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|---|---|----------------------------|--------------------------|---|---|--|
| <b>Subject: Science</b>   |   | <b>Year Group: 1</b>       |                          |   | <b>Unit: Arctic Explorers</b>                                   |  |
| <b>First- hand experience:</b>  |   |                            |                          |   |   |  |
| <b>NC Objectives to be addressed:</b>   |   |                            |                          | <b>Prior Learning required:</b>   |   |  |
| <p><b>Objectives in this term:</b></p> <ul style="list-style-type: none"> <li>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</li> <li>Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> <li>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</li> </ul> <p><b>Objectives appearing in each term:</b></p> <ul style="list-style-type: none"> <li>Observe changes across the four seasons</li> <li>Observe and describe weather associated with the seasons and how day length varies</li> </ul> |   |                            |                          | <p>In Early Years children should:</p> <ul style="list-style-type: none"> <li>Be able to show care and concern for living things.</li> <li>Have some understanding of growth and change.</li> <li>Be able to talk about things they have observed including animals</li> </ul> <p><b>Where next?</b><br/>Y1 world changes throughout history<br/>Y2 the great rainforests</p> |   |  |
| <b>Biology</b>  |   | <b>Chemistry</b>           |                          | <b>Physics</b>  |   |  |
| <b>Working scientifically</b>   |   |                            |                          |   |   |  |
| <b>Comparative and fair testing</b>   | <b>Pattern seeking</b>  | <b>Observing over time</b> | <b>Secondary sources</b> | <b>Classifying and grouping</b>   |   |  |
| <b>Key Vocabulary:</b>  |   |                            |                          |   |   |  |
| <b>habitat</b>  | Where an animal lives   |                            |                          | <b>reptiles</b>   | A vertebrate that has scales, lays eggs, breathes through lungs |  |
| <b>animal</b>   | A living thing that feeds on plants or other animals, and uses sense organs to respond to its environment |                            |                          | <b>wild</b>   | An area of land that humans do not control                      |  |
| <b>carnivore</b>  | An animal that eats other animals   |                            |                          | <b>domestic</b>   | An area of land humans do control                               |  |
| <b>herbivore</b>  | An animal that eats plants  |                            |                          | <b>Vertebrates</b>  | Animals with backbones and skeletons                            |  |

|                   |  |  |  |
|-------------------|--|--|--|
| <b>omnivore</b>   | An animal that eats a mixture of plants and other animals  |  |  |
| <b>diet</b>       | What an animal eats  |  |  |
| <b>amphibians</b> | A vertebrate that breathes through its skin, lives in water and on land, has eggs and scales             |  |  |
| <b>birds</b>      | A vertebrate with feathers, that lays eggs, that breathes through lungs                                  |  |  |
| <b>fish</b>       | A vertebrate with scales, lays eggs, obtains oxygen through gills  |  |  |
| <b>mammals</b>    | A vertebrate that has fur, that gives birth to live young, gives milk to its young, has lungs to breathe |  |  |

### Sequence of learning:

#### **Lesson 1: Seasonal change** (as a link to the topic title)

##### KNOWLEDGE:

- There are 4 seasons – Spring, Summer, Autumn, Winter.
- We are at the end of the Autumn season, about to move into Winter
- In Winter in the UK, the weather is usually at its coldest and the hours of daylight are reduced
- In the winter, the deciduous trees have lost their leaves and many animals have started to hibernate

#### **Lesson 2: Identify different types of animals (based on body characteristics)**

##### KNOWLEDGE:

- Animals can be grouped according to their main physical features.
- Vertebrates are all animals with backbones (spines)
- There are 5 main groups of vertebrates (animals with a backbone) – fish, amphibian, reptile, bird, mammal

The following knowledge should be continually revised over the next few sessions

- Mammals have hair and fur, Reptiles have scales, fish have scales and fins, birds have feathers, amphibians have moist skin
- Mammals and birds can produce their own body heat, whilst fish, amphibians and reptiles cannot
- Reptiles, birds, fish, and amphibians lay eggs, whilst mammals do not
- Mammals produce milk to feed their young, other vertebrates do not

**Children should have some knowledge of some animals that fit into the different groups, the exact knowledge depends partly on any first hand experiences the school is able to offer, joined with examples from the Arctic**

- Snakes, lizards and crocodiles are reptiles (any first hand examples?)
- Humans, cats, dogs, elephants are mammals (any first hand examples?)
- Chickens, ducks, robins, penguins are birds (any first hand experiences?)
- Goldfish, sharks are fish
- Frogs, toads and newts are amphibians

Working scientifically:

- Pupils will be able to use knowledge they can observe about an animal to separate them into different groups, eg. These animals have fur, these do not.

