Living Things and their Habitats

Science Y3/4

Useful links to use throughout the unit

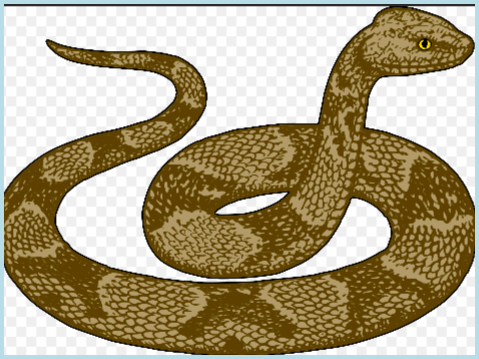
https://www.bbc.co.uk/bitesize/topics/zn22pv4

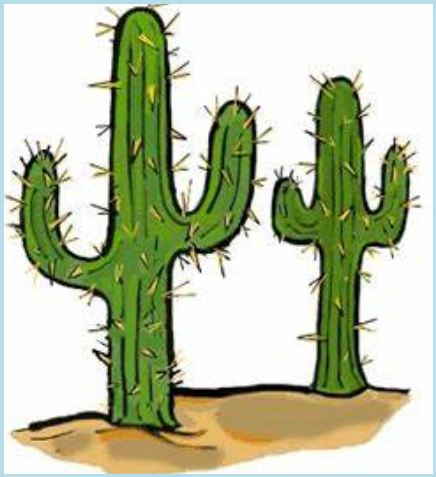
https://www.dkfindout.com/uk/animals-and-nature/invertebrates/

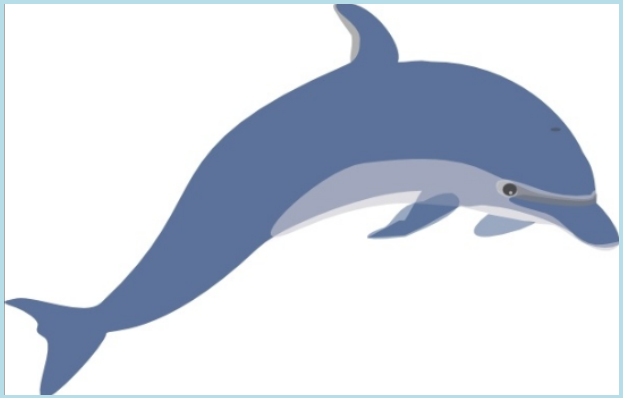
https://www.bbc.co.uk/teach/class-clips-video/science-ks2--ks3-classification-of-organisms/zh7g92p

LESSON 1 –
GROUPING LIVING THINGS

What do all of these have in common?







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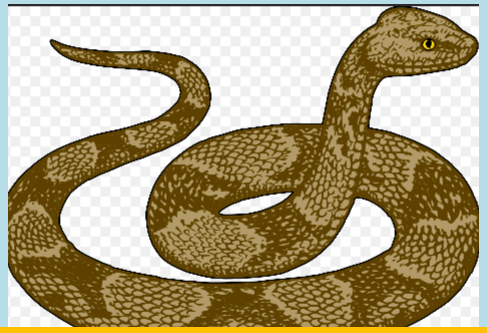
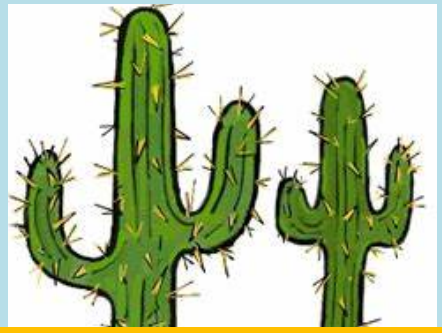
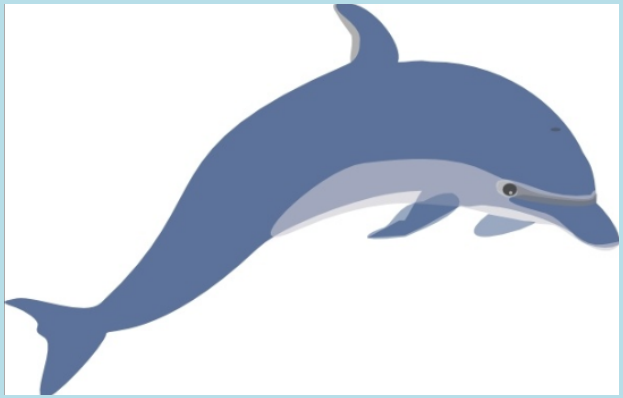




THEY'RE ALL LIVING THINGS



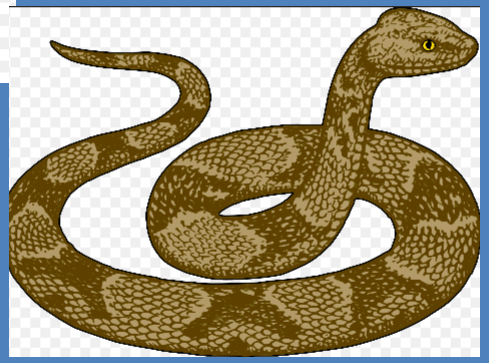
How can we group living things?

