

KS1 Year A

## Previous Learning

All children should know:

- The names of some common animals.

Most children should know:

- Parts of the body associated with each sense.



# Animals Including Humans 1

## Biology

### 2022 2023

## Key Learning

What are **invertebrates**?

- **Invertebrates** are animals that do not have a **backbone**.
  - insects -flies, ladybirds and bees
  - arachnids - spiders
  - molluscs - snails

## Key Learning

What are **vertebrates**?

- **Vertebrates** are animals that have a **backbone**.
- 5 groups of **vertebrates**.
  - mammals
  - fish
  - birds
  - reptiles
  - amphibians

## Key Learning

What do animals eat?

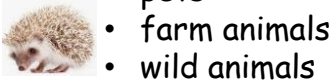
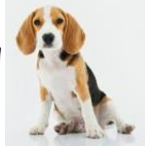
- **Carnivores** - only eat meat
- **Herbivores** - only eat plants
- **Omnivores** - eat meat and plants

## Key Scientists

Charles Darwin, Hippocrates, Conrad Gessner

What are **mammals**? - vertebrates

- give birth to live young
- hair or fur
- **warm-blooded**
- cannot breathe underwater
- common mammals
  - pets
  - farm animals
  - wild animals



What are **birds**? - vertebrates

- **warm-blooded**
- wings and beaks
- feathers
- lay eggs
- common birds - ducks, chickens, penguins



What are **reptiles**? - vertebrates

- **cold-blooded**
- lay eggs
- scales
- cannot breathe underwater
- common reptiles - snakes, lizard



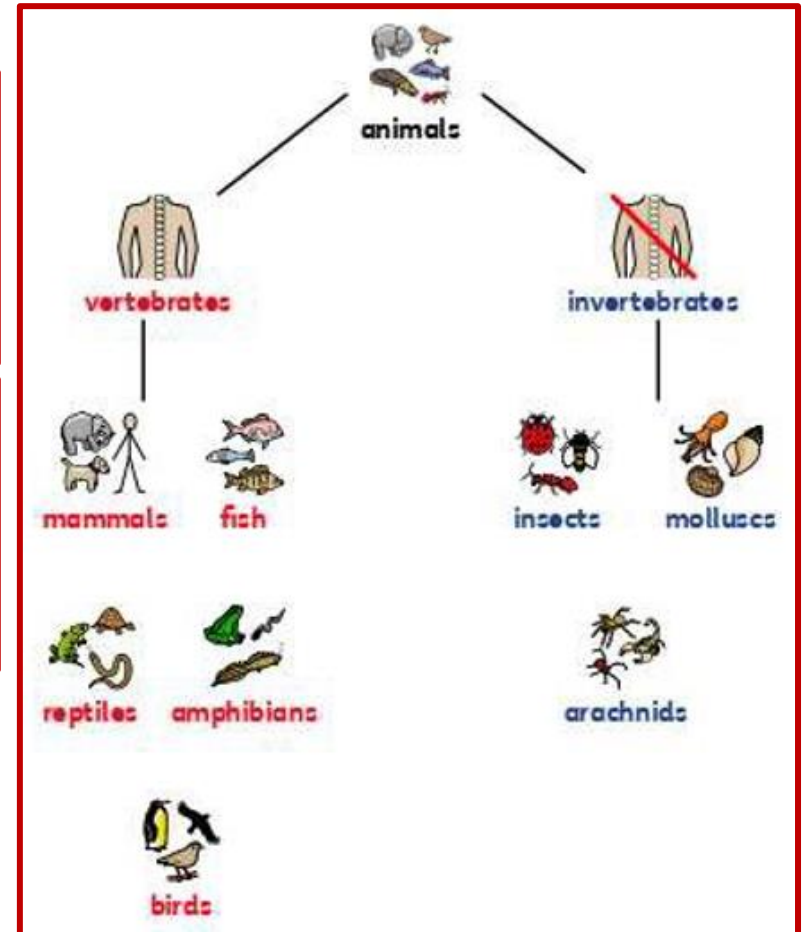
What are **fish**? - vertebrates

- fins and scales
- breathe underwater - **gills**
- lay eggs in water
- **cold-blooded**
- common fish - salmon, cod, tuna