### Lesson 3: Why animals look different

KNOWLEDGE:

- Animals can be grouped according to their main physical features (Revise features of vertebrates, not all features need to be revised all the time, but the idea is that with lots of little and often revision of the main features of vertebrates, children should remember more.)
- Animal shapes and features help them live in their habitat (**fish have slippery scales to move through water, camels have wide feet to walk on sand, birds have feathers and light bodies so they can fly, a howler monkey has a long tail to swing through trees, with a focus on arctic animals eg. Polar bears have thick fur for warmth**)
- Humans and vertebrates have the following parts of their bodies: neck, head (which contains the brain), arm, elbow, hand, leg, knee, foot, and chest (which contains the heart and the lungs). Children will know the position of these on a human body.
- Instead of arms birds have wings, and most other vertebrates have legs

Working scientifically:

- Pupils will be able to use knowledge they can observe about an animal to separate them into different groups, eg. These animals have fur, these do not.

### Lesson 4: Animals in cold habitats

KNOWLEDGE:

- Animals can be grouped according to their main physical features.
- Animal shapes and features help them live in their habitat
- Animals and humans have eyes for seeing, ears for hearing, tongues for tasting, noses for smelling, and the outer layers of skin/scales for touching
- Animals and humans use our senses to find out information about what is around, for example: ears are used to find out where the dangerous animals might be, and taste is used to tell animals if the food is safe to eat, touch is used to tell animals if there is anything dangerous that they are

touching, sight is used to find food and smell is used to find out if anything tasty is around (there are many more reasons for the senses to explore here!)

The links found in brackets here are to help fully inform so that the information can then be put in a appropriate form for your class)**Polar bear large size to stay warm, large paws so they do not sink into the snow, fur, senses, sharp teeth to tear meat** (<https://www.bbc.co.uk/bitesize/guides/zthcwmn/revision/5> ), (**Sealion body shape, skin, senses, teeth, strong tail for swimming, thick layer of fat for warmth, strong tail for swimming fast** ([https://www.aquariumofpacific.org/onlinelearningcenter/species/california\\_sea\\_lion#:~:text=California%20sea%20lions%20are%20we ll,layer%20aids%20in%20temperature%20control.&text=Sea%20lions%20have%20the%20ability,where%20it%20is%20most%20neede d.](https://www.aquariumofpacific.org/onlinelearningcenter/species/california_sea_lion#:~:text=California%20sea%20lions%20are%20we ll,layer%20aids%20in%20temperature%20control.&text=Sea%20lions%20have%20the%20ability,where%20it%20is%20most%20neede d.)  )

### Lesson 5: Animal diets

Knowledge:

- Animals can be grouped according to what they eat to survive.
- A diet is the collection of food-types that a living thing consumes to survive
- There are 3 types of animal according to diet – Carnivores (meat-eaters), Herbivores (plant eaters) and omnivores (both plant and meat eaters)
- Humans are omnivores
- Horses, cows, giraffes (other animals that school has immediate access to, any pets etc?) are herbivores
- Tigers, cats, dogs, wolves are carnivores (any other animals school has access to, pets? Creatures on a nearby field?)

Working scientifically:

- Pupils will be able to use knowledge they can observe about an animal to separate them into different groups, eg. These animals eat meat, these do not.

**Resources and teacher subject knowledge:**

**Useful websites and webpages:**

- <https://www.bbc.co.uk/bitesize/topics/z6882hv> (All the BBC Bitesize clips for KS1 related to Animals and Humans)
- <https://www.twinkl.co.uk/resource/tp-sc-029-planit-science-year-1-animals-including-humans-unit-pack> (Animals and Humans unit pack for year 1)
- <https://explorify.wellcome.ac.uk/en/activities> (Search for 'Animals and Humans' for a range of activities to get children thinking)
- <https://www.stem.org.uk/resources/community/collection/12726/year-1-animals-including-humans> (A range of activities and lesson plans)

**Potential engagement questions:**

- What do different animals eat?
- Why are animals different colours and patterns?
- Where do different animals live?
- What do baby animals look like?
- How do different animals move?
- What sort of (wild or domestic) animals live in our local environment?

Make observations of trees and plants that are living in the school environment (and continue to do so weekly throughout this term as a follow on from last term's plants science – photograph and compare). Recap the months of the year and the season we are currently in. Establish that Winter is coming. What will (or is happening) happen to the weather and to the plants and animals in our local environment? Why? – Days are shorter, the sun's energy is weaker and plants need sunshine and warmth for growth. There will be less food for animals too.

**Observe:** How are trees beginning to change? How is the temperature changing? What do you need to wear?

Begin a daily record of the morning, afternoon and lunchtime temperatures

Examine and classify a range of pictures of different animals to include **fish (clown fish, cod)**, an **amphibian (frog, newt)** a **reptile (lizard, grass snake)**, a **bird (robin, penguin)** and a **mammal (polar bear, dog)** – *Note: Choices of animals should include some from polar environments to align with the topic theme. Some discussion can be had of the absence of many amphibians or reptiles from very cold polar regions.*

Once the main categories of animal-type are established, introduce further animals for children to classify into the groups. Discuss common features of the animals in each group

Match the animals looked at in lesson 2 with the habitat in which they would be found. Explore how the features of each animal help them to survive successfully in their habitat – movement, protection, hunting and eating

### **What do animals eat?**

Define 'diet'. What do children know already about the diet of any pets they might have? Can we classify domesticated animals and pets into the three categories? - cow, pig, sheep, goat, dog, cat, goldfish, rabbit, snake, human