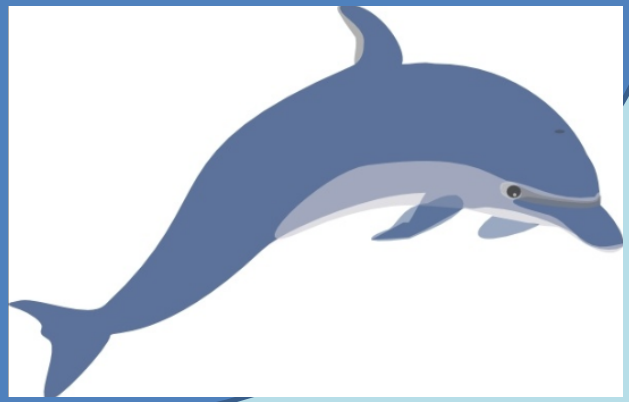
- How many ways can we group living things?
- What questions can you come up with that would sort the living things into different groups?
- Write down as many as you can that would help to sort the groups.

Examples of ways of grouping

Plants

Animals

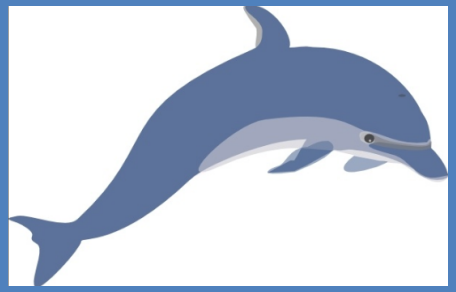




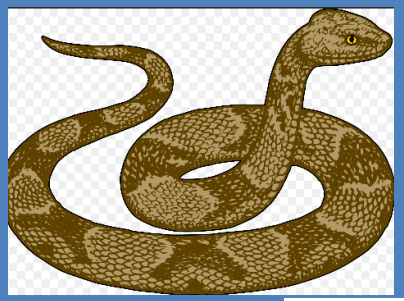
Examples of ways of grouping

Plants

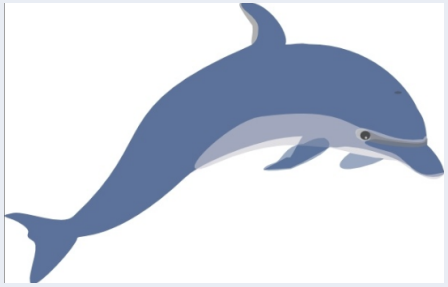
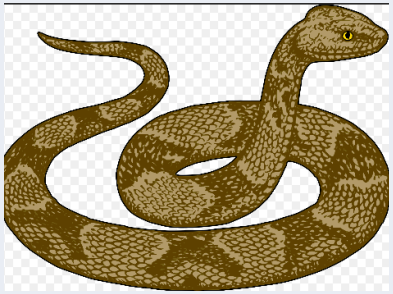
Mammals



Non-Mammals



Another way of grouping

	Lives in water	Lives on land
Has legs	What animal could you put in this box?	
Does not have legs		

Criteria

- We have asked questions to sort living things into groups. These are called criteria.

e.g.

- Plant or animal
- Lives in the sea or does not live in the sea
- Has legs or does not have legs

How many of these criteria can you come up with?

Ideas for you to do

Can you make your own version of slide 6 or 7?

Can you make your own version of slide 8?

Are there any other ways of grouping living things besides the ones you've been shown?

On slide 11 are living things for you to sort however you decide.

How would you sort these living things?

Lemur, shrimp, wolf rabbit, mouse, gorilla, brown bear, gazelle, whale, lion, pangolins, sea lion, koala, elephant, walrus, stingray, gecko, rhino, panda, slug, chameleon, beetle, frog, clownfish, ostrich, crab, emu, crocodile, snail, earthworm, snake, lobster, tortoise, eel, starfish, jellyfish, praying mantis, flamingo swan, mosquito, pigeon, toucan, hummingbird chicken, bee, goose, eagle

LESSON 2 – CLASSIFYING VERTEBRATES

Classification

- In lesson 1, we learnt that we can group living things using lots of different criteria.
- Today we are going to look at how we can classify animals into groups called vertebrates and invertebrates.
- Can you remember what these two words mean? (clue – we looked at them in the skeleton/bones unit)

Vertebrates & Invertebrates

VERTEBRATES

Animals with a backbone.
e.g.

