children to sort animals by when they are active.  • Support children to decide criteria for the ‘best’ rocket.  • Support children to describe the movements of astronauts.  **Encouraging scientific enquiry**  *Pattern seeking*  • Find simple patterns in how light levels and temperature change with the movement, or obscuring of, the Sun.  *Research using secondary sources*  • Find out about the Solar System, stars and space travel.  • Find out about nocturnal animals. | |
| Linked texts | | Linked careers | |
| Traditional stories, songs and nursery rhymes  • Twinkle, Twinkle Little Star  Texts used  • Q Pootle 5  • Whatever Next! by Jill Murphy  • How to Catch a Star by Oliver Jeffers  • Owl Babies by Martin Waddell | | Opportunities in the role-play corner to learn about space  • Astronomer  • Astronaut on a space station or rocket  • Rocket designer | |
| **HOW CHILDREN MIGHT SHOW THEIR LEARNING** | | | |
| **Characteristics of effective teaching and learning** | | | |
| • Playing and exploring – children investigate and experience things, and ‘have a go’  • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements  • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things | | | |
| **Demonstrating skills and showing understanding** | | | |
| **What a child might be doing** | | **Possible evidence of learning** | |
| **Children ask questions, make observations and talk about what they are doing and have found out while carrying out a range of activities, such as**:  • learning about the Earth, Sun, Moon, planets and stars  • learning about space travel.  **Children record their observations when:**  • making models of Earth, Sun, Moon, planets and stars  • drawing things that happen in the daytime and at night. | | •Can identify the Sun, Moon and stars and talk about how they are different from Earth.  • Can identify differences between day and night.  • Can talk about animals that are active at night.  • Can talk about some differences between being on Earth and travelling in space. | |



| Year Group: Reception | Term: Summer 2 | | Topic: CHANGES - Plants - Living things and their habitats |
| --- | --- | --- | --- |
| **Understanding of the World** | | | |
| • Draw information from a simple map.  • Explore the natural world around them.  • Describe what they see, hear and feel whilst outside.  • Recognise some environments that are different to the one in which they live | | | |
| About the unit: The children will learn about the lifecycle of humans, plants and the life cycle of butterflies by observing the caterpillars in the classroom. They will learn what plants need to grow and how humans change and grow over time.  Common misconceptions  Some children may think:  • trees are not plants  • trees are not living as they do not seem to change or grow  • weeds are bad plants. | | | |
| Prior Learning:  •Use all their senses in hands-on exploration of natural materials.  • Explore collections of materials with similar and/or different properties.  • Begin to understand the need to respect and care for the natural environment and all living things. | Future Learning:  •Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 – Plants)  • Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 – Plants)  • Explore and compare the differences between things that are living, dead, and things that have never been alive. (Y2 – Living things in their habitat)  • Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 – Living things in their habitat) | | Vocabulary:  Model and encourage children to use vocabulary such as:  • plant, tree, bush, flower, vegetable, herb, weed, animal, names of plants and animals they see, name of a contrasting environment e.g. beach, forest  Expose children to supplementary vocabulary such as:  • environment |
| **CREATING APPROPRIATE EXPERIENCES TO INITIATE LEARNING** | | | |
| What adults might provide | | What adults might do | |
| **Opportunities to explore the plants in the surrounding natural environment**  • Taking photographs of the plants they find in the school grounds  • Observing closely and drawing the plants in the school grounds  • Finding plants in the school grounds to match with photographs of them  • Using a map of the school grounds, with pictures of where specific plants can be found, to find those plants  • Creating a map to show how to find their favourite plants in the school grounds **Opportunities to explore the animals in the surrounding natural environment**  • Observing the caterpillars closely, using a magnifying glass  • Finding minibeasts in the school grounds  • Taking photographs of the minibeasts they find in the school grounds  •Matching the minibeasts they find to pictures that identify them  • Drawing pictures of the minibeasts  • Creating a map to show where they found each type of minibeast  • Sharing books about minibeasts  • Playing with small world minibeasts  • Building minibeast homes  **Opportunities to explore plants and animals in a contrasting natural environment**  • Looking at photographs of plants and animals in the contrasting natural environment  • Sharing non-fiction and fiction books about a contrasting natural environment | | • Support children to identify different plants e.g. trees, bushes, flowers, vegetables, herbs.  • Ensure children are careful when exploring the plants and do not damage them in any way.  • Encourage children to touch and smell the plants, when appropriate.  • Encourage children to talk about the plants they find.  • Support children to name the plants they find.  • Encourage children to find the same plant in a different place.  • Ensure children are careful when observing minibeasts and return them to where they found them.  • Encourage children to talk about the minibeasts they find.  • Support children to name the minibeasts they find.  •Encourage children to identify similarities and differences between the plants and animals they find in the surrounding natural environment and the contrasting one they visit.  • Encourage children to ask questions about the plants and animals they find. **Encouraging scientific enquiry**  *Classification*  • Name and describe plants and animals they find in the school grounds.  *Pattern seeking*  • Look for minibeasts in different areas of the school grounds.  • Look for plants in different areas of the school grounds. | |
| Linked texts | | Linked careers | |
| Traditional stories and nursery rhymes  • Incey, Wincey Spider  • Ladybird, Ladybird Fly Away Home  Texts used  •The very hungry caterpillar  • Aargh a Spider by Lydia Monks  •The growing story  Other texts that may be useful  • Mad About Minibeasts by David Wojtowycz & Giles Andreae  • Ben Plants a Butterfly Garden by Kate Petty  • Norman the Slug with the Silly Shell by Sue Hendra  • Insects: A Close-up Look by Peter Seymour | | Opportunities in the role-play corner to explore and compare plants and animals in the surrounding natural environment and a contrasting one  • Botanist  • Environmentalist  • Environmental scientist  • Beekeeper | |
| **HOW CHILDREN MIGHT SHOW THEIR LEARNING** | | | |
| **Characteristics of effective teaching and learning** | | | |
| • Playing and exploring – children investigate and experience things, and ‘have a go’  • Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements  • Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things | | | |
| **Demonstrating skills and showing understanding** | | | |
| **What a child might be doing** | | **Possible evidence of learning** | |
| **Children ask questions, make observations using simple equipment and talk about what they are doing and have found out while carrying out a range of activities, such as:**  • exploring the plants in the surrounding natural environment  • exploring the animals in the surrounding natural environment  • exploring plants and animals in a contrasting natural environment.  **Children record their observations when:**  • drawing plants and animals they find. | | •Can name and describe plants and animals in the school grounds and their environment.  • Can talk about how another environment is different to their surrounding natural environment.  • Children do not damage the living things they encounter in the natural environment. | |

**Medium Term Plan**

**Year 1**

\* Year 1 – Seasonal changes to be focussed on throughout the year.