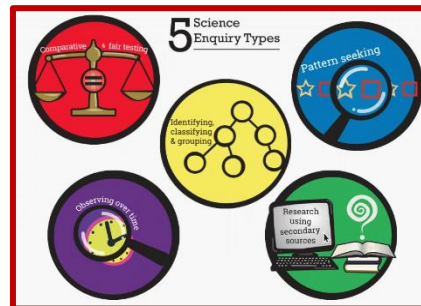
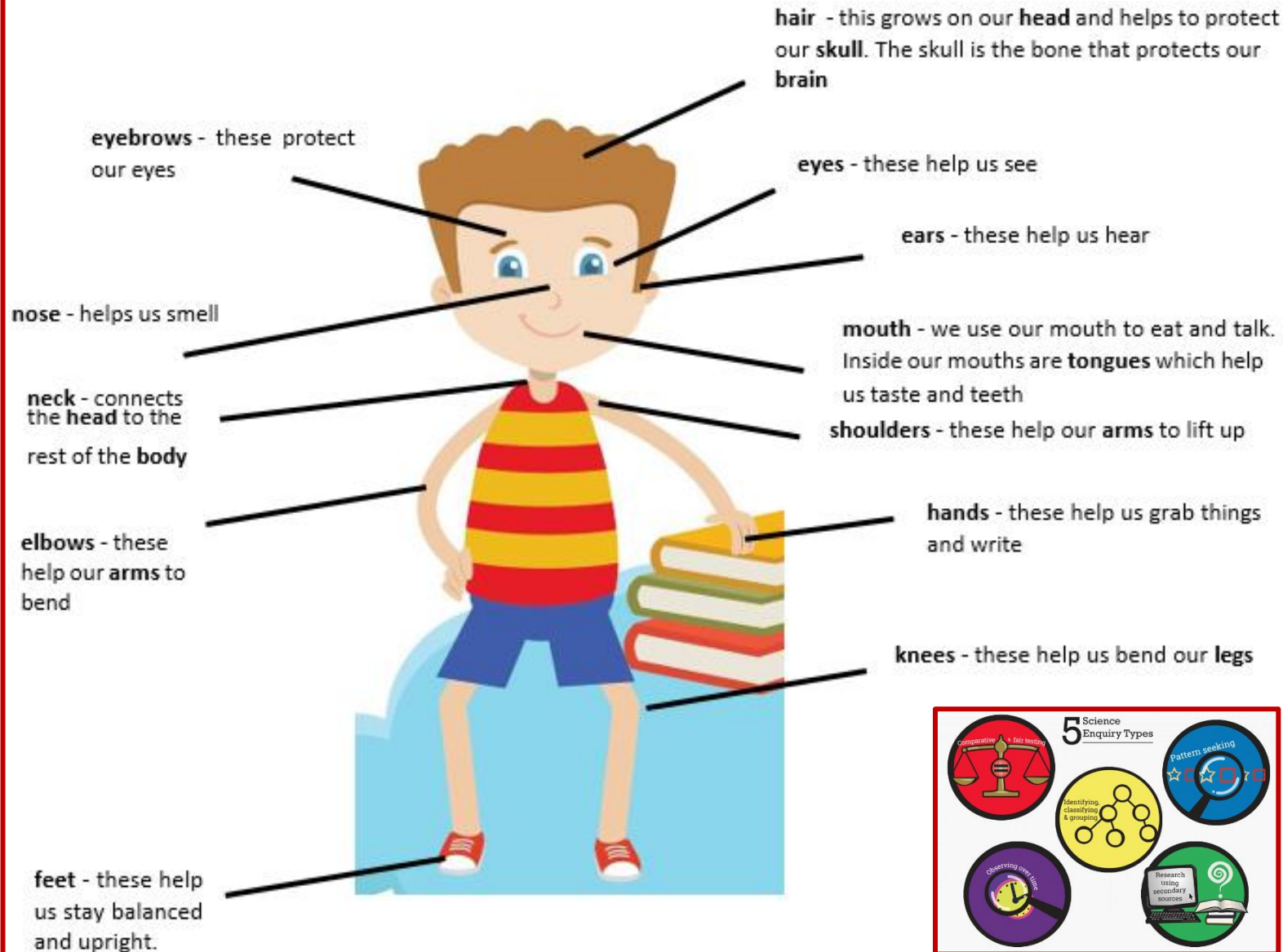
What are **amphibians**? - vertebrates

- lay eggs
- lives on land and water - can breathe underwater through **gills**
- common amphibians - frogs, toads



## Key Learning

The different parts of the **body**.



