



Classification

Teachers notes

There are two main groups of animals: vertebrates and invertebrates. These two groups are distinguished by having a back bone or not. These groups can be further divided based on the features the animals have.

Vertebrates (animals with a spine)

There are five different groups of Vertebrates which are defined by their different features.

Mammals

The key features of mammals are:

- They all have fur, hair or wool
- They give birth to live young (there are two species of mammals that lay eggs, the platypus and echidna). Live young are relatively well developed
- The mother feeds milk to their young
- They are warm blooded
- They all have lungs
- They live mostly on land
- They have external ear flaps

Some mammals don't have all these features so there are exceptions to the rules.

Mammal groups can be further divided into 3 groups, based on the way they reproduce.


Monotremes (egg laying mammals)

- Very primitive
- Many similarities between this group and birds and reptiles
- Only 3 mammal species exist in this group - the platypus and two species of echidna

Marsupials (give birth to poorly developed young)

- Baby develops further in a pouch
- Feeds milk from the mothers mammary glands
- This group of mammals includes kangaroos, koalas, wallabies and possums

Placentals (baby develops inside the mothers womb)

- Young are born well developed
 - Young drink milk from the mothers mammary glands
 - Most mammals fit this category
 - Foetus develops inside a womb
- 



Birds

The key features of birds are:

- They have air sacs and lungs
- They can fly (in most cases)
- They lay eggs with hard shells
- They are warm blooded
- They have feathers
- They have a beak, two legs and two wings
- They are warm blooded

Reptiles

The key features of reptiles are:

- They are cold blooded
- Majority lay eggs with leathery shells
- Most live on land
- They have lungs
- They have hard leathery scales


Amphibians

The key features of amphibians are:

- They lay soft eggs
- Young live in water
- Adults live on land
- Young have gills
- Adults have lungs
- Most have moist scaleless skin
- They are cold blooded

Fish

The key features of fish are:

- They live in water
 - They have gills
 - They have scales and fins
 - They lay soft eggs
 - They are cold blooded
- 



Invertebrates

The word invertebrate describes any animal with out a spinal column (back bone). Invertebrates are divided into different groups based on the characteristics they have.

Insects (cockroach, flies, butterflies, bees)

The keys features of insects are:

They have 6 legs (3 pairs)

The have 3 parts to their bodies (head, thorax and abdomen)

Arachnida (Spiders, terancila; crabs)

The key features of spiders are:

- They have 8 legs (4 pairs)
- They have 2 parts to their bodies (head and abdomen)

Crustacea (shrimps and sea slaters, things you find in water)

The key features of crustacea are:

- They have 10 legs (5 pairs) or more
- The have 2 main parts to their body (head and abdomen)

Myriopoda (millipeds and centipeds)


- Head and trunk
- Many legs

Warm Blooded and cold blooded animals

Warm blooded animals: are able to generate heat internally and maintain a constant body temperature that can differ from the surrounding air temperature. Examples include mammals and birds.

Cold Blooded animals: are not able to maintain a constant internal body temperature. The temperature of cold blooded animals is determined by the temperature of the surrounding environment. Examples include reptiles. To regulate their body temperature they need to sit in the sun to keep warn and hide in holes or in soil to cool them selves down.





Resource 1: Classification

Instructions: As you go around the zoo answer the following questions

Write the names of animals in this box if they have wet slippery skin:


Which group (e.g. bird, mammals, reptiles etc) do you think all these animals belong in?

What other features do all the animals you have listed above share? List these below

Write the names of animals in this box if they have feathers:

Which group (e.g. bird, mammals, reptiles etc) do you think all of these animals belong in?

What other features do all the animals you have listed above share? List these below





Write the names of animals here that have fur / wool / hair:


Which group (e.g. bird, mammals, reptiles etc) do you think all these animals belong in?

What other features do all the animals you have listed above share? List these below




Write the names of animals here that rough, dry scaly skin:

Which group (e.g. bird, mammals, reptiles etc) do you think all these animals belong in?

What other features do all the animals you have listed above share? List these below



Similarities and differences between vertebrates

Vertebrate Group	Features shared with other Vertebrates	Features unique to this group	Animals found in this group
Mammal 			
Fish 			
Amphibian 			
Bird 			
Reptile 			





Bird, reptile, mammal, amphibian or fish?

Find as many of these as you can and complete the list by writing which type of animal each is and what it has as a body covering.

A gecko is a _____, it has _____.

A spider monkey is a _____, it has _____.

A tiger is a _____, it has _____.

A red panda is a _____, It has _____.

A kaka is a _____, it has _____.

A turtle is a _____, it has _____.

A frog is an _____, it has _____.