| Year Group: Year 1 | Term: Throughout the school year | Unit of Learning: Seasonal changes |
| --- | --- | --- |
| **About the unit:**  Children will go on a winter walk to look for signs of Winter. They will be encouraged to think about how the weather and the outside environment have changed since their Autumn walk and what impact this has on our lives.  **Key Learning:**  In the UK, the day length is longest at mid-summer (about 16 hours) and gets shorter each day until mid-winter (about 8 hours) before getting longer again. The weather also changes with the seasons. In the UK, it is usually colder and rainier in winter, and hotter and dryer in the summer. The change in weather causes many other changes. Some examples are: numbers of minibeasts found outside; seed and plant growth; leaves on trees; and type of clothes worn by people.  **Possible evidence:**  Can name the four seasons and identify when in the year they occur.  Can describe weather in different seasons over a year.  Can describe days as being longer (in time) in the summer and shorter in the winter  Can describe other features that change through the year.  **Possible Misconceptions**  Some children may think:  • it always snows in winter  • it is always sunny in the summer  • there are only flowers in spring and summer  • it rains most in the winter. | | **Where the unit fits in:** Children have been looking at seasonal changes throughout the Autumn term and will continue to look at each season in more detail at the relevant time of the year. |
| Prior Learning:  In reception the children made observations of animals and plants, explained why some things occur and talked about changes.  • Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants & Animals, excluding humans)  • Explore the natural world around them. (Reception – Seasonal changes)  • Describe what they see, hear and feel whilst outside. (Reception – Seasonal changes)  • Understand the effect of changing seasons on the natural world around them. (Reception – Seasonal changes) | Future Learning:  Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Y3 - Light)  Use the idea of the Earth’s rotation to explain day and night and the apparent movement of the Sun across the sky. (Y5 - Earth and space)  The seasons and the Earth’s tilt, day length at different times of year, in different hemispheres. (KS3) | Vocabulary:  Weather (sunny, rainy, windy, snowy etc.)  Seasons (winter, summer, spring, autumn)  Sun, sunrise, sunset, day length  Resources:  Vocabulary to add to Science wall, ipads, thermometer, standard measures, magnifying glasses, binoculars, microscope, plain paper, cameras, clipboards, Post-it notes. |
| Assessment (By the end of this unit the children will be able to…)  Animals:   * Observe changes across the four seasons * Observe and describe weather associated with the seasons and how day length varies. | | |
| Learning Objective: | Possible teaching Activities: | Learning Outcomes: |
| To observe and describe how day length varies in the context of Autumn to Winter.  To observe changes across the 4 seasons by looking at how the trees and clothes that we wear change from Autumn to Winter. | Recap the names of each seasons and match the months of the year to the season that they are in. (Identifying and Classifying) Children go on a Winter walk and are encouraged to identify signs of Winter. They will be shown a table showing the amount of hours of daylight in each month of the year and be asked if they notice anything different about the numbers. They will be asked to consider the reasons for the differences. Children will be asked to draw pictures and write sentences to explain what the trees look like, what people wear and anything else they notice about winter. | Children will describe how day length varies in the context of Autumn to Winter.  They will be able to identify how the trees and clothes that we wear change from autumn to winter (observing over time) and give the reasons for this. |
| Observe changes across the four seasons  Observe and describe weather associated with the seasons and how day length varies. | What is weather? Children will learn about different types of weather, weather symbols and that when we are talking about the weather we are talking about the temperature, sunshine, rainfall, cloud cover and wind. Recap – What season is it now? How do you know?  Children will then learn about the weather in winter in more detail. They will look at a range of photos showing the weather/ items used in winter and be asked questions in order to extend their thinking E.g. How would you group these things based on which season you are most likely to see them in? Does it always snow in the UK in winter? Does it have to snow to be winter? The children will then work in talk partners to discuss additional questions such as, What happens in winter? What’s the weather like? What do you wear? What do you see in winter? (Identifying and Classifying / Pattern Seeking)Children will respond to each question orally and by recording a pictorial or written answer on their sheet. Children will then learn about measuring the weather and start to think about how to create their own weather station. | The children will be able to explain what the weather is like in winter and how day length varies. They will be able to talk about how this affects what people do, wear and eat. (Identifying and Classifying / Pattern Seeking) |
| Observe and describe weather associated with the seasons. | The children have a class weather chart. The children will be encouraged to think about - What is the weather like in winter? How much rainfall as there today? How cold is it today? (Observing over time)  How would you group these things based on which season you are most likely to see them in? (Identifying and Classifying) | The children will observe closely in order to answer questions about the weather. (Comparative and fair testing) (Observing over time) |
| Next step for Year 1 :  Observe changes across the four seasons  Observe and describe weather associated with the seasons and how day length varies. | Collect information about the weather regularly throughout the year. Present this information in tables and charts to compare the weather across the seasons.  (Pattern Seeking)  Collect information, throughout the year, of features that change with the seasons e.g. plants, animals, humans. Present this information in different ways to compare the seasons. How does the oak tree change over the year? (Observing over time)  Gather data about day length regularly throughout the year and present this to compare the seasons. Use this information to answer questions E.g. In which season does it rain the most? (Comparative and fair testing)  Are there plants that are in flower in every season? What are they? (Research) | Use the evidence gathered to describe the general types of weather and changes in day length over the seasons. (Pattern Seeking)  Use their evidence to describe some other features of their surroundings, e.g. themselves, animals, plants that change over the seasons.(Observing over time)  Demonstrate their knowledge in different ways e.g. making a weather forecast video, writing seasonal poetry, creating seasonal artwork and answering questions. (Comparative and fair testing)  Children will be able to use secondary sources of information to answer questions. (Research) |

| Year Group: Year 1 | Term: Autumn 1 and 2 | Unit of Learning: Superheroes – Everyday Materials |
| --- | --- | --- |
| **About the unit:** Children will be building on their knowledge and understanding of materials from Reception by investigating materials in detail and carrying out experiments linked to materials.  **Key Learning:** All objects are made of one or more materials. Some objects can be made from different materials e.g. plastic, metal or wooden spoons. Materials can be described by their properties e.g. shiny, stretchy, rough etc. Some materials e.g. plastic can be in different forms with very different properties.  **Possible evidence:**  Can label a picture or diagram of an object made from different materials.  Can describe the properties of different materials.  **Common misconceptions**  Some children may think:  • only fabrics are materials  • only building materials are materials  • only writing materials are materials  • the word ‘rock’ describes an object rather than a material  • ‘solid’ is another word for hard. | | **Where the unit fits in:** This unit will begin during the topic Superheroes. In reception the children selected materials to make the scenery for their Christmas production. During this unit the children will build on their knowledge of materials by identifying, grouping, describing and comparing materials. They will make predictions and carry out experiments to test their ideas. This will include testing which material is the best to keep Metal Mike dry, melting experiments, and identifying which materials would be most suitable for a superhero costume. |