## Animals Including Humans 2

**Biology**  
2022 2023



### Previous Learning

Most children should know:

- To be fit and well you should exercise and eat healthy food.
- Know some rhymes about the body - Heads, shoulders, knees and toes.

### Key Scientists

Charles Darwin, Hippocrates, Avicenna (Ibn Sina), Alexander von Humboldt, Kikunae Ikeda

### Key Learning

We have five **senses**.

- 1) We **smell** using our nose.
- 2) We **taste** using our tongue.
- 3) We **touch** using skin all over our body, like our hands.
- 4) We **see** using our eyes.
- 5) We **hear** using our ears.



## Previous Learning

All children should know that objects are things that you can touch or see.

- Some children should recognise that objects are made from materials.

Most children should know that objects are made from e.g. **glass, wood, plastic** etc.

- Children should be able to use words to describe materials e.g. **shiny, rough, soft, hard**.
- Some children should know which materials are **natural** and which are **man-made**.

## Key Learning

What materials are used for?

- Materials are used for different purposes based on their **properties**.
- For example, **wood** is used to make furniture and floors.
- **Metal** can be used to make coins, cans, cars and cutlery.
- **Glass** can be used to make windows.

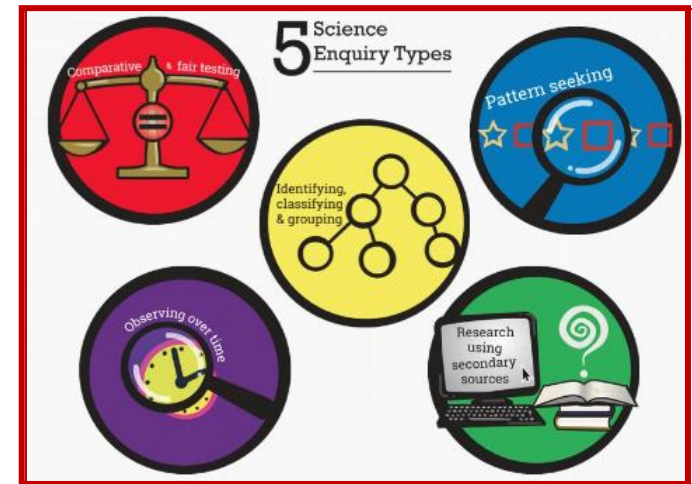


## Everyday Materials Chemistry 2022 2023

### Key Learning

What **properties** of materials make them suitable for a particular use?

- Glass can be used to make windows because it is **transparent**.
- Rulers can be made from **wood, plastic** or **rubber** because these materials are **smooth** and can be cut straight.
- Spoons are made from **metal**, because it is **waterproof** and can be easily cleaned.
- Spoons can be made from **plastic** for children because it is **light** and cannot hurt their teeth.



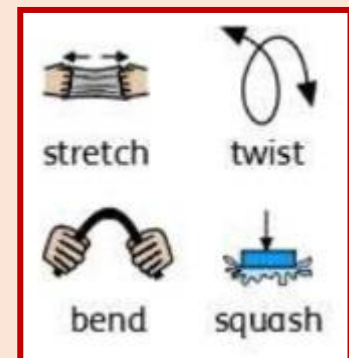
### Key Scientists

Charles Goodyear, Georg Agricola, Angelo Barovier, Benvenuto Cellini

### Key Learning

How can you change the shape of materials?

- The shape of some materials can be changed when they are **stretched, twisted, bent** and **squashed**.



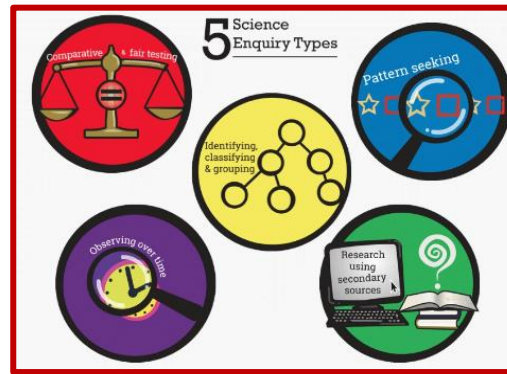
## Previous Learning

All children should know:

- There are different types of **weather**.
- There are four seasons, **Spring, Summer, Autumn** and **Winter**.

