

# INVESTIGATION 2 I-CHECK ENVIRONMENTS

Name \_\_\_\_\_

Date \_\_\_\_\_

1. A community of organisms interacting with one another and with nonliving factors in an area is called \_\_\_\_\_.

*(Mark the one best answer.)*

- A** an environment
- B** a population
- C** an ecosystem
- D** a habitat

2. Mark an **X** next to each organism that makes its own food from resources in the environment.

\_\_\_\_\_ A blade of grass

\_\_\_\_\_ An earthworm

\_\_\_\_\_ An insect

\_\_\_\_\_ An oak tree

\_\_\_\_\_ A cheetah

3. Write **M** next to the words that describe *matter* in an ecosystem. Write **E** next to the words that describe *energy* in an ecosystem. Write **ME** next to words that describe both matter and energy in an ecosystem.

\_\_\_\_\_ air

\_\_\_\_\_ sunlight

\_\_\_\_\_ food

\_\_\_\_\_ water

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4. Different sense receptors are specialized for particular kinds of information gathering. Animals have many amazing adaptations that allow them to survive in their environment.

Match each of the information-gathering animal adaptations with its function.

*(Write a letter in each blank.)*

\_\_\_\_\_ The star-nosed mole has 100,000 nerve fibers that run from its nose to its brain. (That's more nerve fibers than you have on your hands.)

\_\_\_\_\_ A hawk's vision is 20/5. (Normal vision for people is 20/20. A hawk can see at 20 feet what you see at 5 feet from the object.)

\_\_\_\_\_ Dolphins and bats can bounce sound waves off of objects. They can hear up to at least 100,000 Hz. (Humans only hear in the 1,000 to 20,000 Hz range.)

\_\_\_\_\_ Crabs and crayfish have hairs on their claws and other body parts that can sense water current and vibration.

\_\_\_\_\_ Dogs have a membrane for smelling that is 150 sq cm (compared to humans whose smell membrane is 4 sq cm!).

\_\_\_\_\_ Pigeons have eyes mounted on either side of their heads. This allows them a field of vision of 340°—that's all but a small part of a full circle! (Humans on the other hand, with their eyes mounted forward have only a 190° field.)

**This adaptation is good for**

- A** Feeling around for food in the dark
- B** Seeing a predator coming from any direction
- C** Navigating in water or air where vision is not helpful
- D** Sensing a change in the environment when danger is near
- E** Understanding the environment by its smell
- F** Being able to sight prey from far away

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5. Mark an **X** next to each sentence that explains what most likely happens if an environment changes *slightly*.

- \_\_\_\_\_ All living organisms die.
- \_\_\_\_\_ Some animals move to new locations.
- \_\_\_\_\_ Plants and animals can grow and reproduce faster.
- \_\_\_\_\_ Some plants and animals survive and reproduce.
- \_\_\_\_\_ Organisms change their structures to survive in the new conditions.

6. The table shows a deer population over several years. From these data, what would you predict is the carrying capacity for deer in this ecosystem?

(Mark the one best answer.)

- A** 30 to 35 deer
- B** 142 deer
- C** 5 to 30 deer
- D** 5 to 142 deer

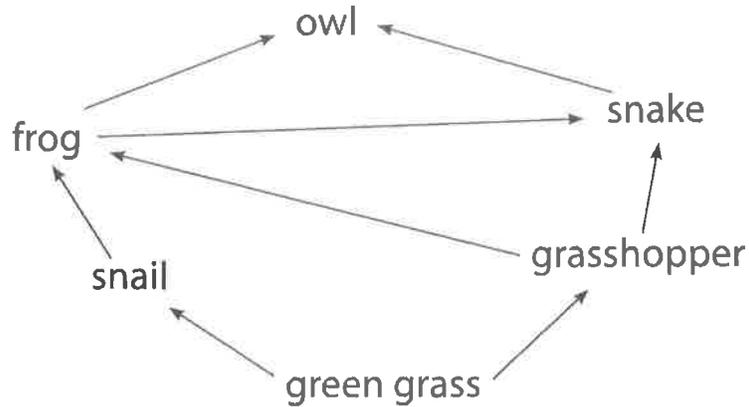
<b>Year</b>	<b>Number of deer</b>
1	5
2	35
3	142
4	30
5	32

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7. Study the food web shown here.



a. What type of organism is missing from this food web?

*(Mark the one best answer.)*

- A Producers
- B Consumers
- C Decomposers
- D Carnivores

b. If the frog population suddenly increased, which organism would be most likely to decrease right away?

*(Mark the one best answer.)*

- F Owls
- G Snakes
- H Leaves
- J Snails

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8. Daphnia are small animals that can live in water as cold as  $5^{\circ}\text{C}$  and as warm as  $30^{\circ}\text{C}$ . A pet store owner wants to raise large numbers of daphnia to sell to customers for fish food.

The pet store owner has hired you to find the best temperature for raising daphnia.

- a. You wrote out the experimental procedure, but mixed up the order of the steps. Write a number in front of each step to put them in the correct order.

\_\_\_\_\_ At the end of 2 weeks, count the daphnia in each tank.

\_\_\_\_\_ Put 25 daphnia in each tank.

\_\_\_\_\_ Heat the water in each tank to a different temperature:  
 $5^{\circ}\text{C}$ ,  $10^{\circ}\text{C}$ ,  $15^{\circ}\text{C}$ ,  $20^{\circ}\text{C}$ ,  $25^{\circ}\text{C}$ ,  $30^{\circ}\text{C}$ .

\_\_\_\_\_ Observe daily, and record observations.

\_\_\_\_\_ Set up six identical tanks of water. Put 1 liter (L) of water in each container.

- b. From which step will you use the data to make your recommendation to the pet store owner?

*(Mark the one best answer.)*

- A** At the end of 2 weeks, count the daphnia in each tank.
- B** Put 25 daphnia in each tank.
- C** Observe daily, and record observations.
- D** Set up six identical tanks of water.

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### OPEN-RESPONSE QUESTIONS

9. Explain how energy from the Sun helps a shark survive.

(Hint: Think of a food chain.)

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10. Describe how an aquatic ecosystem is similar to a terrestrial ecosystem and how it is different.

*The ecosystems are similar because*

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*The ecosystems are different because*

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