| **Prior Learning:**  In Reception the children selected materials to make the scenery for their Christmas production.  • Use all their senses in hands-on exploration of natural materials. (Nursery - Materials, including changing materials)  • Explore collections of materials with similar and/or different properties. (Nursery - Materials, including changing materials)  • Talk about the differences between materials and changes they notice. (Nursery - Materials, including changing materials) | **Future Learning**:  Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for  particular uses. (Y2 - Uses of everyday materials)  Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of  everyday materials) | **Vocabulary:**  Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff,  bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through.  **Resources:**  Magnifying glasses, clipboards, Post-it notes, access to the internet to support identification, IPads, vocabulary to add to Science wall. Materials - material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, chocolate, ice for experiments. |
| Assessment (By the end of this unit the children will be able to…)   * 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. | | |
| Learning Objective: | Possible teaching Activities: | Learning Outcomes: |
| Distinguish between an object and the material from which it is made | What is wood? What is metal? What is fabric? Etc. Naming the object and identifying the material it is made out of.  Can label a picture or diagram of an object made from different materials. (identifying and classifying) | Children have a solid understanding of different materials. Children can verbally distinguish between an object and the material from which it is made. They can label a picture or diagram of an object made from different materials to demonstrate this. (identifying and classifying) |
| Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock | Sorting, grouping, recycling boxes, labelling. (identifying and classifying)  Which materials can be recycled? (Research) | Children can sort materials into the correct categories (identifying and classifying), search for objects made out of a certain material and record in a tally chart ((identifying and classifying), and label the materials.  Children understand which materials can be recycled. (Research) |
| Describe the simple physical properties of a variety of everyday materials | Investigating materials, feely bags, guess the material. Can you describe the properties of the material? (observing closely) | Children can verbally describe the simple physical properties of a variety of everyday materials, so that their partner can guess the material (observing closely) |
| Compare and group together a variety of everyday materials on the basis of their simple physical properties. | Compare materials based on their properties E.g. Which materials are the most flexible? Which materials will float and which will sink? (Comparative and fair testing)  Classify objects made of one material in different ways e.g. a group of objects made of metal. (Identifying, Grouping and Classifying)  Classify in different ways one type of object made from a range of materials e.g. a collection of spoons made of different materials.  Investigating the suitability of materials for a job based on its properties E.g. We need to choose a material to make a shelter for Metal Mike. Which materials are waterproof? (Identifying, Grouping and Classifying) | Compare objects and materials using a range of properties. They can explain which materials are the most flexible, strongest etc. (Comparative and fair testing)  Children can compare and group objects on the basis of their simple physical properties. (Identifying, Grouping and Classifying)  Children will predict and then test which material would be the best at keeping Metal Mike dry. (Identifying, Grouping and Classifying) |
| Using their observations and ideas to suggest answers to questions. Observing closely, using simple equipment. | Chocolate button – melting experiment. (observing over time)  How can we free the peas from the ice cubes?  Test the properties of objects e.g. absorbency of cloths, strength of party hats made of different papers, stiffness of paper plates, and waterproofness of shelters. (Comparative testing)  Is there a pattern in the types of materials that are used to make objects in a school?  (Pattern seeking) | Children will predict what they think will happen, use their observations (observing over time) and ideas to suggest answers to questions, record their observations and explain what happened and why (Comparative and fair testing / performing simple tests).  Can choose an appropriate method for testing an object for a particular property. Can use their test evidence to answer the questions about properties e.g. “Which cloth is the most absorbent?” (Comparative testing)  Children can find patterns in the way in which materials are used and suggest reasons for this. (Pattern seeking) |

| Year Group: Year 1 | Term: Spring | Unit of Learning: Turrets and Tiaras – Animals (**including humans)** |
| --- | --- | --- |
| **About the unit:** Children will identify, name, draw and label the basic parts of the human body. They will investigate human senses and say which part of the body is associated with each sense. They will compare and classify people and look for patterns between people e.g. Do people with big hands have big feet?  **Key Learning:** Humans have key parts in common, but these vary from person to person. Humans (and other animals) find out about the world using their senses.  Humans have five senses – sight, touch, taste, hearing and smelling. These senses are linked to particular parts of the body.  **Possible evidence:**  Can play and lead ‘Simon says’  During PE lessons, can follow instructions involving parts of the body  Can label parts of the body on pictures and diagrams  Can explore objects using different senses  **Common Misconceptions**  Some children may think:  humans are not animals | | Where the unit fits in: It builds on prior learning from reception. During Autumn 2, this unit is touched on in PSHE learning. The children’s knowledge and understanding is then built on during this unit. |
| Prior Learning:  In reception the children learned the names of some body parts.  Use all their senses in hands-on exploration of natural materials. (Nursery - Humans)  Name and describe people who are familiar to them. (Reception - Humans) | Vocabulary:  Animals (including humans):  Head, neck, arms, elbows, legs, knees, face, knees, ears, eyes, hair, mouth, lips, teeth, eyes, ears, nose, fingers, skin, tongue, taste buds.  Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue.  Parts of the body including those linked to PSHE teaching.  N.B. Although we often use our fingers and hands to feel objects, the children should understand that we can feel with many parts of our body. | Resources:  Vocabulary to add to Science wall, Ipads, measuring equipment, mirrors, magnifying glasses, microscope, plain paper, cameras, rulers, clipboards, Post-it notes.  Senses boxes - What is the sound? How does it feel? What is the smell? Where’s Wally? |
| Assessment (By the end of this unit the children will be able to…)  Animals:   * identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. | | |
| Learning Objective: | Possible teaching Activities: | Learning Outcomes: |
