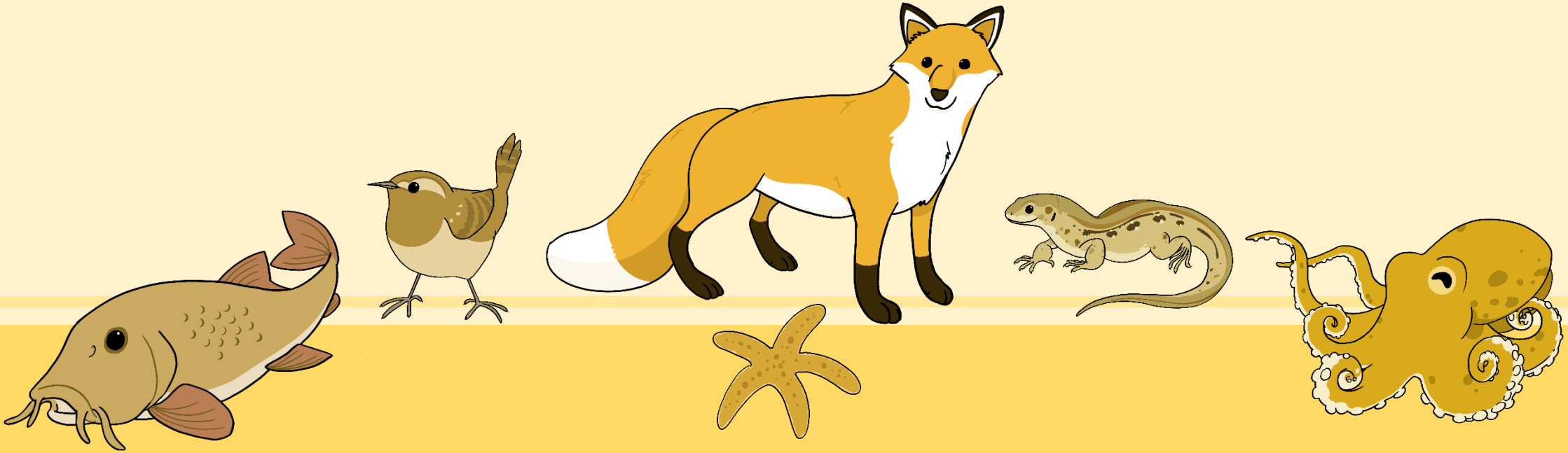


CLASSIFYING LIFE

LIVING WORLD EDUCATION

TEACHERS…

This is designed to support teaching classification.

- ***What is classification?***
- ***What is a species?***
- ***What are the Kingdoms of Life?***
- ***How do I classify animal life?***
- ***How can I use a key to identify a species?***

Also see the worksheets to accompany this resource

WHAT IS CLASSIFICATION?

- Think about a supermarket. ***Where do you find the following items…***

Bottles of cola

Cans of carrots

Vanilla ice cream

"GET ME A COLA, PLEASE!"

- What questions would you need to ask to complete this task?

FINDING YOUR SHOPPING...

- All the **fizzy drinks** are in the same area. There are **many types** (cola, lemonade, orange etc)

- Even within the colas, there are many different types…

- Types of cola could be grouped based on brand and then there are specific types **(diet, cherry, caffeine free, cola in cans, bottles and bottle size)**

A SPECIFIC, SPECIAL TYPE

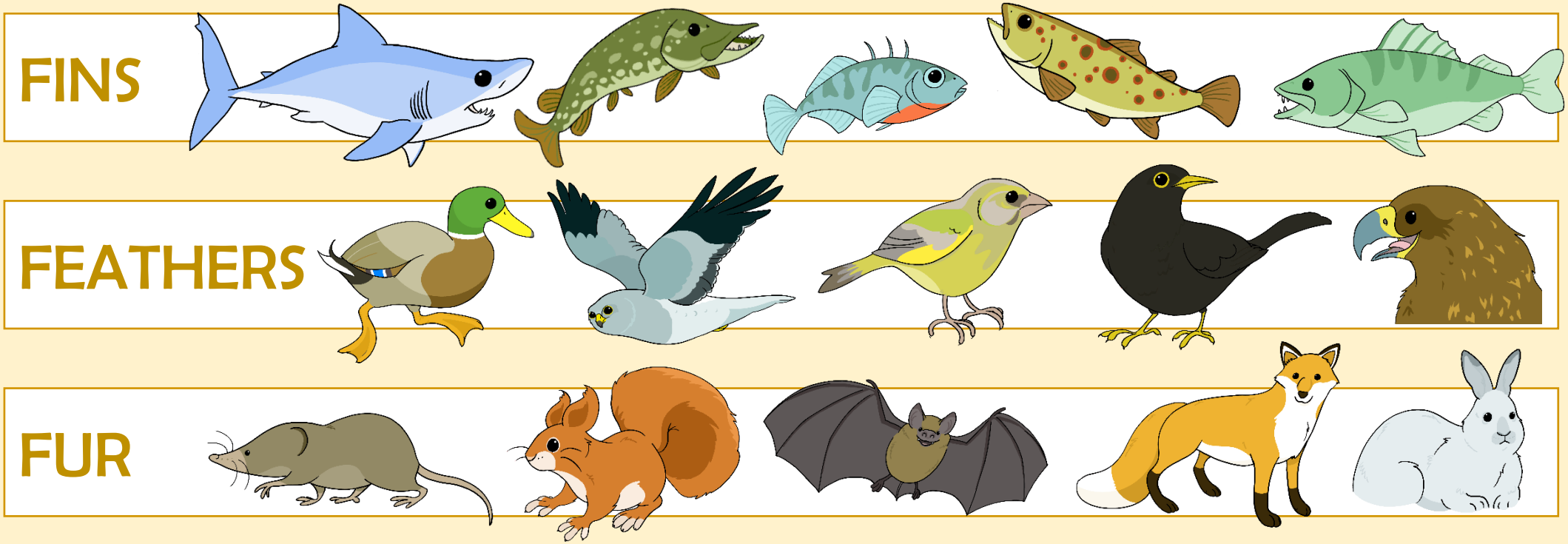
- So, using this example, we could say that a **large bottle** of **diet cherry** cola is a ***special***, ***specific*** type of cola. *(remember the "**spec**")*

- So, we organise products into groups based on **shared characteristics** or **structures.**

- **It helps scientists to know how life has adapted and how species are related.**

