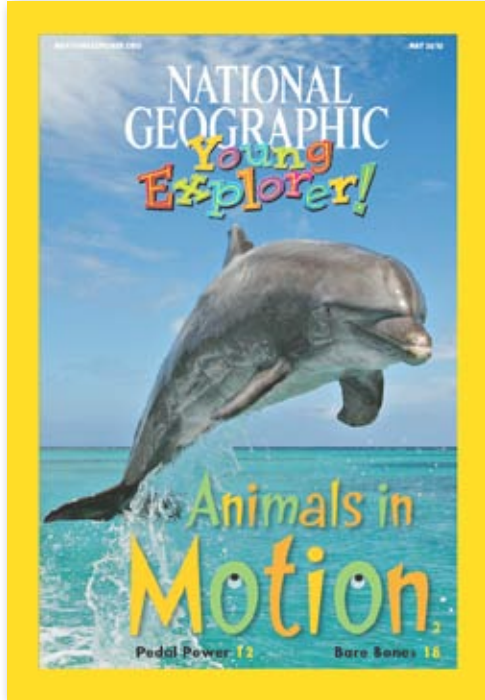


YOUNG EXPLORER MAY 2010

TEACHERS GUIDE



Dear Educator:

It's hard to believe the school year is almost over! As summer fast approaches, it is fitting then that we end the year in full swing! In "Animals in Motion" students learn about the ways animals can move. "Pedal Power" gives readers a peek into how a bike works to get you moving. And finally, in "Bare Bones," readers learn how bones play an important role in movement.

We hope you and your YOUNG EXPLORER readers have enjoyed this year's issues. We'll spend the summer getting new magazines ready for the 2010-2011 school year. We hope you include us in your planning, too. Remember, if you place your order for next year by May 31, you'll get a 10% discount. That means YOUNG EXPLORER only costs 32 cents per student per issue. You'll also get a free online Teacher's Guide, free whiteboard content for one story per issue, and a free classroom poster that builds on the stories in the issue. What an affordable way to meet standards and get your students excited about reading and the world around them!

Speaking of the Teacher's Guide, I'd love to hear what you think about the guide for this issue. We listened to your comments about changes we made to the Teacher's Guide earlier this year. We think you'll find the new-and-improved May Teacher's Guide even more user friendly and useful. Feel free to email any comments to me at schauhan@ngsp.com.

Have a fabulous summer filled with adventures!

Sincerely,

Sara Chauhan

Editor, YOUNG EXPLORER

Curriculum Standards

- **Language Arts:** Improve decoding and word recognition;
Develop academic vocabulary; Read aloud with fluency;
Produce written work
- **Physical Science:** Motion of objects; Forces and changes in motion
- **Life Science:** Organization and development of living organisms

Decoding Skills

Vowel Pairs: -ee

cheetah (p. 10); feet (pp. 10, 16); keep (p.17); need (p. 14);
tree (pp. 7, 9, 23); wheels (pp. 16, 17)

Base Words and Endings: -s

Examples:

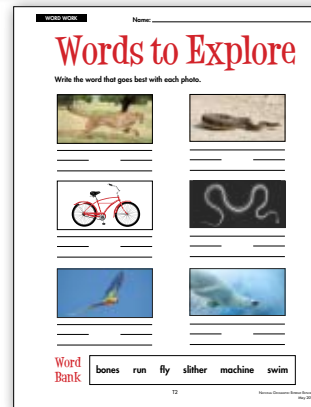
animals (pp. 2, 3, 8, 10, 11, 18); bikes (pp. 13, 14); bones (pp. 18,
19, 20, 22); dogs (p. 20); shapes (p. 14); ways (pp. 3, 23)

Explore New Words

Academic Vocabulary

Before reading this month's issue of YOUNG EXPLORER, display the "Explore New Words" side of the poster. Explain that this picture glossary shows some of the important content words from the stories in the magazine. Before students read the stories, they will learn or review these words.

