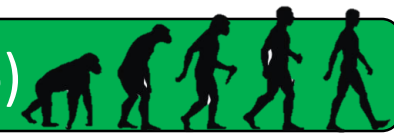


# Knowledge Organiser – Evolution and Inheritance (Year 6)



## Key Vocabulary



### Adaptation

An adaptation is a trait changing to increase a living thing's chances of surviving and reproducing.

### Characteristics

The features or qualities that are specific to a particular species.

### Evolution

**Adaptation** over a very long time.

### Fossil

The remains or impression of a prehistoric plant or animal embedded in a rock.

### Inheritance

This is when characteristics are passed to **offspring** from their parents.

### Inherited Traits

These are the traits that you get from your parents. Families often have similar traits e.g. eye colour, height or curly hair.



### Natural Selection

The process where living things that are better adapted to their environment tend to survive and produce more offspring.

### Offspring

An animal or plant that is produced by the reproduction of that species.



### Variations

The differences between individuals in the same species.

## What is evolution?

**Evolution** describes the gradual **changes** that happen in the **same species**, living in the **same location**, over a **long time**. Scientists have proof that living things are continuously **evolving** – even today!

**Evolution** does not describe people changing their bodies by exercise or dyeing their hair. Evolution happens over a much longer time and can only happen between parents and **offspring** through **inheritance**.



## Fossils

After an animal dies, the soft parts of its body **decompose** leaving the hard parts, like the skeleton. This becomes buried by small particles of rock called **sediment**. As more layers of sediment build up on top, the sediment around the skeleton begins to compact and turn to rock. The bones then start to be dissolved by water seeping through the rock. Minerals in the water replace the bone, leaving a **rock replica** of the original bone called a **fossil**.

Researchers and scientists have been able to use the fossils they have discovered to find out about different animals, their **characteristics** and how they have changed over the years.



## Natural Selection

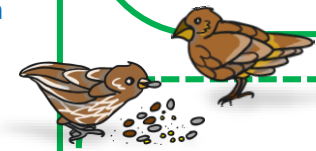
**Natural selection** is the idea that species change over time in order to survive in their environment and reproduce. As **offspring** are born, they have the advantageous genetic **characteristics** passed on from their parents. Over time, this is how species **adapt**. Living things that are unable to **adapt** to the changes in the environment are unlike to survive.

**Fossils** of giraffes from millions of years ago show that they used to have shorter necks. They have gradually **evolved** through **natural selection** to have longer necks so that they can reach the top leaves on taller trees.



## Galapagos Finches

When bad weather affected plant growth and there were fewer seeds to eat, the **offspring** had to eat larger seeds that would not normally be part of their diet in order to survive. Only the offspring with large beaks could break open and eat the larger seeds. Therefore, these **offspring** survived and the other, smaller beaked offspring died. **Offspring inherited** large beaks and so Galapagos finch species started to **evolve** and **adapt**.





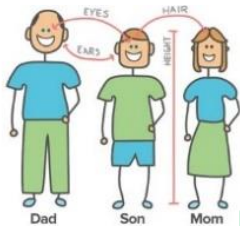
# Knowledge Organiser – Evolution and Inheritance (Year 6)



## Offspring



Animals and plants produce offspring that are similar but not identical to them. Offspring often look like their parents because features are passed on. The particular mix of DNA that offspring inherit from their parents is unique to them. 50% of the DNA comes from the mother and the other 50% comes from the father.



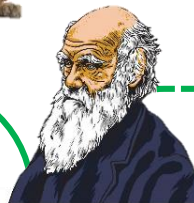
## Inheritance and Variation

**Inheritance** refers to the genes that are passed on from parents to **offspring**. When we talk about **inherited characteristics**, we tend to focus on physical characteristics, such as eye colour or skin colour, as these are easy to spot, but inherited characteristics include abilities such as taste and smell. Characteristics are inherited from both parents but the way they combine creates **variations**, making the **offspring** unique. For example, humans may get blue eyes from our Mum, but brown hair from our Dad.



The **inherited characteristics** can combine in different ways, which is the reason why siblings (brothers and sisters) inherit the same characteristics but are not identical to each other. Even identical twins that share the exact same combination of DNA are not 100% the same.

Living Things		Habitat	Adaptation
Polar Bear		Arctic	Its white fur enable it to camouflouge in the snow. It has thick layers of fat to keep warm and large feet to increase grip on the snow.
Camel		Desert	Camels have large flat feet to spread their weight on the sand. Two rows of eyelashes to keep out the sand and the ability to go a long time without water.
Cactus		Desert	Stems can store large amounts of water and their very deep roots are able to collect water. Spines also provide protection from predators.



## Charles Darwin

**Charles Robert Darwin** was a naturalist who was born on February 12th, 1809, in Shropshire, England. He died in 1882 at the age of 73. Darwin is famous for travelling the world, investigating what makes animals and plants different and introducing the Theory of Evolution.

Darwin wrote a book called '**On the Origin of Species**' in 1859. In it, he explained his Theory of Evolution by Natural Selection.