Some children should know:

- The country they live in is the **United Kingdom**.
- Where the **United Kingdom** is on a map.



## Seasonal Changes

### Biology

2022 2023



## Key Learning

- There are 4 seasons made up of different months.

<b>Spring</b>	March, April, May
<b>Summer</b>	June, July, August
<b>Autumn</b>	September, October, November
<b>Winter</b>	December, January, February

- The weather patterns are different in each season.



## Key Learning

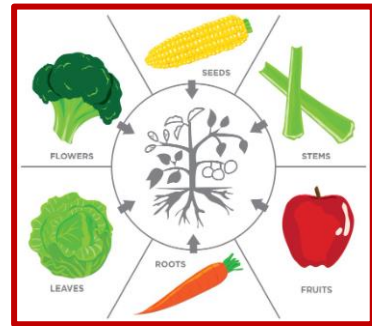
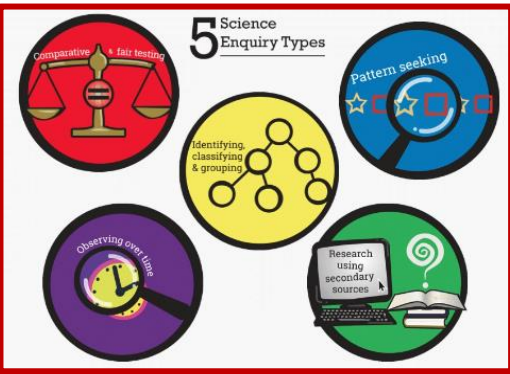
- A weather forecast is a statement saying what the weather will be like today, the next day or for the next few days.
- Weather forecasts use different symbols which are helpful.
- When the weather changes, you need to wear the correct clothes and do different activities.
- You can record the temperature using a thermometer to see how warm or cold it is.

## Key Scientists

Anders Celsius, Lord Kelvin, Daniel Gabriel Fahrenheit, Eratosthenes, Aristotle, Christopher Wren

	Sunny
	Sunshine with cloud
	Cloudy
	Raining
	Thunder
	Windy
	Snow





## Plants Biology 2022 2023

**Key Scientists**  
Charles Darwin,  
Katherine Esau,  
Agnes Arber,  
Theophrastus

### Key Learning

Plants are living things and require things to grow.

- **Plants** require things such as water, warmth, **nutrients** from soil and light to grow.
- If they do not have one or more of these things, they may stop growing.
- **Plants** can:
  - move
  - grow
  - react to their surroundings (sense)
  - absorb **nutrients**
  - **reproduce**

### Key Learning

Which plants do we eat?

- Many **plants** provide us with food by bearing **fruits** which carry their **seeds**.
- When farmers grow **plants** to provide us with food, these are called **crops**.
- We eat many **fruits** that contain **seeds** (including tomatoes!).
- We also eat different parts of **vegetable plants**:
  - **root vegetables** (carrots, potatoes)
  - **stem vegetables** (celery, spring onion)
  - **leafy vegetables** (cabbage, lettuce)
  - **flowering vegetables** (cauliflower, broccoli)
- We eat grains and cereals from **plants** too (wheat, oats).
- Nuts and seeds are also sometimes edible (sesame seeds, pumpkin seeds, peanuts).
- Many **herbs** are also grown to add flavour to foods.



### Previous Learning

All children should know:

