Classification

Plants	Animals	Fungi
Flowers, trees, grasses, mosses	Fish, Insects, Mammals	
• Cell walls made of cellulose •		

Protoctista	Prokaryotes

Arthropods

For each arthropod below state what group it belongs to and why.
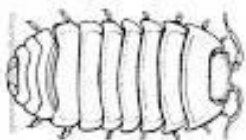
Animal: Ant
Group:
Characteristics:
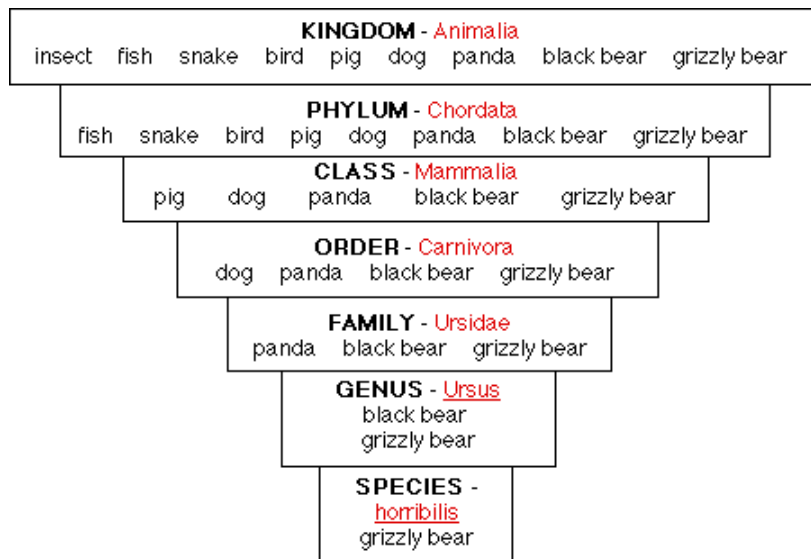
Animal: Centipede
Group:
Characteristics:

Animal: Scorpion
Group:
Characteristics:

Animal: Woodlouse
Group:
Characteristics:

Dividing the Kingdoms

You need to be able to remember the order of the levels of classification.
A good mnemonic is;
Kids
Prefer
Cheese
Over
Fried
Green
Spinach

Use the internet to find the answers to the following questions.
   a) What order does a manatee belong to?
   b) What genus does a shoebill belong to?
   c) What family does HIV belong to?
   d) What kingdom does the shiitake mushroom belong to?
   e) How can you work out the binominal name of a species?

   f) Why is binominal naming important?

Classification Systems

Write a definition for the word species

Why is classification important?

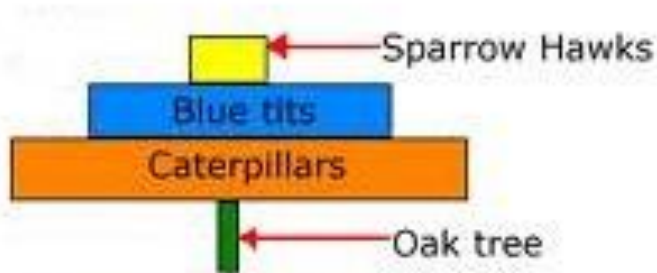Above is a picture of a lion pride. Give 3 examples of variation that the lions show

i)

ii)

iii)

Feeding Relationships

Below is a food chain:

Flower → Caterpillar → Blue Tit → Hawk

a) Which organism is at trophic level 1?
b) How many trophic levels are there in the food chain?
c) Which animal is a herbivore?
d) Which organism is a secondary consumer?
e) Which animal is the top carnivore?

What type of pyramid is this?

Sketch the other type of pyramid showing the same information.

