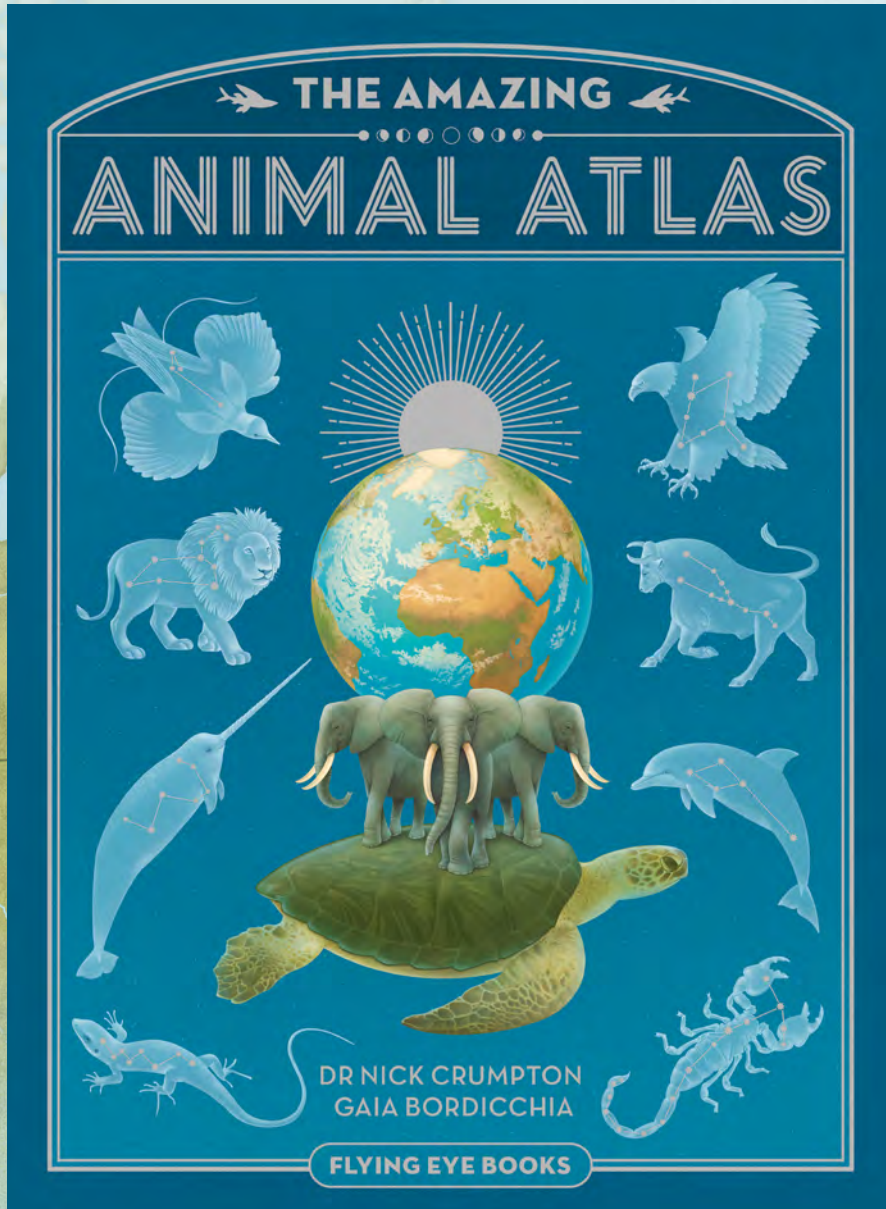


# THE AMAZING ANIMAL ATLAS

Dr. Nick Crumpton and Gaia Bordicchia



# TEACHERS' NOTES:

## IDEAS FOR LEARNING ABOUT CLASSIFICATION:

### Y4: LIVING THINGS AND THEIR HABITATS

#### Pupils should be taught to:

- Recognise that living things can be grouped in a variety of ways.
- Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.

#### Pupils might work scientifically by:

- Using and making simple guides or keys to explore and identify local plants and animals.
- Making a guide to local living things.

