

Name: \_\_\_\_\_

# ANOTHER VIEW

Read "Dodging Extinction" (p. 14) about how Buddhist monks are helping to protect endangered snow leopards. Then read the passage below about snow leopards and answer the questions on the following page.

## IN SEARCH OF SNOW LEOPARDS

We walked single file along the thin mountain trail. Twenty packhorses carried our gear. In a valley far below, plants and trees thrived beside a roaring river. But little grew along our dusty trail, 4,000 meters (13,123 feet) above sea level. We glimpsed a herd of wild sheep on a faraway cliff and birds circling overhead, but saw nothing else alive. The thin air made it hard to breathe.

This was snow leopard country. Our 10-person team, which included snow leopard researcher Tashi Tundup and award-winning wildlife photographer Steve Winter, had come to the Indian Himalayas looking for the shy, elusive cat.

### Struggle for Survival

It took us five days to reach the first mountain village. Inside a mud-brick house, we talked to locals over yak-milk tea. Tundup translated. They told us that a snow leopard had just killed three of their goats. The cat's kills were devastating to the families, because they relied on the goats' meat, milk, and wool for their livelihood.

Snow leopards are the top predator in this ecosystem. Even so, scientists have determined that the big cat is an endangered species. The biggest reason snow leopards are being killed is that they sometimes eat people's livestock.

### Shy Cat

Most of the villagers we encountered on our 17-day trek had never set eyes on the secretive snow leopard. The cat's elusive nature makes it difficult to study, says Joe Fox, a biology professor at the University of Tromsø in Norway. "Although we've been studying them for 50 years, we know little about them," he says.

To study the cats in their vast, rugged mountain home, scientists have to be clever. They look for the scrapes or sprays snow leopards use to mark their territory, and then they set up trap cameras in those places. When the animals pass by, these cameras automatically photograph them. Researchers study the pictures and identify individual snow leopards by their spot patterns.

### On Guard

Scientists are trying hard to protect the endangered cats. "We are working with local communities, because they will decide the fate of these animals," says George Schaller, vice president of Panthera, a New York conservation organization. Snow Leopard Trust has vaccinated livestock in Pakistan so fewer animals in a family's herd die of disease. That way, if a snow leopard happens to kill an animal from their herd, it is not as devastating to that family's livelihood. The organization has also established livestock insurance policies to pay for snow leopard kills. In return, villagers sign a contract promising that they won't kill the cats or their prey.

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# ANOTHER VIEW

## QUESTIONS

**1. According to the articles, what is the main reason snow leopards are endangered?**

- (A) The animals' bones are used in traditional medicine.
- (B) Poachers kill the animals for their fur.
- (C) Herders kill snow leopards when the animals eat domestic livestock.
- (D) Other mountain animals kill snow leopards.

**2. Which article employs a first-person point of view?**

- (A) "Dodging Extinction"
- (B) "In Search of Snow Leopards"
- (C) both articles
- (D) neither article

**3. Which of the following statements is BEST supported by the description in the first paragraph of "In Search of Snow Leopards"?**

- (A) Snow leopard country is an easy place to live.
- (B) People cannot survive in the snow leopard's habitat.
- (C) There are many prey animals for snow leopards to eat in their habitat.
- (D) Snow leopards live in a harsh environment.

**4. Information about how many monasteries are located in the Tibetan Plateau would best fit in which article?**

- (A) "Dodging Extinction"
- (B) "In Search of Snow Leopards"
- (C) both articles
- (D) neither article

**5. Which two sections describe the ways in which scientists are trying to protect snow leopards?**

- (A) "Guardians of Wildlife" and "On Guard"
- (B) "Monitoring a Reclusive Cat" and "Struggle for Survival"
- (C) "Monitoring a Reclusive Cat" and "Shy Cat"
- (D) "Fighting to Survive" and "On Guard"

**6. What new information did "In Search of Snow Leopards" add to what you had already learned from "Dodging Extinction"?**

- (A) Organizations are providing herders with livestock insurance.
- (B) Buddhist monks are monitoring snow leopards around the monasteries.
- (C) Organizations are vaccinating herders' livestock against disease so fewer animals die.
- (D) Monasteries are educating local people about snow leopards.

**7. George Schaller is quoted as saying that local communities will decide the fate of snow leopards. Do you agree with that statement? Support your answer with facts from both articles.**

**8. Which of the following do scientists use to study snow leopards?**

- (A) scrapes
- (B) scat
- (C) images from trap cameras
- (D) all of the above

**9. Re-read the section titled "Shy Cat" from "In Search of Snow Leopards." Use context clues to determine the best definition for *elusive*.**

- (A) vicious
- (B) hard to find
- (C) gentle
- (D) intelligent

**10. Which article did you prefer? Why?**

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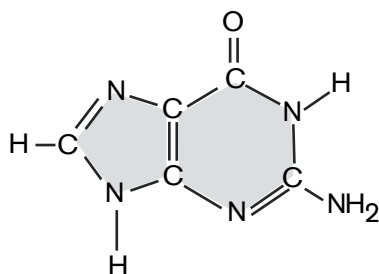
# PARTS OF A DNA MOLECULE

In "Dodging Extinction" (p. 14), you learned that one way scientists have been counting snow leopards is by analyzing DNA from the cats' droppings to identify individual animals.