| Identify, name, draw and label the basic parts of the human body and **say which part of the body is associated with each sense.** | Make first-hand close observations of parts of the body e.g. hands, eyes. (Observing closely)  Children will investigate human senses in a carousel of activities including; What is the sound? How does it feel? What is the smell? Where’s Wally? Which part of my body is good for feeling, which is not? Which food/flavours can I identify by taste? Is our sense of smell better when we can’t see? (Comparative and fair testing)  Which sense? The children will match the pictures to the correct sense and body part. (identifying and classifying).  Think of an activity that uses that sense. Draw a picture of that activity. | Can use first-hand close observations to make detailed drawings. (Observing closely)  Children will have a better understanding of what our senses are and how they help us in everyday life. They can talk about their findings using appropriate  vocabulary e.g. “My fingers are much better at feeling than my toes” “We found that the crisps all taste the same.” (Comparative and fair testing)  Children will be able to name the senses, know which body part we use for each sense, know what our senses help us with, and name things we do with each of my senses (identifying and classifying). |
| **Identify, name, draw and label the basic parts of the human body** and say which part of the body is associated with each sense | Play ‘Simon says’ to help children identify body parts.  Body part bingo. Labelling the Body: Children will draw around one of the children in their group and work as a group to label the basic parts of the human body. (Identifying and Classifying)  Compare two people, take measurements of parts of their body. (Comparative and fair testing) Compare parts of their own body. Look for patterns between people e.g. Do people with big hands have big feet? (Pattern Seeking)  Classify people according to their features. (Identifying and Classifying) | Children will be able identify and label the basic parts of the human body. (Identifying and Classifying)  Can name body parts correctly when talking about measurements and comparisons e.g. “My arm is x straws long.” “My arm is x straws long and my leg is y straws long. My leg is longer than my arm.” “We both have hands, but his are bigger than mine.” “These people have brown eyes and these have blue.”  Can identify patterns E.g. Ben is taller and he has bigger hands and feet. (Pattern Seeking)  Children can organise themselves and others based on their features. (Identifying and Classifying) |

| Year Group: Year 1 | Term: Summer 1 | Unit of Learning: All about trees - **Plants** |
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| About the unit:  **Key learning:** Growing locally, there will be a vast array of plants which all have specific names. These can be identified by looking at the key characteristics of the plant. Plants have common parts, but they vary between the different types of plants. Some trees keep their leaves all year while other trees drop their leaves during autumn and grow them again during spring.  **Possible Evidence:**   * Can name trees and other plants that they see regularly * Can describe some of the key features of these trees and plants e.g. the shape of the leaves, the colour of the flower/blossom * Can point out trees which lost their leaves and those that kept them the whole year * Can point to and name the parts of a plant, recognising that they are not always the same e.g. leaves and stems may not be green   **Common Misconceptions**  Some children may think:  • plants are flowering plants grown in pots with coloured petals and leaves and a stem  • trees are not plants  • all leaves are green  • all stems are green  • a trunk is not a stem  • blossom is not a flower. | | Where the unit fits in:  This unit builds on the children’s prior learning. |
| **Prior Learning:**  Plant seeds and care for growing plants. (Nursery – Plants)  Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants)  Begin to understand the need to respect and care for the natural environment and all living things. (Nursery – Plants)  Explore the natural world around them. (Reception – Living things and their habitats)  Recognise some environments that are different to the one in which they live. (Reception – Living things and their habitats) | **Future Learning:**  Observe and describe how seeds and bulbs grow into mature plants. (Y2- Plants)  Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. (Y2 - Plants)  Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats)  Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. (Y3 - Plants)  Investigate the way in which water is transported within plants. (Y3 Plants) | **Vocabulary:**  Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud  Names of trees in the local area  Names of garden and wild flowering plants in the local area  Resources: Magnifying glasses, binoculars, microscope plain paper, cameras, rulers, clipboards, Post-it notes, reference books to support identification, access to the internet to support identification. |
| Assessment (By the end of this unit the children will be able to…)  Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.  Identify and describe the basic structure of a variety of common flowering plants, including trees. | | |
| Learning Objective: | Possible teaching Activities: | Learning Outcomes: |
| Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.  Identify and describe the basic structure of a variety of common flowering plants, including trees. | * Make close observations of leaves, seeds, flowers etc. Compare two leaves, seeds, flowers etc. * Classify leaves, seeds, flowers etc. using a range of characteristics. How can we sort the leaves that we collected on our walk? (Identifying, grouping and Classifying) * Identify plants by matching them to named images. (Identifying, grouping and Classifying) * Make observations of how plants change over a period of time. How does a daffodil bulb change over the year? How does my sunflower change each week? (Observing over time)   **Possible next steps for Year 1**   * Which type of compost grows the tallest sunflower? Which tree has the biggest leaves? (Comparative and fair testing) * Is there a pattern in where we find moss growing in the school grounds? (Pattern Seeking) * What are the most common British plants and where can we find them? (Research) | * Can observe closely and talk about similarities and differences. * Can sort and group parts of plants using similarities and differences (Identifying, grouping and Classifying) * Can use simple charts etc. to identify plants (Identifying, grouping and Classifying) * Can collect information on features that change during the year (Observing over time) * Can use photographs to talk about how plants change over time (Observing over time)   **Possible next steps for Year 1**   * Can carry out simple tests and use their observations to suggest answers to questions. (Comparative and fair testing) * Can use their observations and ideas to suggest answers to questions and look for patterns and reasons why things grow in certain places. (Pattern Seeking) * Can use the internet and non fiction texts in order to research (Research) |

| Year Group: Year 1 | Term: Summer 2 | Unit of Learning: Where in the world? **Animals** |
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| **About the unit:** This unit of learning will begin with the children being introduced to the text Meerkat mail and learning about Sunny the meerkat**.** They will identify, name and describe a variety of animals and compare them to Sunny by describing how they are similar or different.  **Key learning:** Animals vary in many ways having different structures e.g. wings, tails, ears etc. They also have different skin coverings e.g. scales, feathers, hair. These key features can be used to identify them. Animals eat certain things - some eat other animals, some eat plants, some eat both plants and animals.  **Possible evidence:**  Can name a range of animals which includes animals from each of the vertebrate groups  Can describe the key features of these named animals  Can label key features on a picture/diagram  Can write descriptively about an animal  Can write a What am I? riddle about an animal  Can describe what a range of animals eat  **Common misconceptions**  Some children may think:   * only four-legged mammals, such as pets, are animals * humans are not animals * insects are not animals * all ‘bugs’ or ‘creepy crawlies’, such as spiders, are part of the insect group * amphibians and reptiles are the same. | | Where the unit fits in: This learning builds on the children’s prior science learning in Autumn 2 about animals (including humans). |