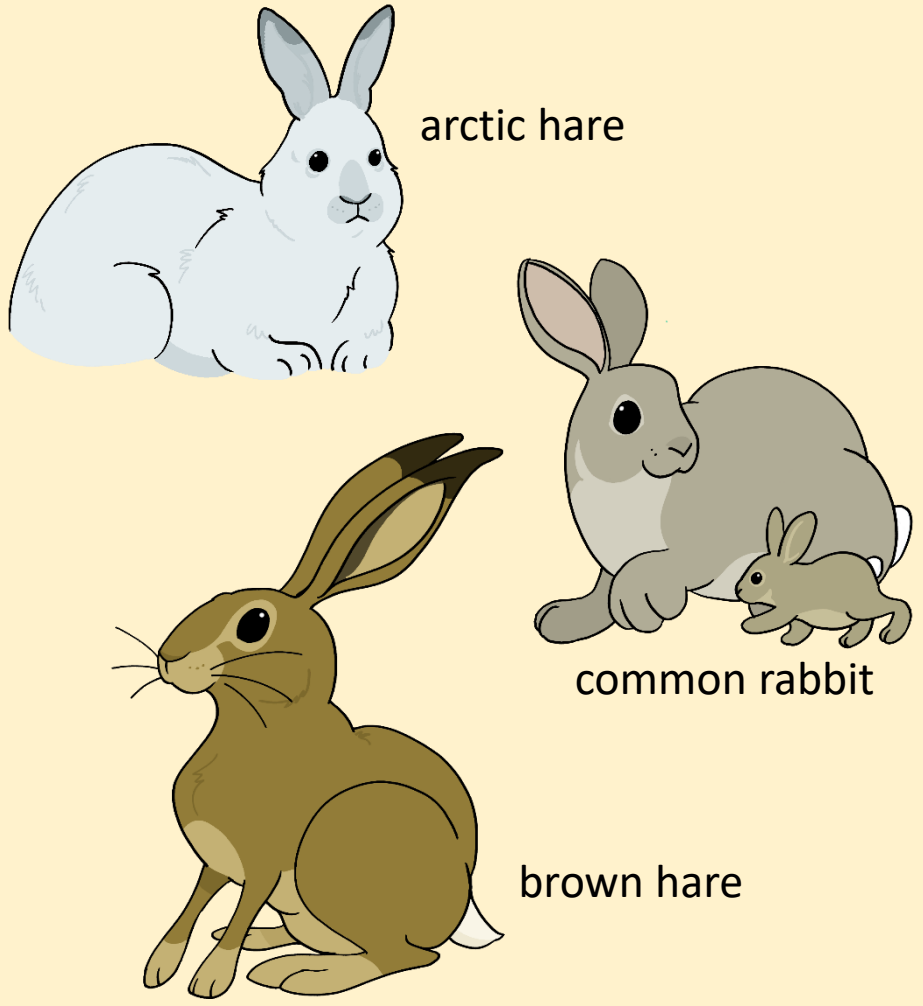
THE SPECIES SUPERMARKET

- Just like a supermarket with various sections, we place living things together because of features they share, for example…



THE SPECIES SUPERMARKET

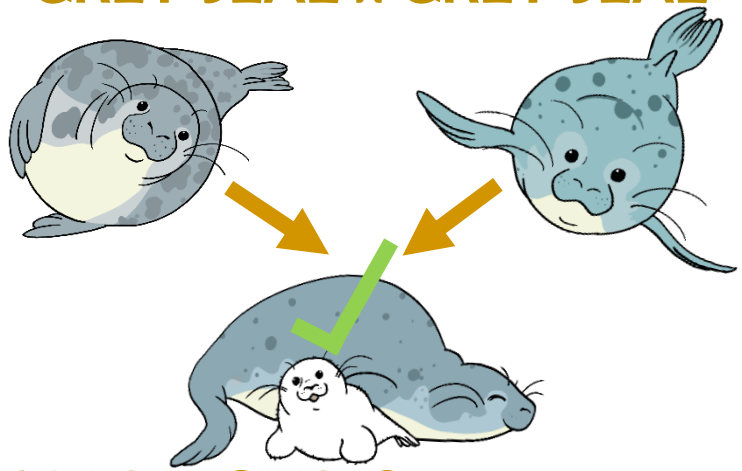
- A **species** is a **spec**ial, **spec**ific type of living thing.
- e.g. There are many **furry animals**. Of these, some have **long ears**. Some of these have big, **flat shaped teeth** and **long rear legs**…
- Despite being related, they possess **unique features** and so given a **special name.**
- These are a referred to as a **species**.



THE SPECIES SUPERMARKET

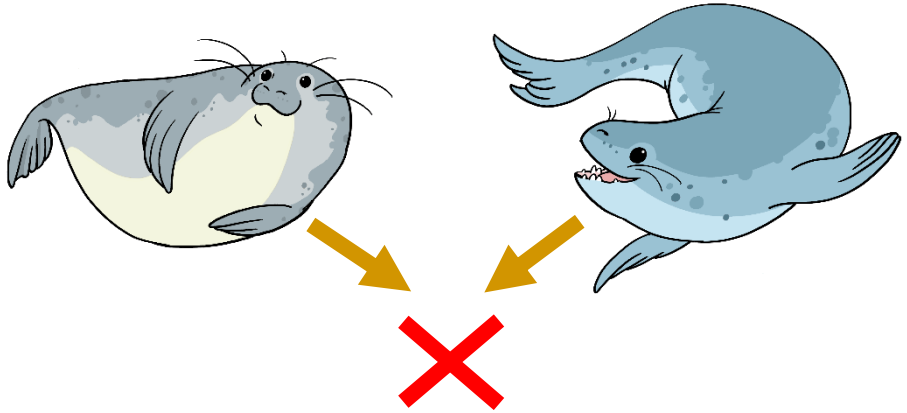
- Species are so alike, that they can **reproduce** and have **offspring**.
- These offspring are also able to **reproduce**.

GREY SEAL x GREY SEAL



SAME SPECIES: Grey seals are so alike, they can make new grey seals.

