# Year 6

# Home Learning Pack: 6

# Subject: Reading (Silver and Gold)

## LO: To retrieve information

| | Focus | Silver | Gold |
|---|---|---|---|
| **Monday** | Background knowledge and vocabulary | Read the knowledge organiser above and make your own notes. | |
| | | Vocabulary crossword | Create your own Vocabulary wordsearch |
| **Tuesday** | Read aloud, think aloud | Write down any facts you find interesting or questions you think of while you're reading. | Extra research |
| **Wednesday** | Retrieval | Retrieval questions | True or false 3 mark question |
| **Thursday** | Inference | Make connections. Which animals, do you think, share an ancestor? | For what reasons would a species need to evolve? Can you find an example? |
| **Friday** | Application | Choose one of these diagrams and create your own, adding 5 more animals. | Design your own diagram to depict evolution of animals. |

# WHAT IS EVOLUTION?

Imagine a volcano growing on the ocean floor and erupting through the water's surface. The lava cools, forming a new island. A flock of birds have been blown off course in their migration, and they stop to rest on the new island. The only food available is the shrimp that wash up on the shore. Only a few of the birds have a taste for these shrimp. The rest of the flock either dies or flies away to look for food elsewhere.

The birds that are left lay eggs. Some of the chicks will have a taste for the shrimp and so they can feed. Others are like the rest of the original flock – they cannot eat them, so they die. Only those that can eat the shrimp grow up and have chicks of their own.

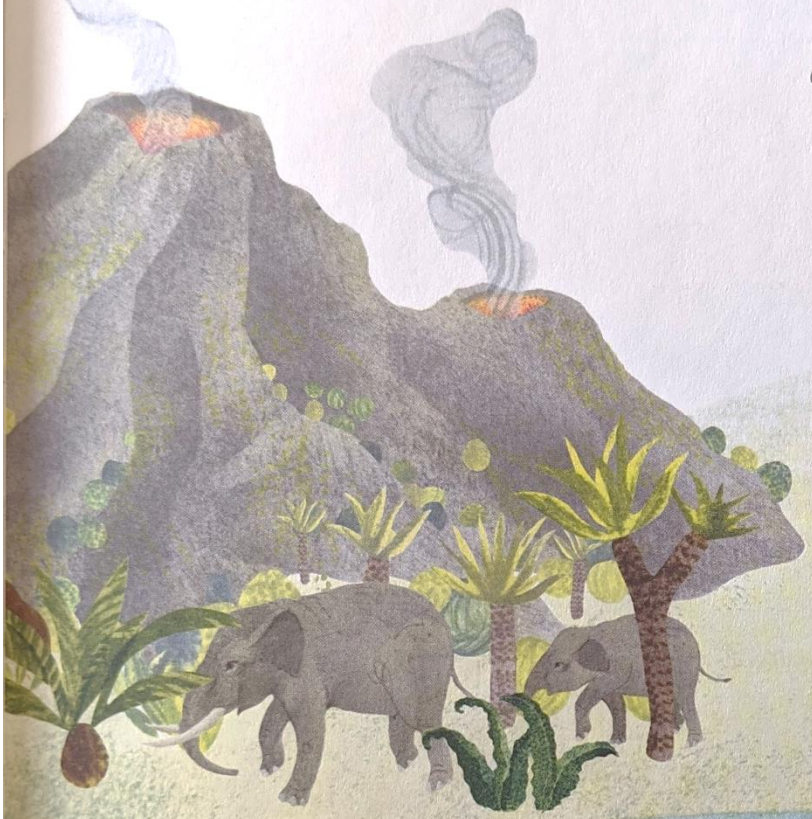
After many years, only the shrimp-eating birds have survived. The descendants of the rest of the original flock come back to the island, having been blown off course again. They find that their distant relatives who stayed have become so different that they have become a different species. This is evolution.

## Changing and adapting

Evolution can happen anywhere and at any time, not just on a new island. Any change in habitat or climate can spark evolution. An animal does not decide to evolve. It is a process that happens gradually, through small changes over many generations.