What problems are there with pyramids of biomass? (HINT: if stuck see p.59)
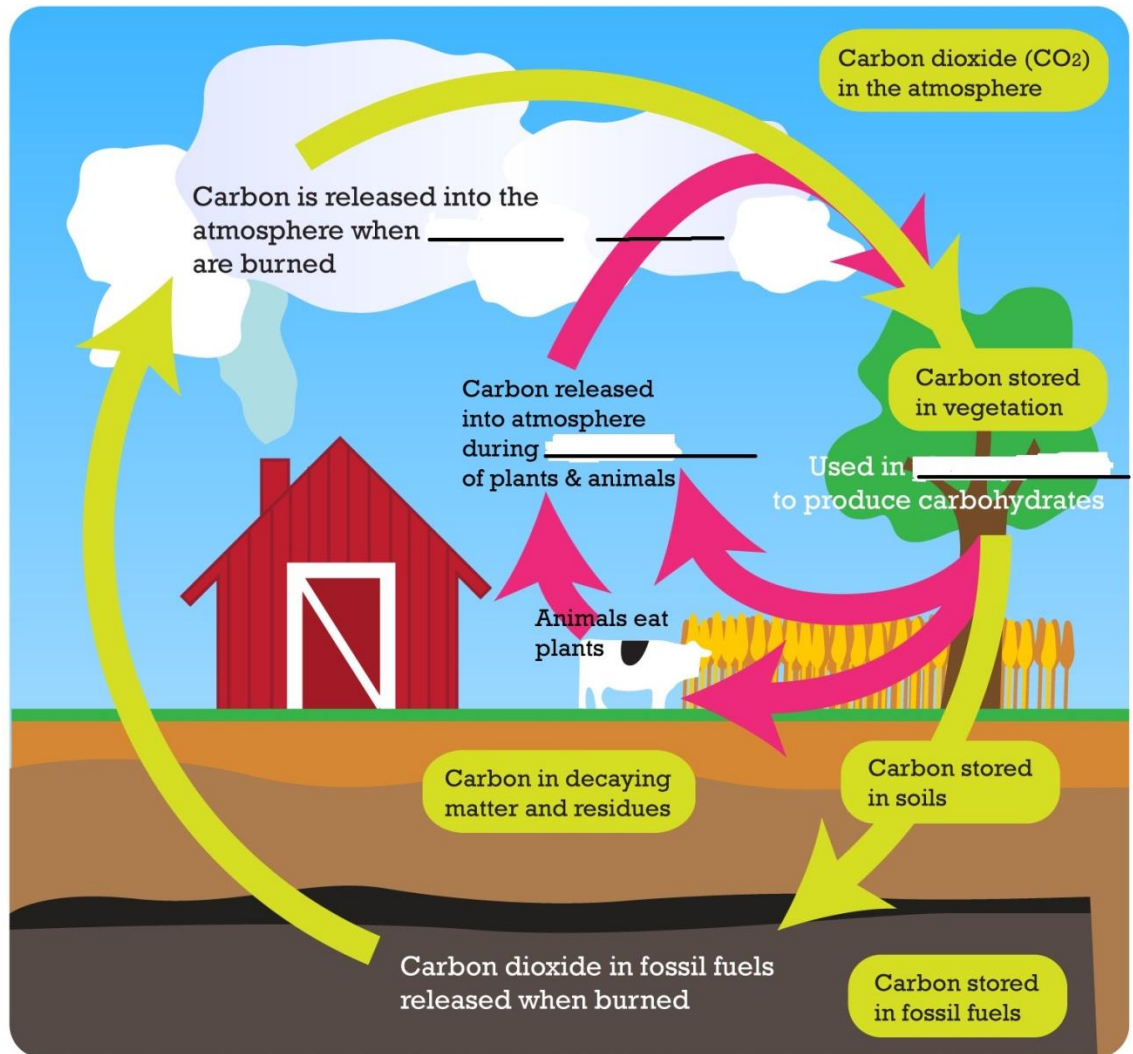
Give 3 ways in which energy is transferred out of the food chain
　　　1.
　　　2.
　　　3.
Sometimes two of these can be used to start new food chains.
Which 2?

Carbon Cycle

Carbon dioxide (CO_2) in the atmosphere

Carbon is released into the atmosphere when _____ _____ are burned

Carbon stored in vegetation

Carbon released into atmosphere during _____ of plants & animals

Used in _____ to produce carbohydrates

Animals eat plants

Carbon in decaying matter and residues

Carbon stored in soils

Carbon dioxide in fossil fuels released when burned

Carbon stored in fossil fuels

1. Fill in the 3 missing words.
2. Give 2 ways Carbon is released into the atmosphere
   i)
   ii)
3. Name the 3 fossil fuels
   i)
   ii)
   iii)

Nitrogen Cycle

Why is nitrogen so important to living things?

What percentage of the air is comprised of nitrogen?

How does nitrogen exist in the soil?

