Cantrell Primary School Science Curriculum

Year 2: Working Scientifically

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

2.1 asking simple questions and recognising that they can be answered in different ways

2.2 observing closely, using simple equipment

2.3 performing simple tests

2.4 identifying and classifying

2.5 using their observations and ideas to suggest answers to questions

2.6 gathering and recording data to help in answering questions.

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Year 2: Where do animals live and why?

NC reference: Living things in their habitats

Objectives:

- be able to explore and compare the differences between things that are living, dead, and things that have never been alive
- be able to identify and name a variety of plants and animals in their microhabitats
- be able to identify and name a variety of larger plants and animals in their habitats
- be able to identify that most living things live in habitats to which they are suited
- be able to describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other
- be able to 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

Key Factual Learning:

- ✓ All objects are either living, dead or have never been alive.
- ✓ Living things include plants and animals.
- ✓ Dead things include dead animals, plants and parts of plants and animals that are no longer attached e.g. Leaves and twigs, shells, fur, hair and feathers.
- ✓ Never been alive includes inanimate objects e.g. a chair, ball, teddy, car
- ✓ Living things need food, water and air. Living things breath, grow, move on their own, reproduce, eat.
- ✓ A habitat is a natural environment or home for different plants and animals (seashore, woodland, ocean, rainforest, arctic).
- ✓ A microhabitat is a small area which has unique conditions to suit the living things which live there.
- ✓ Within a habitat there are different microhabitats e.g in a woodland on leaves, under stones.
- ✓ Animals and plants live in a habitat which is suited to help them move, find food and grow. A habitat provides shelter, food and water (the basic needs for an animal or plant).
- ✓ Animals adapt to the different conditions within their habitat e.g. weather, where there is food
- ✓ A food chain shows the way that animals obtain their food from plants and other animals.
- ✓ Animals feed on different things and build up a food chain e.g. the grass is the source of energy for a rabbit, a rabbit is the source of energy for a fox

Practical Tasks (Working Scientifically):

- Identify living, dead and never been alive objects using a simple table and begin to discuss the differences **2.1, 2.4 (Lesson 1)**
- Explore the local woodland environment (forest school area) and identify different plants and animals in their habitat *(observing animals and plants)*. **2.2, 2.4-2.6 (Lesson 2)**
- Observe mini beasts in their microhabitats and draw and label diagrams. **2.2, 2.4-2.6 (Lesson 2)**
- Identify different world habitats and the animals that live there through sorting **2.1, 2.4 (Lesson 3)**
- Label animals with the different characteristics that make them suitable for their habitat and how their habitat meets their basic needs e.g. a camel in a desert (small groups on sugar paper) **2.1, 2.4, 2.5 (Lesson 4)**
- Construct simple food chains identifying how animals and plants obtain their food **2.1, 2.5 (Lesson 5)**
- **OUTCOME** – create a simple diorama of a chosen habitat, considering the animals that would live there and the conditions. Present this to the other children explaining why it is suitable. **(Lesson 6)**

Key Vocabulary:

Living, dead, never been alive, suitable, basic needs, food, shelter, move, feed, breathing, growing, habitats, conditions, survive, woodland, arctic, desert, ocean, rainforest, microhabitat, minibeasts, adapt, food chain, predator, herbivore, omnivore, carnivore, energy source

Cross-Curricular Links:

Geography – different habitats and where we would find them
English – dinosaurs
LEAF – Sandra Deickmann
There's a Rangtan in my Bedroom – James Sellick
Who eats what? – Patrick Laurer
Greta and the Giants – Zoe Tucker
Mary Anning – scientist study

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Year 2: Which material shall I use?

NC reference: Everyday materials (Autumn Term 2, Spring 1)

Objectives:

- be able to identify that objects are made from different materials
- be able to classify everyday objects by identifying the material they are made from
- investigate the properties of different materials
- be able to compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
- be able to describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching
- be able to recognise and sort recyclable items
- Understand the importance of recycling
- be able to make informed choices about suitable materials for different purposes

Key Factual Learning:

- ✓ All objects are made of one or more materials that have been chosen specifically because of their properties e.g. wood, plastic, glass, metal, rock, brick, paper and cardboard.
- ✓ Materials have different properties such as: hard, soft, hard, bendy, smooth, rough, dull, shiny, transparent, waterproof, bendy, absorbent, squashy, opaque, translucent, rigid, reflective, non-reflective and these are considered when choosing a material to make something out of.
- ✓ A material can be suitable for different purposes and an object can be made of different materials e.g. a spoon can be made of wood, plastic or metal dependent on purpose.
- ✓ Objects made from some materials can be changed in shape by bending, squashing, stretching and twisting.
- ✓ Different materials are suitable for different purposes.
- ✓ Materials have different properties *(finding objects around the classroom that are bumpy, bendy, stretchy, hard, rough etc)*.
- ✓ The shape of solid objects made from some materials can change by squashing, bending, twisting and stretching *(investigation with different objects – can you squash it? etc)*.
- ✓ *Recycling means to reuse an item or material to make another item.*
- ✓ *This is the recycling symbol*
- ✓ *By recycling paper, we can stop as many trees being cut down and save animals habitats.*
- ✓ *Recycling helps prevent as much rubbish*
- ✓ *Recycling helps the environment.*
- ✓ *You can recycle items such as: plastic, paper, clothes, electronics, food waste, glass in your home recycling bins or at a recycling centre.*

Practical Tasks (Working Scientifically):

- Identify objects that are made from a variety of different materials through sorting into a table **2.4 (lesson1)**
- Classify everyday objects by identifying the material they are made from and why by looking at objects in the local area. **2.4 (lesson 2)**
- Test the properties of different materials for particular uses (classroom objects) e.g. waterproof, transparent, rigid. **2.2, 2.5 (lesson 3)**
- Compare a variety of everyday materials and explore whether they are suitable or not suitable for a specific purpose e.g. a tent made of paper. **2.1, 2.2, 2.5, 2.6 (lesson 4)**
- Make suggestions about alternative materials for a purpose that are both suitable and unsuitable e.g. a cup for a toddler made out of plastic/glass. **2.1, 2.5 (lesson 4)**
- Recognise that the shape of solid objects made from some materials can change by squashing, bending, twisting and stretching *(investigation with different objects – can you squash it? etc)*. **2.2, 2.3, 2.4, 2.6 (lesson 5)**
- Recognise recyclable items and sort them into the correct bins **2.4 2.5 (lesson 6)**
- Understand the importance of recycling by creating a poster **2.5 (lesson 7)**
- **OUTCOME** – Set a range of challenges where the children will need to make choices about suitable materials, giving reasons for their choices based on the quality of the materials. Teddy bear's story.

Key Vocabulary:

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identify, materials, glass, wood, metal, plastic, uses, man-made, natural, paper, cardboard, brick, rock, compare, suitable, unsuitable, properties, materials, soft, hard, bendy, smooth, rough, dull, shiny, transparent, waterproof, bendy, absorbent, squashy, opaque, translucent, changeable, squash, bend, twist, stretch, solid
Cross-Curricular Links: Geography - how to recycle, and the benefits of recycling and the effects on the environment Books - Look after your planet – Lauren Child, What a waste, A planet full of plastic, Somebody swallowed Stanley Charles Macintosh – inventor of waterproof material

Year 2: How do we take care of ourselves?

NC reference: Animals, including humans (Spring Term)

Objectives:

- find out about and describe the basic needs of animals, including humans, for survival (water, food and air)
-be able to compare the way in which humans and some animals meet their basic needs
- be able to classify foods into different food groups
-be able to describe the importance of eating the right amounts of different types of food
-be able to describe the importance of exercise for humans
-be able to describe the importance of personal hygiene
- describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.

Key Factual Learning:

- ✓ All animals including humans have basic needs of eating, drinking and breathing which are needed in order to survive and grow.
- ✓ To grow into a healthy adult, you need the right amount and types of exercise.
- ✓ A balanced diet includes a selection of food types: bread, meat, fish, vegetables, rice, pasta.
- ✓ Some food types (e.g. sweets, chocolates, fizzy drinks) are unhealthy and some are healthy e.g. fruit, fish, meat.
- ✓ The right amount of exercise helps you stay fit and healthy. Exercise has a good effect on your body e.g. your heart and muscles. Different exercises work different parts of your body.
- ✓ Good hygiene is important in preventing infections and illnesses (e.g hand washing).

Practical Tasks (Working Scientifically):

- Identify the basic needs of humans and animals to survive and grow. **2.1**, **2.4 (lesson 1)**
- Compare the way in which we meet our basic needs to other animals such as sea creatures. **2.1, 2.5 (lesson 1)**
- Classify food into different food types through sorting practically. **2.4 (lesson 2)**
- Design a healthy meal plan including a balanced diet of all food types. **2.5 (D&T books, lesson 3)**
- Investigate the benefits of exercise and identify the effect it has on our bodies (circuit training activity). **2.3, 2.5, 2.6 (lesson 4)**
- Conduct an experiment to show how germs spread and discuss how to stop germs spreading. **2.1, 2.2, 2.3, 2.5 (lesson 5)**
- Create a poster highlighting the importance of good hygiene. **2.1, 2.5 (lesson 5)**

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	• **OUTCOME: create a 'healthy day plan' e.g. what exercise will you do? What will you eat for meals and snacks? What will you have to drink? How will you keep yourself clean?**
Key Vocabulary: exercise, heartbeat, breathing, hygiene, germs, disease, food types (meat, fish, vegetables, bread, rice, pasta	
Cross-Curricular Links: PE – exercise, healthy eating PSHE – Mental health Florence Nightingale Funnybones The world came to my house one day	

Year 2: What happens as I grow up?

