



# Science

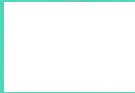
Living Things and Their Habitats





flamingo  
vertebrate  
bird  
feathers

# Classifying Vertebrates



# Aim

- I can generate questions to use in a classification key.
- I can identify vertebrates by observing their similarities and differences.

# Success Criteria

- I can generate questions about animals.
- I can use questions to sort animals in a key.
- I can see similarities and differences between vertebrates.
- I can use these to identify vertebrate groups.



# Classification

Scientists think that there are 7.77 million species of animals in the world, living on the land, in the sky and in the sea.

We have discovered and named about 1.4 million of these... which means that over 6 million species of animal are yet to be discovered!



We have already discovered:

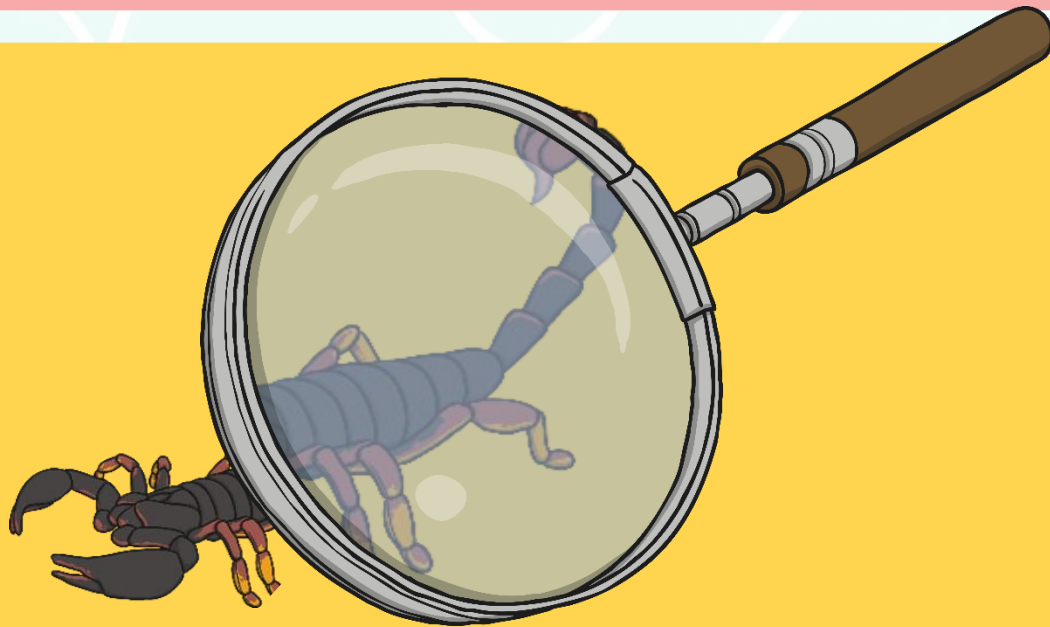
- 5500** species of mammal
- 10 400** species of bird
- 10 000** species of reptile
- 7300** species of amphibian
- 33 000** species of fish
- 1 305 000** kinds of invertebrate

Which kind of creature are we?



# Classification

When scientists discover a new animal, they give it a name and record everything they know about it.



What kind of information do you think they will record?



# Classification

*Hadogenes troglodytes*  
(Peters, 1861)

Latin name

Who discovered it and when

## **Common names:**

Often known as South African rock scorpion or the flat rock scorpion.

## **Distribution:**

Africa (Botswana, Mozambique, South Africa, Zimbabwe).

## **Habitat:**

Lives in dry bushveld habitats in rocky areas.

## **Appearance:**

These scorpions have very elongated, flattened bodies and powerful claws.

## **Venom:**

This species has a mild venom. It will rarely sting, and usually defends itself by using the powerful claws.



# Classification

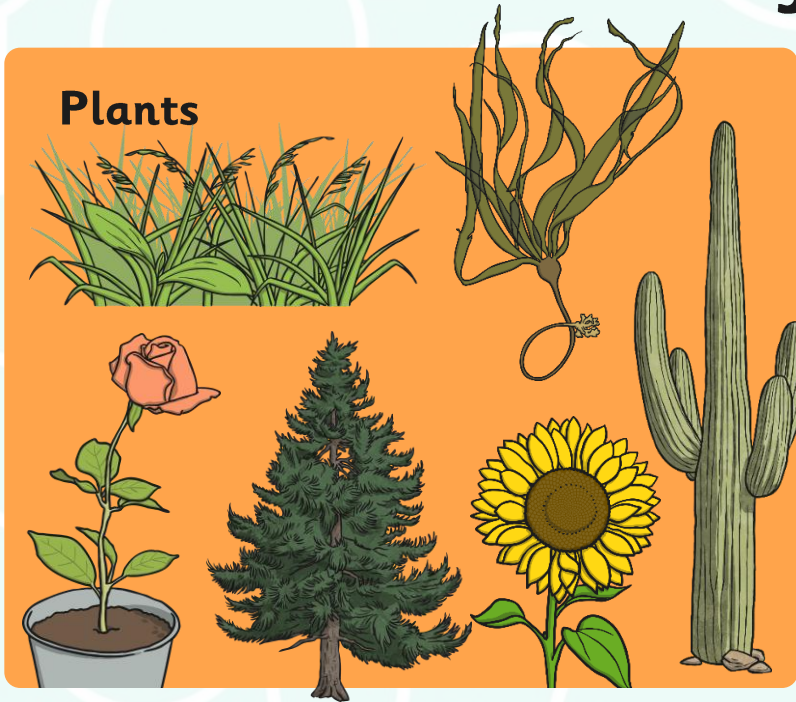
With so many living things to make records of, and so many yet to discover, it is important that we have a system to organise and make sense of the information we have about them.