GREY SEAL x LEOPARD SEAL

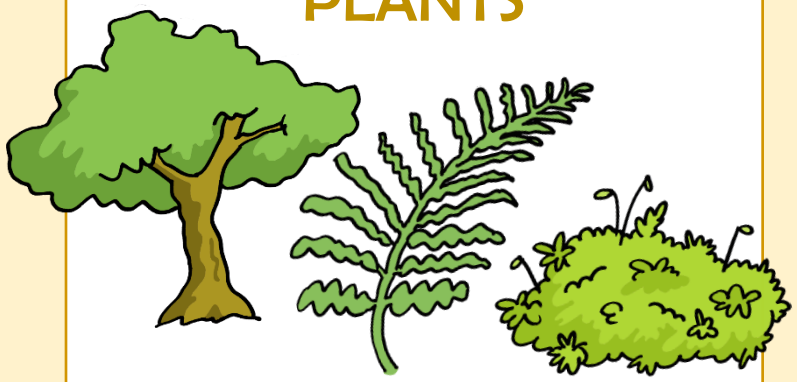


DIFFERENT SPECIES: Whilst similar, they are unable to create offspring.

KINGDOMS OF LIFE

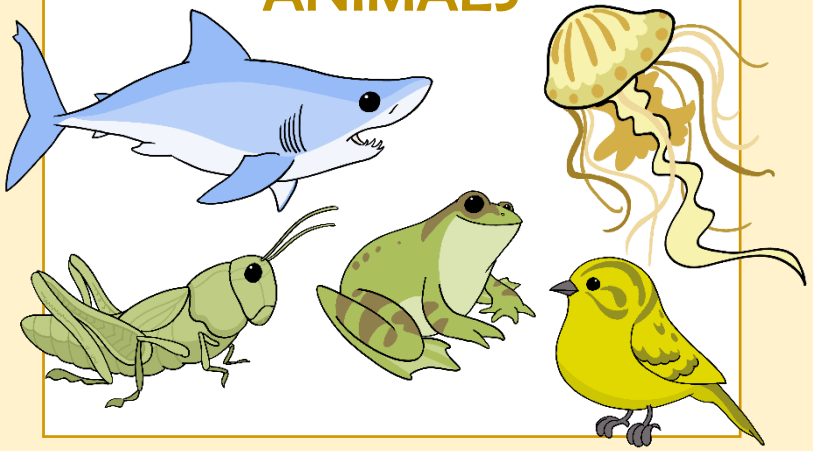
The first step in classifying an organism is to establish which of six **KINGDOMS** it belongs to based on structure/ characteristics.

PLANTS



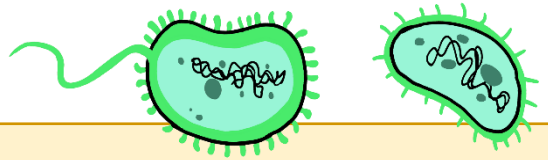
FUNGI

ANIMALS



PROTISTS

BACTERIA



ANCIENT BACTERIA

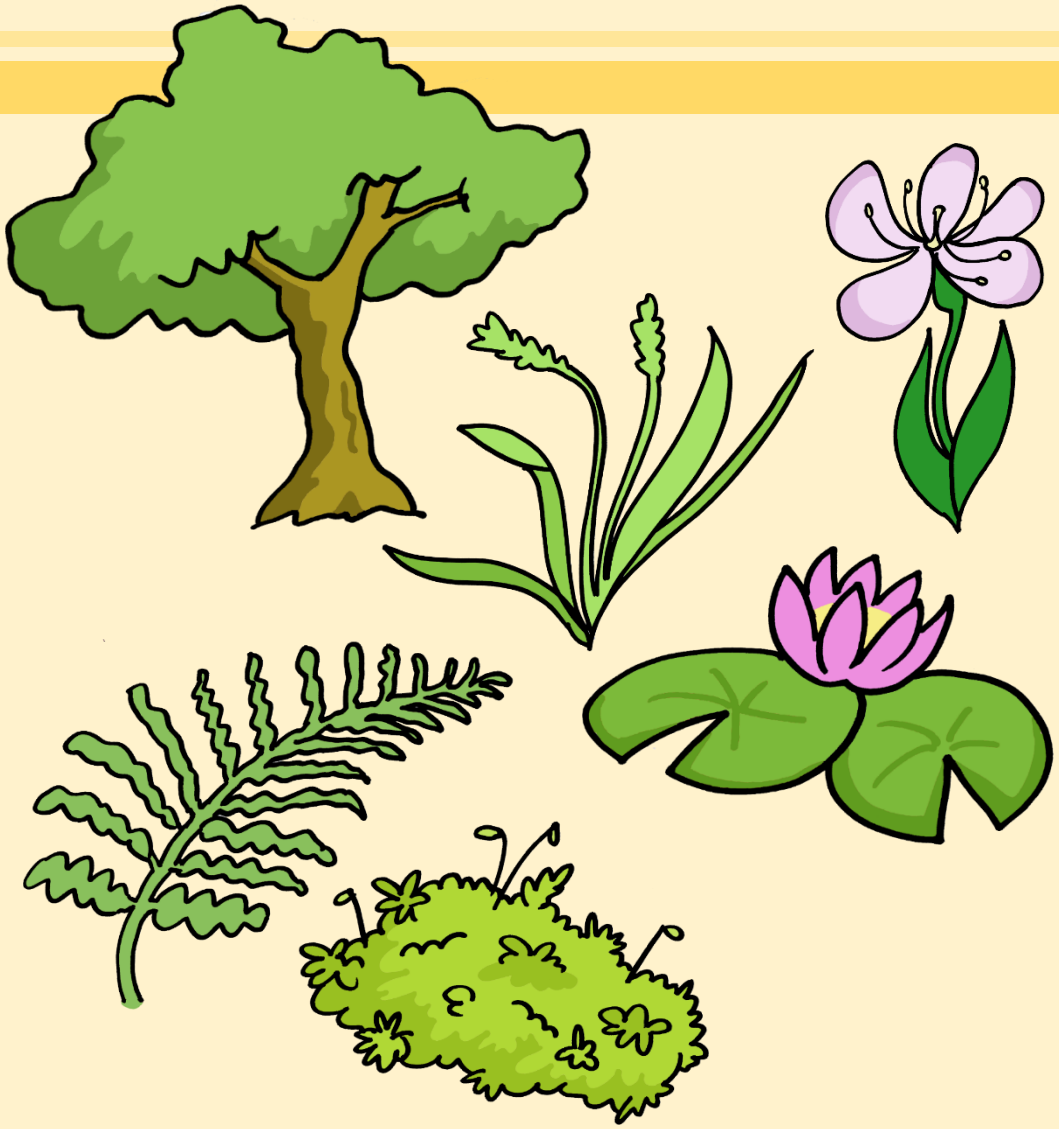
FUNGI

- Fungi include organisms we refer to as **mushrooms**, **moulds** and **yeasts**.
- They **absorb nutrients** in to their cells. These form wide networks of thin, thread-like filaments (**hyphae**).
- Their **cell walls** are made of **chitin**.
- They **reproduce** by creating tiny **spores***.

