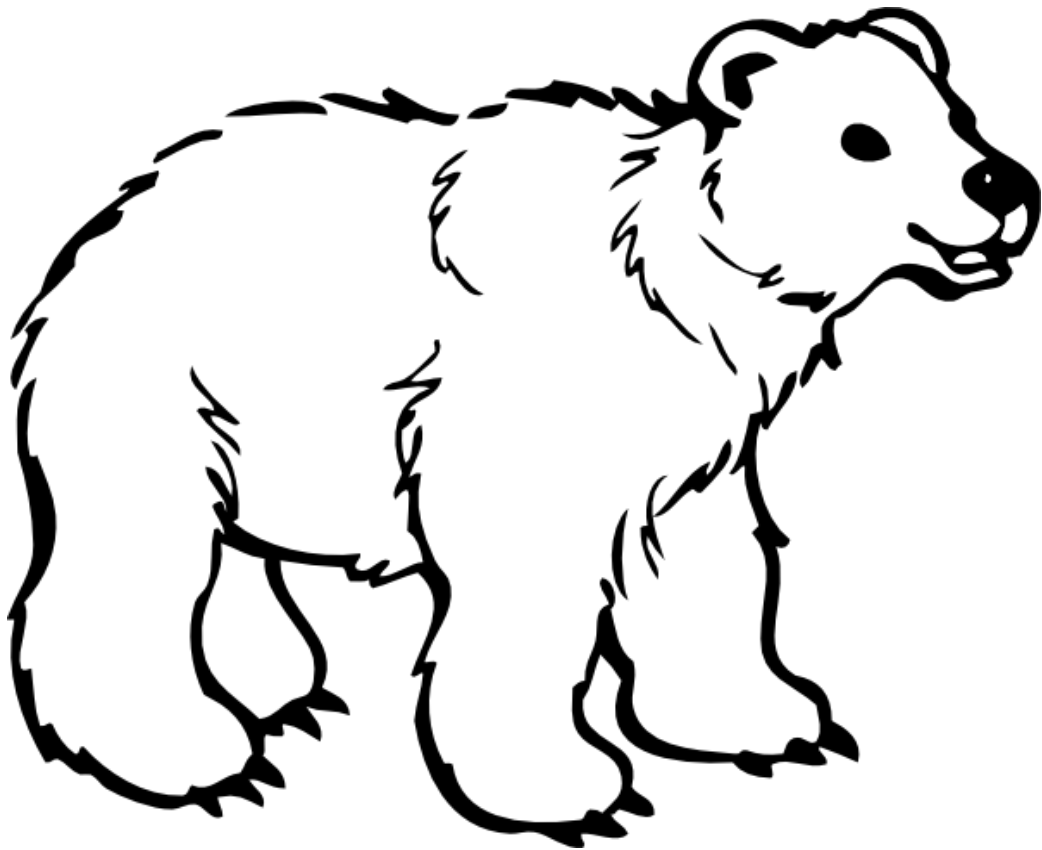


Year 2 Biology:

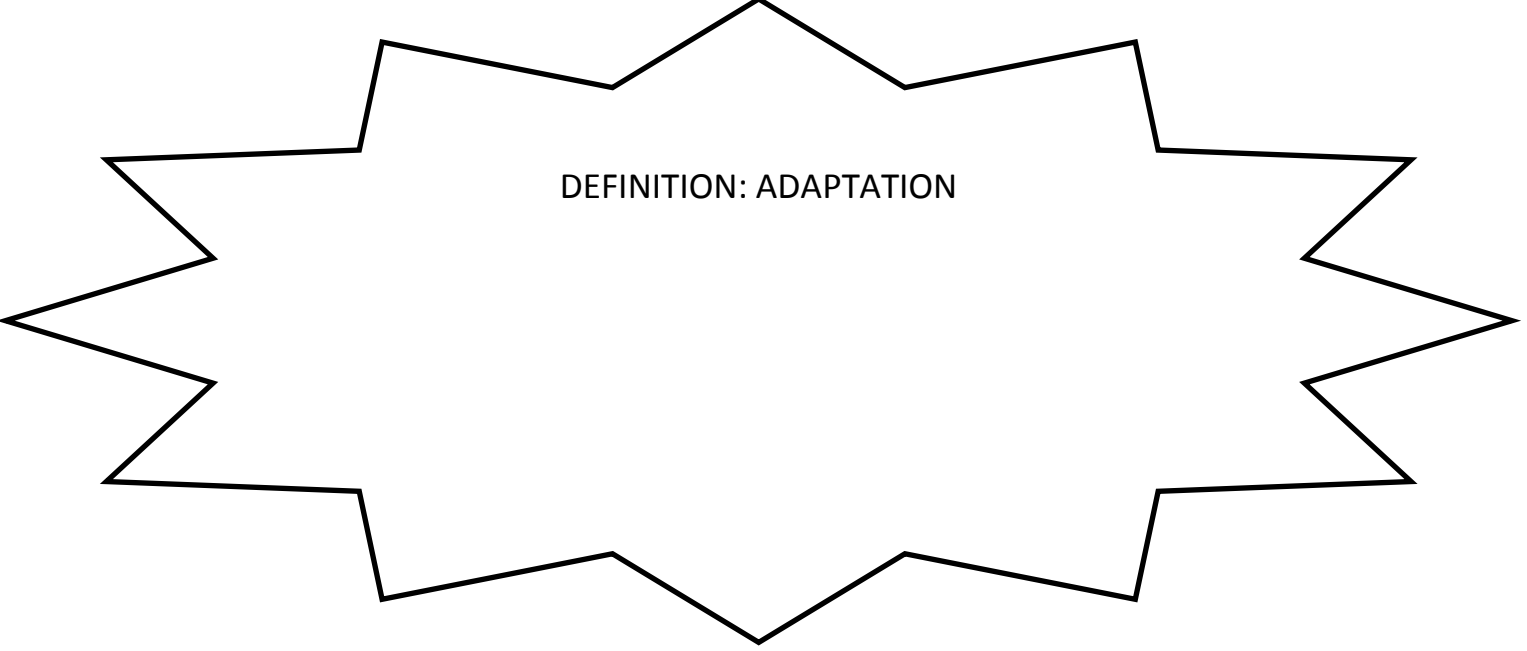
Adaptations



Name:

Form: 2NBE

Teacher: Mrs Masters



DEFINITION: ADAPTATION

Type of adaptation	What this means
Structural adaptation	
Functional adaptation	
Behaviour adaptation	

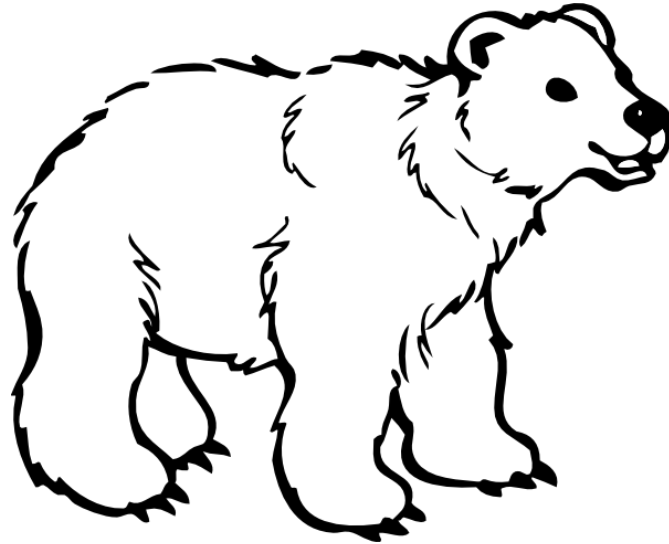
Adaptations of plants to deter herbivores

Adaptations of animals to avoid predators

Adaptations of predators

ARCTIC ADAPTATIONS

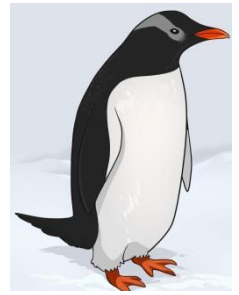
Why is it important for animals to be adapted to survive in arctic environments?