| **Prior Learning**:  Use all their senses in hands-on exploration of natural materials. (Nursery - Humans)  • Name and describe people who are familiar to them. (Reception - Humans) | **Future Learning:** 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. (Y2 - Living things and their habitats)  Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. (Y6 - Living  things and their habitats)  Give reasons for classifying plants and animals based on specific characteristics. (Y6 - Living things and their habitats) | Vocabulary:  Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves.  Names of animals experienced first-hand from each vertebrate group.  N.B.  The children need to be able to name and identify a range of animals in each group e.g. name specific birds and fish. They do not need to use the terms mammal, reptiles etc. or know the key characteristics of each, although they will probably be able to identify birds and fish, based on their characteristics. The children also do not need to use the words carnivore, herbivore and omnivore. If they do, ensure that they understand that carnivores eat other animals, not just meat.  Resources: Magnifying glasses, binoculars, microscope, plain paper, cameras, rulers, clipboards, Post-it notes, reference books to support identification, access to the internet to support identification. |
| Assessment (By the end of this unit the children will be able to…)  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.  Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). | | |
| Learning Objective: | Possible teaching Activities: | Learning Outcomes: |
| Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (They do not need to use the terms mammal, reptiles etc. or know the key characteristics of each, although they will probably be able to identify birds and fish, based on their characteristics)  Identify and name a variety of common animals that are carnivores, herbivores and omnivores.  Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). | * Make first-hand, close observations of animals from each of the groups. * Compare two animals from the same or different groups. * Classify animals using a range of features. (Identifying, grouping and classifying) * Identify animals by matching them to named images. (Identifying, grouping and classifying) * Classify animals according to what they eat. How can we organise all the zoo animals? (Identifying, grouping and classifying) * How are the animals in a certain country different to the ones that we find in Britain?   **Possible Next step**   * Do all animals have the same senses as humans? (Research) | * Can talk about the similarities and differences between animals * Can sort and group animals using similarities and differences (Identifying, grouping and classifying) * Can use simple charts etc. to identify unknown animals (Identifying, grouping and classifying) * Can create a drawing of an imaginary animal labelling its key features * Can use secondary resources to find out what animals eat, including talking to experts e.g. pet owners, zookeepers etc. (Research)   **Possible Next step**   * Can use secondary resources to find out; how animals in a different country are different to those in Britain or, if all animals have the same sense as humans (Research) |

**Medium Term Plan - Year 2**

| Year Group: Year 2 | Term: Autumn 1 | Unit of Learning: Dinosaurs – Living things and habitats |
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| About the unit: Children will discover an enormous egg in the school grounds and try to find out which animal it belongs too. They will learn all about dinosaurs and their habitats. They will create a dinosaur habitat which provides for their dinosaurs basic needs and produce a dinosaur fact file.  **Key learning:**  All objects are either living, dead or have never been alive. Living things are plants (including seeds) and animals. Dead things include dead animals and plants and parts of plants and animals that are no longer attached e.g. leaves and twigs, shells, fur, hair and feathers (This is a simplification, but appropriate for Year 2 children.)  An object made of wood is classed as dead. Objects made of rock, metal and plastic have never been alive (again ignoring that plastics are made of fossil fuels).  Animals and plants live in a habitat to which they are suited, which means that animals have suitable features that help them move and find food and plants have suitable features that help them to grow well. The habitat provides the basic needs of the animals and plants – shelter, food and water. Within a habitat there are different micro-habitats e.g. in a woodland – in the leaf litter, on the bark of trees, on the leaves. These micro-habitats have different conditions e.g. light or dark, damp or dry. These conditions affect which plants and animals live there. The plants and animals in a habitat depend on each other for food and shelter etc. The way that animals obtain their food from plants and other animals can be shown in a food chain.  **Possible evidence:**   * Can find a range of items outside that are living, dead and never lived * Can name a range of animals and plants that live in a habitat and micro-habitats that they have studied * Can talk about how the features of these animals and plants make them suitable to the habitat * Can talk about what the animals eat in a habitat and how the plants provide shelter for them * Can construct a food chain that starts with a plant and has the arrows pointing in the correct direction   **Common misconceptions**  Some children may think:  • an animal’s habitat is like its ‘home’  • plants and seeds are not alive as they cannot be seen to move  • fire is living  • arrows in a food chain mean ‘eats’. | | Where the unit fits in: It builds on prior learning from Year 1. |
| Prior Learning:  In Year 1 children learned to identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals and learned to identify and name a variety of common animals that are carnivores, herbivores and omnivores. The children started to talk about living things and their habitats when building their perfect homes for sunny the Meerkat.  • Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants)  • Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants)  • Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals including  humans)  • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals including humans)  • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Animals, including humans)  • Observe changes across the four seasons. (Y1 - Seasonal changes) | Future learning:   * Recognise that living things can be grouped in a variety of ways. (Y4 -Living things and their habitats) * Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. (Y4 – Living things and their habitats) * Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 - Living things and their habitats) * Construct and interpret a variety of food chains, identifying producers, predators and prey. (Y4 - Animals, including humans) | Vocabulary:  Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, conditions, climate, damp, environment, weather, survival, suited, suitable, carnivores, herbivores, omnivores  Names of local habitats e.g. pond, woodland etc.  Names of micro-habitats e.g. under logs, in bushes etc.  Organism – plant, animal  Food chains - predator, prey, nocturnal, hunt, producer, consumer  Life cycles – off spring, mature, adult, eggs, young  Trees, wild flowering plants, garden plants, parts of plants.  Resources: Magnifying glasses, Binoculars, Microscope, Plain paper, cameras, Rulers, Clipboards, Post-it notes, Reference books to support identification, Access to the internet to support identification, Art materials to create habitats. |
| Assessment (By the end of this unit the children will be able to…)   * 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 micro-habitats * 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 (Covered in more detail in Autumn 2) | | |
| Learning Objective: | Possible teaching Activities: | Learning Outcomes: |