Break the nitrogen cycle down into 3 steps and complete the flow chart below

Interdependence

If there are a large number of rabbits in an area, what do you think will happen to the population of foxes in that area? Explain your answer.

Research examples of the following types of relationships
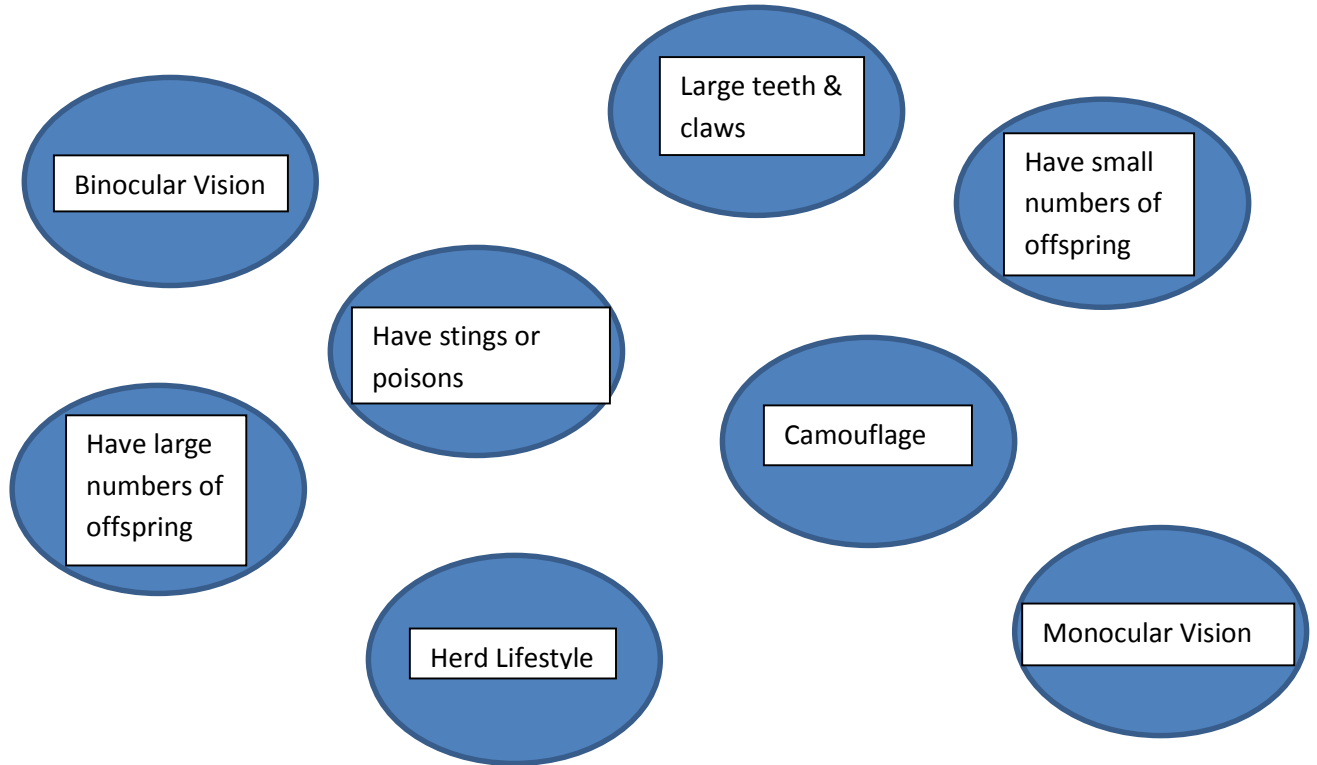
1. Mutualism