As you read each story with children, keep the "Explore New Words" poster displayed. Ask students to give a thumbs-up when they hear one of the Explore New Words.



Before Reading

Direct students' attention to the two rows of photos and invite volunteers to describe what each photo shows. If students name the key word, point to the word on the poster. If they do not, read the word for them.

Guide students in reading the sentence that appears with the big picture. Then invite volunteers to match the bold words with the words in the picture glossary.

Finally, display each content word on the board. Together, develop the meaning of each word. Write the definition or draw a picture next to each word.

After reviewing the content words on the poster, have students complete the activity master on p. T15 to assess their understanding of each word.

Science Picture Dictionary

Encourage students to make a picture dictionary for all content words in the issue. After developing the meanings of each word together, have students write and illustrate each word to demonstrate understanding of its meaning. After reading the issue, students can work in pairs to arrange the pages of the dictionary in ABC order.

Web Connect

Invite students to access the YOUNG EXPLORER website at <http://www.nationalgeographic.com/ngyoungexplorer/>. They can listen to the "Explore New Words" poster. This is an excellent way for students to build fluency and gain a better understanding of the vocabulary presented in each story.

Animals in Motion

Objectives

Students will learn:

- some ways that animals can move
- the names for different kinds of animal movement

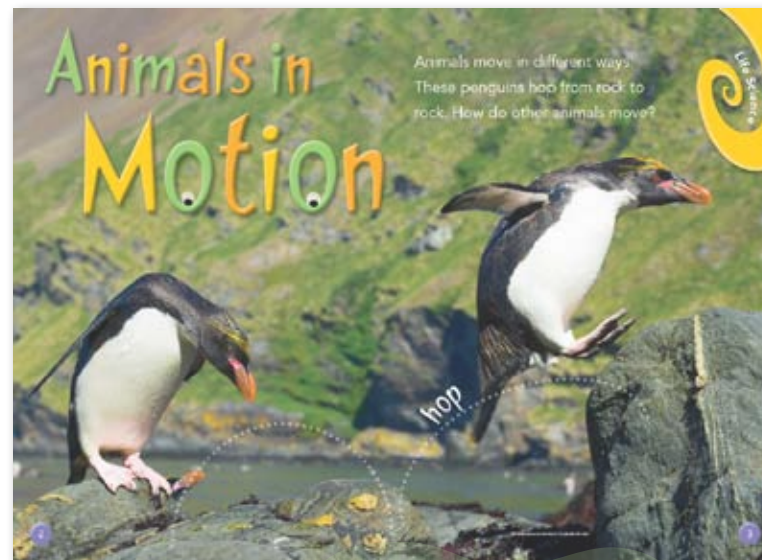
About the Story

Students meet different kinds of animals and learn about the adaptations that help them move in their natural habitats.

Before Reading

Tap Prior Knowledge Ask volunteers to describe different ways people move. Responses could include ways people move—walk, run, jump, hop, or crawl—as well as speed and direction—fast, slow, up, and down. Hold up the cover of the issue and ask: *How is the dolphin moving?* Discuss swimming and jumping. Then ask: *What do you think the story will be about?*

YOUNG EXPLORER MAY 2010



Access Science

- Display the word *move* on the board. Together, come up with a definition for the word, which should include a *change in an object's position caused by a force (a push or a pull)*.
- Ask: *What kinds of objects are moving in this story?* (animals)
- After reading the story title ask: *What kind of animals do you see?* (penguins) *How are they moving?* (hopping)
- Read aloud or invite a student to read the text on p. 3. Ask: *In what other ways can penguins move?* (walking, swimming)
- Invite a student or students to imagine that they are penguins. Ask them to demonstrate how a penguin can hop.
- Ask students to talk about other kinds of animals that can hop when they move.

WebConnect

Invite students to access the YOUNG EXPLORER website at <http://www.nationalgeographic.com/ngyoungexplorer/>. They can listen to each story in this issue as they read along. This is an excellent way for students to build fluency, as well as gain a better understanding of the vocabulary and concepts presented in each story.