Key Feature	Changes made in an arctic environment
Changes to surface area	
Thickness of insulating coat	
Amount of body fat	
Camouflage	

Explanation of 'surface area':

Investigation: Huddling in Penguins



My independent variable (the thing I change) is:

My dependent variable (the thing I measure) is:

My control variables (the things I keep the same) are:

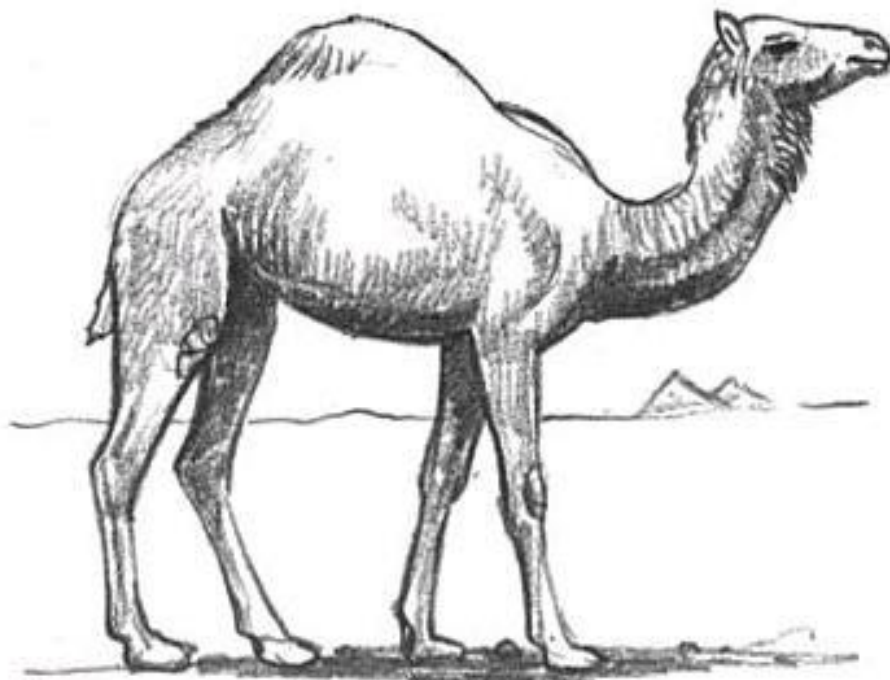
To make my results repeatable I could:

To make my results reproducible I could:

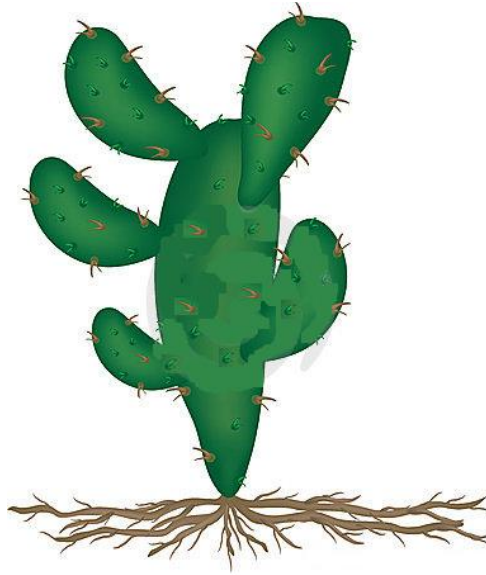
Results table:

ADAPTATIONS TO HOT AND DRY ENVIRONMENTS

Why is it important for animals to be adapted to survive in hot and dry environments?



Key Feature	Changes made in a hot and dry environment
Changes to surface area	
Thickness of insulating coat	
Amount of body fat	
Camouflage	



Key Feature	Changes made in a hot and dry environment
Changes to surface area	

Investigation: Water loss in leaves

How does the surface area of the leaf affect water loss?

