

NATIONAL GEOGRAPHIC Explorer!

"FOR THE INCREASE AND DIFFUSION OF GEOGRAPHIC KNOWLEDGE."

Dear Teacher:

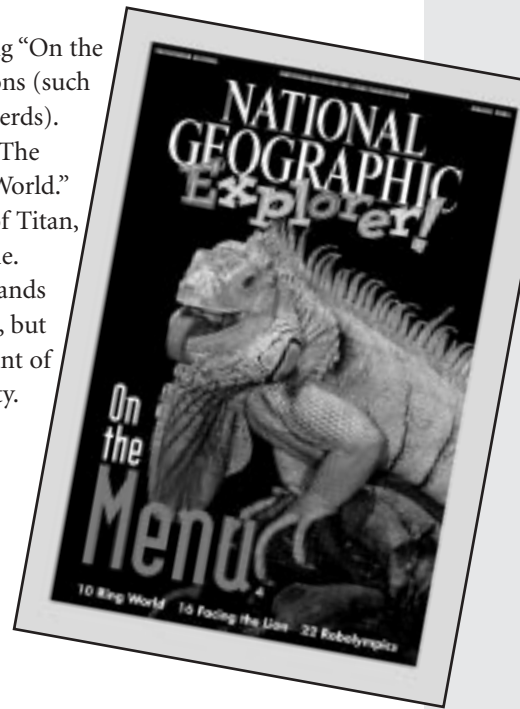
Our March 2005 issue focuses on three topics that loom large in elementary curricula: animal adaptations and behavior, the solar system, and human cultures.

We begin by exploring the diverse ways that animals try to avoid landing "On the Menu" of a predator. These survival tactics include both physical adaptations (such as a sea dragon's camouflage) and behaviors (such as living in schools or herds).

Next we rocket toward Saturn—a planet both familiar and mysterious. The Cassini spacecraft is giving scientists their first detailed look at this "Ring World." Among other things, the probe has spotted dark splotches on the surface of Titan, one of Saturn's 33 known moons. The areas may be lakes of liquid methane.

We end by meeting a man who grew up "Facing the Lion" on the grasslands of Kenya. Maasai herder Joseph Lekuton later became a teacher in the U.S., but he returns to Africa—and his heritage—each summer. His firsthand account of living in two worlds will deepen students' awareness of Earth's rich diversity.

Finally, September seems ages away. Yet it's not too early to renew your EXPLORER subscription. Don't forget: We now offer *two* editions—to better meet the varied needs of your students. The cover wrap tells you more.



Sincerely yours,

Francis Downey
 Executive Editor
 NATIONAL GEOGRAPHIC EXPLORER

Answer Key

STUDENT EDITION

Say "Ah" Page 3

1. house cat, 2. centralian blue tongue lizard,
 3. Mexican beaded lizard, 4. black bear

TEACHER'S GUIDE

Spin Cycles Page 5

1. false, 2. true, 3. true, 4. false, 5. false
 6. true, 7. false, 8. true, 9. true, 10. false

Review Page 8

1. predator, 2. camouflage, 3. atmosphere, 4. orbit,
 5. planet, 6. nomads, 7. disobedient, 8. primitive,
 9. c, 10. c, 11. a, 12. b, 13. b, 14. b

Issue at a Glance

Teaching Unit	Reading	Writing	Science	Soc. Studies	Math	Curriculum Connections	
						Literacy Skills	Topics
On the Menu pp. 4–9	■	■	■			L	Nonfiction feature: image series L Metaphorical language in context F Structural adaptations in animals T Animal behavior and survival
Ring World pp. 10–15	■	■	■		■	L	Scientific vocabulary L Nonfiction feature: illustrations T Solar system: Saturn and its moons T Scientific inquiry: space exploration
Facing the Lion pp. 16–21	■	■	■			L	Genre: first-person account L Nonfiction feature: political map T Cultures: similarities, differences T Economics: traditional livelihoods



Vocabulary

Ask students to read the words and definitions in Wordwise on page 9. Read aloud each sentence below. Ask which word fills the blank.