*Whilst the hyphae are the main structure of the fungi, fruiting bodies we know as mushrooms are produced to create and disperse spores.

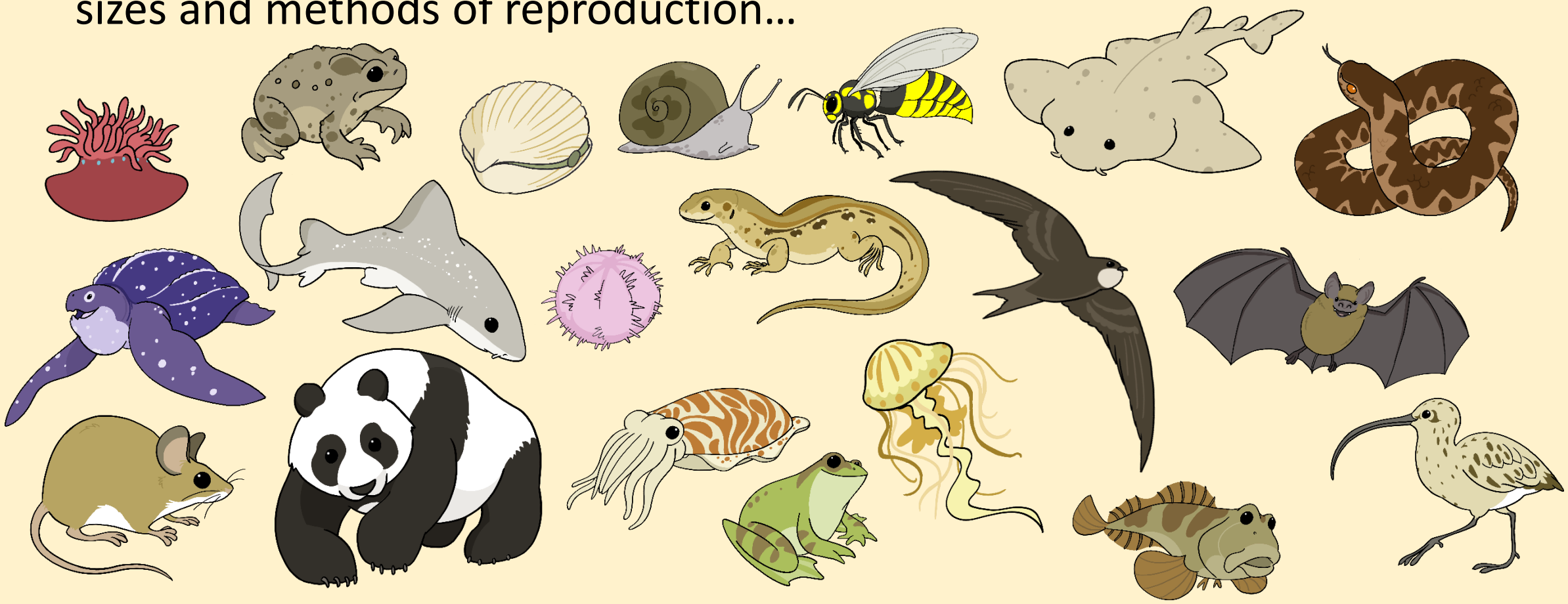
PLANTS

- This kingdom includes the **ferns, mosses, conifers** and **flowering plants**.
- Plants produce their own sugar using **photosynthesis** which uses **carbon dioxide** and creates **oxygen**.
- They have cell walls made of **cellulose**.
- There are various methods of reproduction which include forms of cloning, seeds and spores.



ANIMALS

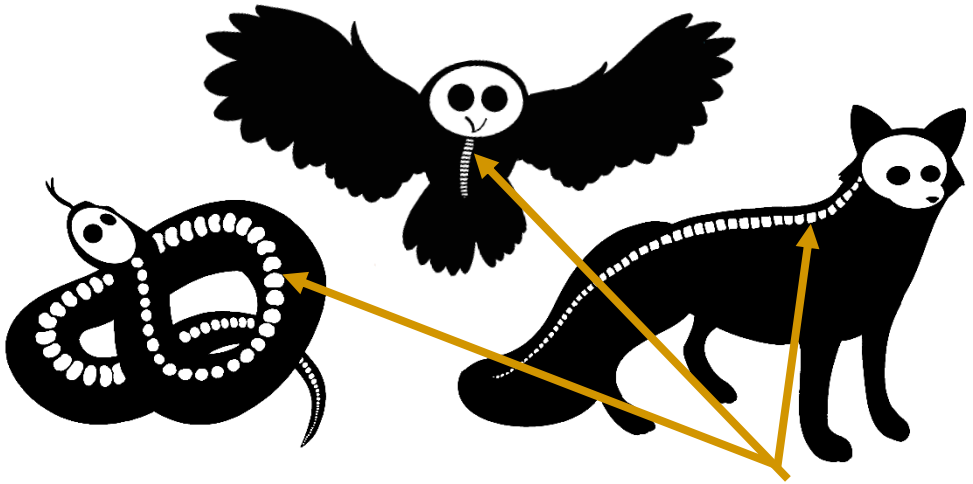
The animal kingdom is incredibly diverse with vastly different shapes, sizes and methods of reproduction…



CLASSIFYING ANIMALS

We first need to establish if they **have** or **lack** a **spinal cord** or "**backbone**" (not a single bone, but a column of bones called vertebrae)

VERTEBRATES

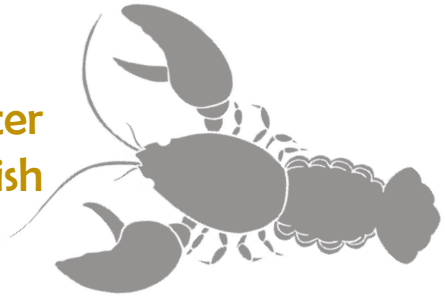


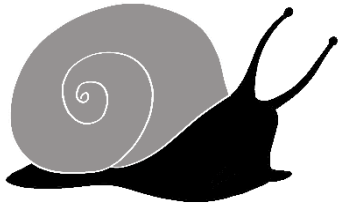
Have an internal skeleton with a vertebral column protecting a spinal cord