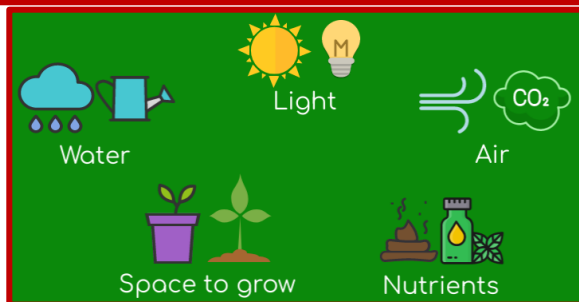
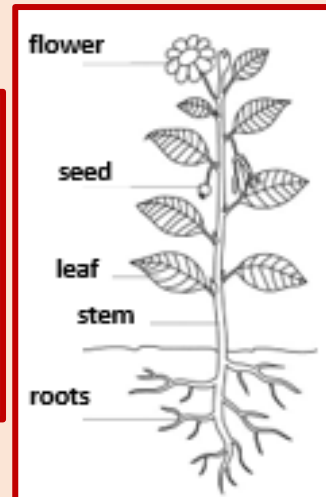
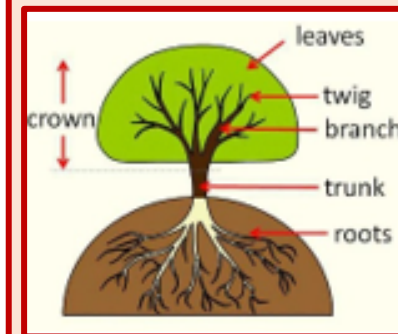
- Plants can grow.
- Plants are made up of different parts.

Some children should know:

- The names of some **common garden plants** (rose) and the names of some **common wild plants** (daisy, nettle).
- **Deciduous trees** lose their **leaves** in the autumn every year.
- **Evergreen trees** have green **leaves** all year round.
- The parts of a plant including **petals, fruits, roots, bulbs, seeds, stem, trunks and branches**.

### Key Learning

What are the parts of common trees and plants?



KS2 Year A

## Previous Learning

All children should know:

- which things are living and which are not
- how to identify animals (e.g. amphibians, reptiles, birds, fish, mammals, invertebrates) and plants using classification keys
- animals that are carnivores, herbivores and omnivores
- animals have **offspring** which grow into adults
- the basic needs of animals for **survival** (water, food, air)
- the life cycle of some animals and plants
- the role of Mary Anning in **palaeontology** and the discovery of **fossils**.
- the features of some rocks and the role they play in the formation of **fossils**

Some children will know:

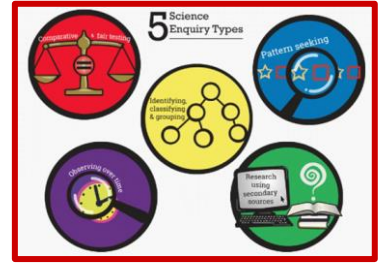
- some animals have skeletons for support, protection and movement
- about food chains, food webs and the role of predators and prey
- features of habitats and the animals and plants that exist there (**biodiversity**)
- examples of different **biomes**
- sometimes **environments** can change and this has an effect on the plants and animals that exist there
- living things **breed** to produce **offspring** which grow into adults. This is called **reproduction**.



Aiskew, Leeming Bar  
Church of England Primary School  
Rooted in love and growing together  
to become lifelong learners

## Evolution and Inheritance

**Biology**  
2022/23



### Key Learning

I know how to recognise that living things have changed over time and that fossils provide information for **palaeontologists** about living things that inhabited the Earth millions of years ago.



I know how to identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

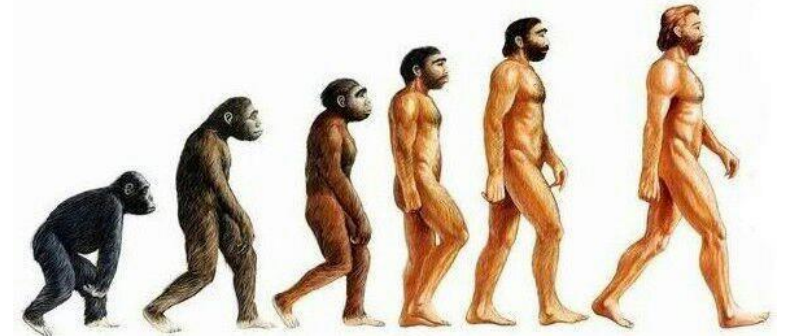
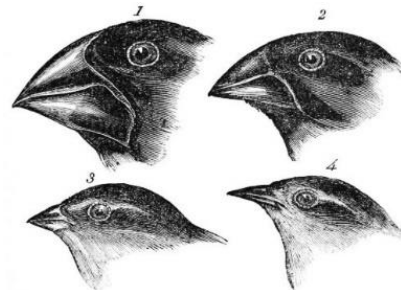
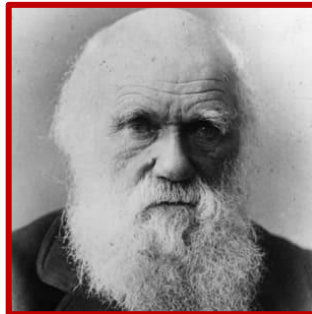


I know how to recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.