We organise living things into groups based on their similarities and differences, so that we can learn more about what makes each species unique. The differences between living things is sometimes called **variation**.



# Classification

## Plants



## Animals



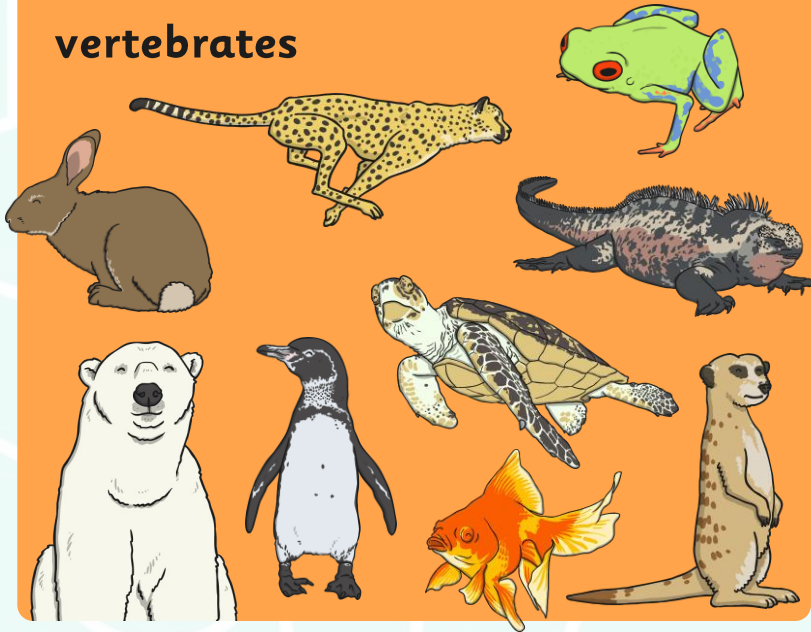
It is easy to sort most of the living things we can see in the world into two groups: plants and animals.

Plants and animals share life processes, but they do them very differently. Can you remember some of the differences between plants and animals?