## Mutations

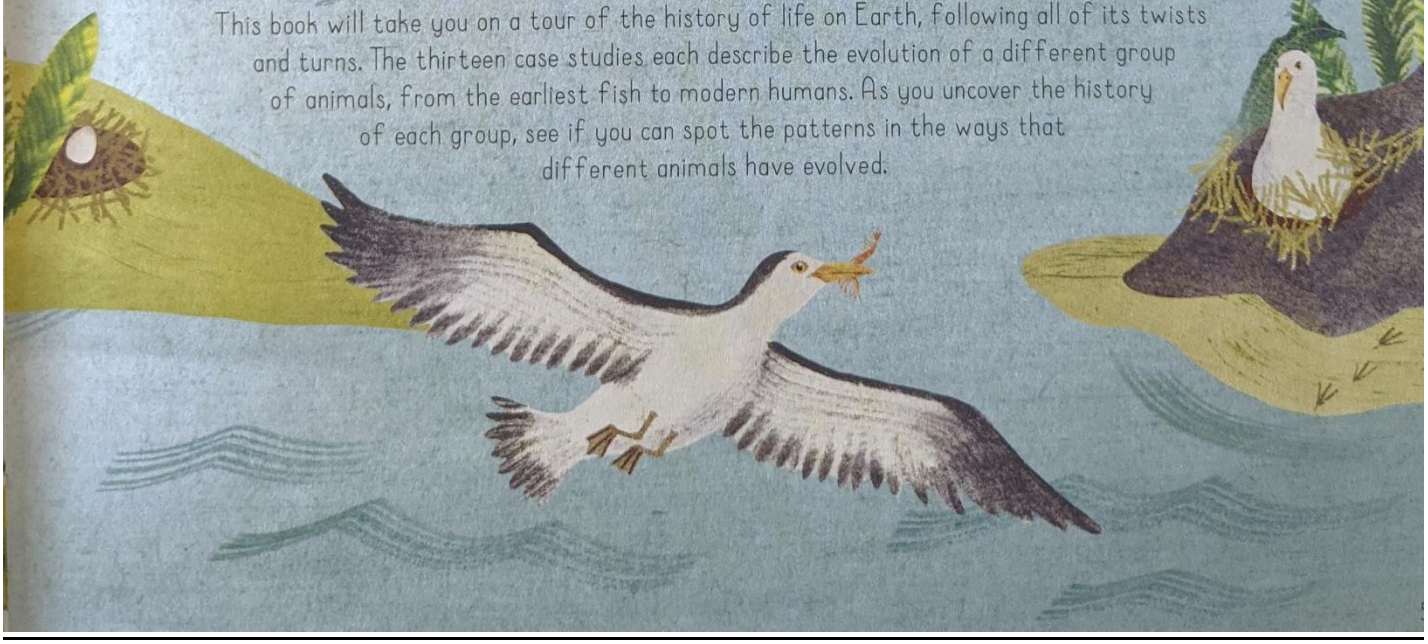
When animals have babies, most of their offspring are very similar to their parents and can live in the same environment. Occasionally there will be a random change in the genes that control a baby animal's traits. This kind of change is called a mutation. Most mutations make the animal less likely to survive. If the animal dies, or does not have babies of its own, the mutation cannot be passed on.



However, once in a while, the mutation will actually give the animal an advantage. The animal will survive and will likely have lots of healthy offspring of its own, passing on its useful mutation. We call this process natural selection, and it is how evolution works. Mutations produce changes, and natural selection leads to more animals with the successful mutations.