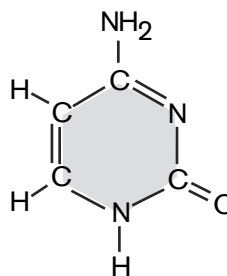
DNA molecules have a twisted-ladder shape. Genetic information is contained in the rungs of the ladder, which consist of pairs of nucleotide bases. DNA contains four kinds of bases: adenine, guanine, cytosine, and thymine. The bases are made of carbon (C), nitrogen (N), hydrogen (H), and oxygen (O) atoms bonded together. The diagram below shows the structure of the four nucleotide bases found in DNA. Use the diagram to answer the questions that follow.

## Nucleotide Bases

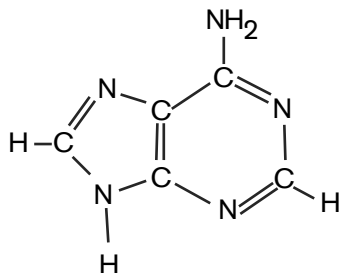
**G** Guanine



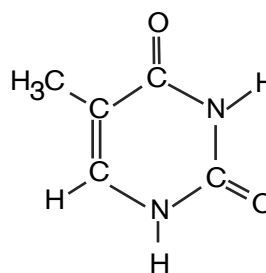
**C** Cytosine



**A** Adenine



**T** Thymine



SOURCE: NATIONAL HUMAN GENOME RESEARCH INSTITUTE

## QUESTIONS

- Which nucleotide base contains the most atoms?
- How many hydrogen atoms are there in a thymine molecule?
- Which atom is oxygen bonded to in the bases?
- How many bonds can a carbon atom form?
- Guanine and adenine are known as the purines; cytosine and thymine are called the pyrimidines. What major difference do you see between the structure of purines and pyrimidines?

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# LEOPARD COUNT

In “Dodging Extinction” (p. 14), you read that Buddhist monks in Asia are helping to keep endangered snow leopards from disappearing. The chart below shows the estimated percent of snow leopards that remain in the world in zoos and in each country in the cats’ natural habitat. Use the chart to answer the questions that follow.

**Distribution of Snow Leopards**

Location	Percent of Total Population
China	34
Mongolia	14
India	8
Zoos around the world	8
Kyrgyzstan	7
Nepal	7
Pakistan	6
Afghanistan	3
Bhutan	3
Kazakhstan	3
Russia	3
Tajikistan	3
Uzbekistan	1

SOURCE: INTERNATIONAL UNION FOR CONSERVATION OF NATURE RED LIST OF THREATENED SPECIES, 2013

## GRAPH IT

Use a separate sheet of paper to create a pie chart that shows the percent of snow leopards found in each area. Don't forget to label the slices and give your chart a title.

## ANALYZE IT

- Which country has the largest population of snow leopards?
- By how many percentage points is that population larger than the next largest one?
- Tajikistan, Kyrgyzstan, Uzbekistan, Russia, and Kazakhstan were all part of the Soviet Union. What is the total percentage of snow leopards located in those countries?
- Suppose that 500 snow leopards live in zoos around the world. How large is the total snow leopard population?
- Scientists can only estimate the total number of snow leopards left in the wild. What are two reasons for this uncertainty that are stated in the article?

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# TRACK A CAT

In “Dodging Extinction” (p. 14), you read that one way researchers keep tabs on snow leopards is by fitting them with tracking collars. The collars rely on GPS to determine the cat’s location. A transmitter on the collar beams a signal to satellites orbiting Earth. To pinpoint the cat’s exact location, three satellites work together using a mathematical principle called *triangulation*, which states that an unknown point can be located if you know how far it is from three known points. Use triangulation to locate a snow leopard. (**Note to teachers:** Print this activity at 100 percent scale to ensure results.)

## MATERIALS

- pencil • compass • map on next page

## PROCEDURE

- 1.** Look at the map on the following page. The three numbered circles represent GPS satellites orbiting Earth. Satellite 1 receives a signal from a leopard’s collar. The satellite calculates that the cat is located somewhere along a circle with a 4 centimeter (1.6 inch) radius on the map around the satellite’s position. Set your compass with a radius of 4 cm and draw a circle around Satellite 1. The circle’s perimeter represents all of the possible points where the leopard could be.
- 2.** The leopard’s collar beams a signal to Satellite 2. Satellite 2 calculates that the cat is located somewhere along a circle on the map with a radius of 5 cm (2 in.). Adjust your compass and draw a circle around Satellite 2.
- 3.** Satellite 3 receives a signal from the snow leopard’s collar. The satellite calculates that the animal is along a circle with a 3.5 cm (1.4 in.) radius on the map. Draw your final circle.

## CONCLUSION

- 1.** Were you able to pinpoint the snow leopard’s location? In which country is the cat located?
- 2.** If you were to draw circles only for Satellites 1 and 2, which countries might the leopard be in? (Hint: The places where the circles intersect are possible locations.) Why do you need the third satellite?
- 3.** Suppose you had signals from only two satellites. What other factors might help you determine where a snow leopard is located?

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# TRACK A CAT