INVERTEBRATES

Some are soft-bodied with no hard parts e.g. worm

Some have an ridged outer "exo-skeleton" e.g. crayfish

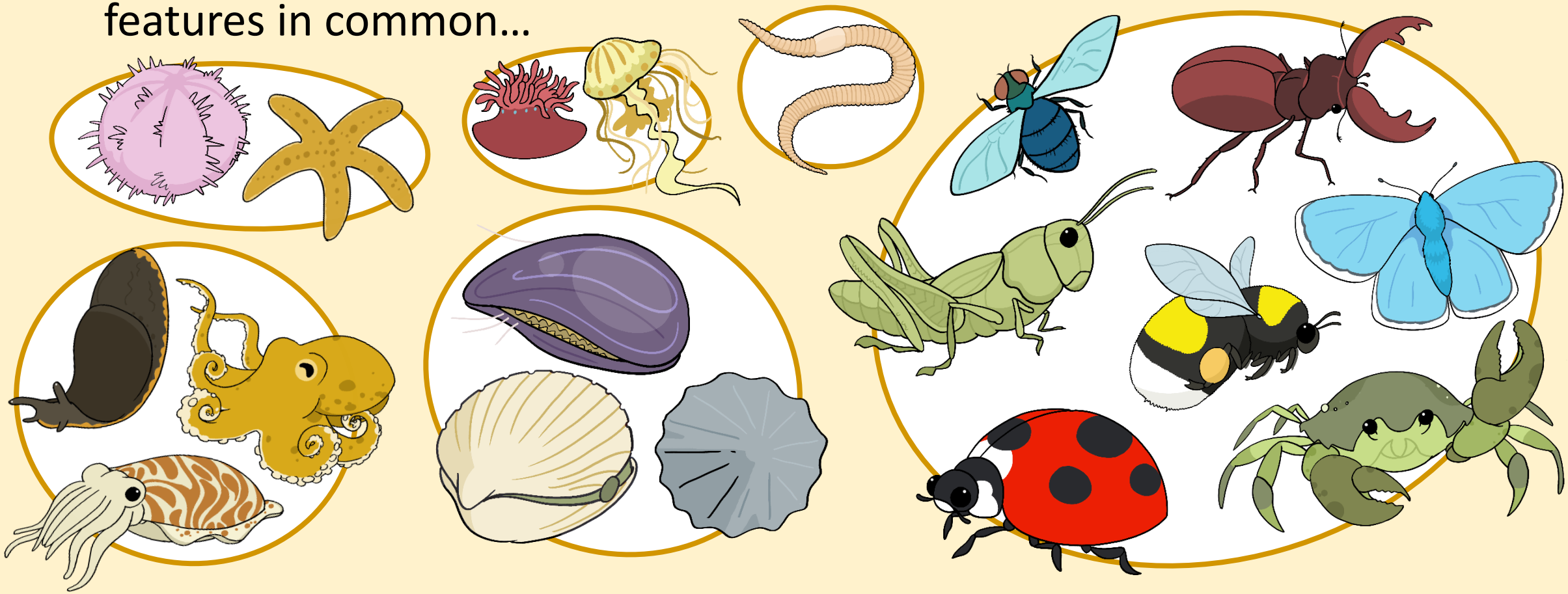




May have a soft body with a protective shell e.g. snail

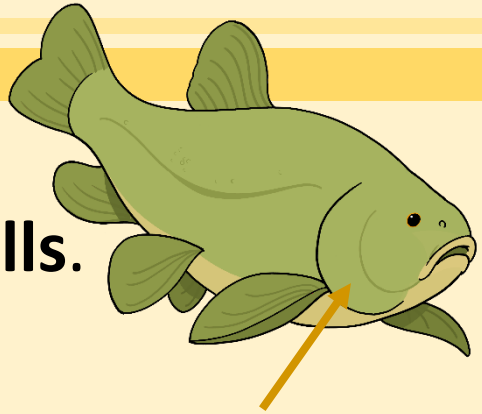
INVERTEBRATES

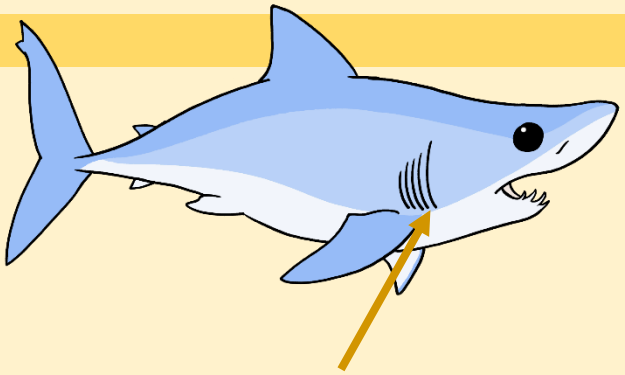
- Within the invertebrates there are some big groups, all with particular features in common…



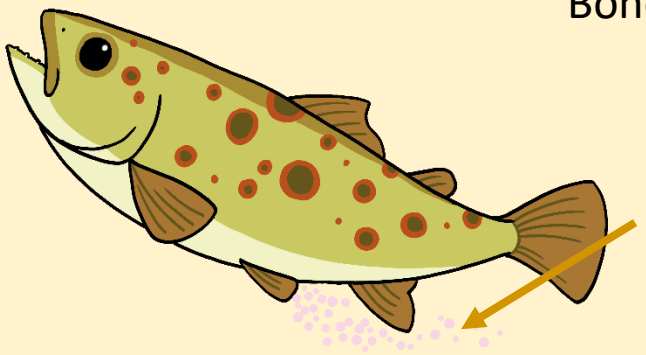
VERTEBRATES: FISH

Fish are **aquatic** and gain **oxygen** from water using **gills**.



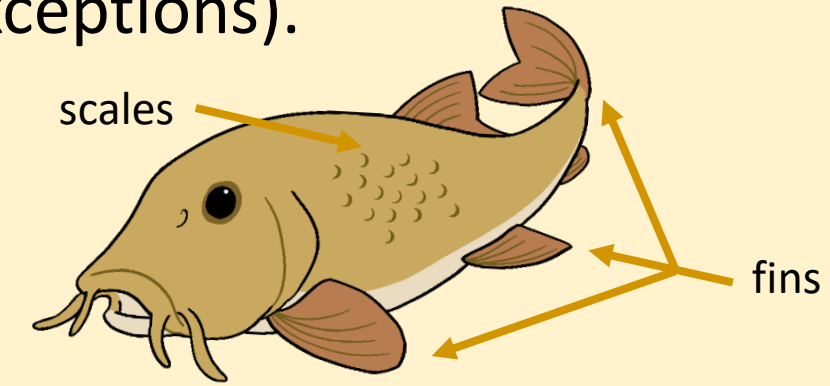


Boney fish have **gill covers**. There are between 5 and 7 **gill slits** in sharks.



