ANSWER KEY.

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Group Behavior

Biology | ANSWER KEY

Answer in complete sentences. Show your work for calculations. Use the graphs and tables as evidence.

1. A predator catches one animal at random in each attack. A herd has 8 animals. A second herd has 40 animals.

(a) Find the chance that a particular animal is caught in each herd. Show the setup.

(b) How many times lower is the chance in the larger herd?

(a) Herd of 8: 1 ÷ 8 = **12.5%**; herd of 40: 1 ÷ 40 = **2.5%**

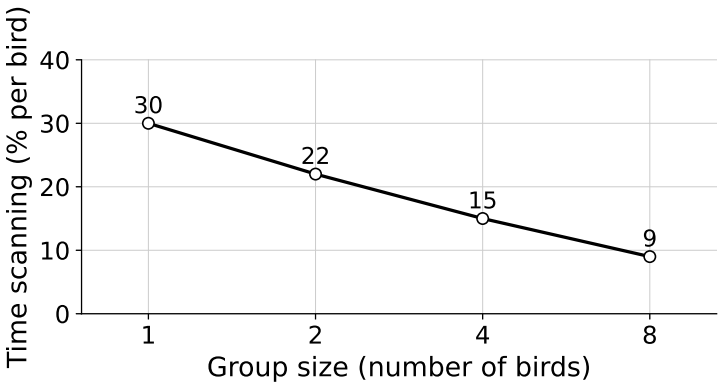
(b) 12.5% ÷ 2.5% = **5 times lower**

2. Is each effect of group living a benefit or a cost?

Effect of living in a group	Benefit or cost?
(a) More individuals watch for predators.	**Benefit**
(b) Group members compete for the same food.	**Cost**
(c) A disease spreads quickly from animal to animal.	**Cost**
(d) Wolves hunt together and catch large prey.	**Benefit**

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3. Researchers measured the time each bird spent scanning for predators in flocks of different sizes.



(a) Describe the pattern in the data.

(b) Find the percent decrease in scanning time from 1 bird to 8 birds.

(c) Explain how scanning less could help a bird in a larger flock.

(a) **As flock size increases, the time each bird spends scanning decreases.**

(b) (30 − 9) ÷ 30 × 100 = **70%**

(c) **More birds are watching, so each bird can scan less and spend more time feeding, which can improve its chances to survive and reproduce.**

4. Researchers counted fledglings per nest in bird colonies of different sizes.

Colony size (nests)	Fledglings per nest
10	2.8
40	3.4
160	2.1

A student says the largest colony is best for reproduction. Write a claim, evidence, and reasoning statement that supports or disagrees. Use data.

Claim: The largest colony is not best for reproduction. **Evidence:** a colony of 40 nests had 3.4 fledglings per nest, but a colony of 160 nests had 2.1, which is 38% lower. **Reasoning:** group living has costs, such as competition for food or the spread of disease, that may outweigh the benefits in a very large colony. The data show the net effect but not which cost caused it.

Must include: (1) a claim that disagrees; (2) data with units from the table; (3) the idea that costs and benefits both affect reproduction.

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