### Key Scientists

Charles Darwin, an evolutionary scientist, studied different animal and plant **species**, which allowed him to see how **adaptations** could come about. His work on the finches was some of his most famous.



**Other scientists:** Alfred Russel Wallace, Jean Baptise Lamarck, Empedocles, Barbara McClintock, Mary Leakey



## Previous Learning

All children should know:

- Animals are grouped into **vertebrates** (fish, reptiles, amphibians, birds & mammals) and **invertebrates**.
- Animals are grouped into **carnivores**, **herbivores** and **omnivores**.

Some children should know:

- The differences in teeth for **carnivores** and **herbivores**.
- The names of some common wild and garden plants.
- The names of some **deciduous** and **evergreen** trees.
- Living things depend on each other to **survive**.
- How **food chains** and food webs work.
- How land use has changed over time and the effects this has on the **environment** (e.g. **urban** development)

## Key Learning

How habitats can change.

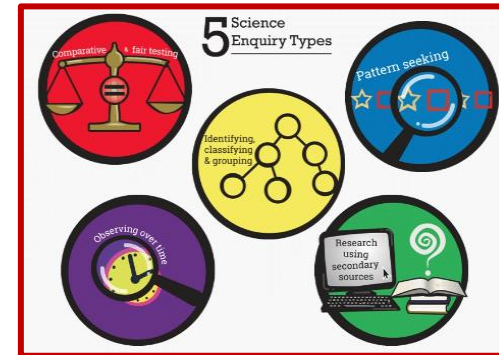
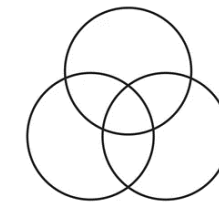
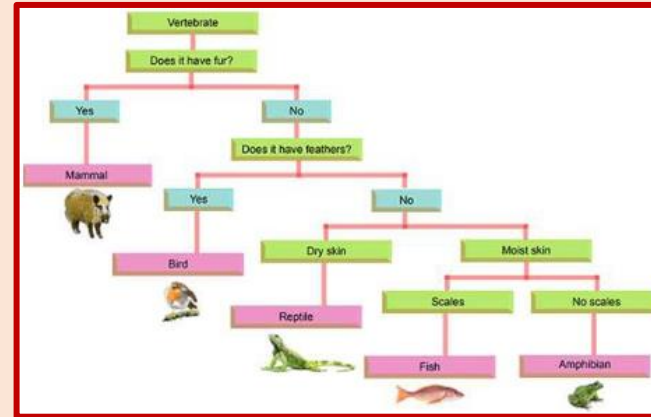
- **Habitats** can change throughout the year and this can have an effect on the plants and animals that live there.
- Humans can have positive and negative effects on the environment:
  - positive effects: nature reserves, ecological parks
  - negative effects: litter, urban development.



## Key Learning

A classification key.

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



Living things and their habitats

**Biology**

2022 2023 LKS2

## Key Scientists

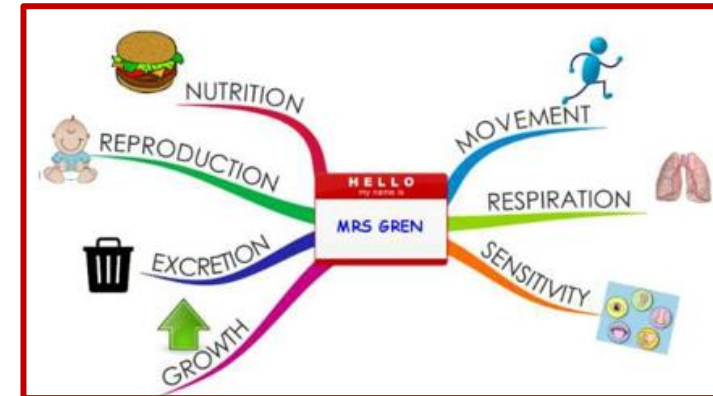
Carl Linnaeus, Ulisse Aldrovandi, Robert Hooke, Theophrastus, Carl Woese, Terri Irwin, Maria Merian,

## Key Learning

How living things can 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.