- A _____ is a meat-eater. (*predator*)
- Red and blue are _____ that tell predators not to eat grasshoppers. (*warning colors*)
- Some fish swim in _____ because they are safer in a group. (*schools*)
- Some animals use _____ to blend into their surroundings. (*camouflage*)

Before Reading

Invite students to name their favorite wild animals. List the animals on the board. Ask students how the animals on the list keep from being eaten.

Fast Facts

- An adaptation is a bodily feature or a behavior that helps an animal survive.
- In the wild, most predators can also be prey. Snakes are a good example. They eat other animals. After a meal, snakes are very slow. They would have a hard time escaping predators then.
- Prey are not the only animals that need to blend in. Fierce predators use camouflage to blend into their surroundings and surprise prey.
- A zebra's wild stripes help it stay safe. When zebras move into a herd, predators have trouble seeing individual animals. All a predator sees is a tangle of stripes.
- Some animals protect themselves by running. Antelope can run fast for a long period of time. Even the fastest predators have trouble keeping up with an antelope for long.
- Some harmless animals have adapted to look like tougher creatures that predators would hesitate to attack. This is called mimicry.

Comprehension Check

Read each sentence aloud. Then ask students which animal it describes.

- It looks like a piece of seaweed. (*Sea dragon*)
- This mammal is brown during summer and white during winter. (*Snowshoe hare*)
- It rolls itself into a ball. (*Armadillo*)
- When attacked, this animal makes lots of foul-tasting foam. (*Grasshopper*)
- They live in large groups called schools. (*Fish*)
- To scare predators, this reptile pretends to be bigger than it really is. (*Frilled lizard*)

Critical Thinking Questions

- **Compare and Contrast:** How do predators and prey use camouflage differently? (*Possible answer: Prey try to avoid getting eaten. Predators attempt sneak attacks on other animals.*) Why do both kinds of animals find camouflage useful? (*Possible answer: It enables them to avoid detection.*)

Extension Activities

- **Reading:** Split students into groups. Ask each group to choose an animal. Instruct the groups to research how their animal stays off other animals' menus. Invite someone from each group to report to the class.
- **Science:** Have students do the "Pet Project" activity on the next page.



Book Links

Amazing Animals by Kate Jerome (National Geographic Reading Expeditions, 2002)

Animal Adaptations by Peter Winkler (National Geographic Reading Expeditions, 2004)



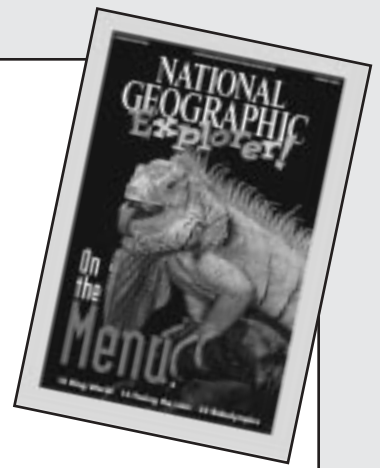
Web Link

Find animal resources and games at nationalgeographic.com/ngexplorer/teachers.

Name: _____

Pet Project

How do animals protect themselves? Find out by using two of the most important scientific tools—your own eyes.



Step 1: Pick Your Animal

Choose an animal to observe. It can be your own animal, a friend's pet, or a classroom critter.

Animal's Name: _____

Type of Animal: _____



Step 2: Research Your Animal

Visit your school or public library to find information about your animal. Learn how the animal lives in the wild.