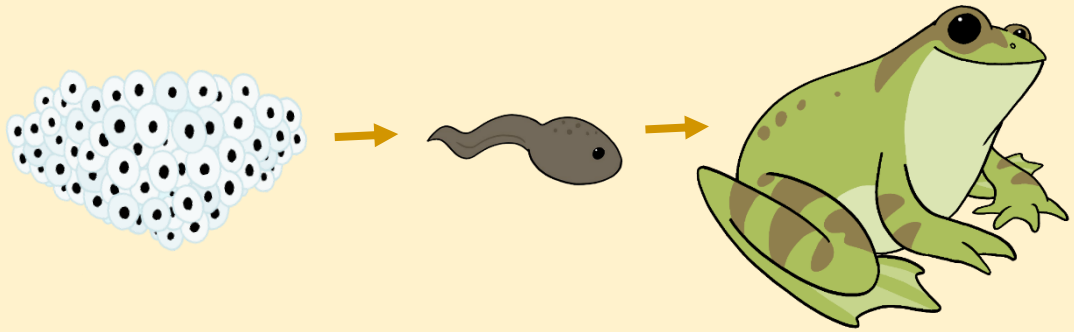
Fish **reproduce** *mostly* by laying **eggs** outside of the body (with some exceptions).

Their skin is covered in **scales** and they move using **fins**.

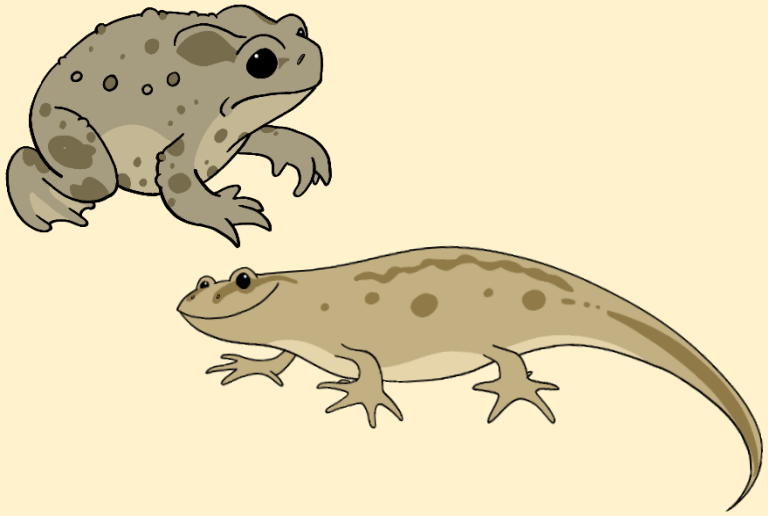


VERTEBRATES: AMPHIBIANS

Amphibians lay **jelly-like eggs** in **water** that undergo a larval stage that has gills. They transform into an adult form that breathes with lungs (e.g. tadpole to frog).



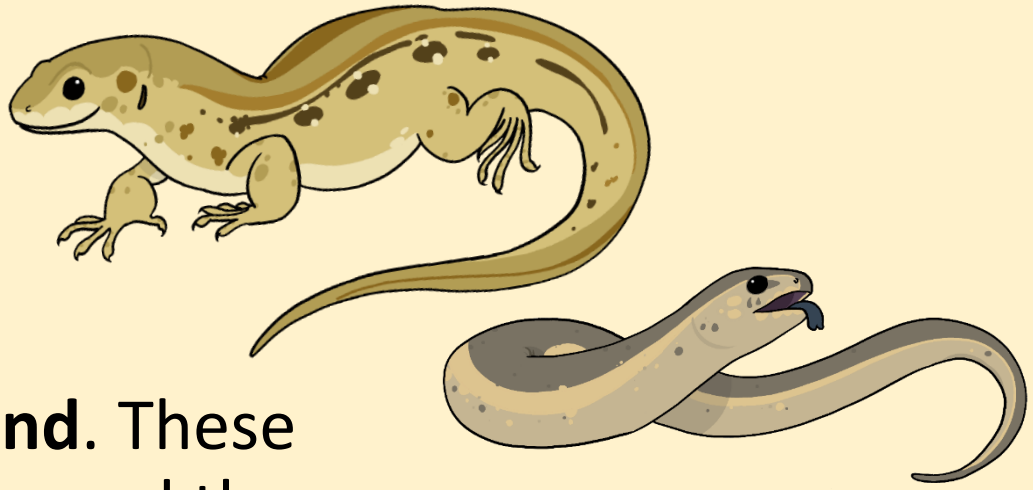
The process of change is known as **metamorphosis.**

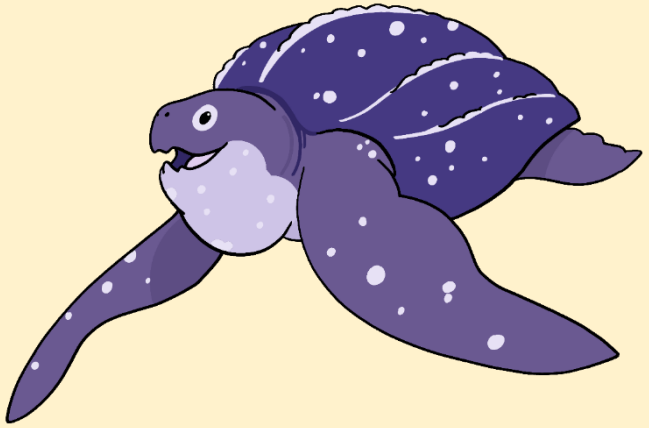


Amphibians have **thin skin** and are **cold-blooded**, so their body temperature relies upon their surroundings.
They include toads, newts and frogs.

VERTEBRATES: REPTILES

Reptiles have **skin** covered in **scales**, allowing them to cope with dry conditions. They have **teeth** and **claws**.