Fast Facts

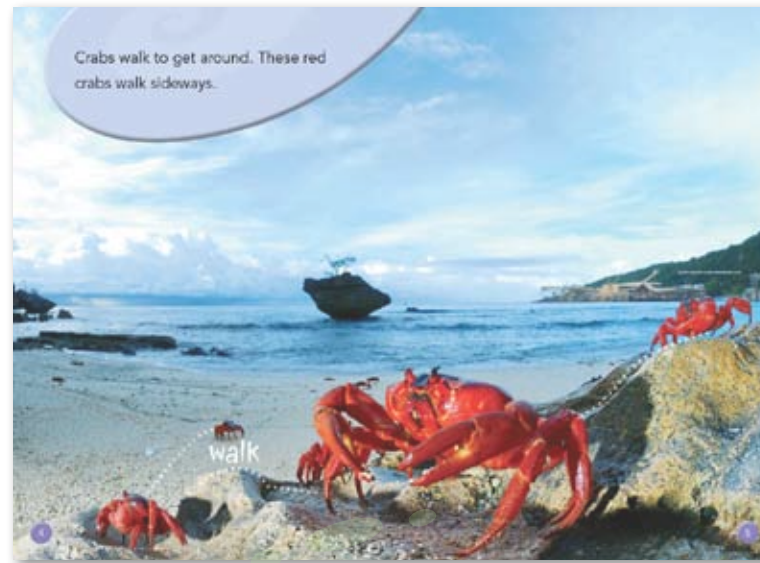
- The fastest land mammal is the cheetah. It can go from 0-60 miles per hour in only 3 seconds! That's as fast as some cars go.
- The fastest fish is the sailfish. It swims through the ocean at speeds up to 68 miles per hour.
- The slowest mammal is the sloth. It moves so slowly that algae grows on its furry coat, making it look green.

Animals in Motion

YOUNG EXPLORER MAY 2010

Access Science

- Ask: *What animal do you see on pp. 4-5? (crab)* Then ask, *How do you think a crab moves? (answers will vary)*
- Invite a volunteer to read aloud p. 4. Ask: *Which word tells how a red crab moves? (walk)* Next ask: *In which direction does a red crab move? (sideways)*
- Finally, ask students to compare how a red crab moves to how people walk. Encourage them to use terms like *sideways*, *forwards*, and *backwards*.
- Ask for volunteers to show how red crabs walk. Have students do a sideways crab walk by “walking” on their hands and feet.
- Invite students to discuss other animals that walk.



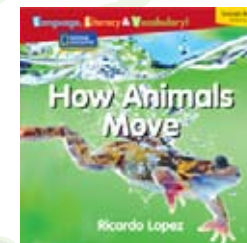
Access Science

- Direct students' attention to the photo on pp. 4-5. Ask: *Besides the crab, do you see anything else moving in this photo? (water)*
- Ask: *What else might be moving in this photo? (Waves of water roll in against the beach. The waves also roll out. Wind might move the clouds across the sky. Wind, waves, and the crabs might also move the sand or pebbles.)*

WebConnect

Learn more about animals at
<http://kids.nationalgeographic.com/Animals/CreatureFeature/>.

National Geographic Connection



Animals in Motion

Academic Vocabulary

Display the word *fly*. Ask: *Can you think of other animals or things that can fly?* (birds, bats, airplanes, helicopters) Next, ask students to define *fly* (to move through the air with wings or parts like wings). Help students remember the word by having them think of rhyming words like *by*, *guy*, *pie*, *tie*, *why*. Then ask them to use *fly* in a sentence.

Access Science

- Invite a student to read aloud the text on p. 6. Ask: *What animal do you see on p. 6?* (a bird or parrot) *How is it moving?* (flying)
- Have students point to the word *fly* on the page. Ask: *What does the parrot use to fly?* (its wings) *How does it move its wings to fly?* (It flaps its wings.)
- Invite volunteers to demonstrate how a parrot flaps its wings to fly.