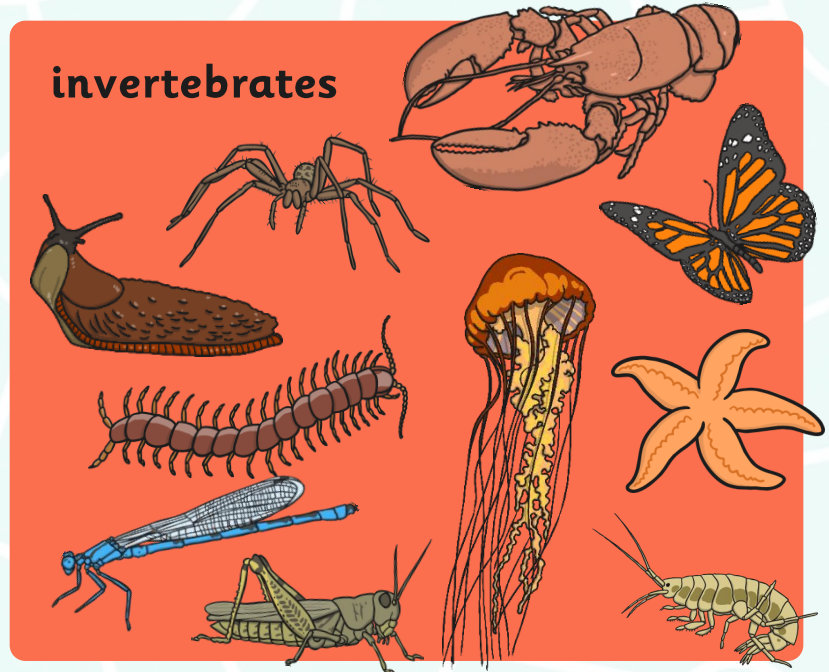


# Animal Groups

## vertebrates



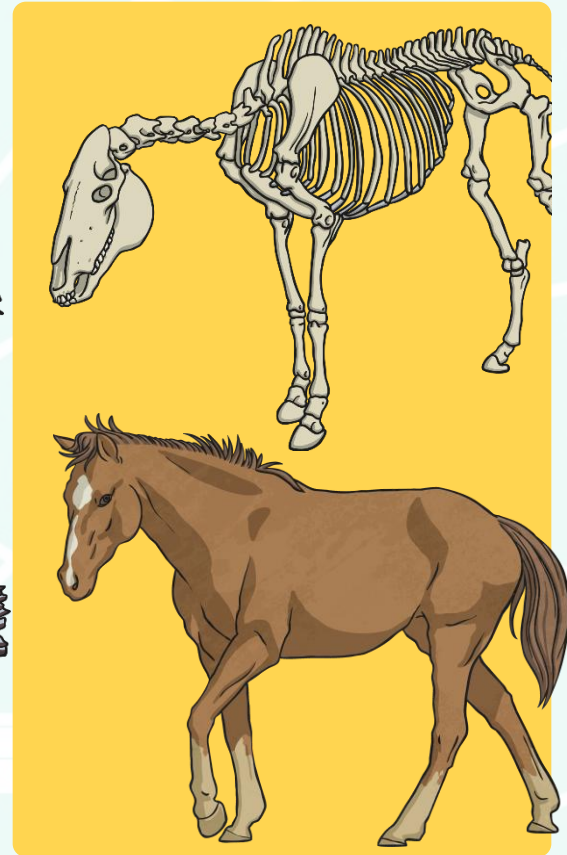
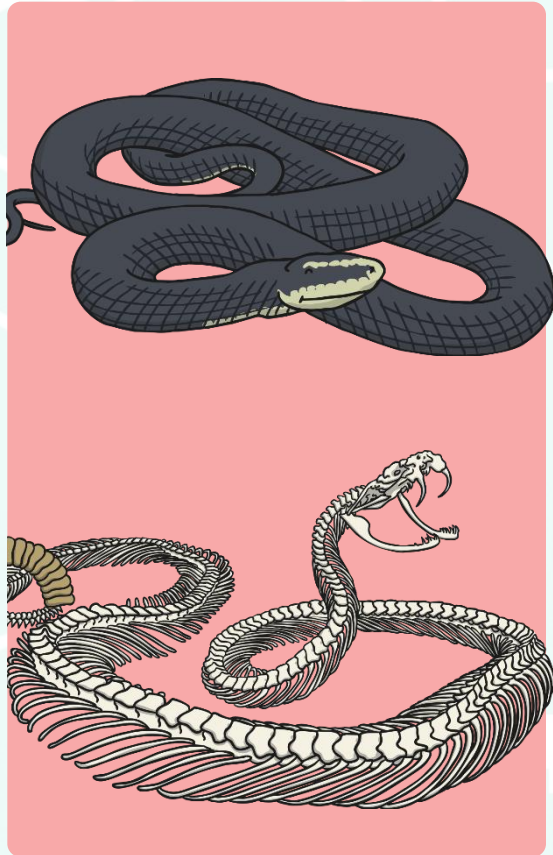
## invertebrates



When looking at animals, scientists usually split them into two groups: **vertebrates** (animals **with** a backbone) and **invertebrates** (animals **without** a backbone).