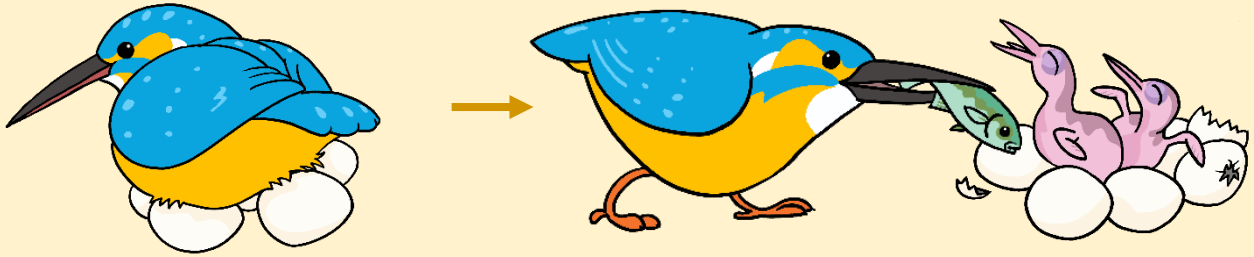
Reptiles lay **eggs on land**. These have a **leathery** coating and the young hatch as small versions of their parents.

These **cold-blooded** vertebrates include **lizards**, **snakes**, **crocodiles**, **turtles** and **chameleons**.

VERTEBRATES: BIRDS

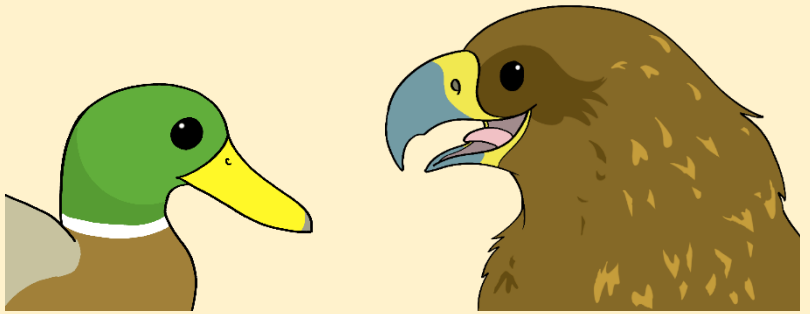
Birds have skin covered in **feathers** and have **wings** that are typically used for **flight**.

Feathers allow them to maintain a **steady body temperatur**e (known as **warm-blooded**)



Hard-shelled eggs are laid and young receive **parental care**.

Birds lack teeth but have **beaks** which vary in shape depending on their function.



VERTEBRATES: MAMMALS

Mammals are mostly covered in **hair** and are **warm blooded**.

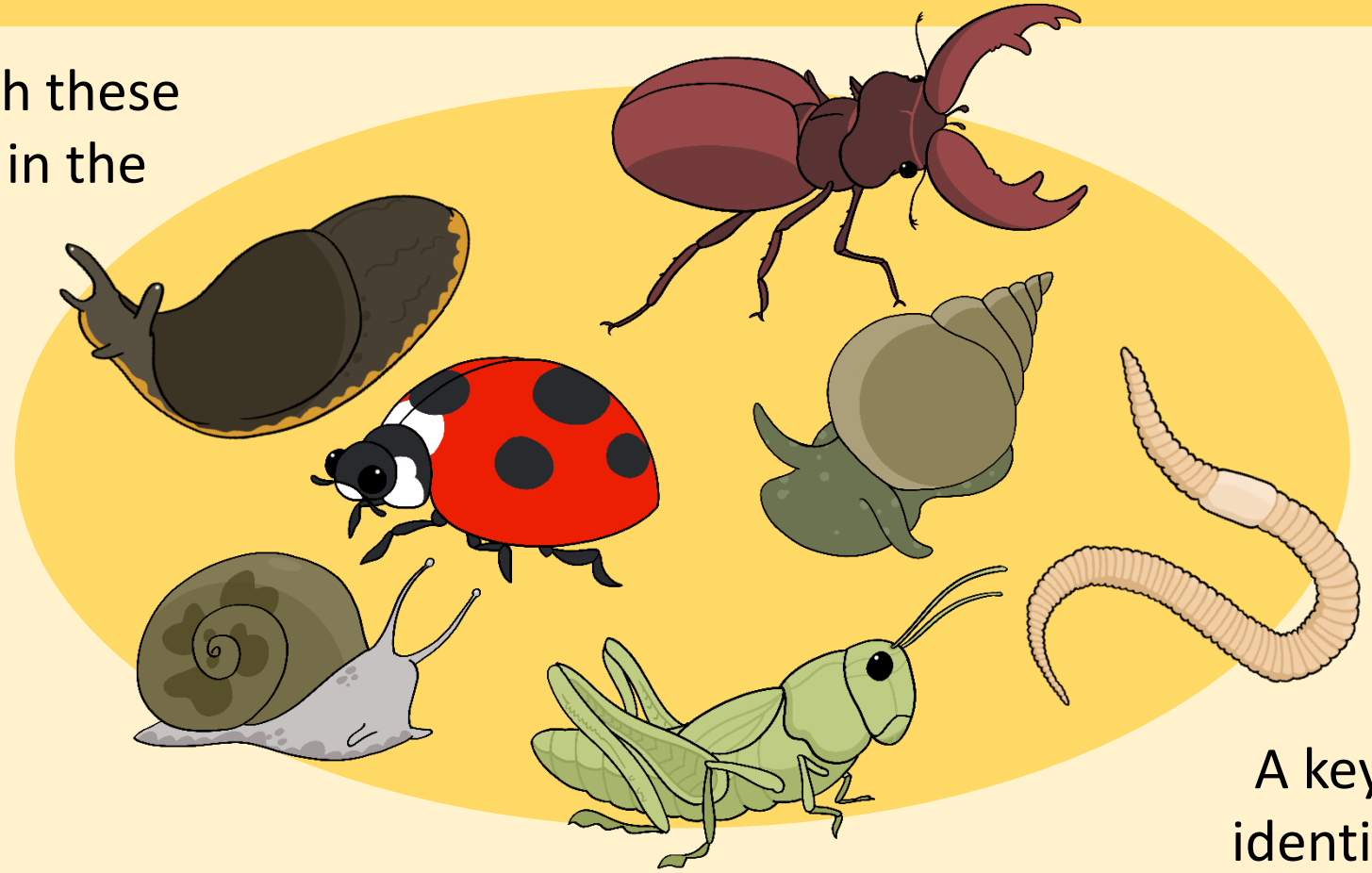
They mostly have **external ears**
(although not all e.g. dolphins and whales)

Mammals mostly give birth to **live young**.

Females feed their young **milk** from **mammary glands**.

