Colney Heath School ~ Science		
Topic: Living Things and the Environment	**Year: 4**	**Biology**

What should I already know?

Which things are living, dead or have never been alive. The names of some common plants and types of trees. All animals need water, air and food to survive and can be grouped into vertebrates and invertebrates or into carnivores, herbivores and omnivores. Animals, including humans, have offspring, which grow into adults. The five main vertebrate groups and some of the properties of each of these groups. The changing seasons on Earth cause the environment to change, which can then cause a change in the living things in that environment as well.

Vocabulary

Vertebrate	An organism with a backbone.
Invertebrate	An organism without a backbone
Species	A group of similar individuals that are able to reproduce.
Weather	Weather describes the conditions outside right now in a specific place. Rain, snow, wind, hurricanes, tornadoes — these are all weather events.
Climate	Climate describes the weather conditions that are expected in a region at a particular time of year.
Characteristics	The characteristics of a living thing are the qualities or features that belong to them and make them recognizable.
Climate change	Climate change describes a change in the conditions — such as temperature and rainfall — in a region over a long period of time. Global climate change refers to the average long-term changes over the entire Earth. These include warming temperatures and the effects of Earth's warming, such as: •Rising sea levels •Shrinking mountain glaciers •Ice melting at a faster rate than usual in Greenland, Antarctica and the Arctic •Changes in flower and plant blooming times.

Diagrams

How can living things be grouped?

- All living things, which can also be called **organisms**, have to do certain things to stay alive. These are the **life processes**:
  - movement
  - **respiration**
  - **sensitivity**
  - growth
  - **reproduction**
  - **excretion**
  - **nutrition**

- Living things can be grouped according to different **criteria** (where they live, what type of **organism** they are, what features they have). For example, a camel can belong in a group of **vertebrates,** a group of animals that live in the desert, and a group of animals that have four legs.

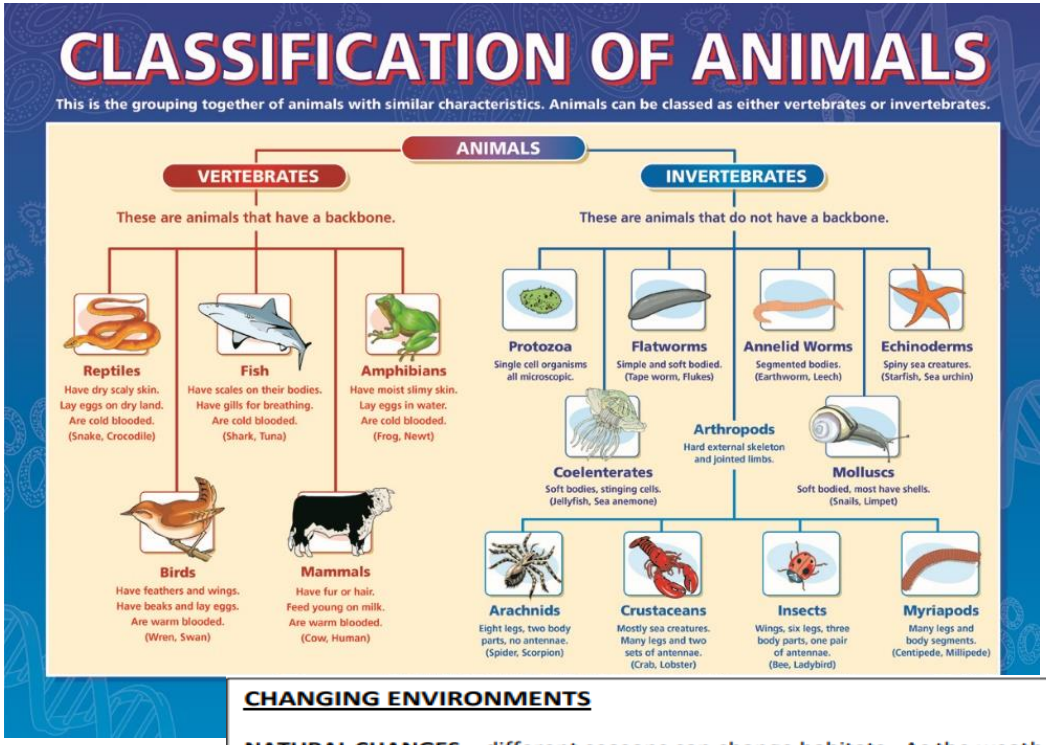
What is a **classification key?**

- A **classification key** is a tool that is used to group living things to help us identify them.

Vocabulary

Nutrition	Food is eaten and the nutrients are absorbed to provide energy to live. Green plants make their own food using sunlight.
Respiration	Plants and animals use oxygen in the air to turn the food they eat into energy.
Pollution	Something introduced into the environment that is dirty, unclean or has a harmful effect.
Sensitivity	Every living thing can detect changes in their surroundings.
Environment	The surroundings or conditions in which an animal or plant lives.
Extinction	Species of animals or organisms are considered extinct when there are no more of them alive.
Reproduction	When an animal or plant produces one or more individuals similar to itself. Animals have young (offspring).
Excretion	The process of eliminating waste from the body.
Organism	A living thing.
Habitat	Where an organism lives.
Greenhouse Effect	Certain gases in Earth's atmosphere block heat from escaping. This is called the greenhouse effect. These gases, such as carbon dioxide (CO_2) and methane, trap the Sun's heat and keeps the Earth warm like the glass in a greenhouse keeps plants warm. Human activities — such as burning fuel to power factories, cars and buses — are changing the natural greenhouse. These changes cause the atmosphere to trap more heat than it used to, leading to a warmer Earth.

The Big Picture	By the end of our project we will know that
Biology B1: Living things are special collections of matter that make copies of themselves, use energy and grow. B2: Living things on Earth come in a huge variety of different forms that are all related because they all came from the same starting point 4.5 billion years ago. B3: The different kinds of life, animals, plants and microorganisms, have evolved over millions of generations into different forms in order to survive in the environments in which they live.	Animals can be grouped based on their physical characteristics (e.g. vertebrates and invertebrates) and based on their behaviour (e.g. herbivores, carnivores and omnivores). Living things are divided into kingdoms: the animal kingdom, plants, fungi, bacteria, and single-celled organisms. A species is a group of living things have many similarities that can reproduce together produce offspring. A classification key uses questions to sort and identify different living things. Changes to the environment can make it more difficult for animals to survive and reproduce; in extreme cases this leads to extinction, where an entire species dies. Human activity – such as climate change caused by pollution - can change the environment for many living things, endangering their existence. A polar bear is a famous example of climate change endangering the existence of a species; as the climate changes and gets warmer, the sea ice on which polar bears live reduces in amount making it harder for them to survive and reproduce.



CHANGING ENVIRONMENTS

NATURAL CHANGES – different seasons can change habitats. As the weather changes so can the plant life of the habitat. Look at the area around you, do you notice different plants and possible different animals at different times of the year?

HUMAN CHANGES – How humans live and what they do can impact habitats both negatively and positively.

Negative ways:

- Deforestation - cutting down trees for a range of reasons
- Littering – dropping rubbish or leaving large objects lying in the environment
- Pollution – introducing harmful substances into the environment.

Positive ways:

- Protecting endangered species via conservation projects
- Cleaning bodies of water
- Recycling