## Previous Learning

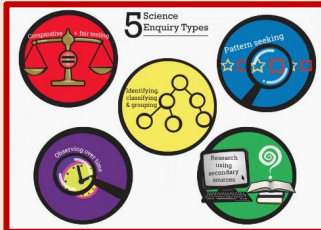


All children should know:

- Animals are grouped into **vertebrates** (fish, reptiles, amphibians, birds & mammals) and **invertebrates**.
- Animals are grouped into **carnivores**, **herbivores** and **omnivores**.

Some children should know:

- The differences in teeth for **carnivores** and **herbivores**.
- The names of some common wild and garden plants.
- The names of some **deciduous** and **evergreen** trees.
- Living things depend on each other to **survive**.
- How **food chains** and food webs work.
- How land use has changed over time and the effects this has on the **environment** (e.g. urban development)
- That habitats can change.
- Living things can be grouped or classified using a classification key.
- The life processes that all living things or organisms need to survive.

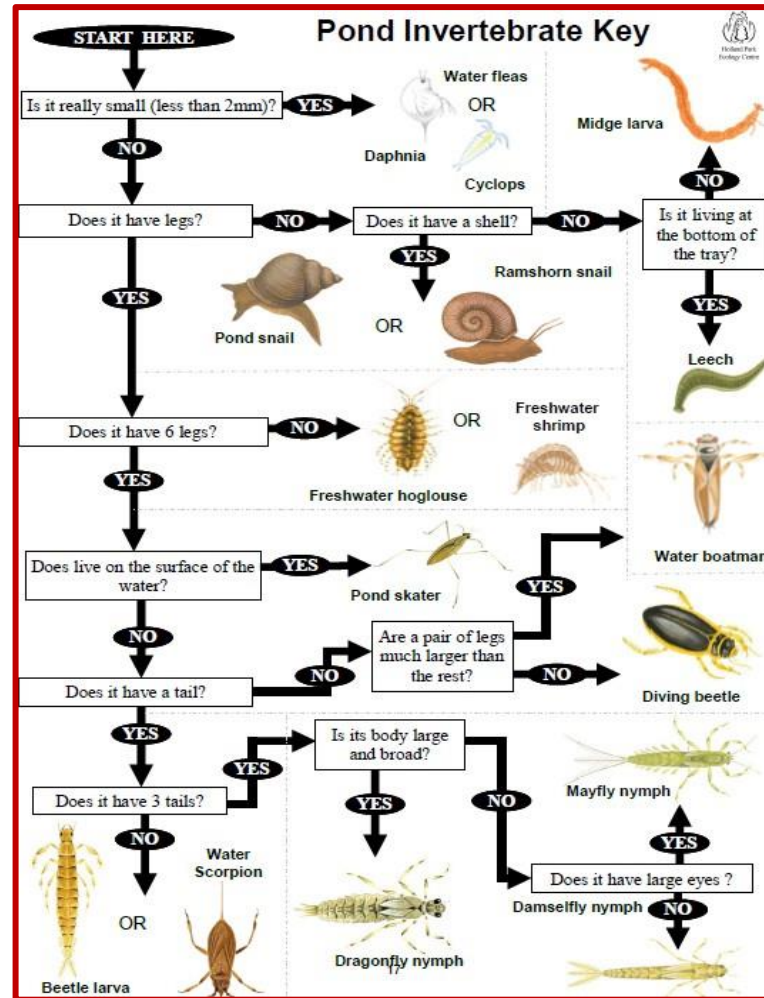


- movement
- **respiration**
- **sensitivity**
- growth
- **reproduction**
- **excretion**
- **Nutrition**

## Living things and their habitats

### Biology

2022 2023 UKS2



## Key Learning

### Grouping living things

Animals are grouped into **vertebrates** and **invertebrates**.