Access Science

- Ask a volunteer to describe what he or she sees in the photo on p. 7. You might want to explain that the trees look blurry because the orangutan is moving.
- Ask another volunteer to read p.7 aloud. Next ask: *Which words describe how an orangutan moves?* (walk, swing) *Does the orangutan move faster when it walks or swings?* (swings) Finally, have students point to the word *swing*.
- Invite volunteers to show the class how an orangutan can walk. (*slowly*) Next, have them simulate how an orangutan might use its arms to swing.
- Continue the discussion by asking students what other kinds of animals swing through trees.

Content Vocabulary

Display the additional key content vocabulary words:
birds, faster, orangutan, sky, tree, wings

Together develop the meaning for each word. Next to the word, draw a picture or write a short definition. Students can add these content words to their **science picture dictionary**.

Make New Words

Display the word *swing*. Ask students if they can find other words in swing (wing, win, in) Encourage students to use each new word in a sentence.

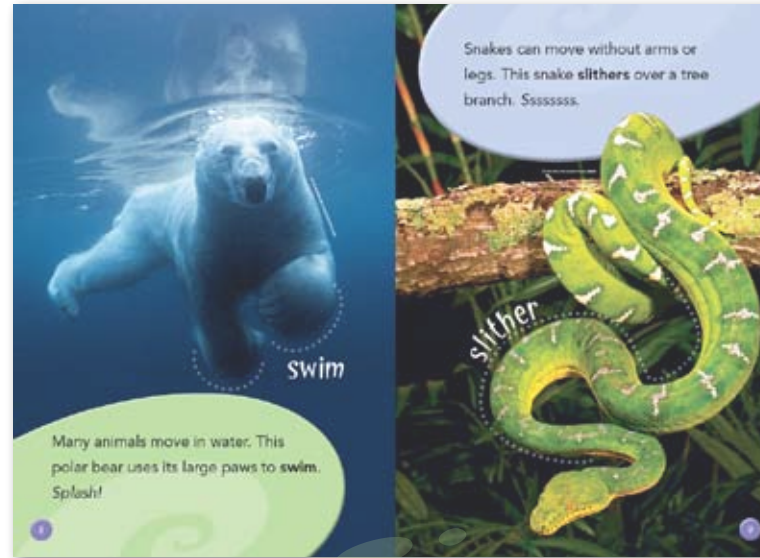
Animals in Motion

Academic Vocabulary

Display the word *swim*. Ask: *Can you think of other animals that swim?* (fish, whales, penguins, dolphin) Next, ask students to define *swim* (to move through or in water by moving arms, legs, fins, or tail). Then ask them to use *swim* in a sentence.

Access Science

- Invite a volunteer to aloud read p. 8. Ask: *Which word describes how the polar bear is moving in the photo?* (swims) *What helps the polar bear swim?* (large paws)
- Next, ask students for other examples of ways a polar bear might move. (*walk, run*)
- Ask for two volunteers to show the class how a polar bear might swim. Then invite additional volunteers to show a polar bear's other movements.



Academic Vocabulary

Display the word *slither*. Ask: *Can you think of other animals that slither?* Explain to students that snakes and some kinds of legless lizards slither. Next, ask students to define *slither* (to move along by gliding, without arms and legs). Then ask them to use *slither* in a sentence.

Access Science

- Invite a volunteer to read aloud p. 9. Ask: *Which word describes how the snake is moving in the photo.* (*slithers*)
- Have two volunteers show the class how a snake can move without arms or legs.

Content Vocabulary

Display the additional key content vocabulary words:
paws, polar bear, snake, water

Together develop the meaning for each word. Next to the word, draw a picture or write a short definition. Students can add these content words to their **science picture dictionary**.