2. Parasitism

Competition

Complete the table below to show what plants & animals compete for

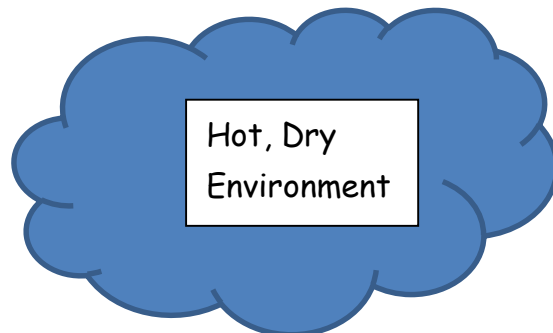| Plants	Animals

Predator & Prey
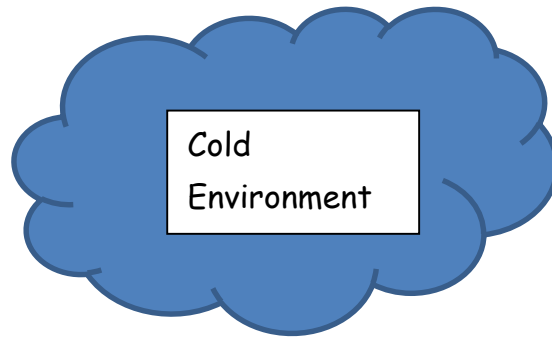
Next to the following statements write whether they are more common to predator or prey species, or whether they are found in both.

Binocular Vision

Large teeth & claws

Have small numbers of offspring

Have stings or poisons

Camouflage

Have large numbers of offspring

Herd Lifestyle

Monocular Vision

Adaptations of Animals

Complete 2 mind maps showing similar adaptations for animals living in 2 different climates.

Hot, Dry Environment

Cold
Environment

Plant Adaptations

Give 4 adaptations of the cactus that allows it to survive in hot, dry conditions. Explain how these adaptations are beneficial.

1.

2.

3.

4.

Design a plant that is found in a habitat where water is scarce, there is only sunlight for a few hours a day and it is eaten by animals. Make sure you annotate your diagram to say how it is adapted to survive.

Behaviour

Explain what each of these terms mean and research an animal that exhibits this behaviour

1. HIBERNATION

2. MIGRATION

3. SUN BASKING

4. WATER STORGAE

Evolution & Natural Selection

| Pug | Border Collie | German Shepherd |

Above are 3 different breeds of dog. Give 3 differences between them.

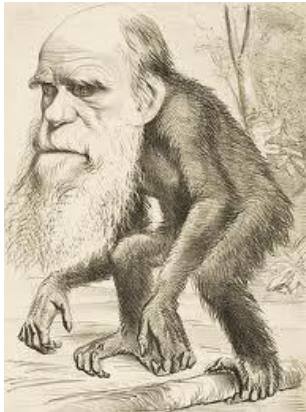When there is differences within a species what is this called?

Why is this needed within a species? Discuss the idea in relation to natural selection.

How are traits passed on from a parent to its offspring?

Who is credited with the theory of evolution?

The theory is widely accepted now by the scientific community, what proof is there to support this theory?

The theory of evolution was presented in the 1850's. Why did people not accept the theory?

What is the definition of evolution?

What 3 examples of evolution does the text book give? (p77)
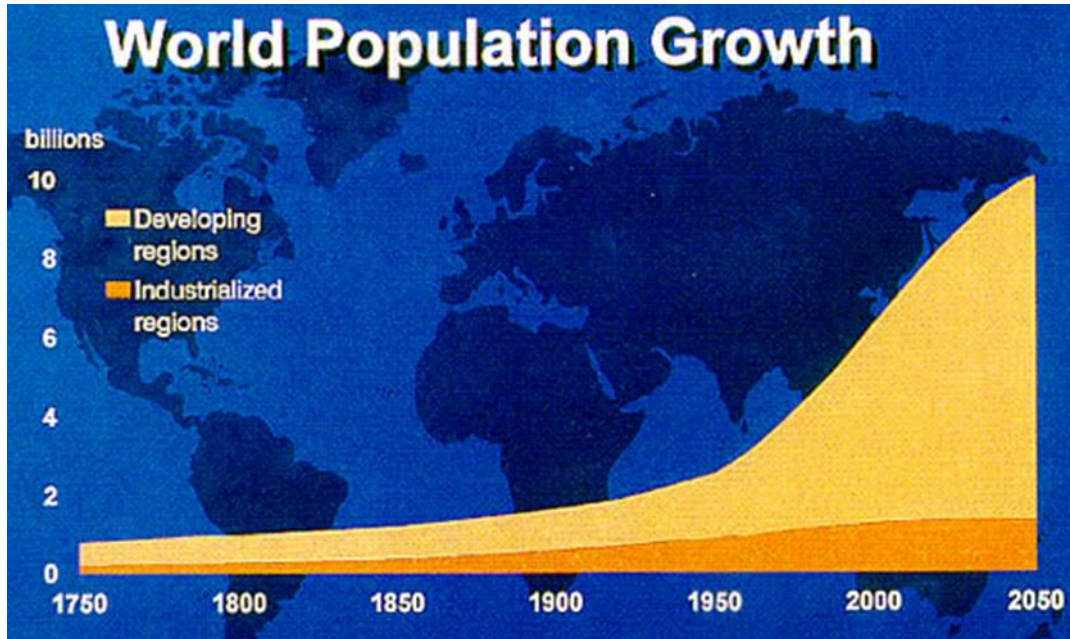
1.

