EYFS Science – Autumn

What does an earthworm do?

Learning intention: To talk about observations of earthworms and what they notice them doing

Links with other areas of learning and development:

C & L – Encourage children to ask questions about earthworms and extend conversations to build new vocabulary and concepts, e.g. What colour is it? What shape is it? Can you see rings and bumps on it? How does it move?

EAD – Being imaginative and expressive: Can you move like an earthworm? Encourage children to describe how they are changing their bodies to, e.g. wiggle, stretch, squash and squirm like an earthworm.

EAD – Creating with materials. Observational drawing: Can you use a magnifying glass to look carefully at an earthworm and draw what you see?

Mathematics – Number patterns: Can you count the segments on your earthworm? Encourage children to count, e.g. number of earthworms they have collected and the number of segments they can see on one of them.

Key vocabulary – animal, earthworm, saddle, segments, soil

Children learn about how earthworms move, what they eat and about their habitat through closeup, first-hand observation, asking their own questions and collecting evidence to answer them. The focus should be firmly on observable features and the animals' behaviour. Children explore the natural habitat of earthworms in the school grounds, learn to handle them with great care and build or use a wormery where they can observe the earthworms regularly, both above and below ground. Note: It can take up to two weeks to see any changes in the wormery, and up to a year to see the soil created by the worms forming at the bottom of the wormery. The big biology ideas of classification based on observable features and interdependence, which are developed through KS1 and KS2, are introduced here.

Who are my parents?

Learning intention: To talk about a range of familiar striped animals and start to suggest why the stripes may help to keep those animals safe

Links with other areas of learning and development:

EAD – Creating with materials – What will your stripy animal look like? Design and paint or draw an imaginary stripy creature of your own. What colour will it be? How many stripes will it have? What size will it be? Where will it live?

EAD – Creating with materials – Where does this stripy animal live? Paint or draw creatures with stripes in their natural habitats using the Science Photos or non-fiction books for reference.

EAD – Creating with materials – Can you paint a stripy fish? What colour will it be? How many stripes will it have? What size will it be? Can you paint a baby stripy fish to match? Cut out the painted fish and display as a class aquarium scene. (Ensure that children have knowledge or experience of tropical fish before doing this activity.)

Literacy – Reading: What can you find out about stripy animals? Use a variety of non-fiction books to find out more about animals with stripes. Where do they live? What do they eat? How do they move?

Communication and language – Speaking: Encourage children to use recently introduced vocabulary as they talk about their stripy creature, e.g. its appearance, where it lives, what it eats

Key vocabulary – camouflage, habitat, pattern, stripes

In the activity children observe animals at first hand. They will name and identify the adult and young of the same animal. They will observe the differences and similarities between the adult and its young. This will introduce the big ideas about growth, reproduction and variation that children will meet in KS1 and KS2.

Most of the suggested animals are mammals, but this is not an exhaustive list. Some animals looked at in Activity Plan 3 'What is inside an egg?' could be explored again here.

Who lives here?

Learning intention: Children can describe a range of homes and give reasons why different homes are suitable for the people who live there.

Links with other areas of learning and development:

EAD – Creating with materials: How many windows does your clay house have? Design and make a house from clay. Use clay tools to add details such as doors, windows or a brick pattern.

UTW – People, culture and communities: Who lives here? Look at photos of human homes from the Science Photos collection. Draw attention to how different they are from their own homes. What is different?

C & L – Encourage children to ask questions about homes and extend conversations to build new vocabulary and concepts. Can they describe how they think it might feel to live in, e.g. an igloo or a Maasai village?

UTW – The natural world: What do you need to build a house? Create an outdoor building site (role play area) for the children to build houses. Use plastic or wooden building bricks, wheelbarrows, high-visibility vests, cement mixer and spade.

EAD – Creating with materials: What makes the strongest house? Use a variety of large and small construction kits, for example, large building bricks, small building bricks, wooden blocks, plastic tiles, to investigate which construction equipment makes the strongest house.

Mathematics – Talk about and explore 3D shapes of construction kit parts, using vocabulary such as, 'corners', 'sides', 'straight' and 'curved', as the strongest house is built. What shapes can fit together without any gaps? Look at a beehive and the way that the hexagon-shaped wax cells fit together. What other shapes tessellate like a hexagon?

Literacy – Reading: Read a selection of stories about houses, for example, 'The house that Jack built', 'The wise man and the foolish man'.

Key vocabulary – animal homes, e.g. stable, nest, kennel, human homes, (e.g. house, flat, bungalow, tent, caravan) materials to make homes, e.g. brick, wood, concrete, ice, sticks, mud, fabric, parts of home, e.g. walls, roof, window, door

This activity introduces the big chemistry idea that there is an enormous range of materials in the world, all with different properties that make them suitable for different purposes. The focus for the children's investigation will be homes. Children will find out how the structure of different homes and the materials used make them suitable for their different inhabitants. Children will have the opportunity to make their own model homes for different types of animal. A visit to an open farm or wildlife centre, where children can compare the homes of a range of animals, will ensure essential first-hand experience for this activity.

What hat is best to wear?

Learning intention – To give reasons why a particular hat is suitable for a particular type of weather, based on the observable simple properties of the material from which it is made.

Links with other areas of learning and development:

UTW – The natural world: Have you seen a weather forecaster on television? Create a weather map so that you can present the weather to your friends. What symbols do weather forecasters use? Can you make your own weather symbols? Can you present the weather wearing hats suitable for the weather?