Animals in Motion

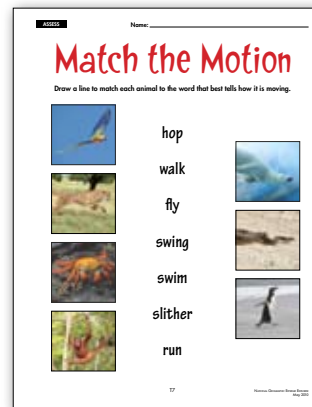
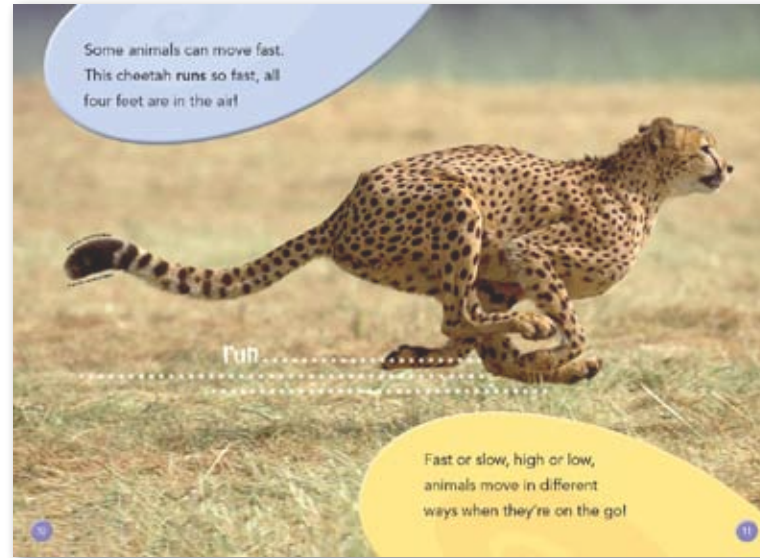
Academic Vocabulary

Display the word *run*. Ask: *Can you think of other animals that run?* (tigers, dogs, deer, lions) Next, ask students to define *run* (to move on foot at a pace faster than a walk). Help students remember the word by having them think of rhyming words (*bun, fun, sun*). Then ask them to use *run* in a sentence.

Access Science

- Invite a volunteer to read aloud p. 10. Ask: *Which word describes how the cheetah is moving in the photo? (runs)*
- Next, ask students for examples of other ways a cheetah might move. (*walk, jump, trot*)

Have two volunteers show the class how a cheetah moves. Invite additional volunteers to show the other ways a cheetah might move.



Access Science

- As a group, read p. 11 aloud. Invite volunteers to describe or show the different ways animals move when they are on the go. Ask: *Can you think of other names for movements not found in the story?* (possible examples: crawl, jump, leap)

Use the activity master on p. T17 to assess student's understanding of the story.

Extend the Learning

- **Language Arts** Explain that as some animals move they can make a sound. As a parrot flies, you can hear *whoosh*. As a polar bear swims, you can hear a *splash*. Starting with the penguins on pp. 2-3, have students make the sounds they would hear each kind of animal make as it moves.
- **Science** Divide students into two teams and line each team up on opposite sides of your classroom or gym. Show one team a picture of an animal from the story. Instruct them to start walking toward the other team. On your signal, the walking team should start imitating the movement of their animal. When the other team guesses the animal, they can chase the first team back to their side, using the animal movement.

Go, Go, Go!

Objectives

Students will learn:

- about animals that walk, fly, and swing
- about the direction or speed of animals' motion

About the Poster

Students meet animals that walk quietly, fly in many directions, and swing slowly.

Before Reading

Tap Prior Knowledge Remind students of your Before Reading, "Animals in Motion" discussion about the different ways people move like walk, run, jump, hop, or crawl. Then ask students to recall what they learned from the story.

Point to the poster, "Go, Go, Go!" Display the words *walk*, *fly*, and *swing*. Explain that students will read the poster to learn about the animals that move in these ways



Access Science

- Encourage the class to read aloud the title of the poster together, with feeling. Then read the deck underneath the title aloud to the class.
- **Walk, Fly, Swing** Invite three volunteers to read aloud the captions for the three animals in the *walk* category. As each student reads the caption, write the name of the animal underneath the displayed *walk*. Repeat this for **fly** and **swing**.
- After reading the poster, ask: *What other animals do we know that walk?* Record student's responses under the *walk* category. Continue for *fly* and *swing*.