2

3.

Pollution

What are the 3 fossil fuels?

What are some problems with fossil fuels?

What is the predicted global population for 2050?

How will this affect pollution?

Complete the table below

Issue	Gases Causing Issue	How gases are released	Effects
Global Warming			
Ozone Depletion			
Acid Rain			

Indicator species can be used to inform us how polluted an area is.

Lichens are a common indicator species.

Explain how lichens can be used to indicate how polluted an area is.

How can we measure how polluted an area is?

Water pollution can be hazardous as it can disrupt food chains and cause disease.

Give 2 ways in which water could be polluted (p79)

Rat tailed maggots are found in very polluted water and are an indicator species.

How is the rat tailed maggot adapted to live in such polluted conditions?

2.0 cm

Sustainability

The Black Rhino is an animal which has been classified as critically endangered. What does this mean?

There are 7 levels of classification to indicate organism populations.

The IUCN Red List is a document which is constantly updated by scientists and is used all over the world. It states at what level each species is currently at.

Least Concern						Extinct

Use the IUCN Red List (type into google) to complete the above diagram to show the 7 levels.

Complete the following passage

It is important to c_ _ _ _ _ _ organisms because the human population is g_ _ _ _ _ _ so food r_ _ _ _ _ _ _ _ need to be preserved. Also, many plants are used for m_ _ _ _ _ _ purposes and scientists need to be able to s_ _ _ _ all species to identify which can be of use.

Organisms are all i_ _ _ _ _ _ _ _ _ _ and are part of a global food w_ _ . If certain key specie populations are drastically changed it could have a detrimental effect on other species populations, including our own.
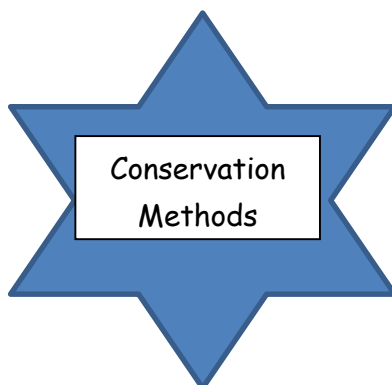
There are also e_ _ _ _ _ _ reasons. Human beings have destroyed many h_ _ _ _ _ _ and caused massive declines in certain species populations as well as the e_ _ _ _ _ _ _ _ _ of others. Do we not have a responsibility to share this planet and conserve as many organisms as we can?

Conserve	Web	Resources	Habitats	Extinction
Interlinked	Medical	Ethical	Study	Growing

Complete the mind map below by adding more detail to each of the headings showing how conservation can be beneficial

Education

Breeding Programmes

Conservation Methods

Laws

Protecting Habitats

Why are large population sizes important for survival of species?

(HINT: Think about the natural selection, what is the first step? What must a population have in order to adapt and evolve?)

Whales are hunted for meat and oil. There numbers have been declining over the years until whaling was banned.

Some countries resisted the whaling ban, why do you think that was?

What issues are there with policing whaling?

Some scientists are granted permits to hunt whales for research purposes. Why do you think this is allowed?

This is Shamu. He is a popular mascot for some theme parks in America. The Seaworld parks pride themselves on their conservation methods. In what ways is Shamu helping conservation?

Sustainable development is ensuring that human beings can take what they need from the environment without harming it and ensuring that there will be enough resources available for the foreseeable future.

Velvet Toilet Roll Company state that for every tree they cut down to make their product the replant 3 more. This is an example of sustainable development.

1. Fish stocks in waterways are reducing rapidly. How could we ensure fish levels are sustainable?

2. How could sustainable development benefit endangered species?

To create sustainable resources requires a lot of co-operation between local, national and international agencies. A lot of people have to work together but it is beneficial. We need to ensure that future generations have enough food to eat and energy resources.