## The journey begins...

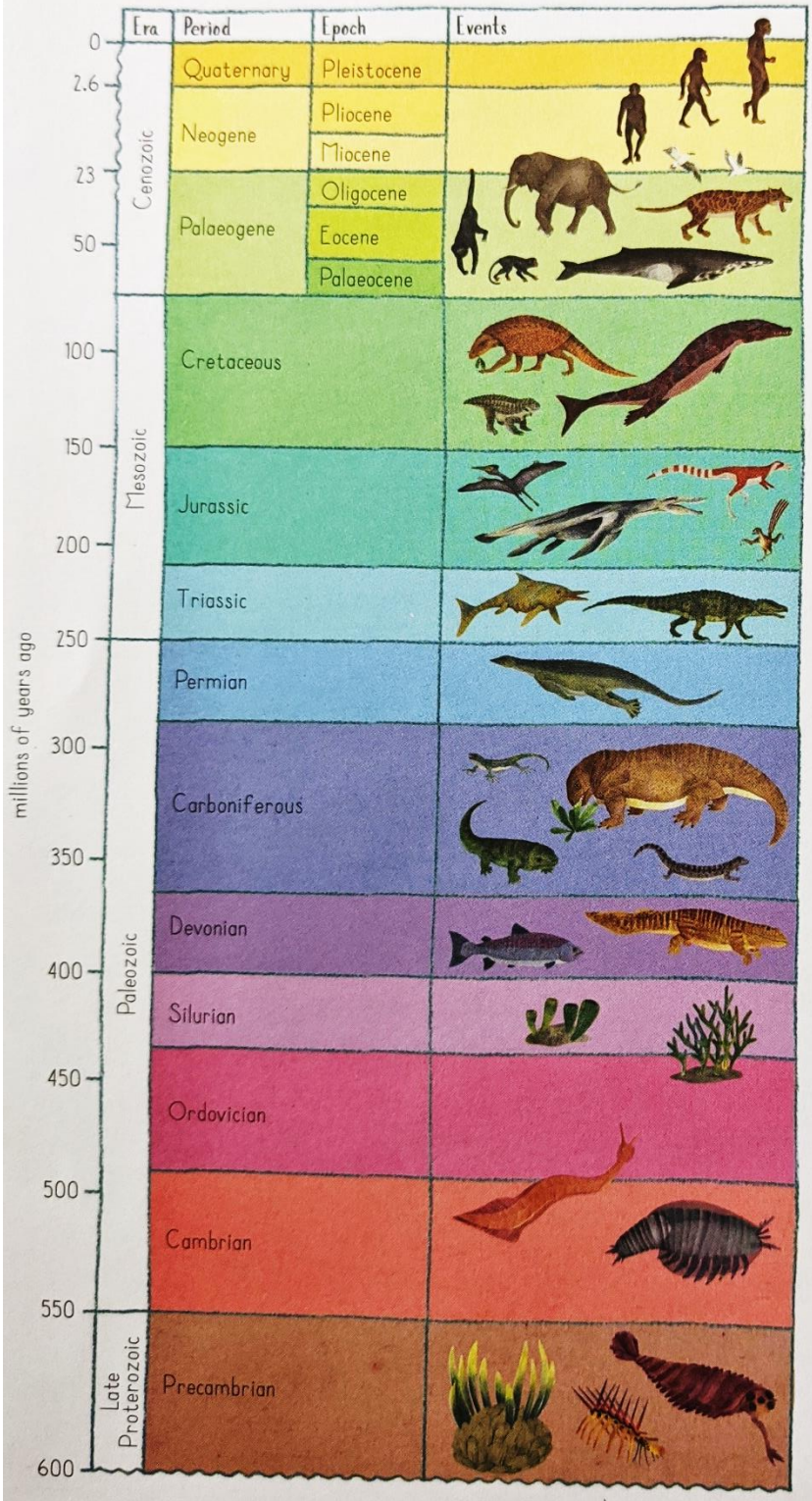
This book will take you on a tour of the history of life on Earth, following all of its twists and turns. The thirteen case studies each describe the evolution of a different group of animals, from the earliest fish to modern humans. As you uncover the history of each group, see if you can spot the patterns in the ways that different animals have evolved.



# A TIMELINE OF LIFE ON EARTH

There has been life on Earth ever since the planet was cool enough and stable enough to support it – about three and a half billion years. The timescales are so vast that they are hard to comprehend. To make it easier, scientists divide Earth's history into manageable chunks, or periods. These periods are based on the types of living things that existed during that time.

Geologic time scale, 600 million years ago to the present




As long as there has been life, there has been evolution. For most of Earth's history, the only life forms that existed were simple organisms made up of a single cell. More complex living things appeared about 600 million years ago (MYA).

The chart on the left shows the geological time scale of life on Earth from this point onwards. The time scale is always laid out like this, with the oldest living things at the bottom and the youngest at the top. This reflects the sequence in which the Earth's rocks were laid down.

