WHO AM I?

INTRODUCTION

In this module children will further develop the understanding of keys they gained in the Year 3 rocks module, using them to identify animals from a range of habitats. They will also construct keys, learning to ask yes/no questions about characteristic differences between the animals. They will learn about pond and seashore animals and common land invertebrates through images and first-hand experience.

Ideally they will carry out a range of fieldwork, as part of the lessons and as enrichment activities; this could also be supplemented by visitors with animal collections, e.g. invertebrates or reptiles, or a visit, e.g. to a zoo or aviary. Children could extend their understanding of animal identification and its importance by taking part in national surveys such as the RSPB Big Schools' Birdwatch, the Evolution Megalab Snail Survey www.evolutionmegalab.org/en_GB/, one of the Opal Explore Nature surveys www.opalexplorenature.org/surveys, or the UK Ladybird Survey http://www.ladybird-survey.org/ (additional free resource available at www.primaryupd8.org.uk).

In addition to identifying animals children will also classify them, learning to identify characteristics of the main vertebrate groups and some of the common invertebrate groups.

National Curriculum:

Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment

Recognise that living things can be grouped in a variety of ways

Working Scientifically:

Making systematic and careful observations. They should choose the challenge based on previous experience of using keys

Making systematic and careful observations and recording findings using diagrams or keys

Identifying differences, similarities or changes related to simple scientific ideas and processes

Scientific Enquiry:

Grouping and classifying

Key vocabulary:

features, sequence, key, distinguish, similarities, differences, vertebrate, fish, amphibian, reptile, bird, mammal, backbone, hair, scales, feathers, eggs, wings, beak, lungs, gills, cold blooded, warm blooded, suckle, head, thorax, abdomen, wing, segment, antennae, insects, arachnids (spiders), crustaceans, myriapods, molluscs, worms, observations, sort, group, classify, identify

FACT FILE:

A **key** is a common way to structure **identification charts**. It uses sequences of questions with yes/ no answers that split the group into subgroups until individual types of organisms can be identified. It is useful to have a range of keys specific to habitats that you will be studying. Guides that rely on visual identification by matching a specimen to a picture or that use questions with a range of possible answers, e.g. how many legs does it have?, are also available. Children need to practise asking the types of question that will discriminate between individuals and which will create an effective branching structure to the key.

Classification is assigning an item to a group based on **common characteristics**. Animals are classified into a hierarchy of related subgroups. Children can wrongly classify animals because they focus on features such as habitat or how animals move rather than on the key characteristics of the group to which they belong.

Vertebrates are animals with **backbones** as part of an **internal skeleton**. There are five main groups of vertebrates:

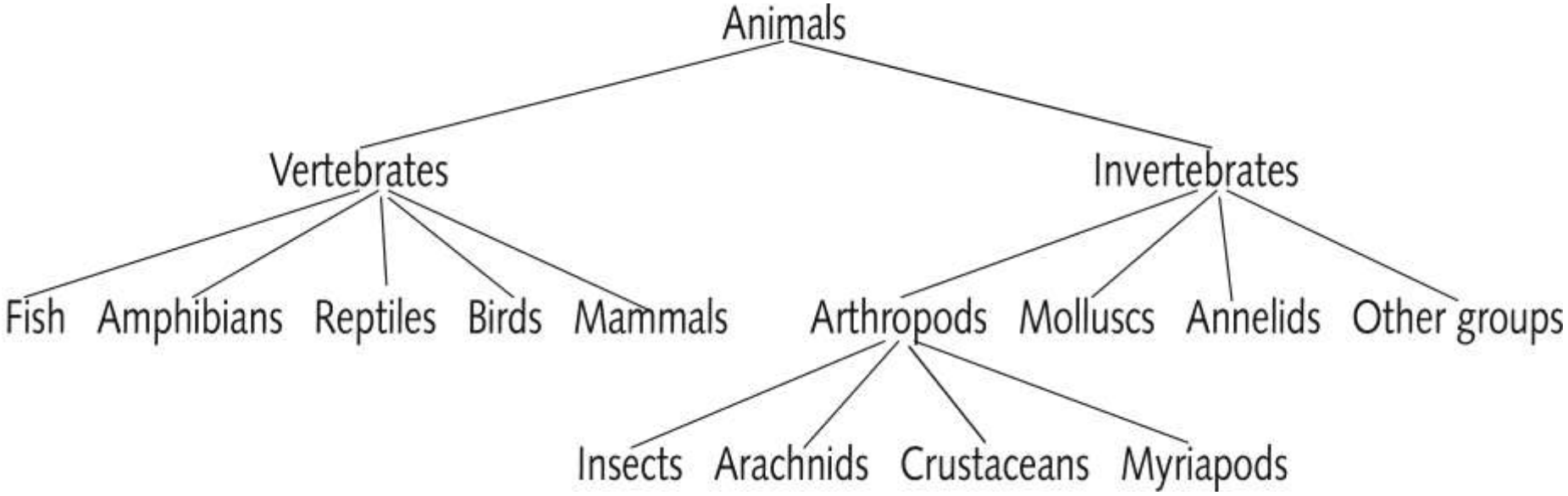
- **Fish** are aquatic. They breathe using **gills** and are unable to live out of water. They are coldblooded animals, which means that they cannot regulate their body temperature, which is close to that of their surroundings. Fish are covered in **scales**. They have **fins** (modified limbs) and a tail for swimming. They lay eggs that are fertilised externally, and that develop and hatch in the water. There are different classes of fish. One important distinction is between bony fish and cartilagenous fish, such as sharks and rays, which have skeletons that are made of cartilage.
- **Amphibians** need water to complete their life cycles. Their skin may be smooth or slightly rough but has no hair, scales or feathers, and needs to be kept moist. It often feels slimy. They lay