WebConnect

To learn about more animals, how they move, and where they live, visit National Geographic at <http://kids.nationalgeographic.com/Animals/>.

Pedal Power

Objectives

Students will learn:

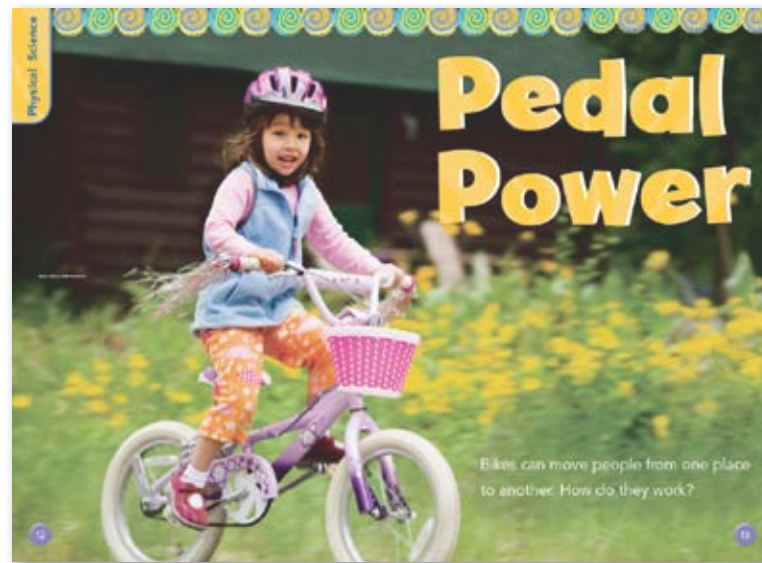
- how a force makes bikes move
- that wheels, pedals, and pulleys are simple machines

About the Story

Some people ride bikes for fun. Others ride bikes to get to school or work. All bikes today have wheels, pedals and pulleys that make them go.

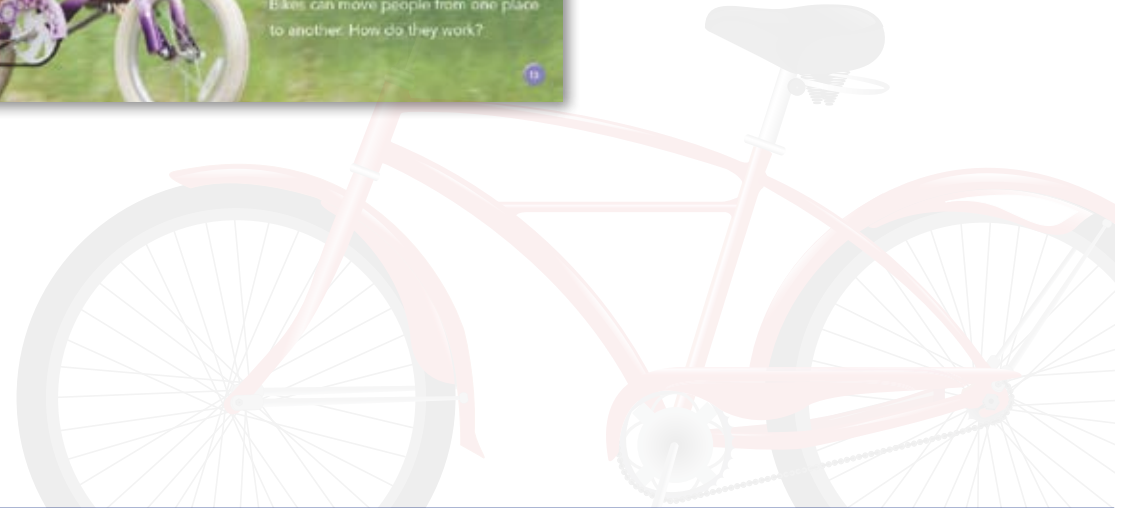
Before Reading

Tap Prior Knowledge: Ask students for a show of hands if they have ridden a bike. Next, ask for volunteers to describe a bike they have ridden. Did it have two, three, or four wheels? Finally, encourage students to describe how they made their bikes go.