Literacy – Reading: Which hat would you wear here? Use a variety of non-fiction books to find out which hats people might wear in other countries with different climates to ours. For example, rice growers, tea pickers and Arctic fishermen

Mathematics – Number patterns: How much for this hat? Set up a hat shop role play area in the classroom. Use a variety of different hats, a till, money and price tags. Encourage children to use vocabulary such as 'more than', 'less than' or 'the same as', as they compare the prices of hats

Understanding the world – People, culture and communities: Show children pictures of a range of professionals and their hats, for example, builders, firefighters and chefs. Who would wear a hat like this, and why?

C& L: Encourage children to ask questions about different hats and extend conversations to build new vocabulary and concepts. What shape is it? How does the material or materials it is made of feel? What weather is the hat suitable for? What other jobs does the hat do (e.g. cycle helmet to protect their heads)?

Key vocabulary – cap, hood, material, suitable types of hat, e.g. hard hat, helmet, weather, e.g. rain/y, sun/ny, cold, wind/y

In this activity, children investigate hats, the materials they are made from and their different shapes. They make decisions about the suitability of each hat for wearing in different weather conditions. This activity can be adapted for use at any time of year based on the current weather. This activity links to Activity plan 7 'Who lives here?', building on the big chemistry idea that materials have different properties and that choices about how they are used are based on these properties.

What happens at night?

Learning intention: Children can use appropriate language to talk about what happens at night, including dark, light, the Sun, the Moon and stars

Links with other areas of learning and development:

Literacy – Reading: What happens at night? Read non-fiction books relating to nocturnal animals, sky, space, light, darkness, and fiction about nighttime adventures, dreams and routines.

EAD – Creating with materials: What animals are awake at night? Make an observational drawing of a nocturnal animal, from photographs.

EAD – Creating with materials: Can you make a nighttime scene? Make night scenes on black paper with chalks/pastels and glitter, or make a clay nocturnal animal – for example, a hedgehog with twigs for spines collected from the outdoor area

Mathematics – Number patterns: Encourage children to count, e.g. how many objects they can see in the dark tent, how many objects they cannot see but can find with their hands

C & L – Ask questions to support counting, develop and extend vocabulary, e.g. How many white objects are there? How many shiny objects? Why do you think we cannot see some objects?

Key vocabulary – dark, darkness, daytime, light, nighttime, stars, the Moon, the Sun

This activity provides a starting point for developing the big physics ideas about light, dark, night and how we see, which are explored in more detail in Snap Science Year 3 Module 3 'Can you see me?'. It builds on children's own experiences of nighttime, including their bedtime routines and their knowledge of what and who comes out at night. It also includes an opportunity to test ideas about the relationship between light and sight. It is assumed for this activity that night is when the Sun goes down and it is therefore dark. Opportunities to consider seasonal change of daylight hours could be explored and linked to this activity.

What is in the sky?

Learning intention: To name and describe a range of living and non-living things that are in the sky.

Links with other areas of learning and development:

Literacy – Writing: What's it like in the sky? Write a story about being up in the sky, for example, flying like a bird, travelling in a machine, being on the Moon.

EAD – Creating with materials: What can you see from up high? Draw a bird's eye view of the outdoor area or school, or the view from a climbing frame. Design and make something that travels in the sky.

C & L – Encourage children to ask questions about what is in the sky and extend conversations to build new vocabulary and concepts, e.g. Do animals seen in the sky live there? Or are there homes somewhere else? Where do they live?

Mathematics – Number patterns: Encourage children to count, e.g. how many objects they can notice in the sky, how many are animals, how many other flying objects they can see.

Key vocabulary – aeroplane, fall/falling, float, fly/flying, sky

This activity explores things that children might see in the sky and introduces the big physics ideas of flight and falling. Children will share ideas and find out about planes, helicopters, hot air balloons, the Sun, the Moon, stars, rainbows and clouds, weather such as rain and snow, and flying animals, including birds and insects. Children will have opportunities to talk about, observe and record what they see and hear in the sky. This activity may prompt ideas correctly linked to outer space, including rockets, astronauts, comets and planets. These can be explored in Activity plan 15 'What is the Moon?'.

What is the Moon?

Learning intention: To describe the Moon's appearance and what an astronaut does.

Links with other areas of learning and development:

UTW – Past and Present: What would it be like to land on the Moon? Watch a film of the Apollo Moon landing. Find out if any of your relatives remember when it happened and can tell you how they felt as they watched it on the TV

Literacy – Writing: What would a journey to the Moon be like? Create a 'mission control' role-play writing area in your classroom and resource it with writing frames to encourage independent writing about a journey to the Moon

Mathematics – Number patterns: Encourage children to count down as their rocket is made ready for launch, '10, 9, 8, 7, 6, 5, 4, 3, 2, 1 lift off!!!'

C & L – Encourage children to ask questions about the Moon and space travel and extend conversations to build new vocabulary and concepts, e.g. How might an astronaut feel as they fly away from Earth and into space?

UTW – The natural world: How high can it fly? Play with a stomp rocket. Make the rocket fly

EAD –Creating with materials: Make 3D Moon pictures – Can you make a moonscape? Use a variety of resources, including egg boxes, rice, pasta, to create the Moon's surface and craters. These could be painted afterwards to reflect the colours of the Moon

EAD – Being imaginative and expressive: Can you move like an astronaut on the surface of the Moon? Try to move as if you were an astronaut in a space suit on the Moon

Key vocabulary – astronaut rocket space the Moon's surface, e.g. dry, rocky, rocks, craters

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