

Science

Development Matters links:

- Explore the natural world around them:
 - Provide children with have frequent opportunities for outdoor play and exploration.
 - Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences.
 - Create opportunities to discuss how we care for the natural world around us.
 - Offer opportunities to sing songs and join in with rhymes and poems about the natural world.
 - After close observation, draw pictures of the natural world, including animals and plants.
 - Observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water.
- Describe what they see, hear and feel whilst outside.
 - Encourage focused observation of the natural world.
 - Listen to children describing and commenting on things they have seen whilst outside, including plants and animals.
 - Encourage positive interaction with the outside world, offering children a chance to take supported risks, appropriate to themselves and the environment within which they are in.
 - Name and describe some plants and animals children are likely to see, encouraging children to recognise familiar plants and animals whilst outside.
- Understand the effect of changing seasons on the natural world around them.
 - Guide children's understanding by draw children's attention to the weather and seasonal features.
 - Throughout the year, take children outside to observe the natural world and encourage children to observe how animals behave differently as the seasons change.
 - Look for children incorporating their understanding of the seasons and weather in their play.

Autumn

Composites:

- Changes in Autumn/ Seasons
- Discuss changes in temperature, length of days, weather.
- Explore the changes using all the senses.

Components:

- To sing songs and read stories about weather and Autumn- Leaf trouble, Charlie Crow in the Snow, Stickman, Bear Hunt etc.
- After close observation to draw pictures of the natural world, including animals and plants.
- Know that we have five senses- smell, touch, taste, hear and sight
- Know that, in Autumn, the temperature cools down and the hours of daylight get shorter so it is darker earlier than in Summer.
- Know that many trees shed their leaves in Autumn and that the leaves change colour from green to brown.
- Know that some trees don't lose their leaves at all as they keep them all year.
- Know that trees that don't shed their leaves are called evergreens
- Know that conkers come from horse chestnut trees
- Know that acorns come from an oak tree
- Know that leaves and trees look different and have different textures

Spring

Composites:

- Observe and discuss early signs of spring- drawings of flowers.
- Growing plants.
- Exploring light and shadows- what happens at different times of day?
- Changing states of matter- bread and biscuits
- Explore animals and their habitats- why do they live there?

Components:

- Know the five senses - touch, taste, smell, sight, hearing.
- To sing songs and read stories about Spring and growth.
- Know that plants need sun, water, soil etc. to grow.
- Know that plants have roots, a stem and leaves.
- Know that light enables us to see
- Know that darkness is the absence of light
- Know that the sun's light shines on the moon and makes it look as if it is shining.
- Know that light travels in a straight line (demonstrate with a torch)
- Know that a shadow occurs when the light is blocked.
- Know how to make different shadows with your hand in torchlight.
- Know that moving your hand nearer the source of light makes the shadow larger.
- Know that moving your hand further away from the torch makes the shadow smaller.
- To explore shadows with natural and artificial light by drawing around shadows and how they change during the day. Children will explore how the earth moves around the sun which 'moves' the shadows
- Know that polar animals live in the cold polar regions
- Know that penguins and polar bears are carnivores because they eat meat
- To explore where polar animals live and why, investigating how they are able to live in certain climates and their life style (food, habitat etc.)
- Know that some changes are reversible (water into ice)
- Know that some changes are irreversible and are a chemical reaction (baking)
- Know that different materials have different strengths
- Know that certain materials are better in strength than others
- Know that materials can be described as hard, soft, brittle etc.

Summer

Composites:

- Observe the life cycle of a caterpillar and tadpoles and discuss other life cycles.
- Observe and discuss the changes in the seasons since school started.
- Explore animals and their habitats- why do they live there?

Components:

- Know that a frog starts off as a tadpole, then a froglet, then a frog
- Know that a tadpole lives in the water but a frog lives on land
- Know that a butterfly starts off as a caterpillar, then makes a cocoon and emerges a butterfly
- Know that a caterpillar eats lots before making a cocoon
- Know how to sketch the life cycles of frogs and butterflies.
- Know about animals that live in hot countries after reading Handa's Surprise, investigating the habitat they live in and how they survive (food, etc.)
- Know that many trees, flowers, plants and bulbs begin to grow during Spring.
- Know that they need water, light, warmth and soil to grow.
- Know that many animals have babies in early Spring.
- Know that in Spring the weather usually turns warmer. Know that leaves begin to grow on trees.
- Know that plants start to develop flowers.

Cycle 1:

Autumn Term 1 & 2 - Julia Donaldson:
Stickman (seasons), Room on the Broom
(chemical reactions)

Cycle 2:

Autumn Term 1 & 2 - Story Bears: We're
going on a Bear Hunt (seasons), Whatever Next
(Space)

- Know that wood, plastic, metal and glass are all different materials with different properties.

Cycle 1:

Spring Term 1 - Winter/Polar Regions:

Charlie Crow in the Snow (seasons), Polar Bears Home (Global Warming), The Night
Iceberg (Shadows), Henry's Holiday (ice- changing states of matter)

Spring Term 2 - Fairytales:

The Gingerbread man (baking- irreversible change), Jack and the Beanstalk (what
plants need to grow), Three Little Pigs (strength of materials)

Cycle 2:

Spring Term 1: See above

Spring Term 2: Dinosaurs

Evolution, different types of dinosaurs, what they ate, how they became extinct
(linking to space)

- Know that young animals such as chicks and lambs are born
- Know that a chick is a young bird, especially one which is newly hatched
- Know that eggs need to be incubated to keep warm
- Know that a tadpole is a baby frog
- Know that frogs lay eggs called frogspawn
- Know that tadpoles come out of frogspawn
- Know that tadpoles grow 2 legs first then 4
- Know that tadpoles turn to froglets
- Know that tadpoles live in water but frogs live on land
- Know that froglets turn into frogs
- Know that a caterpillar is what comes before a butterfly
- Know that a butterfly lays eggs known as larvae
- Know that larvae turns into a caterpillar
- Know that a caterpillar spins a cocoon known as a chrysalis

Cycle 1:

Summer Term 1 - Spring and Growth:

Life cycles of butterfly, frog, chicken

Summer Term 2 - Hot Countries and the

Seaside:

Handa's Surprise (comparing animal habitats),

Cycle 2:

Same as above