My independent variable (the thing I change) is:

My dependent variable (the thing I measure) is:

My control variables (the things I keep the same) are:

To make my results repeatable I could:

To make my results reproducible I could:

Results table:

INDEPENDENT RESEARCH:

Choose any organism! Add a picture and annotate it to show how this organism is adapted to survival. Include structural, functional and behavioural adaptations

EXTREMOPHILES!

An extremophile is an organism adapted to live in extreme environments. There are different sorts of extremophiles:

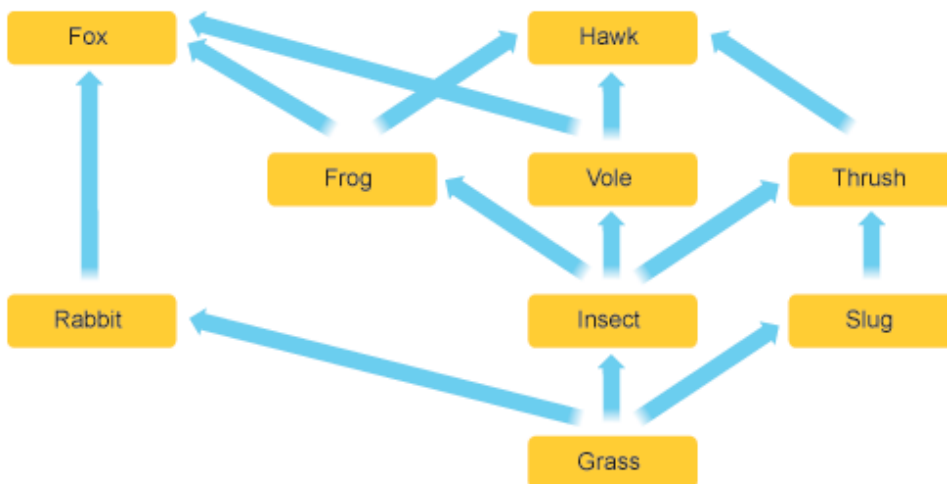
Category of Extremophile	Example organism	Examples of special features they have
BAROPHILE Adapted to live...		
HALOPHILE Adapted to live...		
THERMOPHILE Adapted to live...		

COMPETITION

DEFINITION: COMPETITION

Plants compete for:	Animals compete for:
1.	1.
2.	2.
3.	3.
4.	

DEFINITION: TERRITORY



Year 2 Competition: Design a Mammal



Your task is to design a mammal to survive in a habitat of your choice.

You must produce a poster that describes the conditions in which the animal live considering the climate, size of population and other creatures in the community (plants and animals).

You should also include a labelled diagram of your mammal to explain how it is adapted to survive the conditions where it lives (so it can stay the right temperature, obtain food, water and shelter and not be killed by predators).