eggs, which are fertilised externally in water and then hatch into a larval form, e.g. tadpole, which is unlike the adult in appearance and which usually breathes with gills. The adult animal has lungs and can live on land. Adult amphibians usually have four legs and have toes without claws; some also have tails. Amphibians are cold-blooded.

- **Reptiles** have dry, leathery, scaly skin with no hair or feathers. Those with legs have claws on their toes. They have lungs and are adapted to live on land, although some can be found in water. They are cold blooded. Fertilisation is internal, after which the female lays her eggs, which have leathery shells that prevent them from drying out so they can be laid and incubated on land. The young hatch as small versions of the adult.
- **Birds** are distinguished by the presence of **beaks** and **feathers**. Although a few birds are flightless they all have wings (modified forelimbs) and two legs. They are warm blooded, which means that they are able to regulate their body temperature and maintain it at a particular level. (In humans this is 36–37°C, birds tend to have higher body temperatures of 40–42°C.) Fertilisation is internal, then the female lays hard-shelled eggs which are incubated and hatched on land. Although some birds swim and find their food in water they all breathe with lungs. Most birds have light, hollow bones as an adaptation for flight.
- **Mammals** are warm-blooded and have sweat glands to help them regulate their temperature. Their skin is covered with fur or hair, although in some animals this is so fine or sparse as to be almost absent. Fertilisation is internal and most mammals give birth to live young, although a few, such as the spiny anteater and platypus, lay eggs. Marsupials such as the kangaroo give birth to immature young that mature in the mother's pouch. All mammals suckle their young, producing milk in mammary glands. Mammals have teeth adapted for different diets so they do not need to swallow their food whole. Mammals breathe with lungs; even aquatic mammals need to surface for air although some can remain submerged for a considerable time.

Invertebrates are animals that do not have an internal skeleton. There are many groups of invertebrates but this module focuses on those to which some commonly found land invertebrates belong. The first four of these, listed below, belong to a larger group, **arthropods**, which all have a hard **exoskeleton**, specialised mouth parts, several pairs of jointed legs, compound eyes and a body with several parts or segments. The six groups of land invertebrates relevant to this module are listed below.

- **Insects** have six legs and usually two pairs of wings. Their bodies are divided into three parts (head, thorax and abdomen) and they have one pair of antennae on their heads. They are a very large and diverse group.
- **Arachnids** (spiders and related animals such as ticks and mites) have eight legs, no wings and no antennae. They typically have two body parts with the head and thorax combined.
- **Crustaceans** usually live in water, although the woodlouse is a land-dwelling example that children will probably be familiar with. Crustaceans generally have two main body parts; the abdomen is usually segmented, with 19 segments being typical. They have 10 or more jointed legs and no wings. They have two pairs of antennae although the second pair is small or internal in some crustaceans.
- **Myriapods** (such as millipedes and centipedes) have many body segments, each bearing one or two pairs of legs. They have a single pair of antennae.
- **Molluscs** have soft bodies with no segments, wings or legs. They have a muscular foot and/ or tentacles. Most molluscs live in water; slugs and snails live on land. Molluscs typically have a single or double shell although in some animals the shell is internal or absent.
- There are several types of **worm**. Earthworms and leeches are annelids; they have segmented bodies with no legs or antennae. They have bristles that are small and hard to see in some species.


Animals
Vertebrates
Invertebrates
Fish
Amphibians
Reptiles
Birds
Mammals
Arthropods
Molluscs
Annelids
Other groups
Insects
Arachnids
Crustaceans
Myriapods