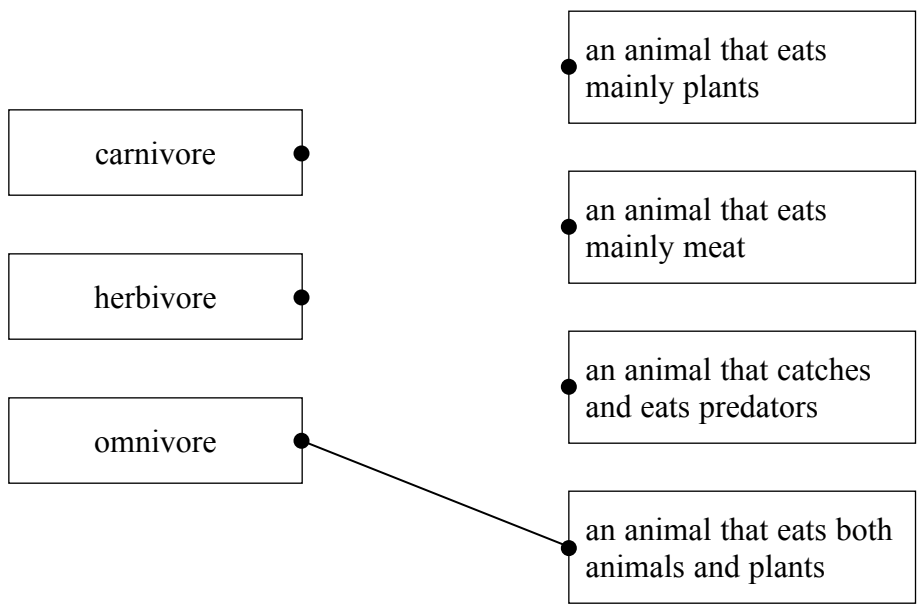




1. (a) Draw **one** straight line from each feeding behaviour to its definition.  
One has been done for you.

**feeding behaviour**

**definition**



(2)

(b) Put a cross (☒) next to the correct word(s) to complete the following sentence.

Carnivores have more protein in their diet than herbivores. This means that the amount of time carnivores need to spend eating compared to herbivores is

- less
- more
- the same

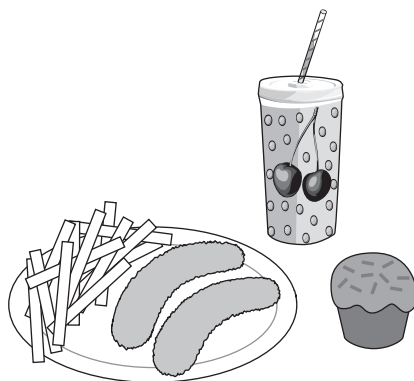
(1)

Q1

(Total 3 marks)



2. Every day John has two sausages in batter, chips, a chocolate cake, and a fizzy cherry drink for his lunch.



(a) The table below shows parts of John's lunch and some alternatives that he could eat.

(i) For each part of John's lunch, tick the best alternative that would improve his diet. (3)

(ii) In the last column, suggest how your alternative improves John's diet. (3)

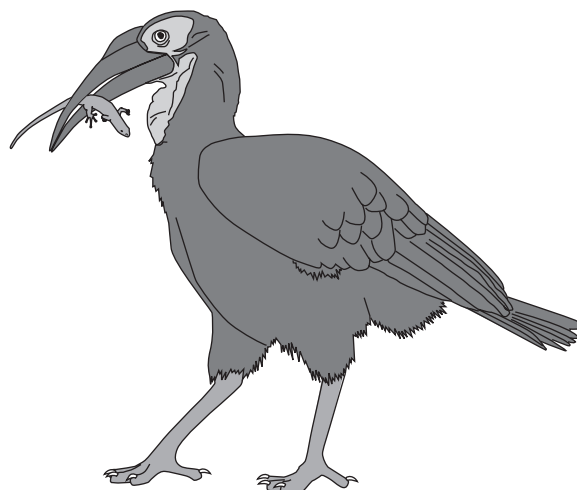
part of John's lunch	alternative food		how this improves John's diet
sausages in batter	fried sausages	<input type="checkbox"/>	
	grilled fish	<input type="checkbox"/>	
	grilled sausages	<input type="checkbox"/>	
chocolate cake	apple	<input type="checkbox"/>	
	chocolate biscuits	<input type="checkbox"/>	
	doughnut	<input type="checkbox"/>	
fizzy cherry drink	cola	<input type="checkbox"/>	
	diet cola	<input type="checkbox"/>	
	semi skimmed milk	<input type="checkbox"/>	

