

1. The statements describe examples of behaviour used by animals as protection from predators.
1. A hedgehog rolls into a ball so that its spines protect it from a fox.
 2. Mackerel swim in a large shoal making it difficult for a predator to single one out.
 3. An individual meerkat watches for predators while the other meerkats feed.

Which are examples of social defence?

- A 1 and 2 only
- B 1 and 3 only
- C 2 and 3 only
- D 1, 2 and 3

2. Many animals live in social groups and have behaviours that are adapted to group living.
- Which row in the table matches a type of behaviour with an example of this behaviour?

	Type of behaviour	Example of behaviour
A	cooperative hunting	vampire bats giving a blood meal to other bats
B	reciprocal altruism	herring forming large groups to confuse predators
C	cooperative hunting	killer whales (Orca) working together to kill seals
D	social defence	killer whales (Orca) working together to kill seals

3. Domestic chickens kept in social groups form a social hierarchy in which the most dominant birds give most pecks to others and receive least.
- In an investigation, four individual domestic chickens from a group were marked with lettered leg rings. The number of pecks given and received by each bird in one hour was recorded and the results shown in the table below.

		Number of pecks given by each bird to the others				
		Leg ring letter	W	X	Y	Z
Number of pecks received by each bird from the others	W	–	0	12	9	
	X	15	–	8	7	
	Y	0	0	–	0	
	Z	0	0	10	–	

The social hierarchy among the chickens with the most dominant bird first is

- A Y, Z, W, X
- B X, W, Z, Y
- C Y, W, Z, X
- D X, Z, W, Y.

75

4. Painted wolves hunt in packs ranging in size from 3 to 20 individuals.
- Compared to hunting alone this means that
- A each individual gains less energy
 - B only subordinate wolves gain more energy
 - C only dominant wolves gain more energy
 - D less energy is used per individual.

5. An investigation was carried out into the social hierarchy in a group of five hens, V, W, X, Y and Z. Hens establish dominance by pecking each other aggressively. The number of pecks given and received was recorded.

The results are shown in the table.

		Number of pecks given by each hen				
		V	W	X	Y	Z
Number of pecks received by each hen	V	-	-	-	10	-
	W	2	-	-	13	-
	X	6	8	-	7	-
	Y	-	-	-	-	-
	Z	11	10	5	4	-

The order of hierarchy from most dominant to least dominant hen is

- A Z, V, X, W, Y
B Y, V, W, X, Z
C Z, X, W, V, Y
D Y, W, V, X, Z.
6. Primates such as chimpanzees (*Pan troglodytes*) live in large groups, in which social hierarchies exist.

Which row in the table shows the type of behaviour displayed by a dominant chimpanzee and its effect on conflict?

	Type of behaviour	Effect on conflict
A	ritualistic	increases
B	appeasement	increases
C	ritualistic	decreases
D	appeasement	decreases

7. In primates such as chimpanzees, parental care

- A occurs over a short time period
B provides time for learning complex social behaviour
C increases the parent’s social status within their group
D involves appeasement behaviour within a group.

8. The list of statements below refers to advantages gained by hunting behaviour.

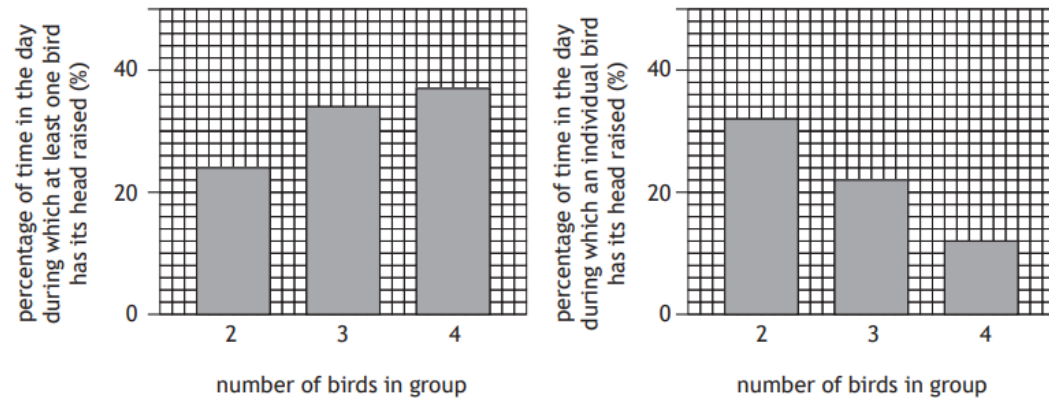
- 1 Much larger prey may be killed than by hunting alone.
2 Both dominant and subordinate animals benefit.
3 Individuals gain more energy than by hunting alone.