## WHERE DO FOSSILS COME FROM?

Fossils are the remains of living things that have been preserved in rock. Most fossils are found in sea sediments. In fact, until about 400 million years ago all life was in the water. After this, fossils of land plants and animals begin to appear, but these fossils are very rare compared with those of sea-dwellers.

EARTH TODAY

CRETACEOUS PERIOD
66 MILLION YEARS AGO

JURASSIC PERIOD
145 MILLION YEARS AGO

PERMIAN PERIOD
250 MILLION YEARS AGO

SILURIAN PERIOD
419 MILLION YEARS AGO

# Changing Earth

It is not only life that has been changing – the surface of the planet has been changing too. Millions of years ago, there were several large continents scattered across the globe. They were moving all the time, 'floating' on the softer rock deep inside Earth. About 335 million years ago, all the continents came together and fused into a single 'supercontinent' which we call Pangaea.

Pangaea existed for about 60 million years, and then, in the middle of the Jurassic period, it began to split. The landmasses slowly drifted apart, giving us the continents that we know today. Have you ever wondered why the eastern coast of South America seems to be a perfect fit with the western coast of Africa? They were joined together, long ago. The continents are still moving, but very slowly – about 2.5 centimetres per year.

# All change

Today, each corner of the world is home to very different animals. Millions of years ago, different kinds of animals lived on different continents, but they mixed with other species as continents came together. They then became separated when the continents split up again. Continents' climates changed as they moved between the hot tropics and cold polar regions. These changing conditions, combined with natural selection, produced the huge variety of life we see today.

# Monday

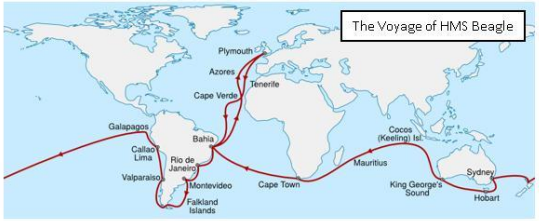
## Evolution Topic Knowledge Organiser

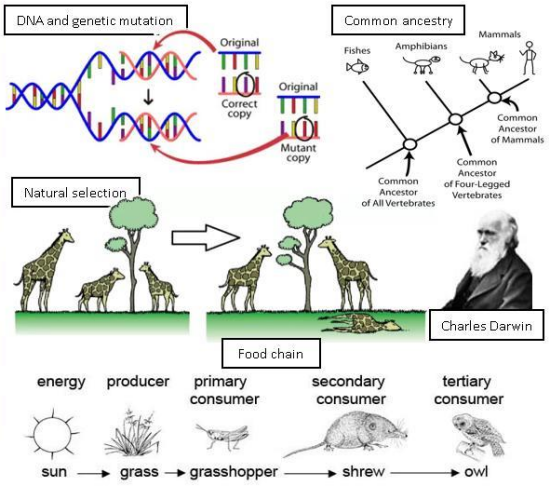
| Key concepts | Definitions |
|---|---|
| evolution (n) | Process by which species adapt/change over time, leading to diversity of life of Earth |
| natural selection (n) | The idea that living things survive better (and reproduce more) if they that are better adapted to a habitat. First proposed by Charles Darwin. |
| genetic mutation (n) | Random changes between parent and offspring |

| Key words | Definitions & word family |
|---|---|
| adapt (v) | Change in a species that makes it more able to survive and reproduce; adaptation (n); adapted (v/a) |
| ancestor (n) | An living thing from the past from which a modern plant or animal has evolved; ancestry (n) |
| characteristic (n) | Feature/trait/quality (e.g. size, shape, colour, etc) of a plant or animal; characterise (v) |
| classify (v) | Put things into groups; classification (n); classified (v/a) |
| descendant (n) | a plant or animal that is related to a particular plant or animal that lived long ago; descend (v) |
| DNA (n) | a substance that carries genetic information in plants and animals (short for *d*eoxyribo*n*ucleic *a*cid) |
| gene (n) | Part of a cell that controls characteristics of plants and animals; genetic (a); generate (v); generation (n) |
| habitat (n) | Place where animals and plants live |
| Homo Sapiens (n) | Our species, which evolved about 300 000 years ago; meaning 'intelligent humans' |
| hybrid (n) | Related to two species/breeds/varieties; hybridise (v); hybridisation (n) |
| inherit (v) | Receive characteristics from a parent; inheritance (n); inherited (v/a) |
| offspring (n) | Babies / new plants |
| reproduce (v) | Give birth / make seeds / eggs; reproduction (n) |
| species (n) | Group of related organisms which can reproduce; specific (a); specification (n); specify (v) |