| Explore and compare the differences between things that are living, dead, and things that have never been alive | Explore the outside environment regularly to find objects that are living, dead and have never lived.  How would you group things to show which are living, dead, or have never been alive?  Classify objects found in the local environment. | Can sort into living, dead and never lived.  (Identifying, grouping and classifying). |
| 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. | Children will complete research in order to answer questions about which animals are suited to which habitats E.g. Why is grassland a good habitat for a lion? They will choose one animal of their choice to write about and give reasons as to why it is suited to its habitat.  How does the habitat of the Arctic compare with the habitat of the rainforest? | Children will be able to describe why a certain animal is suited or not suited to a certain habitat (Identifying and classifying) (Researching using secondary resources) |
| 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. | Children will look for minibeasts in a microhabitat and record their data as a tally and pictograph. They will write an evaluation to explain why they chose to look for minibeasts in a certain microhabitat, the equipment they used and their findings. Children will be encouraged to explain why they didn’t find certain minibeasts in the same microhabitat.  Which habitat do worms prefer –where can we find the most worms?  What conditions do woodlice prefer to live in? | Children will identify which minibeasts are best suited to that particular microhabitat (pattern seeking). They will explain why certain minibeasts were or were not in a certain microhabitats by describing how different habitats provide for the basic needs of different kinds of animals (identifying and classifying). |
| Identify and name a variety of animals in their habitats. | Name the minibeat and match the minibeast to the correct habitat.  Name the animal and match it to its habitat. | Children will be able to name a variety of minibeasts and match them to their habitats. (Identifying, grouping and classifying)  Children will match the animal to the correct habitat and describe why it is suited to that habitat. |
| Identify and name a variety of plants and animals in their habitats, including microhabitats. | Children will go on a mini beast hunt in a certain microhabitat in the school grounds. They will record their findings in a tally chart. | Children can identify which minibeasts are best suited to that particular microhabitat (pattern seeking). |



| Year Group: Year 2 | Term: Autumn 2 – Continued in Summer 1 | Unit of Learning:  The Egg (Dragons) – Animals, including humans / Living thing and habitats |
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| **About the unit:** Children will discover that the enormous egg (stimulus in autumn 1) has hatched and view CCTV footage of a dragon in the school grounds. Throughout this topic the children will learn that animals, including humans, have offspring which grow into adults, learn about the basic needs of animals and how animals obtain their food from plants and other animals.  **Key learning:**  Animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be young, such as babies or kittens that grow into adults. In other animals, such as chickens or insects, there may be eggs laid that hatch to young or other stages which then grow to adults. The young of some animals do not look like their parents e.g. tadpoles. All animals, including humans, have the basic needs of feeding, drinking and breathing that must be satisfied in order to survive. To grow into healthy adults, they also need the right amounts and types of food and exercise. Good hygiene is also important in preventing infections and illnesses.  **Possible evidence:**  Can describe how animals, including humans, have offspring which grow into adults, using the appropriate names for the stages  • Can state the basic needs of animals, including humans, for survival  Some children may think:  • an animal’s habitat is like its ‘home’  • all animals that live in the sea are fish  • respiration is breathing  • breathing is respiration. | | Where the unit fits in: It builds on Science learning in Autumn 1. |
| Prior Learning:   * Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans) * Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans) | Future Learning:   * Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. (Y3 - Animals, including humans) * Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 - Living things and their habitats) * Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats) * Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (Y6 - Animals, including humans) | Vocabulary:  Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult,  caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types  (examples – meat, fish, vegetables, bread, rice, pasta)  Classification - Birds, fish, amphibians, reptiles, mammals and invertebrates.  Classification - Carnivores, herbivores, omnivores  Food chains - predator, prey, nocturnal, hunt, producer, consumer  Life cycles – off spring, mature, adult, eggs, young  Life processes – MRS GREN movement, respiration, sensitivity, growth, reproduction, excretion, nutrition (feeding)  Foods – healthy, grow, strong, energy, diet,  Resources:  Magnifying glasses, ipads. |
| Assessment (By the end of this unit the children will be able to…)   * 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).   Living things and habitats   * 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 (Covered in more detail in Autumn 2) | | |
| Learning Objective: | Possible teaching Activities: | Learning Outcomes: |
| Assessment of children’s knowledge and understanding of food chains. | The children will complete a food chains pre-assessment in order to assess what the children already know about food chains. | Teaching staff will be able to plan how to build on the children’s knowledge. |
| 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 | Create simple food chains for a familiar local habitat from first-hand observations and research. (Identifying, grouping and classifying)  Create simple food chains from information given e.g. in picture books (Gruffalo etc.). (Pattern Seeking) | Using a food chain can explain what animals eat  Can explain in simple terms why an animal or plant is suited to a habitat e.g. the caterpillar cannot live under the soil like a worm as it needs fresh leaves to eat; the seaweed we found on the beach cannot live in our pond because it is not salty. |
| Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)  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. | The children will learn the vocabulary and meaning of words linked to food chains. They will look at different types of food chains and discuss similarities and differences. They will sort images to create food chains and be asked to explain both verbally and in writing, how the food chain works. (Identifying, grouping and classifying) | To create a food chain and explain how it works. |
| Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). | Ask questions of a parent about how they look after their baby. (Research)  Ask pet owners questions about how they look after their pet. | Can state the basic needs of animals, including humans, for survival.  Show what they know about looking after a baby/animal by creating a parenting/pet owners’ guide. |
| Notice that animals, including humans, have offspring which grow into adults. | Which offspring belongs to which animal?  (Identifying, Grouping and Classifying)  Research and observe how animals, including humans, grow. (Research) | Can match the offspring to the correct animal.  Can describe how animals, including humans, have  offspring which grow into adults, using the appropriate names for the stages.  Can measure/observe how animals, including humans, grow. |



| Year Group: Year 2 | Term: Spring 1 and 2 | Unit of Learning: Time Travellers – Materials |