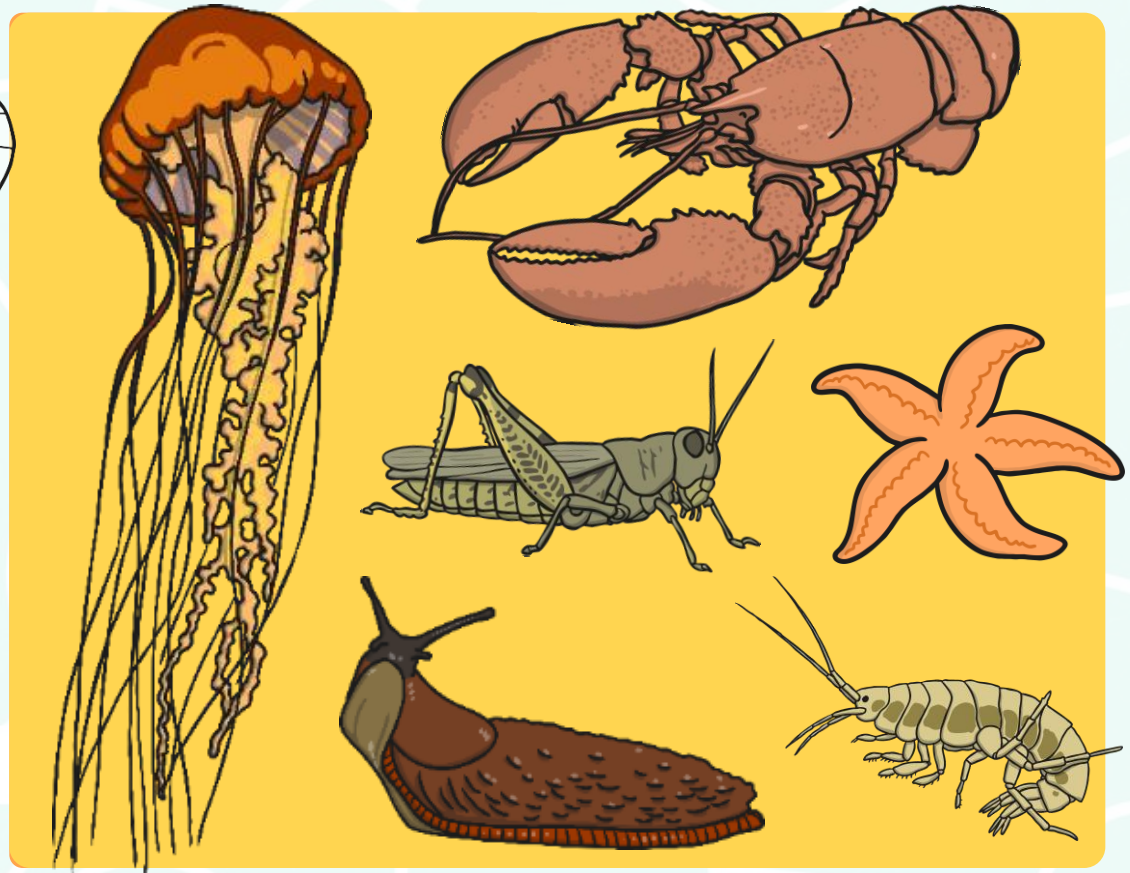
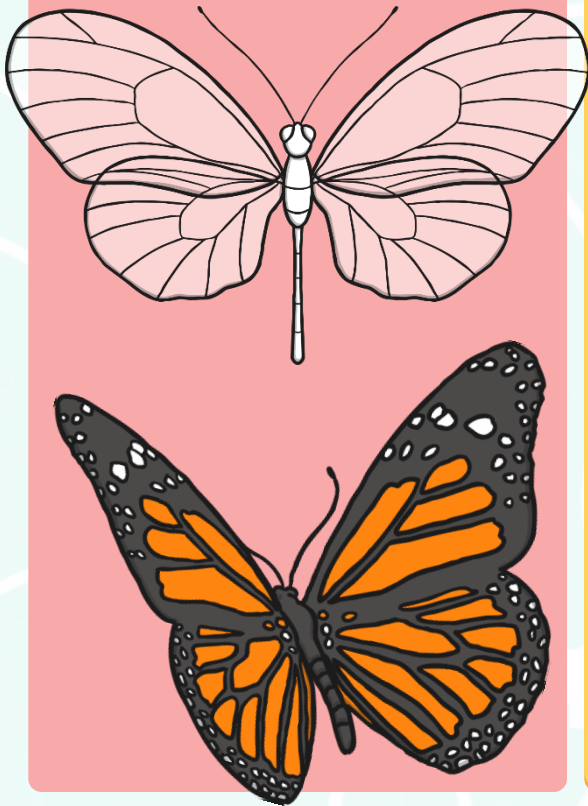
# Animal Groups: Vertebrates

Vertebrates are animals with a backbone. They have a hard skeleton made of bone. It holds their body up and gives them shape.



# Animal Groups: Invertebrates

Invertebrates do not have a backbone, or a skeleton made of bones. Many have a hard shell outside their bodies to protect them. Others have soft, flexible bodies.

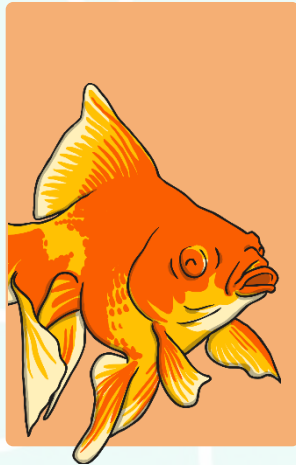


# Animal Groups

Vertebrates can be separated into five broad groups:



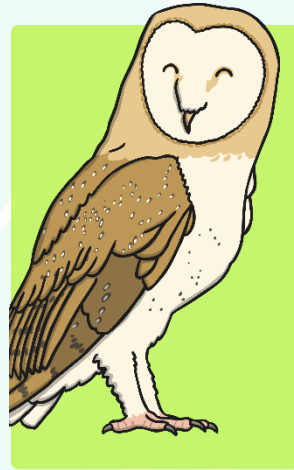
mammal



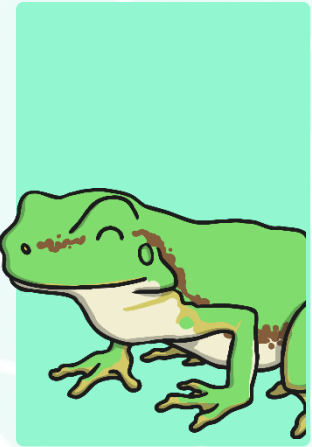
fish



reptile



bird



amphibian

# Mammals

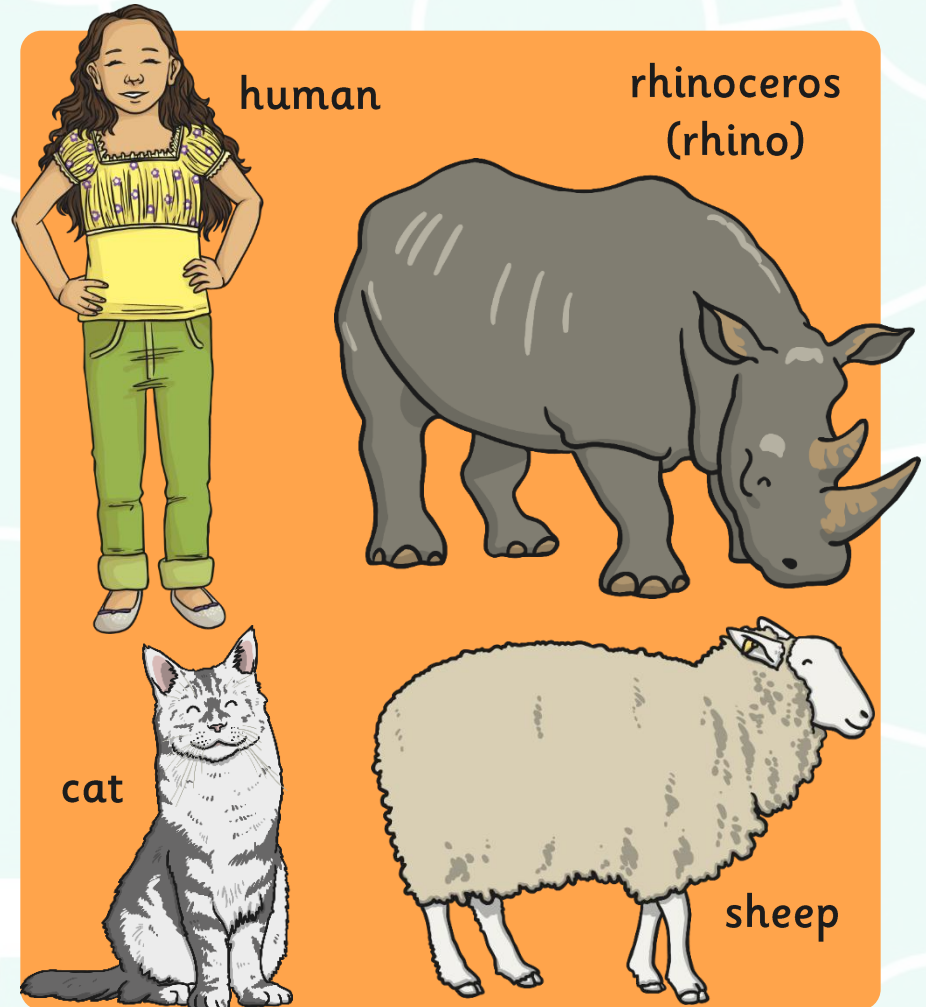
Mammals have warm blood, and have hair or fur on their bodies.

Mammal babies are born alive.

The mothers feed their babies milk.

What do animals of this kind have in common?

Can you think of any differences between them?



# Amphibians

Amphibians live on land  
and in water.

They are cold-blooded.

They have gills when they  
are young.

They have smooth skin.

They lay their eggs in water.

What do animals of this  
kind have in common?

Can you think of any  
differences between them?



# Birds

Birds have a beak, wings,  
feathers and 2 legs.  
They lay eggs on land.  
They have warm blood.



peacock



penguin



owl



chicken

What do animals of this  
kind have in common?  
Can you think of any  
differences between them?

# Fish

Fish live in water.

They have fins instead of legs and gills instead of lungs.

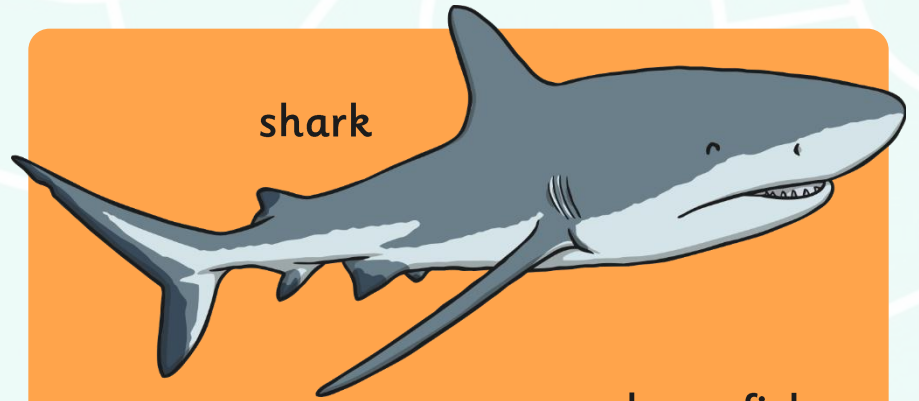
They lay their eggs in water.