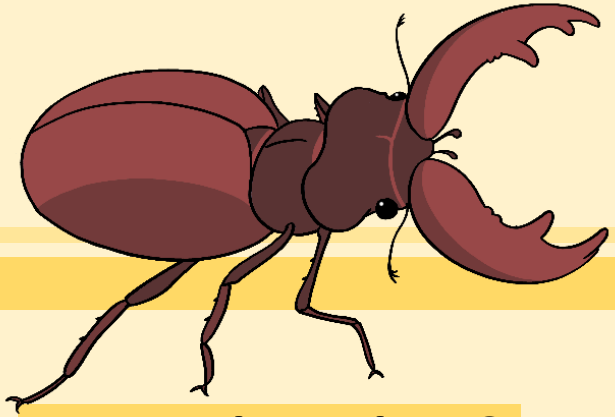
USING A KEY

We could catch these **invertebrates** in the garden…



A key can be used to identify each species.

USING A KEY



Does it have legs?

YES NO

Does it have long back legs?

YES NO

GRASSHOPPER

Is it spotted?

YES NO

LADYBIRD STAG BEETLE

Does it have a shell?

YES NO

Is the shell pointed?

YES NO

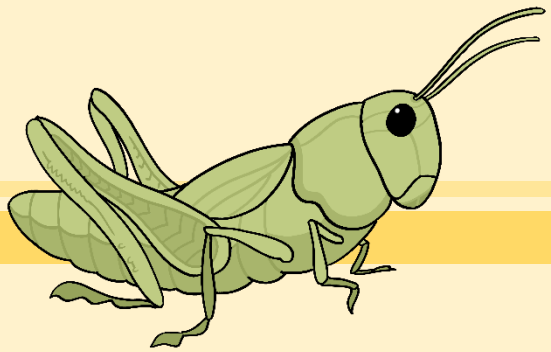
POND SNAIL GARDEN SNAIL

Does it have antennae?

YES NO

GARDEN SNAIL WORM

USING A KEY



Does it have legs?

YES NO

Does it have long back legs?

YES NO

GRASSHOPPER

Is it spotted?

YES NO

LADYBIRD STAG BEETLE

Does it have a shell?

YES NO

Is the shell pointed?

YES NO

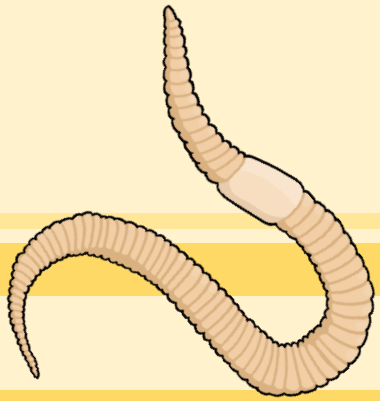
POND SNAIL GARDEN SNAIL

Does it have antennae?

YES NO

GARDEN SNAIL WORM

USING A KEY



Does it have legs?

YES NO

Does it have long back legs?

YES NO

GRASSHOPPER

Is it spotted?

YES NO

LADYBIRD STAG BEETLE

Does it have a shell?

YES NO

Is the shell pointed?

YES NO

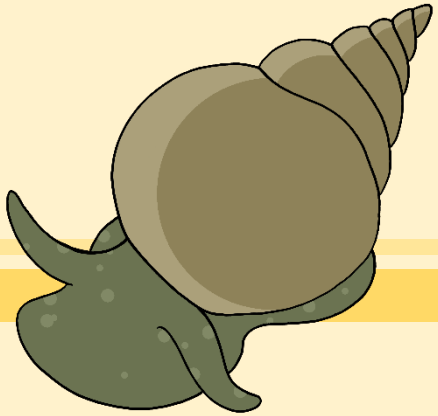
POND SNAIL GARDEN SNAIL

Does it have antennae?

YES NO

GARDEN SNAIL WORM

USING A KEY



Does it have legs?

YES NO

Does it have long back legs?

YES NO

GRASSHOPPER

Is it spotted?

YES NO

LADYBIRD STAG BEETLE

Does it have a shell?

YES NO

Is the shell pointed?

YES NO

POND SNAIL GARDEN SNAIL

Does it have antennae?

YES NO

GARDEN SNAIL WORM

USING A KEY

Does it have legs?

YES NO

Does it have long back legs?

YES NO

GRASSHOPPER

Is it spotted?

YES NO

LADYBIRD STAG BEETLE

Does it have a shell?

YES NO

Is the shell pointed?

YES NO

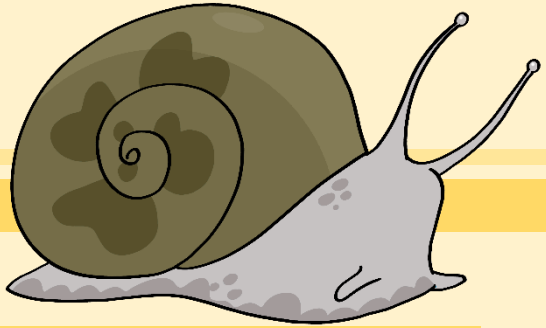
POND SNAIL GARDEN SNAIL

Does it have antennae?

YES NO

GARDEN SNAIL WORM

USING A KEY



Does it have legs?

YES NO

Does it have long back legs?

YES NO

GRASSHOPPER

Is it spotted?

YES NO

LADYBIRD STAG BEETLE

Does it have a shell?

YES NO

Is the shell pointed?

YES NO

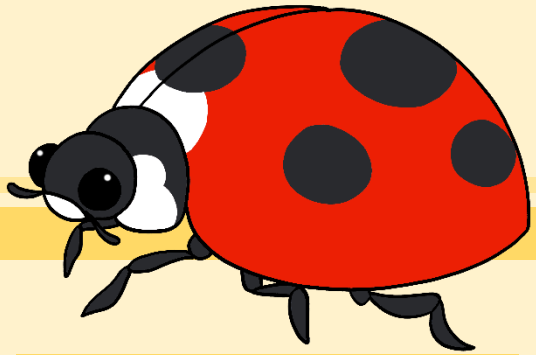
POND SNAIL GARDEN SNAIL

Does it have antennae?

YES NO

GARDEN SNAIL WORM

USING A KEY



Does it have legs?

YES — NO

Does it have long back legs?

YES — NO

GRASSHOPPER

Is it spotted?

YES — NO

LADYBIRD

STAG BEETLE

Does it have a shell?

YES — NO

Is the shell pointed?

YES — NO

POND SNAIL

GARDEN SNAIL

Does it have antennae?

YES — NO

GARDEN SNAIL

WORM