INVERTEBRATES

Animals without a backbone e.g.

Classification of Animals

This is the grouping together of animals with similar characteristics. Animals can be classed as either vertebrates or invertebrates.

ANIMALS

VERTEBRATES

These are animals that have a backbone.

Reptiles
Have dry scaly skin
Lay eggs on dry land
Are cold blooded
(Snake, Crocodile)

Fish
Have scales on their bodies
Have gills for breathing
Are cold blooded
(Shark, Tuna)

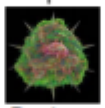
Amphibians
Have moist slimy skin
Lay eggs in water
Are cold blooded
(Frog, Newt)

Birds
Have feathers and wings
Have beaks and lay eggs
Are warm blooded
(Jay, Swan)

Mammals
Have fur or hair
Feed young on milk
Are warm blooded
(Cow, Human)

INVERTEBRATES

These are animals that do not have a backbone.



Protozoa
Single cell organisms
all microscopic

Flatworms
Simple and soft
bodied
(Tape worm, Flukes)

Annelid Worms
Segmented bodies
(Earthworm, Leech)

Echinoderms
Spiny sea creatures
(Starfish, Sea urchin)

Coelenterates
Soft bodies, stinging cells
(Jellyfish, Sea anemone)

Molluscs
Soft bodied, most have shells
(Snails, Limpet)

Arachnids
Eight legs, two body
parts, no antennae
(Spider, Scorpion)

Crustaceans
Mostly sea creatures
Many legs and two
sets of antennae
(Crab, Lobster)

Insects
Wings, six legs, three
body parts, one pair
of antennae
(Bee, Ladybird)

Myriapods
Many legs and
body segments
(Centipede,
Millipede)

How do we further group vertebrates?

- There are 5 main groups in which we can split vertebrates:
- Mammal
- Fish
- Reptile
- Bird
- Amphibian

What are…?

Mammals

- Mammals have warm blood, and have hair or fur on their bodies.
- Mammal babies are born alive.
- The mothers feed their babies milk.

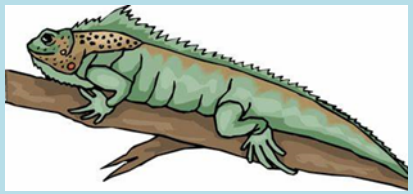
Fish

- 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 are…?

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.

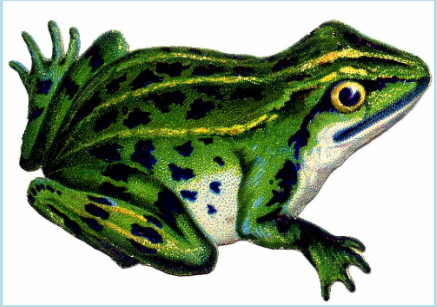


Birds

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

What are…?

- <u>Amphibians</u>
- 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.



Classification key

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

You may start with quite a broad question e.g.