(Total 6 marks)

Q2



3.



The male ground hornbill is a type of bird that may catch a lizard and then hold it in his beak next to a female. If the female accepts the lizard he offers, she may become his mate.

Use words from the box to complete the following sentences.

camouflaged	courtship	genes
feeding	healthy	large
suited	time	

- (a) This behaviour is part of the male hornbill's ..... (1)
- (b) Offering the lizard shows the female that the male is ..... and ..... to the environment in which they live. (2)
- (c) It is therefore worth the female investing her ..... with those of the male. (1)

(Total 4 marks)

Q3



Leave blank

4. Herbicides are chemicals that can be sprayed on to plants to kill them. The picture shows crops that have been genetically modified so that they are resistant to herbicides.



crops genetically modified so that they are resistant to herbicide



weeds not resistant to herbicide

Use this information to explain how world food supplies can be increased.

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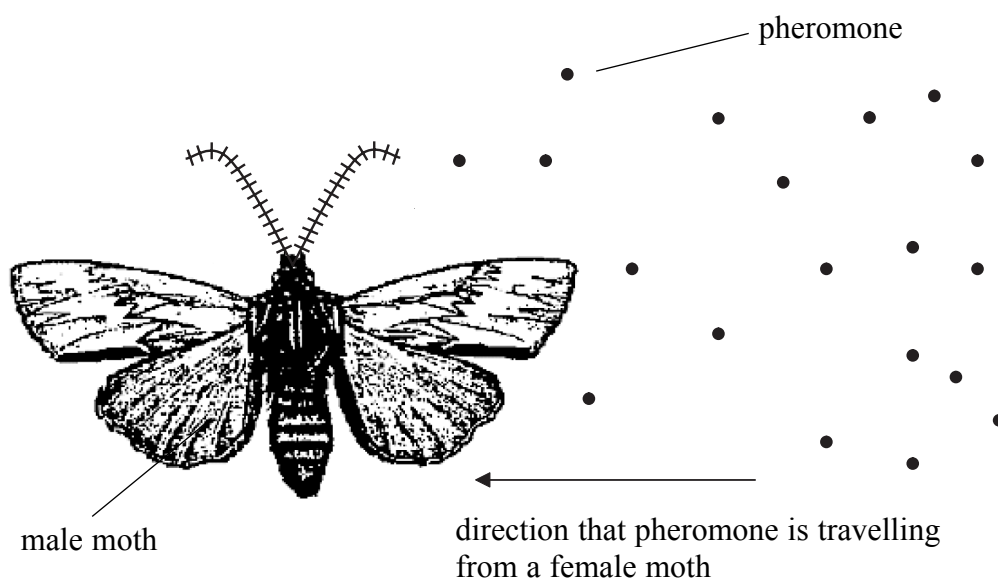
.....

(Total 3 marks)

Q4



5. Pheromones are chemicals that are made by an animal and released into the air. Some moths can detect pheromones from 10 km away.



(a) (i) Describe how the concentration of the pheromone changes as it spreads out from the female moth.

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

(ii) How does the male moth use this change to find the female moth?

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

(b) Explain why it is important that pheromones from female moths usually only affect males of the same species.

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

(Total 4 marks)

Q5



6. Joanne and Rani went on a trip to London. They noticed that squirrels in London were less likely to run away when a loud sound was made compared to the squirrels in their village.

