

## Living Things and their Habitats Knowledge Progression

		Key Vocabulary
Nursery	<p>Minibeasts are small creatures that can live in gardens and around our school. Minibeasts like to hide! They can be found under stones, in grass, on fences. They can be ladybirds, caterpillars, beetles, butterflies. Minibeasts are living things like we are. Minibeasts can die if we are not careful around them..</p>	<p>Ladybird: Caterpillar Butterfly: Beetle: Living:</p>
Reception		
Y1		
Y2	<p>All living things have the same characteristics: they move, breathe, feel, grow, have babies, make waste and need food and water. The letters <b>MRS GREN</b> help us to remember the scientific names for these processes. This helps us to compare things that are living, dead and that have never been alive.</p> <p><b>M</b>ovement <b>R</b>espiration <b>S</b>ensitivity</p> <p><b>G</b>rowth <b>R</b>eproduction <b>E</b>xcretion <b>N</b>utrition</p>	<p><b>Habitat:</b> A home of plants and animals, such as woodland, desert, grass plains, rainforest or ocean <b>Micro-habitat:</b> A very small habitat, such as under a leaf <b>Food chain:</b> This shows how living things are linked through their food. <b>Producer:</b> Plants that start a food chain <b>Consumer:</b> Animals that eat plants (producer) <b>Predator:</b> Animals that hunt and eat other animals</p>
Y3		
Y4	<p>Animals can be grouped in lots of different ways based upon their characteristics. Vertebrates can be separated into 5 broad groups: mammals, fish, birds, reptiles, amphibians The vast majority of living things on the planet are invertebrates. Creatures you find around school are invertebrates such as insects, spiders, slugs, snails, worms (<a href="#">Link to Minibeasts Nursery</a>)</p> <p>You can use a classification key to help group, identify and name a variety of living things.</p> <p>Changes to an environment can be natural or caused by humans. Changes to an environment can have positive as well as negative effects. Here are some examples of things that can change an environment. Natural: earthquakes, storms, floods, droughts, wildfires, the seasons (<a href="#">link to Y1</a>) Human-Made: deforestation, pollution, urbanisation, the introduction of new animal or plant species to an environment, creating new nature reserves Plants and animals rely on the environment to give them everything they need. Therefore, when habitats change, it can be very dangerous to the plants and animals that live there.</p>	<p>Organisms: This is another word that can be used to mean 'living things'. Life processes: The things living things do to stay alive Respiration: A process where plants and animals use oxygen gas from the air to help turn their food into energy. Sensitivity: The way living things react to changes in their environment Reproduction: The process through which young are produced Excretion: The process by which living things get rid of waste products Nutrition: Food which provides living things with energy to live and stay healthy Environment: An environment contains many habitats and these include areas where there are both living and non-living things Endangered Species: A plant or animal where there are not many of their species left and scientists are concerned that the species may become extinct Extinct: When a species has no more members alive on the planet, it is extinct Classification: This is where plants and animals are placed into groups according to their similarities Specimen: A particular plant or animal that scientists study to find out about its species Characteristics: The distinguishing features or qualities that are specific to a species</p>
Y5	<p>Know the definition and some examples of:</p> <ul style="list-style-type: none"> <li>• mammal,</li> <li>• amphibian</li> <li>• insect</li> <li>• bird (<a href="#">link to Y1 Animals, including humans</a>)</li> </ul> <p>Children learned life cycle of a chick in Reception and life cycle of a frog in Y2 <b>Humans as mammals</b> – develop inside their mothers and are dependent upon their parents for many years until they are old enough to look after themselves</p>	<p>reproduction (sexual and asexual) gestation fertilisation stigma ovum stamen filament sepal</p>

**Amphibians** are laid in eggs then go through many changes until they become an adult.  
Some animals such as **insects**, go through metamorphosis to become an adult.  
**Birds** are hatched from eggs and are looked after by their parents until they can live independently.

Know that **reproduction** is the process of new living things being made.  
Know that **reproduction** occurs in mammals including humans and **sexual reproduction** is used to produce their offspring.  
The male sex cell, (sperm) **fertilises** the female sex cells. The fertilised cell divides into different cells and will form a baby with a beating heart. The baby will grow inside the female until the end of the **gestation** period when the baby is born.