They have cold blood and scaly skin.

What do animals of this kind have in common?

Can you think of any differences between them?

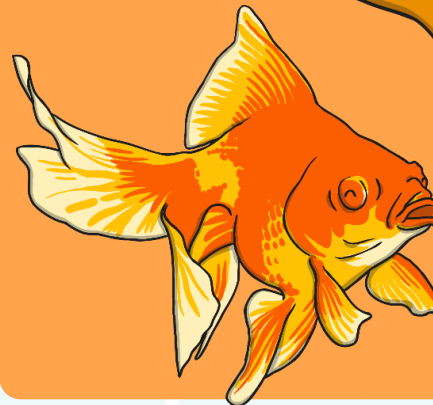
shark



clown fish



goldfish



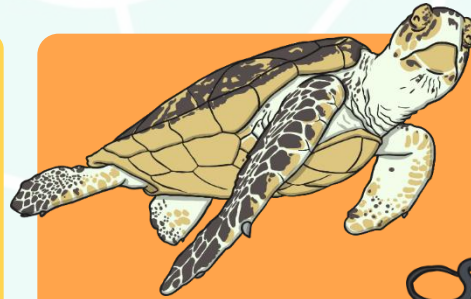


# Reptiles

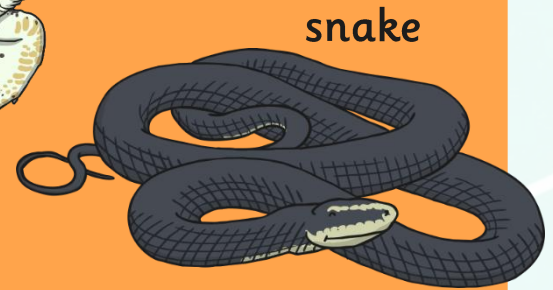
Some reptiles live on land, and some in water. They have lungs that breathe air.

They have scales and are cold-blooded.

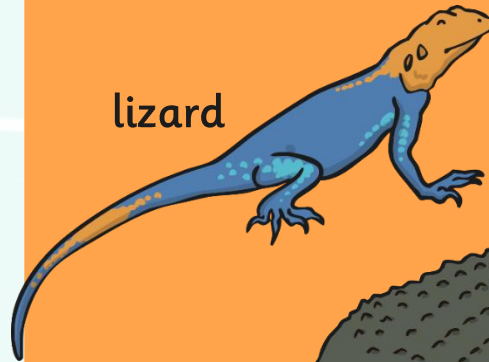
They lay their eggs on land.



turtle



snake



lizard



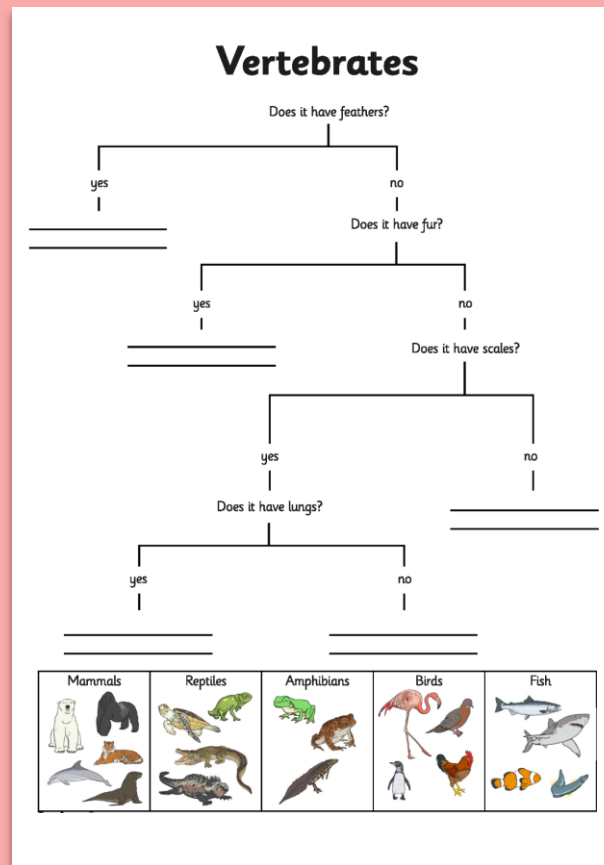
alligator

What do animals of this kind have in common?