## Theory of Evolution Timeline

| 1809 | 1831-1836 | 1859 | 1882 | 1953 | 1974 |
|---|---|---|---|---|---|
| Darwin born | Darwin's voyage on HMS Beagle | 'Origin of the Species' published | Darwin dies | Crick & Watson discover DNA double-helix | 'Lucy' skeleton found in Ethiopia |




## Background knowledge – Silver and gold

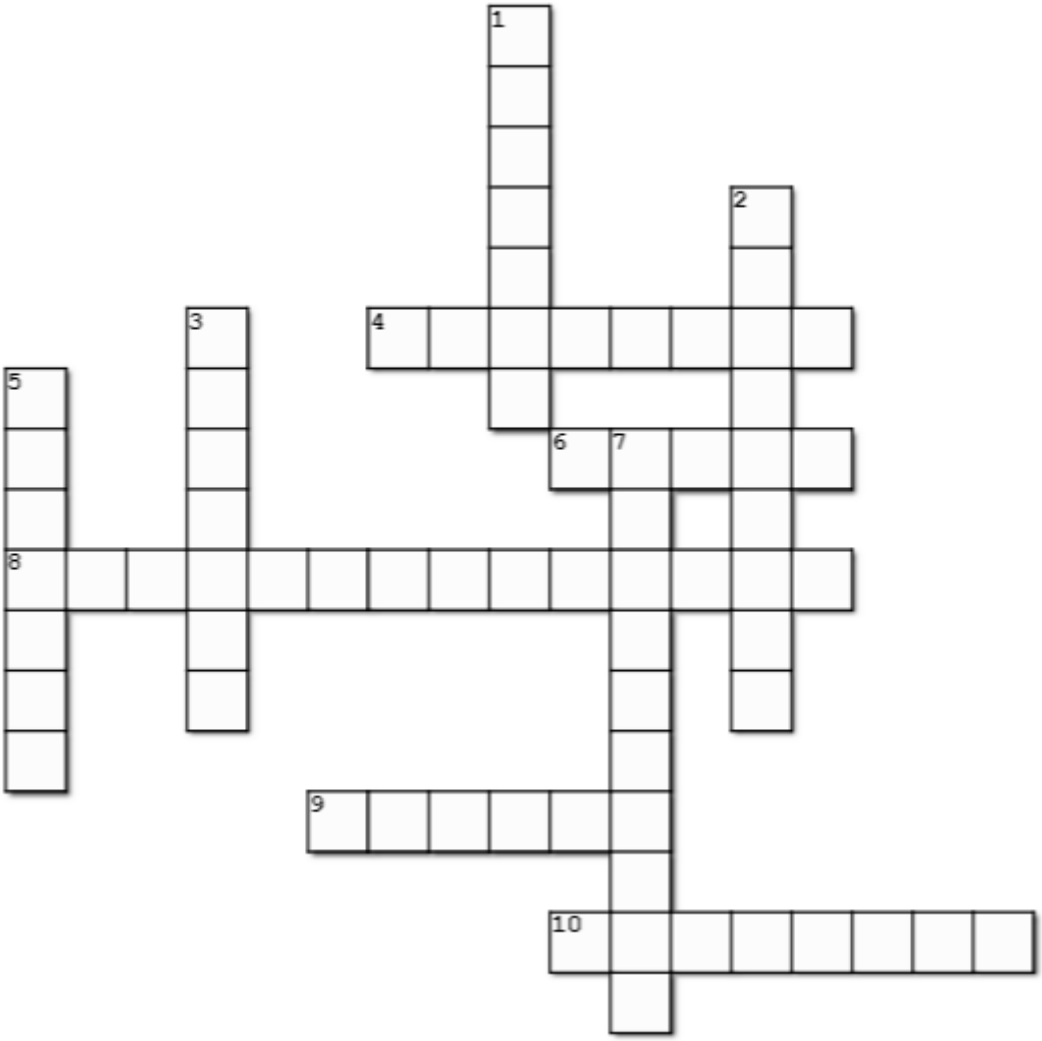
Read the knowledge organiser above and make your own notes.