NC reference: Animals, including humans (Summer Term)

Objectives:

-be able to identify different animals and their young
-be able to identify that animals can come from an egg or have live young
- be able to describe how animals change as they grow
- be able to identify how humans change as they grow
- be able to identify what animals and humans need to grow into healthy adults

Key Factual Learning:	**Practical Tasks (Working Scientifically):**
✓ A baby cat is called a kitten, a baby dog is called a puppy etc. ✓ Animals, including humans, have offspring that grow into adults. ✓ Humans, and other mammals, give birth to live young e.g. babies or kittens. In other animals, such as chickens or insects, these will be eggs that hatch into young, which then grow into adults.	• Sort and match animals to their young. **2.4 (lesson 1)** • Identify whether animals have come from an egg or are born alive. **2.1, 2.4 (lesson 2)** • Describe, using diagrams, the life-cycle of some animals. **2.5, 2,6 (lesson 3)** • Create a booklet about the different stages of human growth **2.5 2.6 (lesson 4)** • Ask questions to a parent about how they look after their baby. **2.1, 2.6 (Homework)**

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✓ The young of some animals do not look like their parents (e.g. tadpoles). Whereas other animal babies look like small versions of their parents. ✓ Humans go through different stages of growth in their lifetime (e.g. baby, toddler, child, teenager, adult, elderly). ✓ All animals including humans share the basic needs of feeding, drinking and breathing to survive and turn into healthy adults.	• **OUTCOME:** write an instruction manual for a new pet owner/new sibling.
Key Vocabulary: Growth, offspring, child, young/old, stages, chick/hen, baby/child, adult, caterpillar/butterfly, toddler, teenager, elderly, life-cycle	
Cross-Curricular Links: The Growing Story – Ruth Krauss Dr Xargle's Book of Earthlets – Jeanne Willis The Tadpole's promise – Jeanne Willis **Dr Ranj** Down on the Farm - CBeebies	

Year 2: How does your garden grow?

NC reference: Plants

Objectives:

-be able to recognise parts of a plant
-be able to identify what a plant needs to grow by conducting a simple experiment
- observe and describe how seeds and bulbs grow into mature plants
- be able to create an observational drawing ?? – don't like this LO
- be able to describe the process of planting a seed
- observe and record the growth of a seed
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Key Factual Learning: ✓ Plants may grow from either seeds or bulbs. ✓ The seeds/bulbs germinate and grow into seedlings which then continue to grow into mature plants. ✓ Germinate means they begin to grow and put shoots out.	**Practical Tasks (Working Scientifically):** • Recognise key parts of a plant by drawing and labelling a simple diagram. **2.4 (lesson 1)** • Predict what a plant needs to grow and what will happen in different conditions **(Lesson 2)**

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✓ Plants may have flowers which then develop into seeds/berries/fruits. ✓ Seeds and plants need to be planted outside at different times of the 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 some shade. ✓ Plants need different amounts of water and light to stay healthy.	• Perform a simple test to identify what a plant needs to grow e.g. light, dark, water, no water. **2.1, 2.2, 2.3, 2.6 (lesson 2)** • Observe and make comparisons between plants growing in different conditions. **2.2, 2.5, 2.6 (ongoing observations)** • Observe and identify different plants growing in their natural environment **2.2, 2.5 (Lesson 3)** • Create an observational drawing **(Lesson 4)** • Follow instructions to plant a seed/bulb and look after the plants as they grow recording investigations in a class book. **2.2, 2.3, 2.5, 2.6 (lesson 5 + ongoing)** • Observe and record the growth of a seed into a plant by drawing and measuring. **2.1, 2.5, 2.6 (ongoing)** • **OUTCOME – create a class growth book of our observations of the growth of the sunflower seeds**

Key Vocabulary:
leaf, flower, blossom, petal, fruit, berry, root, seed, stem, trunk, branch, bud, bark, stalk, Oak, Fir, Daisy, Bluebell, Rose, Daffodil, Pansy, Tulip, light, shade, sun, warm, temperature, cool, dark, water, grow, healthy, nutrients, mature

Cross-Curricular Links:
Art – observational drawing
Bloom
The Night Gardener
The gigantic turnip
The secret sky garden.
Alan Titchmarsh
George Washington-Carver