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| **About the unit:** The children will be time travelling through history to learn about key historic figures. In Science lessons they will be investigating and comparing materials based on their properties and identifying and comparing the suitability of a variety of everyday materials through investigations.  **Key Learning:**  All objects are made of one or more materials that are chosen specifically because they have suitable properties for the task. For example, a water bottle is made of plastic because it is transparent allowing you to see the drink inside and waterproof so that it holds the water. When choosing what to make an object from, the properties needed are compared with the properties of the possible materials, identified through simple tests and classifying activities. A material can be suitable for different purposes and an object can be made of different materials. Objects made of some materials can be changed in shape by bending, stretching, squashing and twisting. For example, clay can be shaped by squashing, stretching, rolling, pressing etc. This can be a property of the material or depend on how the material has been processed e.g. thickness.  **Possible evidence**:   * Can name an object, say what material it is made from, identify its properties and make a link between the properties and a particular use * Can label a picture or diagram of an object made from different materials * For a given object can identify what properties a suitable material needs to have   **Common Misconceptions**  Some children may think:  • only fabrics are materials  • only building materials are materials  • only writing materials are materials  • the word rock describes an object rather than a material  • solid is another word for hard. | | Where the unit fits in: It builds on the children’s learning about materials in Year 1. |
| Prior Learning:  In Year 1 the children learned to distinguish between an object and the material from which it is made, identify and name a variety of everyday materials, describe the simple physical properties of materials and compare and group together materials on the basis of their simple physical properties.   * Distinguish between an object and the material from which it is made. (Y1- Everyday materials) * Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials) * Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials) * Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials) | Future Learning:  Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. (Y3 - Rocks)  • Notice that some forces need contact between two objects, but magnetic forces can act at a distance. (Y3 - Forces and magnets)  • Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. (Y5 - Properties and  changes of materials)  • Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.  (Y5 - Properties and changes of materials) | Vocabulary:  Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard  Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, non-  reflective, flexible, rigid  Shape, push/pushing, pull/puling, twist/twisting, squash/squashing, bend/bending, stretch/stretching  Resources:  Materials, vocabulary to use on science wall. |
| Assessment (By the end of this unit the children will be able to…)   * Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. * Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. | | |
| Learning Objective: | Possible teaching Activities: | Learning Outcomes: |
| Pre – Assessment  Describe the simple physical properties of a variety of everyday materials. | Investigating materials and describing the properties of different materials. Which materials are shiny and which are dull? Etc.  Matching properties of materials vocabulary to definitions.  Labelling materials with the name of the material and vocabulary to describe its properties.  Addressing misconceptions.  (Identifying, grouping and classifying) | Assessment of the children’s retention of knowledge about materials and properties. Revisiting prior learning to ensure that the children do not have any gaps in their learning about materials. |
| Materials have physical properties which can be investigated and compared. | Classifying materials based on their properties. Extend children’s thinking through questioning. Can a material be flexible, but still be strong? (Identifying, grouping and classifying)  Which material would be the best at keeping Smauel Peepys tea warm? (Observing over time) (Comparative and fair testing) | Can sort materials using a range of properties. The children will be able to investigate and compare materials based on their properties They will use be able to use appropriate vocabulary (linked to the properties of materials) and justify their choices and ideas.  The children will use their understanding of materials to suggest answers to the question and then carry out a simple test to see if their prediction was right. |
| Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. | The children will investigate a range of objects to find out the materials that they are made out of. They will be encouraged to think about why a particular material was chosen by thinking about the properties of the material and if it was the most suitable material for the job. (Identifying, grouping and classifying)  Make suggestions about alternative materials for a purpose that are both suitable and unsuitable.  The children will use a range of materials to create their own floating gardens and then test them to see which hold the most weight (Comparative and fair testing) | They will be able to Identify and compare the suitability of a variety of everyday materials for particular uses  Can explain using the key properties why a  material is suitable or not suitable for a  purpose |
| Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. | The children will sort a variety of objects to show if they think that the material that they are made from is suitable or unsuitable. They will explain verbally and in writing the reasons for their choices.  The children will learn about how roads were made in the past and how they are made now. They will learn about the inventors Edgar Hooley and Will McAdam. | The children will be able to identify the suitability of a variety of everyday materials particular uses and give reasons as to why a particular material is suitable or unsuitable.  Can use secondary sources to find out information. |
| Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. | Test the properties of materials for particular uses e.g. compare the stretchiness of fabrics to select the most appropriate for Elastigirl’s costume, test materials for waterproofness to select the most appropriate for a rain hat, Which shapes make the strongest paper bridge? (Comparative testing) | Can begin to choose an appropriate method  for testing a material for a particular property  Can use their test evidence to select appropriate material for a purpose e.g. Which material is the best for a rain hat? |
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| Year Group: Year 2 | Term: Summer 1 | Unit of Learning: Animals including humans – life cycles (main focus = tadpole) |
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| **About the unit:** During Autumn 1 and 2 the children touched on life cycles. In this unit the children will learn about life cycles in more detail by observing the life cycle of frogs. There will be a tank of tadpoles in the Year 2 shared area for the children to care for and observe.  **Key Learning:** Animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be young, such as babies or kittens that grow into adults. In other animals, such as chickens or insects, there may be eggs laid that hatch to young or other stages which then grow to adults. The young of some animals do not look like their parents e.g. tadpoles. All animals, including humans, have the basic needs of feeding, drinking and breathing that must be satisfied in order to survive. To grow into healthy adults, they also need the right amounts and types of food and exercise. Good hygiene is also important in preventing infections and illnesses.  **Possible Evidence:**   * Can describe how animals, including humans, have offspring which grow into adults, using the appropriate names for the stages * Can state the basic needs of animals, including humans, for survival   **Possible Misconceptions**  Some children may think:  • an animal’s habitat is like its ‘home’  • all animals that live in the sea are fish  • respiration is breathing  • breathing is respiration. | | Where the unit fits in: Builds on prior knowledge about life cycles. Is planned for this time of year so that there is frogspawn available. |