If you access to the internet, watch these videos and add to your notes.

What on earth happened? https://www.youtube.com/watch?v=u7vlUYdCh_I

Great animated history of human evolution on earth from single cell organisms
https://www.youtube.com/watch?v=yu2dVi5QAw8

# Vocabulary - Silver




## Across

**4.** put things into groups
**6.** change in species so it is more able to survive
**8.** feature of a plant of animal
**9.** related to two species
**10.** living thing from the past related to a modern living thing

## Down

**1.** place where living things live
**2.** babies, new generation
**3.** receive characteristics from a parent
**5.** group of related living things with the same features
**7.** living thing related to a living thing from the past

# Vocabulary Gold

## Create your own evolution wordsearch

| | | | | | | | | |
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# Tuesday

## Read aloud, think aloud

**Silver** – Write down any facts you find interesting or questions you think of while you're reading.

**Gold** – Carry out any extra research and make notes here.

# Wednesday – Retrieval

## Silver

1. What is the collective noun for a group of birds? _____
2. Find and copy another word meaning 'distant relatives'. _____
3. Find and copy a word meaning 'changes'. _____
4. Find and copy a phrase which means that the best adapted animals survive.

   _____
5. For how long has there been life on earth? _____
6. What does MYA stand for? _____
7. In what period did the first human appear on earth? _____
8. What was the super-continent called 335 MYA? _____
9. Where was all life living until 400 MYA? _____
10. At what speed are landmasses moving now? _____

## Gold

All animals evolved from creatures which lived in the sea, true or false?

Find three pieces of evidence to support your answer.

# Thursday – inference

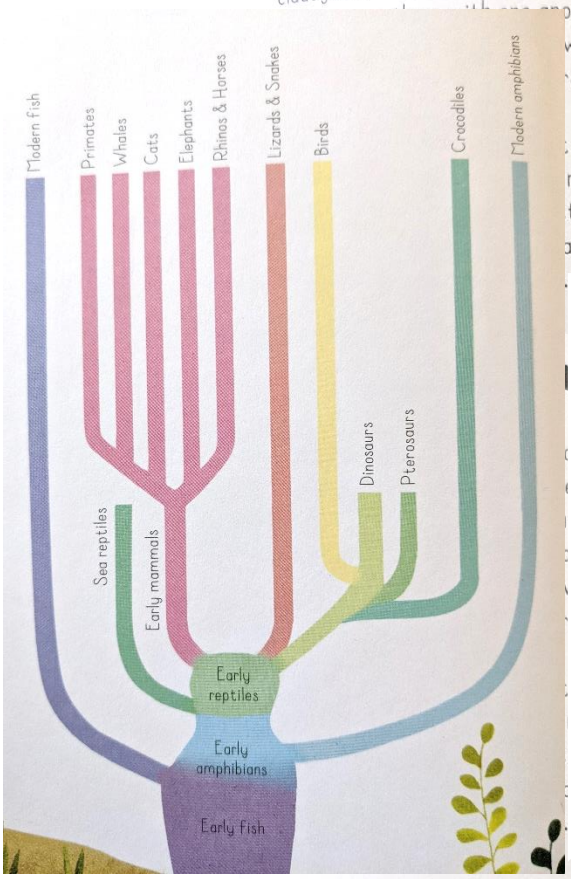
**Silver** - Make connections. Which animals, do you think, share an ancestor?

**Gold** – For what reasons would a species need to evolve? Can you find an example?

# Cladograms

Today's scientists often focus on a single family or group of animals, using a diagram called a cladogram. To draw a cladogram, they take the features of different animals ... other. By counting the ... which animals are ...

These are two ways of showing evolution of animal life on earth.



**Silver** – choose one of these diagrams and create your own, adding 5 more animals.

**Gold** – design your own diagram to depict evolution of animals.