What is this animal's natural habitat? _____

What dangers would this animal face in the wild? _____



Step 3: Watch Your Animal

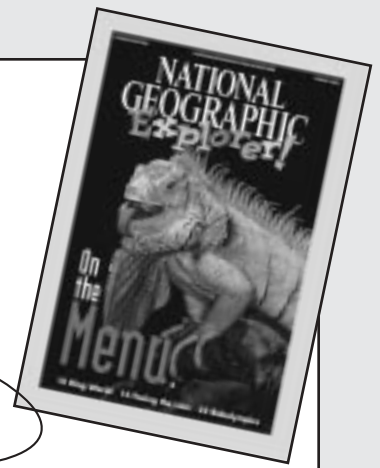
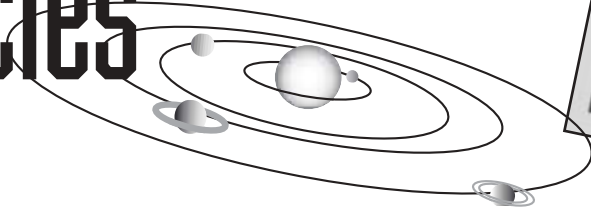
Spend some time watching the animal you picked. Try to picture it in the wild. Pay special attention to how the animal protects itself from danger.

What parts of its body does your animal use to protect itself? _____

What behaviors might help your animal protect itself? _____

Name: _____

Spin Cycles



Step 1: Read

Planets in our solar system are constantly moving. Each planet spins like a globe. One complete spin is a **rotation**. Every planet also makes an **orbit**, or circle, around the sun. The table below tells how long these movements take. Look it over carefully.

Note: Measurements are in Earth hours, days, and years.

Planet	Rotation Time	Orbit Time
Mercury	59 days	88 days
Venus	243 days	225 days
Earth	24 hours	365 days
Mars	25 hours	687 days
Jupiter	10 hours	12 years
Saturn	11 hours	29 years
Uranus	17 hours	84 years
Neptune	16 hours	165 years
Pluto	6 days	248 years

Source: solarsystem.nasa.gov/planets/index.cfm



Step 2: Think

Use the table to decide whether each statement below is true or false.

- _____ Pluto's rotation takes less time than any other.
- _____ Venus is the only planet whose rotation takes longer than its orbit.
- _____ Mars and Earth take roughly the same time to complete a rotation.
- _____ Mars and Earth take roughly the same time to complete an orbit.
- _____ Saturn's orbit takes three times longer than Jupiter's.
- _____ Jupiter can do 20 orbits in less time than Pluto needs for just one.
- _____ Pluto's orbit takes longer than all the other orbits combined.
- _____ Venus's rotation takes longer than all the other rotations combined.
- _____ Four planets can do a rotation in less than a single Earth day.
- _____ Mercury completes three rotations during each orbit.

Facing the Lion



Vocabulary

Direct students to read Wordwise on p. 19. Read aloud each pair of sentences below. Then ask the question provided.

- Matthew went to bed on time. Brigid stayed up an hour late. Which kid was **disobedient**? (*Brigid*)
- The Maasai move around from place to place. Americans usually stay in one place. Which people are **nomads**? (*The Maasai*)
- Our house has two bathrooms and cable TV. Our cabin has no plumbing or electricity. Which building is **primitive**? (*cabin*)

Before Reading

Ask: What comes to mind when you picture a lion? Would you want to find yourself facing a lion?

Fast Facts

- Roughly 300,000 Maasai live in the East African countries of Kenya and Tanzania.
- Lekuton’s subgroup, known as the Ariaal, has about 10,000 members. These nomadic herders have largely resisted government pressure to settle down in a single place.
- The Maasai are one of about 40 ethnic groups that make up Kenya’s population.
- Kenya was colonized by Great Britain in the late 1800s. After years of fierce struggle, the country became independent in 1963.

NATIONAL GEOGRAPHIC EXPLORER (ISSN 1541-3357) is published seven times during the school year—September, October, November–December, January–February, March, April, and May—by the National Geographic Society, 1145 17th Street NW, Washington, DC 20036.

Postmaster: Please send address changes to NATIONAL GEOGRAPHIC EXPLORER, P.O. Box 10597, Des Moines, IA 50340-0597. Periodical postage paid at Washington, D.C., and additional mailing offices.

10–199 Subscriptions: \$3.95 per student per year (all to same address).

200+ Subscriptions: \$2.50 per student per year (all to same address).

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Comprehension Check

Read each question aloud.