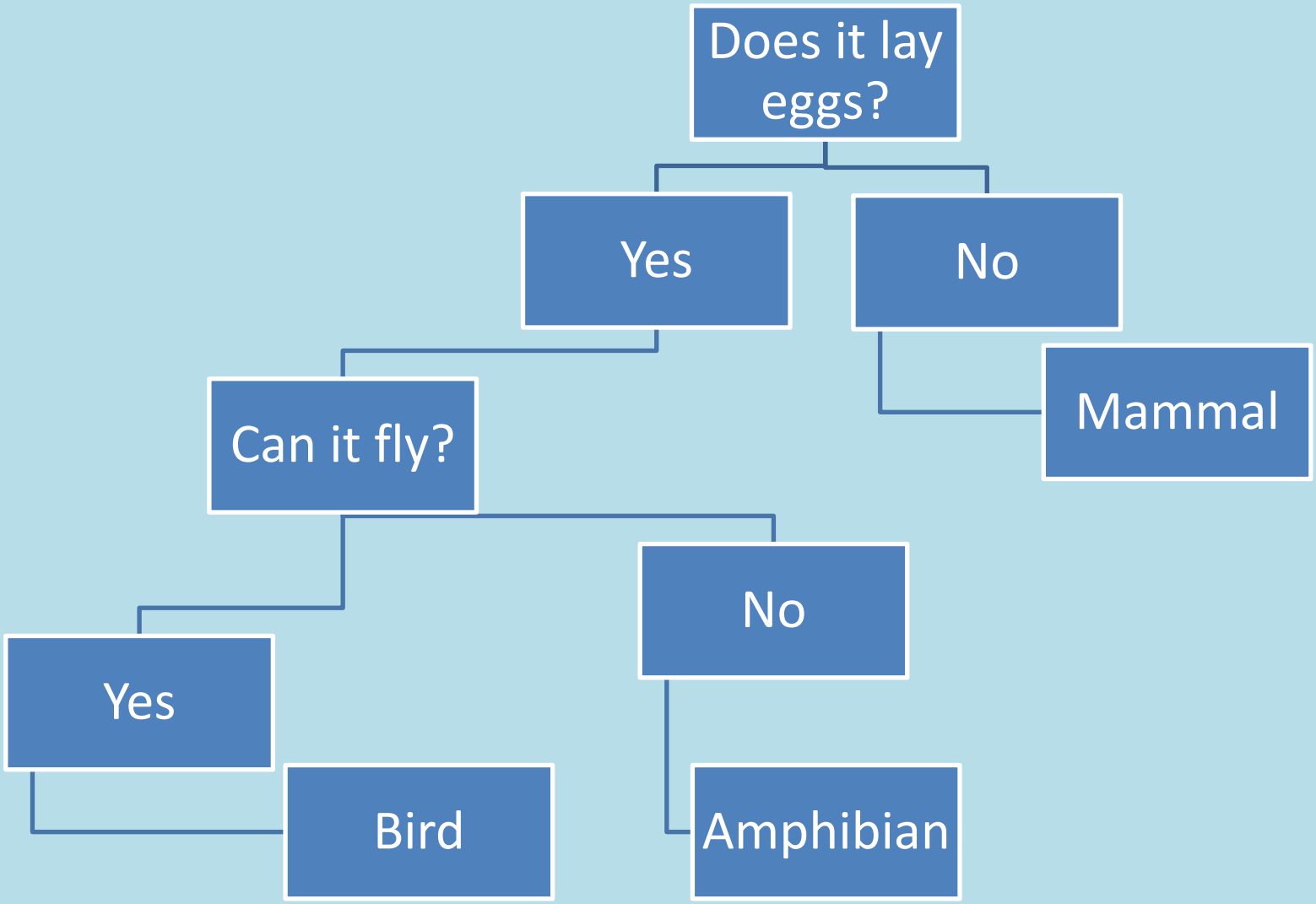
Does it have wings?

Each question has a yes or no answer

Then all of the following questions will narrow down the options.

See the next slide for an example.

Classification key example



Ideas for you to do

How many different animals can you find for each vertebrate group?

Can you make a classification key for someone in your family to do?

Use a few of these animals when making your classification keys

Lemur, wolf, rabbit, mouse, gorilla, brown bear, gazelle, whale, lion, pangolins, sea lion, koala, elephant, walrus, stingray, gecko, rhino, panda, chameleon, frog, clownfish, ostrich, emu, crocodile, snake, lobster, tortoise, eel, flamingo, swan, pigeon, toucan, hummingbird chicken, goose, eagle

LESSON 3 – CLASSIFYING INVERTEBRATES

What is an invertebrate?

Can you remember what an invertebrate is?

Animals that 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.

Can you think of any examples?

Classifying Invertebrates

Just like vertebrates, we can group invertebrates into more specific groups:

- Insects
- Annelids
- Protozoa
- Crustaceans
- Molluscs
- Arachnids
- Echinoderms
- Flatworms
- Myriapods
- Coelenterates

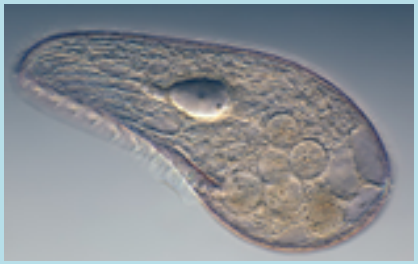
What are...?

Insects

- They have an exoskeleton covering their body.
- The body consists of 3 parts: the head, thorax and abdomen.
- They must shed their exoskeleton in order to grow.
- They have a pair of antennae on their head.

Annelids

- They have bodies divided into segments.
- They don't have any limbs.
- Some have long bristles; others have shorter bristles and seem smooth.



What are…?