### Y6: LIVING THINGS AND THEIR HABITATS

#### Pupils should be taught to:

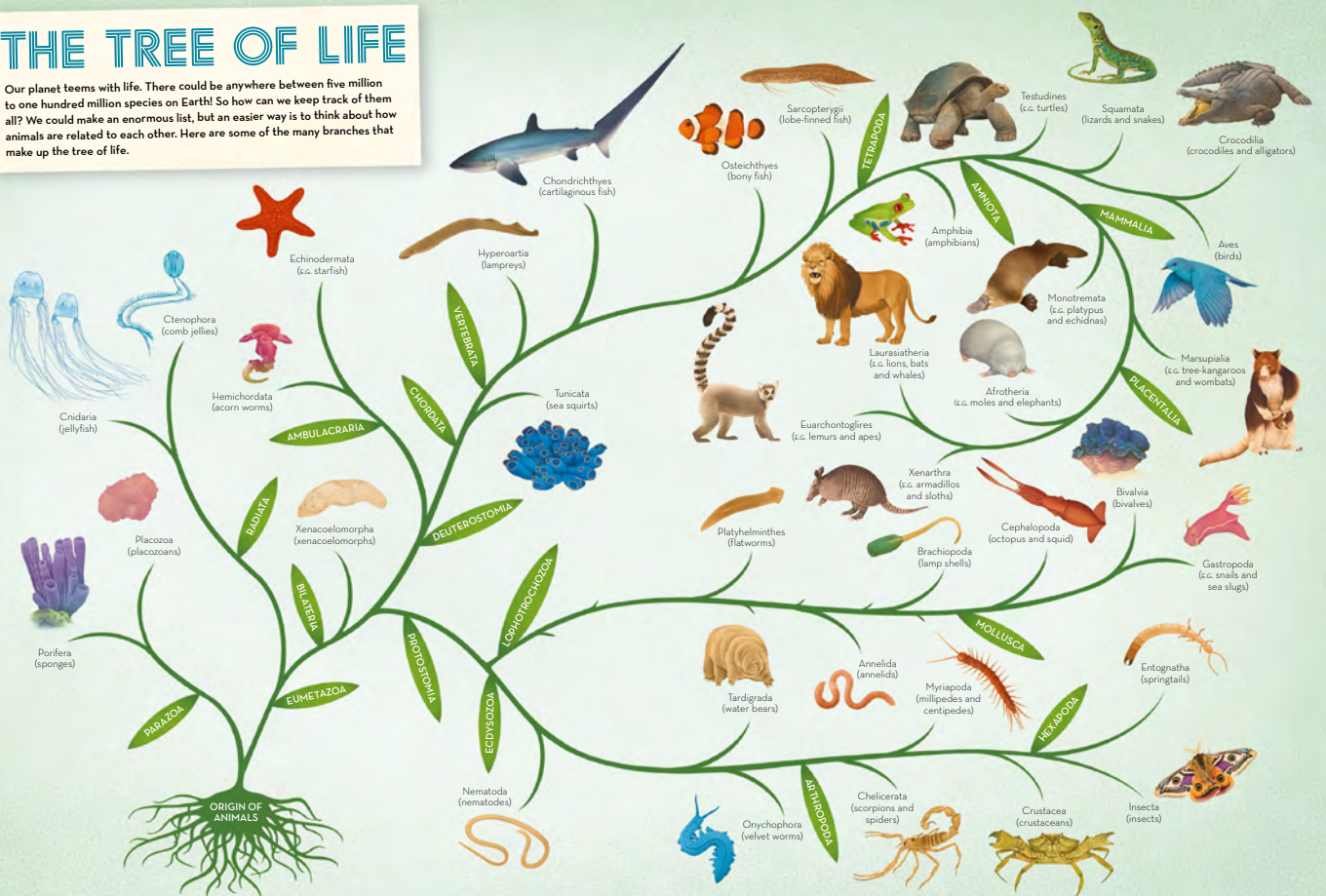
- Describe how living things (including micro-organisms, plants and animals) are classified into broad groups according to common observable characteristics and based on similarities and differences.
- Give reasons for classifying plants and animals based on specific characteristics.

#### Pupils might work scientifically by:

- Using classification systems and keys to identify some animals and plants in the immediate environment.
- Researching unfamiliar animals and plants from a broad range of other habitats and deciding where they belong in the classification system.

## THE TREE OF LIFE

Our planet teems with life. There could be anywhere between five million to one hundred million species on Earth! So how can we keep track of them all? We could make an enormous list, but an easier way is to think about how animals are related to each other. Here are some of the many branches that make up the tree of life.



## IDEAS FOR LEARNING ABOUT CLASSIFICATION, PAGES 8-9:

These pages make an excellent starting point for looking at classification systems. Having discussed the reasons for needing a classification system, children could research some of the creatures identified on the tree in the book and then place creatures of their own choosing into different categories. They could make simple guides or keys to explore animals in their locality, those seen on a school trip/visit or those which live in a country or region being studied. A class display could be made as a result of the children's findings, and they could present their findings to an audience.

*Spoken language Y1-6: participate in discussions, presentations... and other points.*

# ANIMAL WORLDS

Animals all interact with each other and their environment in some way. These interactions are like a web of living things linking everything together. Biologists call this interweaving web - together with the environment the animals live in - an ecosystem.