| Prior Learning:   * Notice that animals, including humans, have offspring which grow into adults (Y2 - Animals, including humans) * Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Y2 - Animals, including humans) * Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans) | Future Learning:   * Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. (Y3 - Animals, including humans) * Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 - Living things and their habitats) * Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats) | Vocabulary:  Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult,  caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease,  Resources:  Frogspawn, tank, magnifying glasses, microscope, plain paper, cameras, rulers, clipboards, Post-it notes, reference books to support identification, access to the internet to support identification. |
| Assessment (By the end of this unit the children will be able to…)  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). | | |
| Learning Objective: | Possible teaching Activities: | Learning Outcomes: |
| 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). | Observe the frogspawn changing over time. (Observing over time) Which offspring belongs to which animal? (Identifying, Grouping and Classifying)  Ask people questions and use secondary sources to find out about the life cycles of some animals. (Researching using secondary sources)  Observe animals growing over a period of time e.g. chicks, caterpillars, a baby. (Observing over time)  What do you need to do to look after a pet dog/cat/lizard and keep it healthy? Ask questions of a parent about how they look after their baby.  Ask pet owners questions about how they look after their pet. (Researching using secondary sources) (Pattern Seeking)  Do amphibians have more in common with reptiles or fish? (Comparative testing) | Can describe, including using diagrams, the life cycle  of some animals, including humans, and their growth toadults e.g. by creating a life cycle book for a younger  child  Can measure/observe how animals, including humans, grow.  Show what they know about looking after a  baby/animal by creating a parenting/pet owners’ guide  Explain how development and health might be affected by differing conditions and needs being met/not met |

| Year Group: Year 2 | Term: Summer 2 | Unit of Learning: Plants / animals including humans |
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| **About the unit:** The children will build on their knowledge and understanding of plants by observing how plants that they have grown from seeds and bulbs have developed over time. They can use observations to identify plants that grew well in different conditions. They will learn about the different food groups and how humans need the right amounts and types of food and exercise to stay healthy. This topic will also link to geography, as the children will learn about the different foods that be grown in different continents. They will learn more about 1 specific country in each continent.  Key learning: Plants may grow from either seeds or bulbs. These then germinate and grow into seedlings which then continue to grow into mature plants. These mature plants may have flowers which then develop into seeds, berries, fruits etc. Seeds and bulbs need to be planted outside at particular times of year and they will germinate and grow at different rates. Some plants are better suited to growing in full sun and some grow better in partial or full shade. Plants also need different amounts of water and space to grow well and stay healthy.  All animals, including humans, have the basic needs of feeding, drinking and breathing that must be satisfied in order to survive. To grow into healthy adults, they also need the right amounts and types of food and exercise.  Good hygiene is also important in preventing infections and illnesses.  **Possible evidence:**   * Can describe how plants that they have grown from seeds and bulbs have developed over time * Can identify plants that grew well in different conditions * Can state the basic needs of animals, including humans, for survival * Can state the importance for humans of exercise, eating the right amounts of different types of food, and hygiene * Can name foods in each section of the Eatwell Guide   **Common misconceptions**  Some children may think:   * plants are not alive as they cannot be seen to move * seeds are not alive * all plants start out as seeds * seeds and bulbs need sunlight to germinate. * respiration is breathing * breathing is respiration. | | Where the unit fits in: Builds on children’s knowledge of plants from year 1 and builds on their understanding of animals including humans by focussing on how humans need the right amounts and types of food and exercise to stay healthy. |
| Prior Learning:  Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants)  Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants)  Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans)  • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals,  including humans) | Future learning:  Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. (Y3 - Plants)  Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. (Y3 - Plants)  Investigate the way in which water is transported within plants. (Y3 -Plants)  Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)  Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutritionfrom what they eat. (Y3 - Animals, including humans)  • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (Y6 - Animals, including humans) | Vocabulary:  **Year 1 vocab** - Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud  Names of trees in the local area  Names of garden and wild flowering plants in the local area  **Plus** - light, shade, sun, warm, cool, water, grow, healthy  Exercise, heartbeat, breathing, hygiene, germs, disease, food types  (examples – meat, fish, vegetables, bread, rice, pasta)  Resources: bulbs, seeds, compost, outside area, stopwatches/timers, thermometers, clipboards, cameras with time-lapse, magnifying glasses, tape measures/rulers, microscopes, squared paper |
| Assessment (By the end of this unit the children will be able to…)  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)  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. | | |
| Learning Objective: | Possible teaching Activities: | Learning Outcomes: |
| 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. | * Make close observations of seeds and bulbs. * Classify seeds and bulbs. (Identifying, Grouping and Classifying) * Research and plan when and how to plant a range of seeds and bulbs (Research) * Look after the plants as they grow – weeding, thinning, watering etc. * Make close observations and measurements of their plants growing from seeds and bulbs. (Observing over time) * Make comparisons between plants as they grow. * Do cress seeds grow quicker inside or outside? (Comparative testing) * Do bigger seeds grow into bigger plants? (Pattern Seeking) | * Can spot similarities and difference between bulbs and seeds * Can nurture seeds and bulbs into mature plants identifying the different requirements of different plants * Can carry out a test to find out the best conditions for growing cress. * Can make predictions and carry out simple tests to test their ideas. |
| 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. | * Explore the effect of exercise on their bodies. Do bananas make us run faster? (Comparative testing) * Classify food in a range of ways, including using the Eatwell Guide. What food do you need in a healthy diet and why? (Identifying, Grouping and Classifying) (Researching using secondary sources) * How much food and drink do I have over a week? (Observing over time) * Investigate washing hands, using glitter gel. Which age group of children wash their hands the most in a day? (Pattern seeking) | * Explain how development and health might be affected by differing conditions and needs being met/not met * Recap - Can state the basic needs of animals, including * humans, for survival * Can state the importance for humans of exercise, * eating the right amounts of different types of food, and hygiene * Can name foods in each section of the Eatwell Guide |