Which of the statements could be true of cooperative hunting?

- A 1 and 2 only
B 1 and 3 only
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9. Painted wolves hunt in packs ranging in size from 3 to 20 individuals. Compared to hunting alone this means that
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9. Ostriches are large birds that live on open plains in Africa. They divide their time between feeding on vegetation and raising their heads to look for predators.

The graphs show the results of a study on the effect of group size in ostriches on their behaviour.



Which of the following is a valid conclusion from these results?

In larger groups, an individual ostrich spends

- A less time with its head raised so the group is less likely to see predators
- B less time with its head raised but the group is more likely to see predators
- C more time with its head raised so the group is more likely to see predators
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1. Lions living in a pride is an example of a social hierarchy.
- (i) Describe what is meant by social hierarchy.
- _____
- _____
- (ii) Name a type of behaviour shown by animals living in a social hierarchy which reduces conflict.
- _____
- (iii) Other than reducing conflict, give an advantage of living in a social hierarchy.
- _____
- _____

2. (i) Meerkats live in social hierarchies.
- Name a type of behaviour that is often shown by dominant members of a social group.
- _____
- (ii) Give an advantage of being in a social hierarchy.
- _____
- _____

3. Primates often form alliances with others and carry out appeasement behaviour within their group.
- 2 State the advantages of these behaviours. 2
- Forming alliances _____
- _____
- 1 Appeasement _____
- 4 State an advantage of co-operative hunting. 1
- 1 _____
- _____
- 5 Primates, such as capuchin monkeys, have a long period of parental care.
- 1 Explain why the scientists only recorded the calls from adult monkeys. 1
- _____
- _____
- 1
- 6 Suggest why wild dogs in larger packs gain more energy per individual from hunting even though there are more animals to be fed. 1
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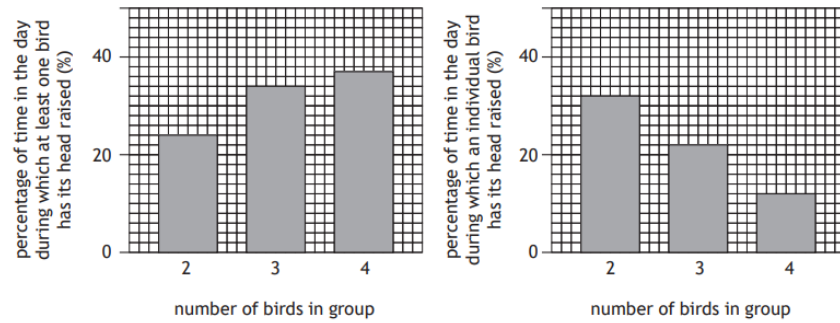
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(i) Describe what is meant by social hierarchy.

Rank order of dominant and subordinates

(ii) Name a type of behaviour shown by animals living in a social hierarchy which reduces conflict.

Ritualistic/appeasement

(iii) Other than reducing conflict, give an advantage of living in a social hierarchy.

1. Guarantee experienced leadership

2. Dominant's successful alleles passed to offspring
2. (i) Meerkats live in social hierarchies.

Name a type of behaviour that is often shown by dominant members of a social group.

Ritualistic/appeasement

(ii) Give an advantage of being in a social hierarchy.

1. Reduce conflict

2. Guarantee experienced leadership

3. Dominant's successful alleles passed to offspring

3. Primates often form alliances with others and carry out appeasement behaviour within their group.

2 State the advantages of these behaviours.

2

Forming alliances Increase social status

1 Appeasement Reduce conflict

4 State an advantage of co-operative hunting.

1

1. Catch larger prey 2, higher chance of success

3. Less energy used per individual 4. more food than hunting alone

5 Primates, such as capuchin monkeys, have a long period of parental care. Explain why the scientists only recorded the calls from adult monkeys.

1

1 It takes time to learn complex social behaviours.

6 Suggest why wild dogs in larger packs gain more energy per individual from hunting even though there are more animals to be fed.

1

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