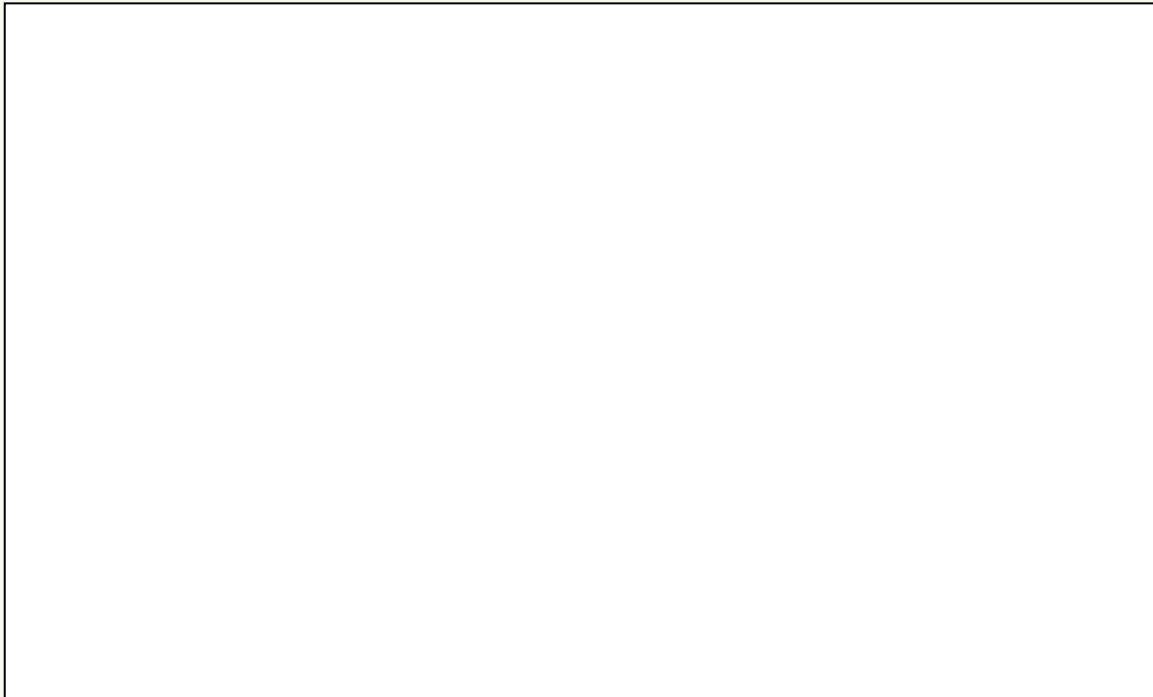
An ostrich is a _____, it has _____.

A tuatara is a _____, it has _____.

A lemur is a _____, it has _____.

Which is the only type of animal you did not use in the list above? _____

Draw one below.



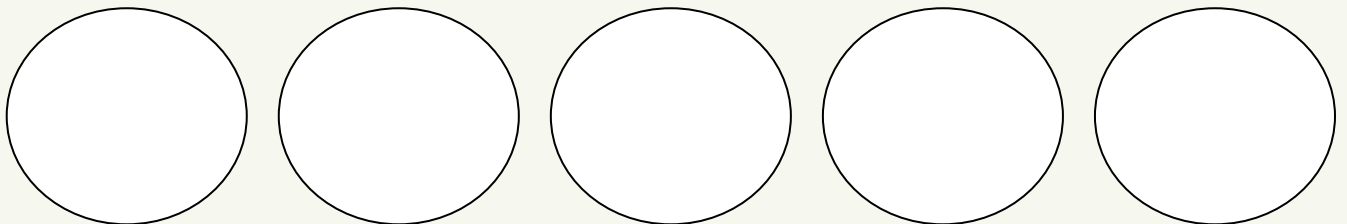


Classification

Observe these animals and complete the table.

<i>animal</i>	<i>covering</i>	<i>food</i>	<i>limbs</i>	<i>tail</i>	<i>size</i>
<i>human</i>	<i>skin, fur</i>	<i>plants, meat</i>	<i>2 arms 2 legs</i>	<i>no</i>	<i>medium</i>
<i>giraffe</i>					
<i>ostrich</i>					
<i>tiger</i>					
<i>kea</i>					
<i>tuatara</i>					
<i>rhino</i>					
<i>frog</i>	<i>wet skin</i>	<i>insects</i>	<i>4 legs</i>	<i>adults no</i>	<i>small</i>
<i>fish</i>	<i>wet scales</i>	<i>plants or meat</i>	<i>none</i>	<i>yes</i>	<i>small mainly</i>
<i>chimp</i>					
<i>tui</i>					

Make five groups using the list of animals from the table.



What characteristic did you use to decide which group to put each animal in?