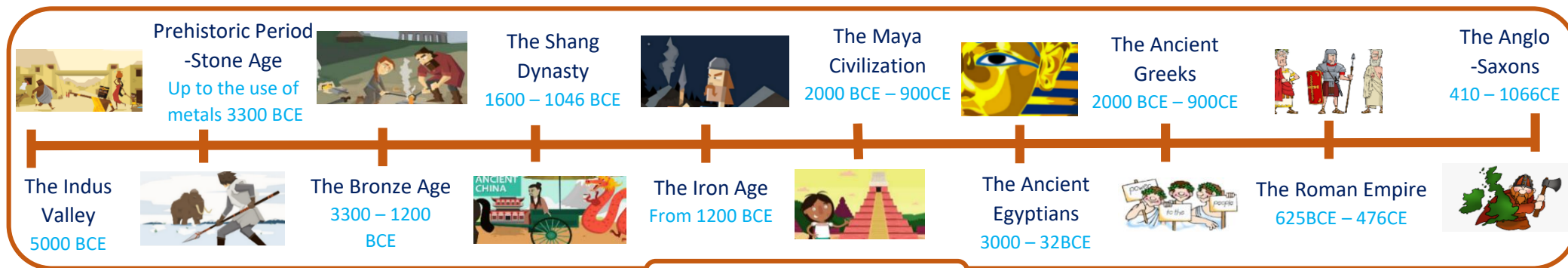


## Mary Anning

**Mary Anning** was born on 21<sup>st</sup> May 1799 and lived all her life in Lyme Regis in Dorset (England). Mary is recognised as a **pioneer** in the field of **palaeontology** (the study of fossils) and is celebrated as the greatest fossil hunter of all time! In 1811, at the age of 12, Mary discovered an **ancient species**, named **Ichthyosaurus** – meaning 'fish lizard'. She also discovered a **Plesiosaur skeleton** (long necked sea creature) and a **Pterodactyl** (flying reptile). Mary died in **1847** at the age of 47.



# Knowledge Organiser – The Maya Civilisation (Year 6)



## Early History Time Line

### Key Vocabulary

#### **civilisation**

An organised society with its own culture and way of life, existing in a particular area over a particular period of time.

#### **ritual**

A ceremony, often religious, with set actions performed in a set order.

#### **codex**

A codex is an ancient type of book which was written by hand, not printed.

#### **maize**

Another word for sweetcorn or corn on the cob. It can be made into a dough and baked into tortillas.

#### **cacao beans**

Cacao trees sprout pods directly from their trunks. When they are ripe, the pods can be broken open to reveal the beans, which can then be dried, roasted and ground.



Chichen Itza

### Who were The Maya?

The ancient Maya were a clever, deeply religious people who valued intelligence and learning. This helps to explain how and why they were able to develop a complex, thriving civilisation which began over 2000 years ago.

### Where did the Maya used to live?

Today, the area the Maya used to live in spreads over 5 countries: Mexico (southern Mexico and the Yucatan Peninsula), Belize, Guatemala, a small area of west Honduras and the very north of El Salvador.




## The Writing System

The Maya writing system, used to write several different Maya languages, was made up of over 800 symbols called glyphs. Some glyphs were logograms, representing a whole word, and some were syllabograms, representing units of sound. They were carved onto stone buildings and monuments and painted onto pottery. Maya scribes also wrote books, called codices, made from the bark of fig trees. Only priests and noblemen would know the whole written language.



## The Writing System

The Maya developed a complex number and counting system that was advanced for their time. They were one of only two cultures in the world to develop the concept of zero. The Maya people used just three symbols in their number system. These are thought to represent items that the Maya people might have first used to count with, such as pebbles, sticks and shells. The Maya used a base 20 number system, so after number 19, multiples of 20 were written above the bottom

 0	• 1	• • 2	• • • 3	• • • • 4
— 5	— • 6	— • • 7	— • • • 8	— • • • • 9
— — 10	— — • 11	— — • • 12	— — • • • 13	— — • • • • 14
— — — 15	— — — • 16	— — — • • 17	— — — • • • 18	— — — • • • • 19

## Religion

Religion was an integral part of the ancient Maya culture, intertwined with all other aspects of society.

The Maya believed in and worshipped a number of different gods. They believed that the gods had a good side and a bad side and that they could help or hurt them. The Maya would dance, sing and sometimes make offerings of blood to the gods to demonstrate their respect and loyalty.



## Food

Maize was a very important crop, and formed up to 80% of their diet. To plant the maize, holes would be made in the soil with a sharp bladed, wooden digging stick called a dibble. The soil was very dry and if the May rains didn't come, a whole year's crop would be lost.

The Maya are believed to be the first to discover cocoa. They learned that the beans inside the cocoa pods could be harvested and made into a liquid that would become a treasured Maya treat.

Maya chocolate was very different than the chocolate we know today. It was a liquid made from crushed cocoa beans, chilli peppers and water. They poured the liquid from one cup to another until a frothy foam appeared on top. In fact, the word 'chocolate' is said to come from the Maya word 'xocolatl' which means bitter water.