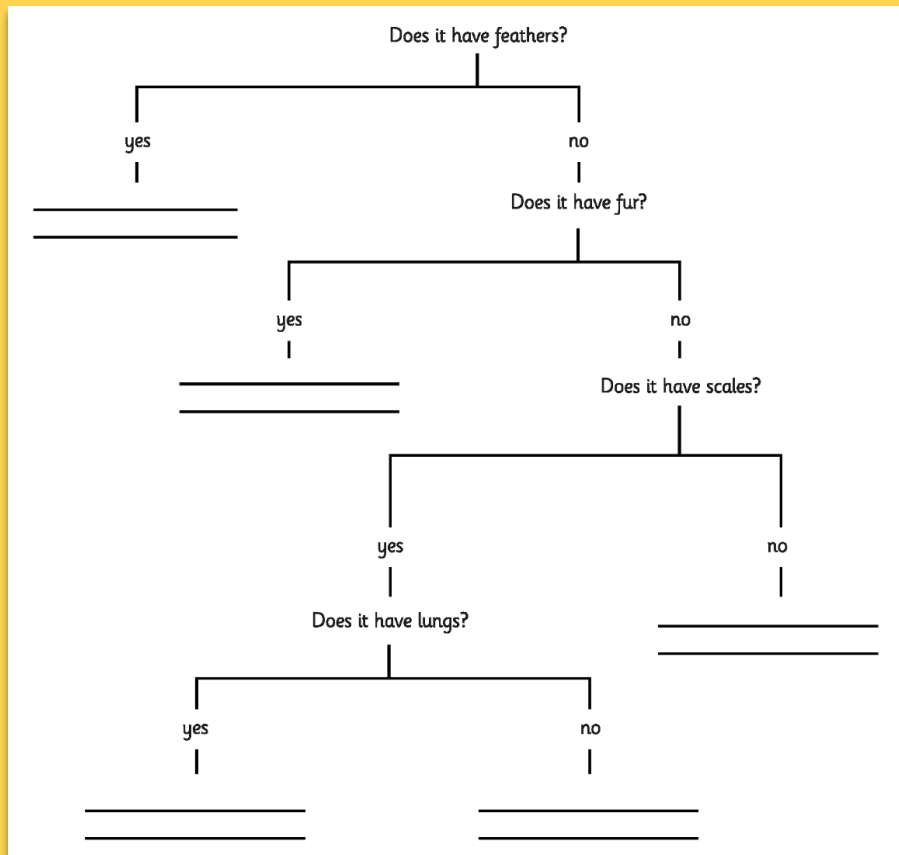
Can you think of any differences between them?



# Vertebrates Activity Sheet



# Classification Keys



The activity you have just done uses a kind of classification key.

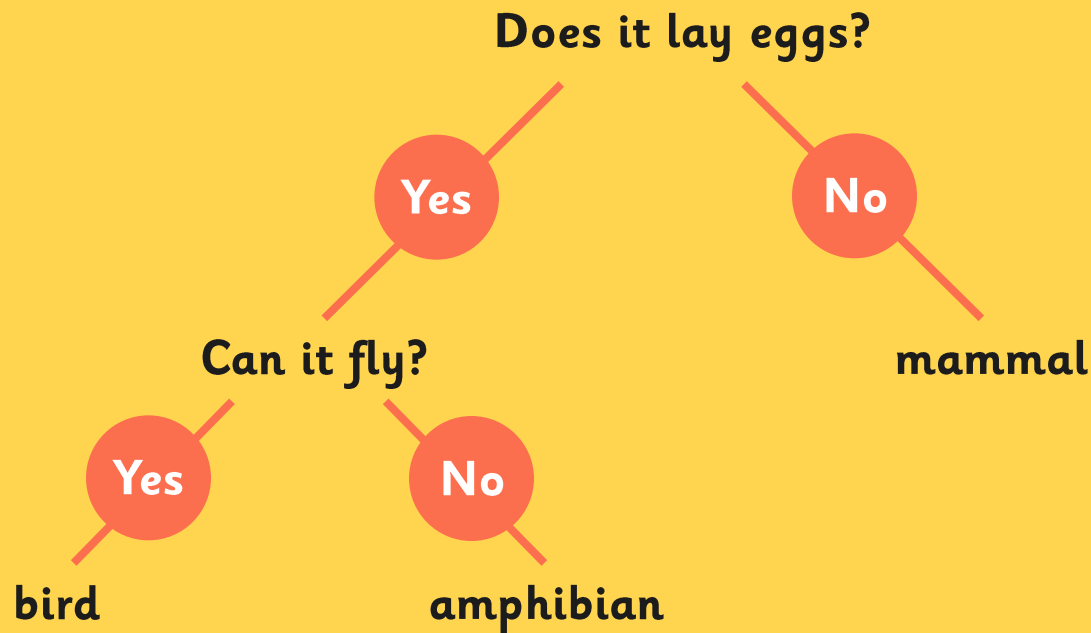
Classification keys are a way of identifying living things through a series of questions based on their similarities and differences.