Protozoa

- They eat tiny algae and bacteria.
- They can only be seen under a microscope.
- They are simple, single-celled animals.
- They are a source of food for fish and other animals.
- They reproduce by splitting in half.

Crustaceans

- They have a hard, external shell which protects their body.
- They live mostly in the ocean or other waters.
- They have a head and abdomen.
- Many have claws that help with crawling and eating.

What are…?

Molluscs

- They live on land or in water.
- Most have a soft, skin-like organ covered with a hard outside shell.
- Land molluscs move slowly on a flat sole called a foot.
- Ocean molluscs attach themselves to rocks or other surfaces, and can't move.

Arachnids

- Most arachnids have 4 pairs of legs.
- The first pair of legs may be used for holding their prey and feeding.
- They have a hard exoskeleton and jointed legs for walking.
- Arachnids do not have antennae.

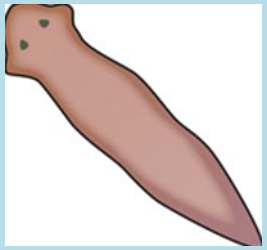
What are…?

Echinoderms

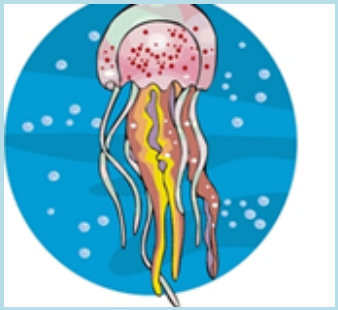
- They are marine animals that live in the ocean.
- They have arms or spines that radiate from the centre of their body.
- The central body contains their organs, and their mouth for feeding.
- The mouth is underneath, to eat other sea life.

Flatworms

- They are relatively simple animals.
- They have soft bodies.
- They may infect humans, pets and farmyard animals.



What are…?



Myriapods

- The body is made up of numerous similar segments.
- Nearly all the segments bear true jointed legs.
- Elongated bodies.

Coelenterates

- Means that they have a hollow gut.
- They typically have a tube- or cup-shaped body.
- Tentacles that bear stinging cells.

Can you sort these animals into the correct invertebrate group?

Jellyfish, crab, lobster, starfish, spider, bee, centipede, millipede, snail, slug, earthworm, shrimp, sea urchin, sand dollar, sea cucumber, barnacle, woodlice, scorpion, cricket, grasshopper, octopus, stag beetle, ladybird, cockroach

Ideas for you to do

How many different animals can you find for each vertebrate group?

Can you make a classification key for someone in your family to do?

Can you make a model of one of the animals?

LESSON 4 – INVERTEBRATE HUNT

Let’s go outside!

If you can, over the next few days, see what invertebrates you can find in your garden.

Remember:

- When looking for invertebrates, we need to be really careful to not disturb their habitats.
- Handle anything you find with care.
- Make sure you return anything you find back to where it came from.

What you need

Small spoon – use to scoop up the creature gently

Clear cup/container – place the creature in this to study

Magnifying glass – if you have one, get close up details of what you find

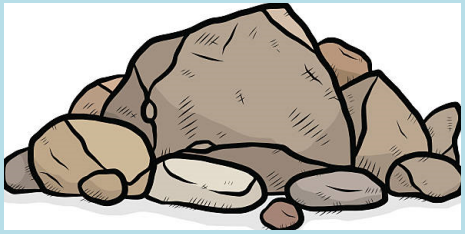
Ruler – measure the length of the creature

Pencil – draw and write your results

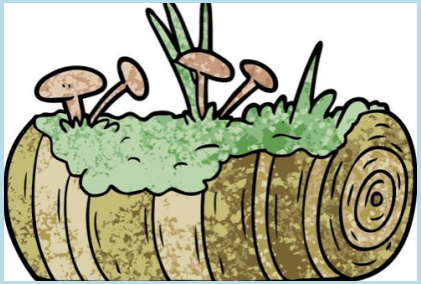
Paper/booklet – keep a record of all of your findings

Where to look

Under rocks and stones



Inside or under rotting wood



In short grass

In long grass/tall flowers

In soil

Under fallen leaves

What to do

Draw a picture of your specimen and label the body parts.

What type of invertebrate is it?

Where did you find it?

Use the next slide as a guide of how to lay out your results.

Can you make a booklet of what you find?

Can you draw a map of your garden and note down where you found everything?

Example of recording results

Invertebrate found: Beetle

Habitat where it was found:
Under leaves in my garden

Characteristics:
It has 6 legs.
Its body is in 3 parts.
It has a hard wing case.
It has long thin antennae.