Describe the category for each group. (e.g. pink skin)

Group 1 _____

Group 2 _____

Group 3 _____

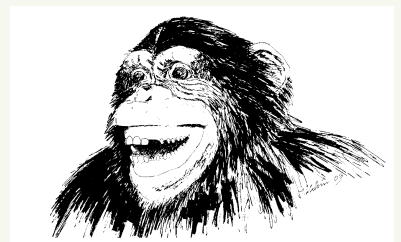
Group 4 _____

Group 5 _____

Are the animals in each of your groups similar? _____

Is a characteristic like 'colour' a good one to choose? yes/no

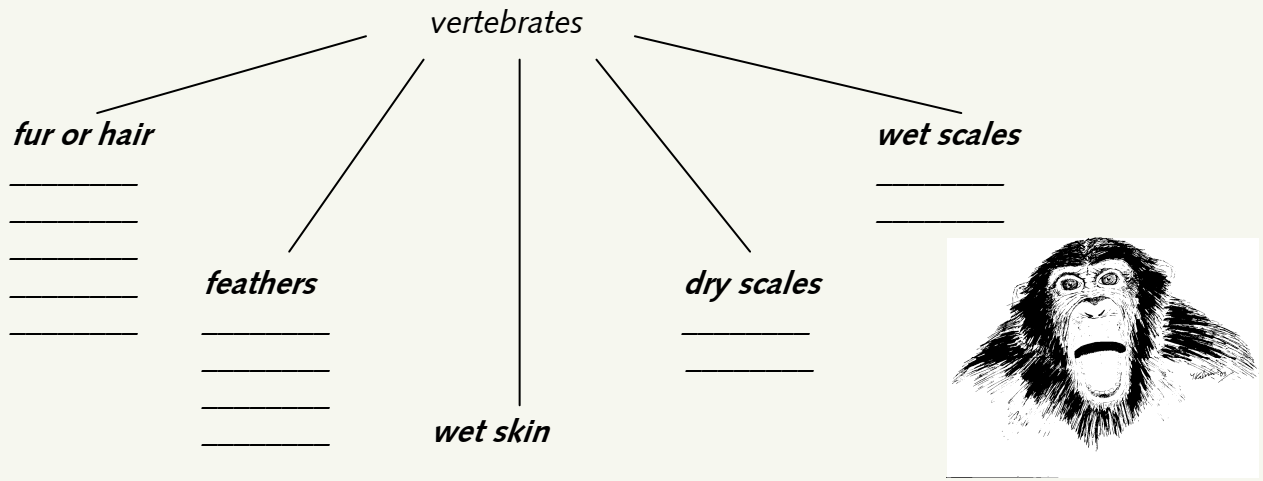
Explain





Classification part two: Body Coverings.

All the animals in the previous table have a backbone, so are called 'vertebrates'. Are you a vertebrate? _____



Put the name of each animal from the list into the correct group or 'class'.
Having the same body covering isn't all the animals in each group have in common.

How many of these do you know or can you find out by reading the signs or research back at school?

<i>class</i>	<i>covering</i>	<i>temperature warm/cold</i>	<i>reproduction eggs or live</i>	<i>Breathes air or water</i>	<i>other</i>
<i>mammals</i>	<i>f</i>				<i>Feed young milk</i>
<i>amphibians</i>	<i>w</i>				<i>Start life as tadpole</i>
<i>reptiles</i>	<i>s</i>				<i>Horizontal limbs</i>
<i>birds</i>	<i>f</i>				<i>Not all fly</i>
<i>fish</i>	<i>w</i>				<i>Die out of water</i>

List five characteristics that mammals have in common:

Consider the chimpanzees and the spider monkeys at Hamilton Zoo. They are both mammals, share similar habitats and food; but are not very closely related. There are enough differences between them to further classify these 'primates' into separate animal species.

List four similarities and four differences between these two animal species.





The chimpanzee is an ape; the monkey is not.

What group do I come from?

Instructions: This game can be used as a group or individual activity at school. Separate the class in to groups of 4 or 5. One person in each group is nominated as the starter. Each group has 5 sets of cards. Each set of cards represents a classification group (such as mammals etc). Each person in the group takes a turn being the starter reading out the clues in each pack. The first group to correctly work out which classification group the pack represents wins. The order the cards are read can alter the difficulty of the game leaving the most obvious characteristics or clues to the end.

Mammals	Birds	Reptiles	Amphibians	Fish	Insects
I have a back bone	I have a back bone	I have a back bone	I have a back bone	I have a back bone	I have no back bone
I can be covered in fur/wool/hair	I am covered in feathers	Cool to touch	I lay soft jelly covered eggs	Live in water	I can have 6 or more legs
I carry babies in my stomach	I lay eggs	Lay eggs	I can feel slippery and kind of sticky to touch	Have gills	I wear my backbone on the outside of my body



Babies are fed milk	Babies in this group are called chicks	Eggs are leathery to touch	Young have gills	Have scales	I can have many eyes
I'm warm to touch	Chicks hatch from eggs	Most live on land	Adults have lungs	Have fins	I have feelers, stings, and or antennae
I am warm blooded	I am warm blooded	I am cold blooded	Adults live on land	I have cartilage skeleton in stead of bone	Have hemolymph instead of blood
I have lungs	Most in this group can fly	I can be large or small	Tadpoles live in water	Cool to touch	I can be tiny but don't get very big
I have ear flaps	Lay hard shells	They have lungs	Most have scaleless skins	Lay soft eggs	I can be brightly coloured
Most animals in this group live on land	I am warm to touch	They have hard leathery scales	Cold to touch		Some can fly