The natural home of an animal or plant is called a habitat. Animals look and behave very differently to one another because they have evolved to live in different habitats.

**DECIDUOUS WOODLANDS**  
These woodlands are only found between 40 and 60 degrees north or south of the equator and each season of the year is very distinct. When the leaves fall off the trees in autumn, thousands of insects use them as food, and eventually break them down into soils.

**RAINFORESTS**  
The high temperatures and rainy conditions mean that rainforests grow to be very tall and dense, supporting tens of thousands of species. The Amazon rainforest contains one in ten of all the known species on Earth!

**CONIFEROUS FORESTS**  
Most trees in the northern hemisphere have tiny, spike-shaped leaves, which stay on them during the colder months and stop them from losing water. Many northern animals hibernate, slowing down to save energy when there isn't much food around.

**FRESHWATER**  
Freshwater habitats include bogs, ponds, streams and marshland. Most water is trapped in rocks and soil as groundwater, and less than one per cent is surface water in the form of rivers, lakes and swamps.

**MARINE**  
Marine habitats include reefs, estuaries, the abyss of the deep ocean, and the seabed itself. They make up 71 per cent of the planet's surface, but the majority of this remains completely unexplored.

**GRASSLANDS**  
Grasslands are found over much of the Earth, close to the equator where the climate is warmer. This is where huge migrating herds of herbivores are found searching for food and water, pursued by opportunistic predators.

**MOUNTAINS**  
Mountains are formed when the Earth's tectonic plates crash into each other. They are cold, steep and in a state of gradual change as the plates keep moving. With steady footing and an ability to adapt to changing elevations, some animals thrive here.

**SCRUBLANDS**  
From South Africa to Australia, scrublands are found wherever rain falls less often. Resilient and stocky plants hold on to whatever moisture they can by storing it inside themselves, or growing thorns to protect themselves from thirsty animals.

**POLAR REGIONS AND TUNDRA**  
Polar regions and tundra are at the ends of the Earth - the extreme north and south. Tundra is too cold for many plants to survive, except for moss and lichen, which take many years to grow.

**DESERTS**  
Every living thing needs water to survive, but it is very scarce in deserts. The largest desert is actually in Antarctica, where the extremely low temperature means very little of the ice ever melts into water.

10

11



# LEARNING ABOUT HABITATS:

## IDEAS FOR NON-FICTION WRITING STYLES, USING PAGES 12-41:

### Non-chronological reports:

- Select an animal to research in more detail and present findings as a non-chronological report.

### Journalistic writing:

- Write a newspaper/magazine article about why a creature is endangered or the dangers to a particular habitat.

### Explanation:

- Use the book to choose an animal whose life-cycle can be researched and explained.

This could be presented as:

- A series of models/diagrams with explanation labels.
- A written piece. Students can work scientifically by observing and comparing the life cycles of plants and animals in their local environment with those of others around the world. They can ask pertinent questions and suggest reasons for similarities and differences.

**OCEANIA**

The Pacific Ocean is an enormous swathe of sea, larger than all of the Earth's continents put together! Within this region of Oceania are twenty thousand tiny islands; home to an incredible abundance of life, as animals managed to find their way to these isolated lands and evolve.

**GIANTS OF OCEANIA**

The massive coconut crab can weigh over four kilograms and the giant clam is one of the largest molluscs, growing to more than a metre across. Gliding through the water above is the green sea turtle - one of the most majestic animals in the Pacific. This docile vegetarian only breaks the surface of the ocean to breathe. Females haul themselves on land to lay eggs in the sand, away from marine predators.

**UNDERWATER PREDATORS**

In between the islands lives the thresher shark, whose slender tail makes up half of their body length. The striking black marlin also swims in these waters, growing to the length of more than two people and swimming at the same speed that cheetahs can run.

**DID YOU KNOW?**

The transparent sea gooseberry is made up of 99 per cent water. It is almost invisible in the ocean, and moves by pulsating the tiny hairs along its body, creating a rainbow of colours!

**UNIQUE FISH**

The clownfish has an amazing ability. If the only female dies or leaves its group, one of the males transforms into a female to take her place. The mandarin fish also stands out due to its beautifully striking markings. These serve as a warning to predators as they taste horrible!

**DEADLY SEA CREATURES**

Box jellyfish and sea snakes are extremely venomous - the olive sea snake is one of the most dangerous snakes in the world.

**RADIANT REEFS**

Coral reefs live in symbiosis with algae; in return for sharing food with the corals, algae are allowed to shelter inside the reef. The reefs are also home to the coloured Christmas tree worms and nudibranchs - a type of soft mollusc.