For example: 'Does it lay eggs?'



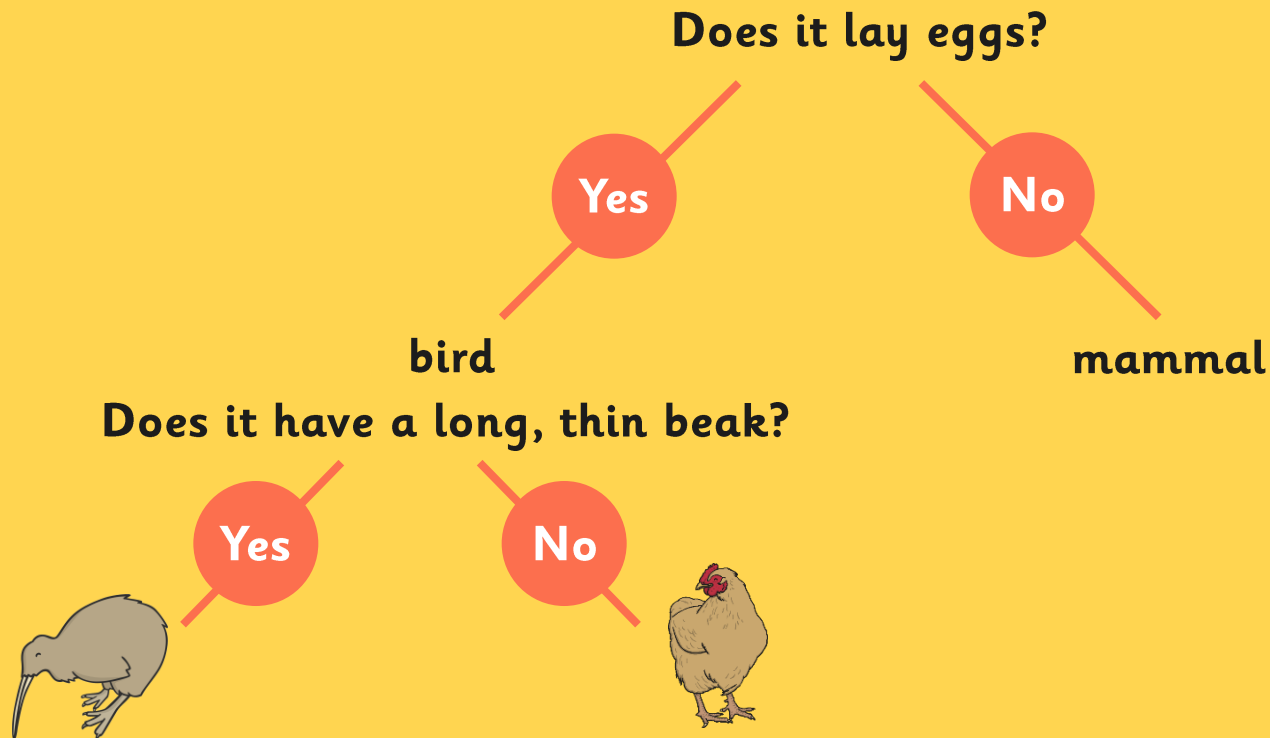
# Classification Keys

Each question has a yes or no answer and leads you one step closer to the name of a living thing.



# Classification Keys

The questions start out very general at the beginning of the key as they help you sort the animals into broad groups.



# Classification Keys



Have a go at making up your own questions for a classification key.

**Key Questions**

Can the animal fly?

```
graph TD
    Q1[Can the animal fly?] -- yes --> B1[ ]
    Q1 -- no --> B2[ ]
    B1 --> Q2[ ]
    B1 --> Q3[ ]
    Q2 -- yes --> Bat[bat]
    Q2 -- no --> Canary[canary]
    B2 --> Q4[ ]
    B2 --> Q5[ ]
    Q4 -- yes --> Tuna[tuna]
    Q4 -- no --> B3[ ]
    B3 --> Q6[ ]
    B3 --> Q7[ ]
    Q6 -- yes --> Turtle[turtle]
    Q6 -- no --> Frog[frog]
```

Can you think of other animals that could fit at the end of the key?



# Twenty Questions



- Split into two teams. Choose a volunteer from the first team.
- The volunteer chooses an animal.
- The other team can ask the volunteer up to twenty questions about the animal but the volunteer can only answer with a 'yes or no'.
- If the other team are able to guess the animal within 20 questions, they win a point.
- If they can't, the volunteer's team wins a point.
- Next, the other team chooses a volunteer.
- The team with the most points after three rounds wins.



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