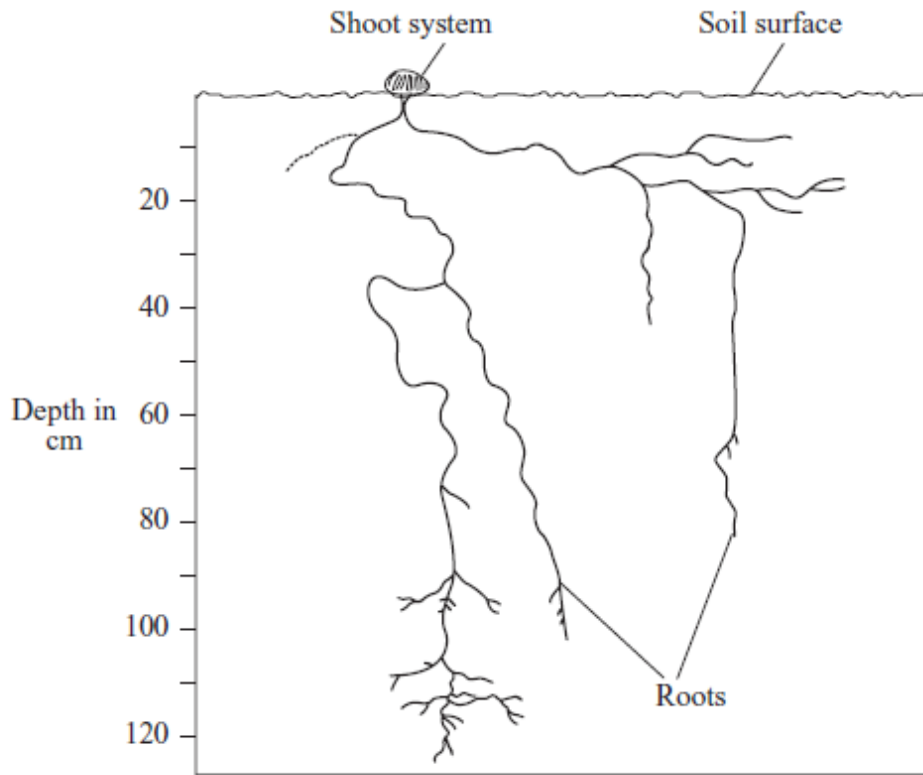
Make sure your poster is informative, attractive and biologically accurate!!!

Marking Point	Self- Marked	Teacher- Marked
Mention the climate in the mammal's habitat		
Mention the size of the mammal's population		
Mention other organisms found in the community		
A labelled diagram of the mammal		
How is the mammal adapted to cope with the temperature in the habitat?		
How is the mammal adapted to find food or water?		
How is the mammal adapted to find shelter?		
How is the mammal adapted to avoid being killed by predators?		
Is the poster attractive?		
Is the poster biologically accurate?		
Total marks /10		

HOMEWORK 1: GCSE Biology Adaptations Question

Question1)

The diagram shows the desert plant, *Fredolia*.



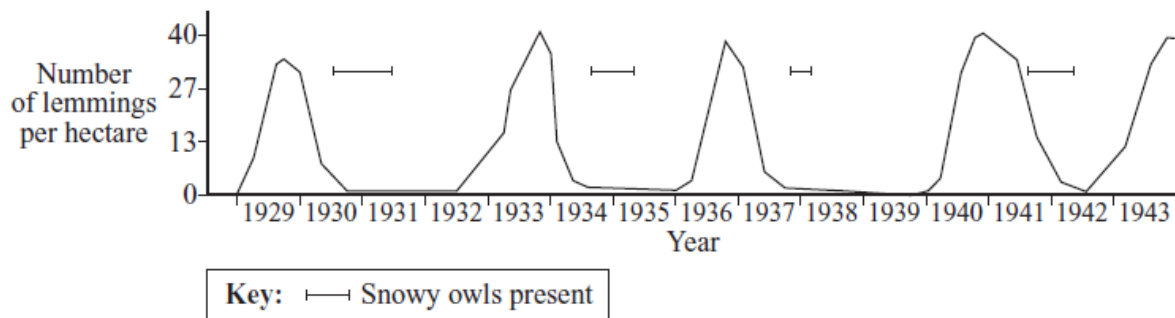
Describe and explain **three** adaptations of *Fredolia*, which you can see in the diagram, that help it to survive in dry conditions.

- 1
- 2
- 3

(3 marks)

Question 2)

5 The lemming is a small mammal which eats plants. The snowy owl is a predator. The graph shows changes in the population of lemmings in one area of northern Canada.



(a) What is a *predator*?

.....
.....
(2 marks)

(b) It is unlikely that the snowy owls caused the decreases in the lemming population. What evidence from the graph supports this?

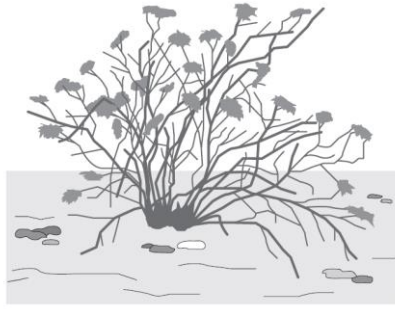
.....
.....
(1 mark)

(c) Suggest what environmental conditions might have caused the sudden decreases in the lemming population.