- Who are the Maasai? (*Nomadic herders in Kenya*)
- How did they get their name? (*They speak a language called Maa.*)
- What does a lion mean to the Maasai? (*It is a symbol of pride and bravery.*)
- What do the Maasai look for as they move around? (*Good grass and water*) Why? (*That’s what their cows need to survive.*)

Critical Thinking Questions

- **Drawing Conclusions:** Lekuton believes his people’s way of life is “the best, fairest system.” What reasons does he give for his belief? Do you agree with him? Why or why not?
- **Inference:** What can we learn by studying how people live in other places and cultures?

Extension Activities

- **Social Studies:** “Explore Kenya” (pp. 20-21) provides basic country data: location, population, capital, major exports, tourism, culture. Assign students to find similar details for other nations.



Reading Links

“Endangered Cultures: Africa” in NATIONAL GEOGRAPHIC KIDS (September 2004, p. 32)

Facing the Lion by Joseph Lemasolai Lekuton (National Geographic, 2003)

“Masai Passage to Manhood” in NATIONAL GEOGRAPHIC (September 1999, p. 52)



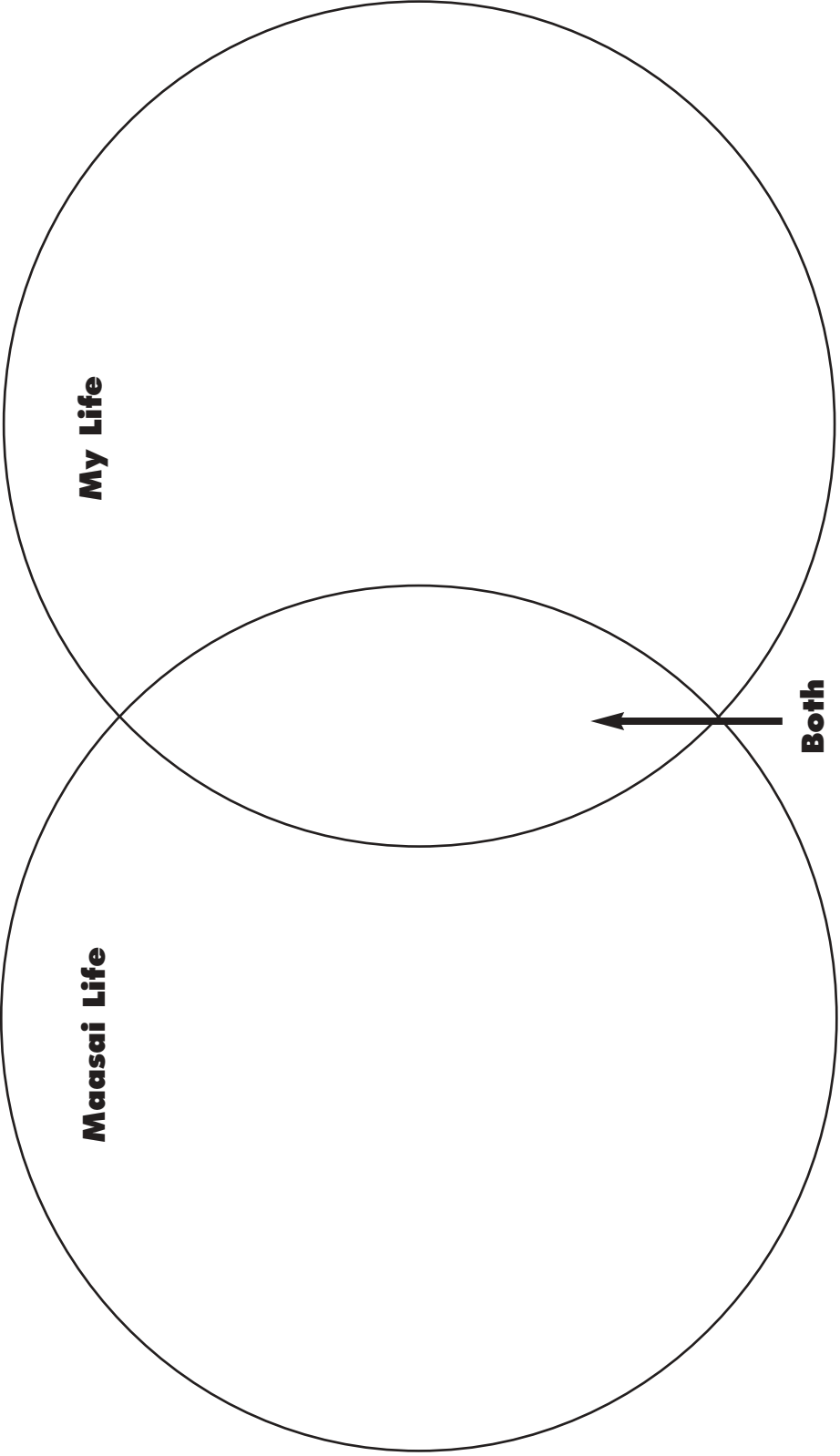
Web Link

Journey into Kenya and Maasai resources at nationalgeographic.com/ngexplorer/teachers.

Name: _____

Just Like Me?

Read "Facing the Lion" in NATIONAL GEOGRAPHIC EXPLORER. Then use this diagram to compare Maasai life and your life.

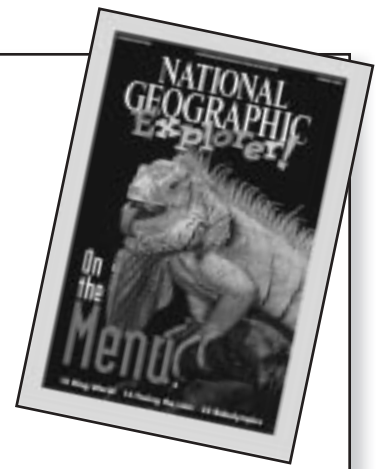


Name: _____

VOCABULARY

Use the words below to fill the blanks in these sentences.

atmosphere	disobedient	orbit	predator
camouflage	nomads	planet	primitive



- The great white shark is a famous _____.
- _____ helps some animals avoid being eaten.
- Oxygen is an important part of Earth's _____.