Here are their ideas to explain this behaviour.

I think that this is innate behaviour. London squirrels are born being able to ignore loud sounds.

Joanne

I think that London squirrels show habituation to loud sounds.

Rani

(a) Use the best words from the box to complete the following sentences.

harmful    harmless    inherited  
learned    neutral

Habituation is a form of ..... behaviour where an animal reacts less strongly to a stimulus when it is .....  
(2)

(b) Suggest an investigation that could be done to test whether this behaviour of London squirrels is inherited. Include the results they would expect to obtain.

.....  
.....  
.....  
.....

(2)

(Total 4 marks)

Q6



7. Gorillas and orang-utans are large primates that live in forests. Gorillas live in family groups. Orang-utans usually live alone.



Gorillas have a range of at least six facial expressions, but orang-utans have fewer, possibly only two.

- (a) Suggest why gorillas need a greater range of facial expressions than orang-utans.

.....  
.....  
.....  
.....

(2)

- (b) Gorillas are usually calm and gentle and never attack unless provoked. When another adult male challenges the dominant male in a group, both gorillas will display aggressive behaviour. This may include these stages:

- 1 baring teeth and staring
- 2 standing up on hind legs
- 3 cupping (beating) the chest
- 4 roaring and screaming

If the challenger persists, the dominant male will drop on all fours and charge towards him. Usually when the dominant male charges he does not make contact with the challenger but only runs close to him.





Leave  
blank

- (i) A cameraman wishes to film a group of gorillas.  
Use the information given to suggest how the cameraman should behave when approaching the gorillas.

.....  
.....  
.....  
.....

**(2)**

- (ii) Suggest why dominant males do not usually make contact with challengers when they charge at them.

.....  
.....  
.....  
.....

**(2)**

**(Total 6 marks)**

**Q7**



8. Most cartoon animal characters are anthropomorphic.



(a) Explain what is meant by the term 'anthropomorphic'.

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

Humans often keep animals as pets.

(b) Suggest **two** reasons why humans keep animals as pets.

1 .....

.....

2 .....

.....

(2)

Humans were originally hunter-gatherers. Over time they domesticated many herd animals.

(c) Explain the advantages to humans of domesticating herd animals.

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.....  
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(2)

(Total 6 marks)

Q8



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blank

9. Malaria is a disease caused by the malaria parasite.

(a) Quinine is an effective anti-malaria drug.  
What is the natural source of quinine?

.....  
(1)

(b) Scientists are now testing artemisinin as a possible treatment for malaria. It is extracted from the plant *Artemisia annua*. At the moment it is very difficult to get sufficient artemisinin to use as a treatment for lots of people.

(i) Suggest **one** reason why plant extracts are carefully tested before use on humans.

.....  
(1)

(ii) Describe some ways that the supply of artemisinin could be increased.

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.....  
(3)

(Total 5 marks)

Q9



Leave blank

10. Describe the stages in the commercial production of soy sauce.

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(Total 4 marks)

Q10

11. A breakfast cereal for children is marketed as the first cereal to contain prebiotics.

(a) Name the food group to which most prebiotics belong.

..... (1)

(b) Explain how prebiotics benefit the human body.

.....

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(3)

(Total 4 marks)

Q11



Leave  
blank

12. Some people now want to choose the sex of their baby.

(a) Explain how being allowed to choose the sex of babies may affect the human population.

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.....

(1)

(b) Discuss the ethical implications of choosing the sex of your baby.

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

Q12

(Total 3 marks)



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13. Many people like to have a dog as a pet. They buy the dog as a puppy and train it. The puppy can learn through conditioning.

(a) Use an example from dog training to help explain what is meant by the term 'conditioning'.

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(4)

(b) Describe how an animal's parents and early experiences in life impact on the way it behaves as an adult.

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(4)

Q13

(Total 8 marks)

**TOTAL FOR PAPER: 60 MARKS**

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