.....
.....
.....
.....
.....
.....
.....
.....
(3 marks)

Question 3)

(a) The drawing shows a creosote bush.



This bush lives in a desert. The creosote bush produces a poison that kills the roots of other plants.

How does this poison help the creosote bush to survive in the desert? (1 mark)

(b) The photograph shows an insect called a katydid.

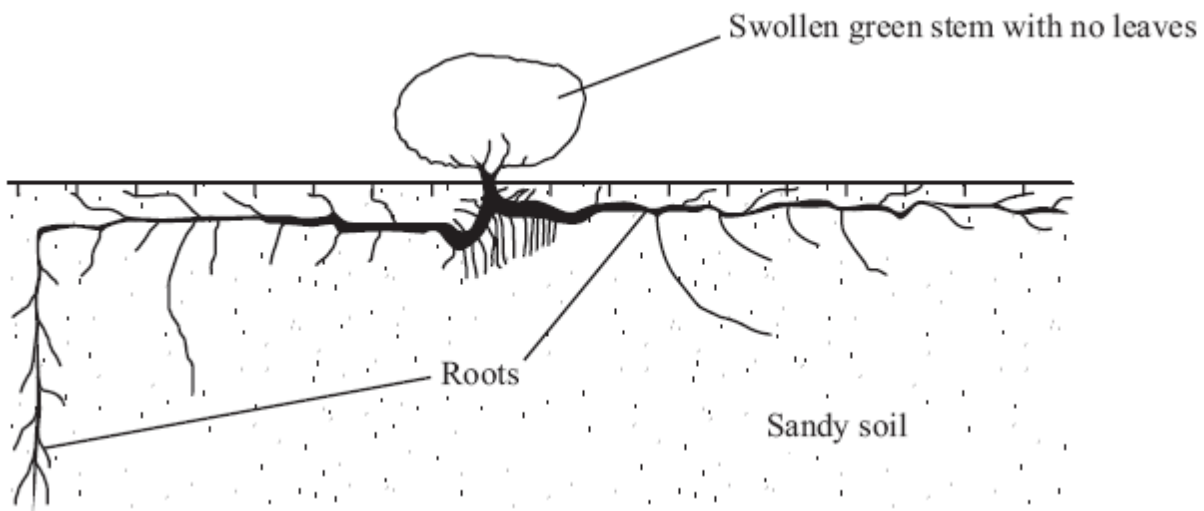


The katydid is preyed on by birds.

How does the appearance of the katydid help it to survive? (1 mark)

Question 4)

The drawing shows a bean caper plant.



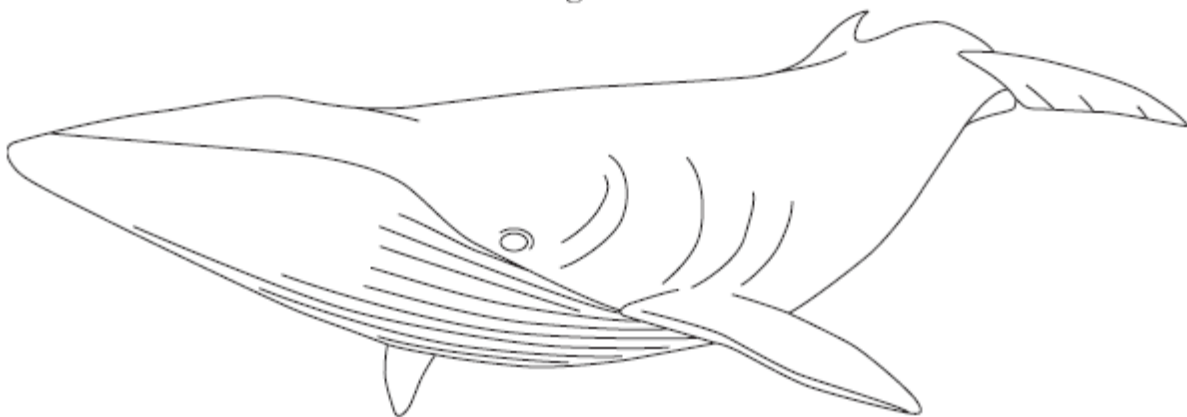
The bean caper plant lives in hot desert conditions.