- Pluto takes 248 years to _____ the sun.
- Saturn is not the only _____ with rings.
- The Maasai people of Kenya are _____.
- Lars got detention for being _____ in class.
- We stayed in a really _____ cabin in the woods.

COMPREHENSION CHECK

Fill in the oval before the correct answer to each question below.

- | | |
|---|--|
| <p>9. Which of these is <i>not</i> a kind of taste bud?</p> <p><input type="radio"/> a. salty</p> <p><input type="radio"/> b. sour</p> <p><input type="radio"/> c. spicy</p> | <p>12. How do the Maasai people of Kenya make their living?</p> <p><input type="radio"/> a. They grow tea and coffee.</p> <p><input type="radio"/> b. They herd cattle.</p> <p><input type="radio"/> c. They sell baskets and pottery.</p> |
| <p>10. What are Saturn's rings made of?</p> <p><input type="radio"/> a. gas</p> <p><input type="radio"/> b. light</p> <p><input type="radio"/> c. rock and ice</p> | <p>13. About how many people live in Kenya?</p> <p><input type="radio"/> a. 3.2 million</p> <p><input type="radio"/> b. 32 million</p> <p><input type="radio"/> c. 320 million</p> |
| <p>11. How does living in large groups help some animals survive?</p> <p><input type="radio"/> a. It's harder for predators to find a single animal to eat.</p> <p><input type="radio"/> b. Being outnumbered scares predators away.</p> <p><input type="radio"/> c. The group makes so much noise that predators get dizzy.</p> | <p>14. How do the Robolympics increase our knowledge of science?</p> <p><input type="radio"/> a. Between events, everyone watches educational TV.</p> <p><input type="radio"/> b. Building a winning robot means solving scientific problems.</p> <p><input type="radio"/> c. There are many lectures about science topics.</p> |