Know that some living things, such as plants, have both male and female sex cells. Other contain either male or female – not both.  
Asexual reproduction is where one parent is needed to create an offspring which is an exact replica of the parent.

**Plant reproduction (to know the life cycle of a flowering plant)** ([link to Y3 Plants – children learned parts of a plant and flower but not reproductive process](#))

Most plants contain both **male cells (pollen)** and **female cells (ovules)** but most cannot fertilise themselves.

Know the **reproductive parts** of a flowering plant:

**Female parts:**

- stigma
- style
- ovum
- ovules

**Male parts:**

- stamen
- pollen
- filament

**Other important parts** that help in the process:

- petal
- sepals
- nectar

Know the processes involved in reproduction:

**Pollination** - the transfer of pollen to a stigma, ovule, flower, or plant to allow fertilization.

It can occur by:

- wind
- explosion
- insects
- animals / humans
- water

depending on the type of plant.

For insect pollination, it is attracted to the plant by:

- its scent
- its colourful petals
- markings on petals direct it to the nectar at the base of the petals

**Fertilisation** – the pollen from the stamen of one plant is transferred to the stigma of another plant. The pollen travels down the style to the ovules.

metamorphosis  
pollination  
style  
ovules  
pollen  
petal  
nectar

	<p>Some plants use asexual reproduction to create a new plant which is identical to the new plant:</p> <ul style="list-style-type: none"> <li>• daffodils</li> <li>• potatoes</li> <li>• spider plants</li> <li>• strawberries</li> </ul>	
<p>Y6</p>	<p>Know how to classify living things (animals) into these groups - mammals, reptiles, amphibians, fish, birds or insects - according to their features.  Begin to understand how the Linnean system of classification works and how it was developed.  Recall learning from Y4 on invertebrates and vertebrates.  Recall that vertebrates have a backbone, and invertebrates don't have a backbone  Know that groups of <b>invertebrates</b> include insects, arachnids, annelids, molluscs, crustaceans and echinoderms  <b>Vertebrates</b> can be sorted into mammals, birds, fish, reptiles and amphibians.</p> <p><b>Microorganisms</b>  Microorganisms are very tiny living things, so small that they are not visible to the naked eye, so a microscope is needed to see them. Can be found all around us. Can live on and in our bodies, in the air, in water and on the objects around us. They can be found in almost every habitat on Earth. Some animals and plants are microorganisms eg: dust mites and plankton</p> <p>Know that other microorganisms are fungi, such as mould, yeast and Penicillium fungus. That all microorganisms share similarities and differences, and can be classified using the Linnaean taxonomic system. All living things are initially grouped into 3 domains: archaea, bacteria and eukaryotes. The living things in the archaea and bacteria domains are collectively known as the prokaryotes. Fungi, plants and animals are all eukaryotic kingdoms. Eukaryotic microorganisms include mould and yeast, as well as microscopic animals and plants such as dust mites or plankton. Bacteria are prokaryotic microorganisms. Viruses are not classified using the standard classification system</p> <p>Bacteria are single-celled microorganisms. Found in diverse habitats all over the Earth. Sometimes viruses are called microorganisms, but they are not really alive. They are infectious agents that can replicate only inside the cells of living things.</p> <p>Microorganisms can be helpful or harmful and their spread needs to be controlled or contained. eg Bacteria are used to ferment milk as part of the cheese making process. Eg Food poisoning can be caused by bacteria that grow on uncooked or undercooked food.</p> <p>Know that mould is a type of fungus. The tiny cells of mould are called spores but when the mould spores land on a host, they grow and thrive by feeding off the food they land on. Mould spores feed themselves by producing chemicals that break the composition of the food down so the spores can grow while the food rots away. There are many more conditions that will cause mould to grow.</p> <p>Eukaryotic cells, such as the mould cells contain smaller parts called organelles. A very important organelle in eukaryote cells is the nucleus. It acts as the control centre of the cell and includes all the genetic information of the cell, which is known as its DNA. The DNA is organised inside the nucleus. Prokaryotic cells such as bacteria do not usually contain any organelles. They do not have a nucleus and their DNA is not organised or contained within any structure in the cell.</p>	<ul style="list-style-type: none"> <li>•</li> </ul>