Describe and explain **two** ways in which the bean caper is adapted for life in a hot desert. (4 marks)

Question 5)

Figure 1 shows a minke whale. Whales live in the sea.

Figure 1



Write down **two** ways in which the body of the whale is adapted for swimming. (2 marks)

HOMEWORK 2: Multi-choice Adaptations Questions

(18 marks)

QUESTION ONE

Polar bears are adapted for life in the arctic.

Match adaptations, **A**, **B**, **C** and **D**, with the numbers **1–4** in the sentences.

A black skin

B small ears

C thick fur

D white fur



The polar bear is camouflaged by its . . . **1**

Its surface area is reduced by having . . . **2**

The polar bear is insulated by air trapped in its . . . **3**

Heat from the sun is absorbed by its . . . **4**

QUESTION TWO

The drawings show the limbs of four animals. (The drawings are not to scale.)

Match words, **A**, **B**, **C** and **D**, with the numbers **1–4** on the drawings.

A limb is adapted for burrowing

B limb is adapted for flying

C limb is adapted for gripping branches

D limb is adapted for running



1



2



3



4

QUESTION THREE

Toads eat flying insects. Wasps have a black and yellow striped body, and a sting.

Hoverflies have a black and yellow striped body, but do not have a sting.



Wasp



Hoverfly

In an experiment, a young toad which had never encountered

wasps or hoverflies was presented with a wasp. The toad attempted to eat the wasp but quickly released it. Two days later the toad was presented with a hoverfly. The toad did not attempt to eat the hoverfly.

8A The toad probably released the wasp because . . .

- 1 it had an unpleasant taste.
- 2 the toad did not like the black and yellow colouring of the wasp.
- 3 the toad was not hungry.
- 4 the wasp stung the toad.

8B The toad probably did not attempt to eat the hoverfly because . . .

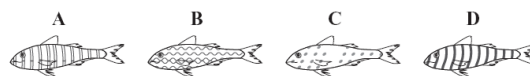
- 1 hoverflies do not taste very nice.
- 2 hoverflies have a nasty sting.
- 3 it was not hungry.
- 4 its colours acted as a warning.

QUESTION FOUR

Animals are adapted to survive in their habitat. One of the adaptations is camouflage.

Match fish, **A**, **B**, **C** and **D**, to the type of plant **1–4** which would best help to camouflage them.

(The drawings are not to scale.)



QUESTION FIVE

Camels live in deserts.

Deserts are dry and hot during the day but can be very cold at night.

Camels have adaptations which help them to survive in desert conditions.

Match adaptations, **A**, **B**, **C** and **D**, with the conditions **1– 4** in the table.

A does not sweat very much

B has large feet

C has nostrils which can be closed

D has thick fur



	Conditions which the adaptation helps camels to survive
1	cold nights
2	sandstorms
3	soft, sandy ground
4	lack of water

Year II Biology: Adaptations and Competition

This is a GCSE topic and consequently you need to keep these notes extremely safe until the fifth year. Below is the syllabus for this topic. Use it as a checklist for revision

4.7.1.4 Adaptations

Students should be able to explain how organisms are adapted to live in their natural environment, given appropriate information.

Organisms have features (adaptations) that enable them to survive in the conditions in which they normally live. These adaptations may be structural, behavioural or functional.

Some organisms live in environments that are very extreme, such as at high temperature, pressure, or salt concentration. These organisms are called extremophiles. Bacteria living in deep sea vents are extremophiles.