#### Vertebrates.

- **Mammals** - lungs, live babies, body hair or fur, steady body temperature, feeds babies milk
- **Fish** - gills, lays eggs in water, fins & scales, body temperature changes
- **Birds** - lungs, lays eggs with hard shell, feathers, steady body temperature
- **Reptiles** - lungs, lays eggs on land, dry scaly skin, body temperature changes
- **Amphibians** - born with gills then develops lungs, lays eggs in water, damp skin, body temperature changes

#### Invertebrates.

- **Insect** - 3 body sections, 6 legs
- **Arachnid** - 2 body sections, 8 legs
- **Mollusc** - Slimy foot, often has a shell

### Key Features that distinguish between animals

- Vertebrate/invertebrate
- Mammals/reptiles/fish/amphibian/bird
- Colour
- Length
- Number of legs
- Number of body segments
- Distinguishing features
- Habitat



### Key Features that distinguish between plants

- Flowering or non-flowering
- Grass/cereal/garden shrub/deciduous/algae/coniferous/fern
- Colour
- Height
- Number of flowers
- Fruit bearing or not
- Distinguishing features
- Usual location



### Key Features of Microorganisms

- Include algae, fungi, protozoa, bacteria and viruses
- Smallest organisms on Earth
- They perform photosynthesis, break down waste and infect other organisms

## Key Scientists

**Carl Linnaeus**, a leading light in the field of Taxonomy. From Sweden -1707, he is famous for developing the first system to classify animals effectively.

**Other scientists:** Edward Jenner, Alexander Fleming, Joseph Lister, Louis Pasteur, Ester Lederberg



## Previous Learning



All children should know:

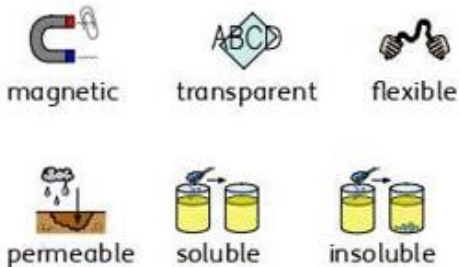
- A variety of everyday materials including wood, plastic, glass, metal, water and rock.
- The physical **properties** of a variety of everyday **materials** (including those that are **transparent**) and to compare and group **materials** on the basis of these **properties**.

Some children should know:

- How materials are suitably used based on their **properties**.
- How **magnets** and **electrical circuits** work.
- Some materials which are **magnetic**.
- How shapes of solid objects can be changed by squashing, bending, twisting and stretching.
- **Materials** that are **solids**, **liquids** and **gases** and their **particle** structure.
- Some **materials** change **state** when they are heated or cooled and the **temperature** at which this happens.
- The roles of **melting**, **evaporation** and **condensation** in the **water cycle** and the role **temperature** has on the **rate** of **evaporation**.
- Some rocks are **permeable**.

## Key Learning

How to group materials based on their properties using more complex vocabulary.



## Key Learning

What are **thermal insulators** and **conductors**?

- **Materials** which are good **thermal conductors** allow heat to move through them easily.
- Thermal conductors are used to make items that require heat to travel through them easily such as a saucepan which requires heat to travel through to cook food.
- **Thermal insulators** do not let heat travel through them easily.
- Examples of **thermal insulators** include woollen clothes and flasks for hot drinks.



thermal insulator

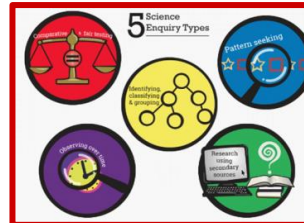


thermal conductor

## Key Learning

Can materials be separated after they have been mixed?

- Some **materials** can be separated after they have been mixed based on their **properties** - this is called a **reversible** change.
- Some methods of separation include the use of a magnet, a **filter** (for insoluble materials), a sieve (based on the size of the solids) and **evaporation**.
- When a mixture cannot be separated back into the original components, this is called an **irreversible** change. Examples of this include when materials burn or mixing bicarbonate of soda with vinegar.



## Properties and changes of materials

### Chemistry

### 2022 2023

## Key Scientists

Hippocrates, Sir Francis Bacon, Michael Faraday, Shen Kuo, Nikola Tesla, Alfred Nobel

## Key Learning

What are **electrical insulators** and **conductors**?

- **Electrical conductors** allow electricity to pass through them easily while **electrical insulators** do not.
- **Electrical insulators** have a high resistance which means that it is hard for electricity to pass through these objects not let heat travel



electrical insulator



electrical conductor

## Key Learning

What is **dissolving**?

- When the **particles** of a **solid** mix with the **particles** of a **liquid**, this is called **dissolving**.
- The result is a **solution**.
- **Materials** that **dissolve** are **soluble**.
- **Materials** that do not **dissolve** are **insoluble**.