**COCONUT CRAB**  
*Birgus latro*

**GREEN SEA TURTLE**  
*Chelonia mydas*

**THRESHER SHARK**  
*Alopias vulpinus*

**SEA GOOSEBERRY**  
*Pleurobrachia pinnata*

**CLOWNFISH**  
*Amphiprion ocellatus*

**MANDARINFISH**  
*Symphoricarpos splendens*

**BLACK MARLIN**  
*Istiompax indica*

**BOX JELLYFISH**  
*Chironex fleckeri*

**GIANT CLAM**  
*Tridacna gigas*

**OLIVE SEA SNAKE**  
*Aipysurus laevis*

36

37

## Y5: LIVING THINGS AND THEIR HABITATS

- Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.
- Describe the life process of reproduction in some plants and animals.

*NS guidance: They should also appreciate that variation in offspring over time can make animals more or less able to survive in particular environments (for example, by exploring how giraffes' necks got longer, or the development of insulating fur on the arctic fox).*

## Y6: EVOLUTION AND INHERITANCE

- Recognise that living things produce offspring of the same kind, and that normally offspring vary and are not identical to their parents.
- Explain how some creatures have adapted to their environments, recognising that living things have changed over time.

**THE ARCTIC**

The Arctic is often called the 'land of the midnight sun' because the sun never rises in the winter and never sets in the summer! Every winter the ocean freezes over, connecting the surrounding area in a massive sheet of ice, allowing animals (and people) to migrate across the North Pole.

**DID YOU KNOW?**  
Harp seals are very fast swimmers, and can hold their breath for up to 15 minutes underwater.

**THE SNOWY OWL**  
Unusually for owls, the snowy owl hunts by day, locating prey by sight and sound. Their distinctive white plumage offers them the perfect camouflage against the snow.

**SEASONAL WARDROBES**  
Many Arctic animals, like the arctic fox, have a summer and a winter coat so they remain camouflaged in snow or when the snow melts to reveal the ground beneath. The Arctic hare is completely white in winter, but for two black spots on the ends of its ears. These hares are known to 'flock' - this is where a group of up to 3,000 can move, run and change direction in perfect synchronicity!

**THE ARCTIC TERN**  
The migratory Arctic tern makes by far the longest regular migration of any known animal! It travels a whopping 70,900 kilometres in a year.

**LONG IN THE TOOTH**  
This huge member of the seal family can reach sizes of up to 3.6 metres and weigh up to 2,000 kilograms. The walrus can dive into the depths, feeding on small invertebrates and molluscs on the sea floor.

**STRONG SURVIVORS**  
Musk oxen are one of a very small group of animals known as megafauna which have survived the impact of human activity on the environment. When threatened, herds of musk oxen display clever defence behaviour, bunching together and brandishing their horns to form an impenetrable line.

**ARCTIC WHALES**  
Known as the 'unicorns of the sea', the narwhals are famous for their single swirling tusk, which is actually a tooth. Second only to the blue whale in weight, the bowhead whale has the largest mouth of any animal on the planet. Beluga whales' clicks, grunts, squeals and whistle sounds have earned them the name 'sea canary'.

**EBONY BEARS**  
Covered in thick white fur for insulation, the polar bear's skin is actually black, like its nose and paws. They can sniff out prey almost a kilometre away and a metre under snow! Polar bears are solitary animals, but the mothers are famously protective of their cubs.

**WALRUS**  
*Odobenus rosmarus*

**MUSK OX**  
*Ovibos moschatus*

**ARCTIC FOX**  
*Vulpes lagopus*

**ARCTIC HARE**  
*Lepus arcticus*

**ARCTIC TERN**  
*Sterna paradisica*

**NARWHAL**  
*Monodon monoceros*

**HARP SEAL PUP**  
*Pagophilus groenlandicus*

**SNOWY OWL**  
*Bubo scandiakov*

**BOWHEAD WHALE**  
*Balaena mysticetus*

**BELUGA WHALE**  
*Delphinapterus leucas*

**POLAR BEAR**  
*Ursus maritimus*

### Persuasive Writing:

- Design a leaflet to persuade people to protect one of the endangered species mentioned in the book.
- Persuade someone to visit a location and see the wildlife.

### Discussion:

- Does tourism support or destroy conservation attempts?
- Should all species be protected whatever the cost?

## MORE TO INVESTIGATE:

- Investigate some of the explorers or scientists who 'discovered' these animals.
- Using different spoons, chopsticks, tweezers etc. as beaks, investigate how birds have adapted to feed in their habitat (see the notes on Darwin's finches).
- Compare two animals and identify the similarities and differences between them and how they survive in their environment (for example, in the Arctic).
- Investigate camouflage in different animals from different environments.

