

Subject: Science		Year Group: 6			Unit: The Exploration of Antarctica	
First- hand experience:						
NC Objectives to be addressed:				Prior Learning required:		
<ul style="list-style-type: none"> 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 give reasons for classifying plants and animals based on specific characteristics. 				<p>Year 1 – Arctic explorers unit</p> <ul style="list-style-type: none"> 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) observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies. <p>Year 2 – The British coastline</p> <ul style="list-style-type: none"> 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 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) describe the importance for humans of exercise <p>Year 4 – The Ancient Egyptians and Mountains rivers and oceans – refer to science overview for full list of objectives covered in these units</p> <p>Plants work in years 1, 2, 3, and in the end of year 5 – refer to science overview for full list of objectives covered in these units</p>		
Biology		Chemistry		Physics		
Working scientifically						
Comparative and fair testing		Pattern seeking	Observing over time	Secondary sources	Classifying and grouping	
Where next?						
Recap on Forces work when WW2 is explored in y6						

Key Vocabulary:			
Vertebrates	Have a backbone	Annelids	See below
Mammals	See below	Micro-Organisms	Animals that are so small you need a microscope to see them
Fish	See below	Bacteria	See below
Reptiles	See below	Viruses	See below
Birds	See below	Fungi	See below
Amphibians	See below	Flowering plants	Plants that grow flowers and then produce seeds
Invertebrates	Do not have a backbone or a skeleton	Non flowering plants	Plants that release spores or cones to reproduce
Insects	See below		
Arachnids	See below		
Gastropods	See below		

Sequence of learning:
<p>Lessons 1 and 2 – all of this is partially year 1 knowledge, although this is to be revised in greater depth</p> <p>All living creatures in earth can be sorted into groups and sub groups, and doing this helps scientists to work out who our oldest ancestors were</p> <p>Because there are so many different living things, it is useful to sort them into groups based on their characteristics</p> <p>Today - vertebrates</p> <ul style="list-style-type: none"> - there are over 5000 different species of mammal - can adjust body temperature to their surroundings (warm-blooded) - <i>most</i> give birth to live young that look like small versions of parents - all have hair or fur (sometimes it is <i>not visible</i>) - all female mammals feed their young milk produced in mammary glands - all mammals (even aquatic mammals) have lungs and breathe air <p>there are almost 28,000 known species of fish</p> <ul style="list-style-type: none"> - can't adjust body temperature to their surroundings (cold-blooded) - <i>most</i> fish species lay eggs that are then fertilised externally - have scales, fins and streamlined bodies - have gills that extract oxygen from the water (do not have lungs) - <i>most</i> fish are bony fish and have a skeleton made of bone - cartilaginous fish have a flexible bone-like skeleton (cartilage)

there are over **10,000** known **species** of **reptile**

- **can't** adjust **body temperature** to their **surroundings** (**cold-blooded**)
- *most* reptiles **lay eggs** that have been **fertilised internally**
- **young** usually look like **small versions** of the parent(s)
- all have **scales** and **breathe** using **lungs**
- Can be **subdivided** into: **crocodilians, snakes, lizards** and **turtles**

- there are thought to be about **18,000 species** of **birds**

- **can** adjust **body temperature** to their **surroundings** (**warm-blooded**)
- *all* bird species **lay eggs** that have been **fertilised internally**
- have **beaks, feathers, breathe** using **lungs** and *most* can **fly**
- young birds often **look** quite **different** from the **parents**
- Over half of bird species are **passerines** (*perching birds*)

- there are over **7,000** known **species** of **amphibians**

- can't adjust **body temperature** to their **surroundings** (**cold-blooded**)
- **lay eggs** in **water** that are then **fertilised externally**
- have **webbed feet** and **moist skin** (no protective scales)
- **start life** in the **water** using **gills** to **breathe**
- *most* **amphibians** go through a **big change** called **metamorphosis**
- they live their **adult life** on **land**, breathing through **lungs** and their **skin**
- Can be **subdivided** into: **frogs & toads; salamanders** and **caecilians**

Lesson 3

Today - Invertebrates

Insects have an **exoskeleton** on the outside of their bodies that protect them. They have **three parts** – the **head, thorax** (middle) and **abdomen** (end).

Insects have **six legs** and **two antennae**. They hatch from **eggs** and go through a **metamorphosis**.

Some, but not all, insects have **wings**

All **arachnids** have an **exoskeleton**. They have **two parts** - the **head** and **abdomen**. Arachnids have **eight legs** and **hatch** from **eggs**. They do **not** go through a **metamorphosis** and their **young** look like **small versions** of the **parent**

This group includes **slugs** and **snails**, but most other **gastropods** live in **water**. They have a **head-foot** on which they **move** and some gastropods have a **shell**. They have **tentacles** on the **head** where the **eyes** are situated

This group includes **worms** and **leeches**. They have **no legs, no skeleton** and their bodies are in **segments** (small rings)

Lesson 4

Micro-organisms are so **small** they can only be seen with a **microscope**. They are in the **air, water** and **inside** our **bodies**

Bacteria can be good or bad. *Some bacteria* can cause **illnesses** or **food poisoning**. However, *most* are **harmless** and can be very **helpful**. It is used to make **yoghurt** and **cheese**, and **bacteria** in our **bodies** aid the **digestion** of food

Viruses are incredibly **small** and some scientists don't even consider them to be *living*. They can **infect plants** and **animals** and make them **sick**. We rely on our **immune systems** to fight off **viruses** (anti-biotics won't help)

Not all **fungi** are microscopic – you can see **mushrooms, mould** and **mildew**. Fungi **feed** on **all kinds** of **materials** – *wood, leaves, food, clothes, animals, plants* and lots more. Like bacteria it can be either **good** or **bad**.

Some mushrooms are **poisonous** (never eat one you find in the woods), *some fungi* (like mould) can make you **sick** and *some* can cause **skin infections** (athlete's foot).

However, a **fungus** (*yeast*) is used to make **bread rise**. **Fungi** help to **decompose organic matter** **AND** *some* fungi are used to make **medicines** to fight infections (**anti-biotics**)

Lesson 5

Children will revise What the different sorts of vertebrates are. They will have to know this knowledge in order to study classification keys

Classification keys are useful, as they can be used to group organisms, in order to study similar species simultaneously.

Children will know how to use classification keys in order to find out what type of creature a certain species is.

Children will know how to produce their own classification keys.

Children will revise all the different features of invertebrates and microorganisms are.

Children will understand that some animals do not fit neatly into certain classifications.

Children will know that some creatures do not fit neatly into certain classifications, as evolutionarily it was advantageous for the creatures to be this way, and that classification is just a tool used by humans as it can be useful to us.

Lesson 6

TEST and further revision.

Resources and teacher subject knowledge:					