Access Science

- Revisit the definition of the word *move* (change in an object's position caused by a force—a push or a pull). Explain that in this story, the object is a bike.
- Direct students to pp. 12-13. Ask a volunteer to read aloud the title and the introduction. Invite volunteers to share what they know about how bikes work.



Content Vocabulary

Display the additional key content vocabulary words:
bikes, move

Together develop the meaning for each word. Next to the word, draw a picture or write a short definition. Students can add these content words to their **science picture dictionary**.

Fast Facts

- A bike is made up of several simple machines.
- There are about one billion bikes in the world.
- The first bikes were made without pedals.

Pedal Power

Access Science

- Ask a volunteer to read aloud p. 14. Remind students that a *force* is needed to make an object, like a bike, move. Ask students (or remind them) what a force is (*a push or pull*).
- Invite volunteers to demonstrate force with pushes and pulls.



Access Science

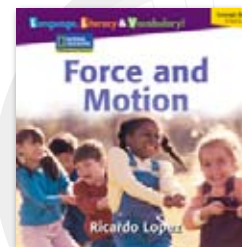
- Ask a volunteer to read p. 15 aloud. Encourage students to look at the photos of the bikes. Say, *I wonder what a pulley is. We just read that the pulley turns the back wheel of a bike. Let's look closely at the photos. Maybe that will help us figure out what a pulley is.*
- After looking at the photos, invite volunteers to share what they think a pulley might be. (Background information: A pulley is a simple machine. It is a wheel that has a grooved rim in which a belt, rope, or chain runs and that is used to change direction of a pulling force. On a bike, the chain runs through a pulley to make the back wheel move.)
- Say, *Let's keep reading to see what a pulley is.*

Content Vocabulary

Display the additional key content vocabulary words:
force, move

Together develop the meaning for each word. Next to the word, draw a picture or write a short definition. Students can add these content words to their **science picture dictionary**.

National Geographic Connection



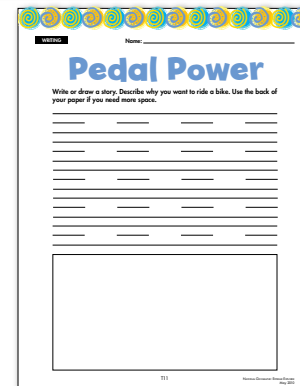
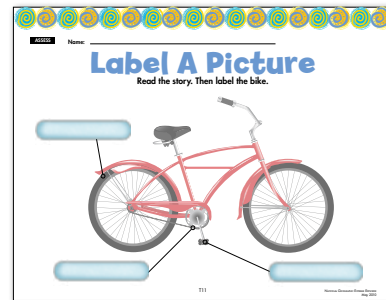
Pedal Power

Academic Vocabulary

Display the word *machine*. Ask: *What are some examples of a machine?* (car, vacuum cleaner, washing machine, bike) Next, ask students to help you come up with a definition for *machine* (a device that combines forces, motion, and energy in a way that does some desired work). Then ask them to use *machine* in a sentence.

Access Science

- Ask a volunteer to read p. 16 aloud. Ask: *What do you think the author means by "They work together to make it easier to move a bike."?* (Simple machines like wheels, pedals, and pulleys work together to make it easier to move a bike.)
- Explain that many machines are made up of several simple machines. A bike is a machine that is made up of simple machines.



Access Science

- Ask a volunteer to read aloud the labels on the bike on pp. 16-17, starting with number one. Remind students that a bike is a machine made up of many simple machines. Examples of simple machines are wheels, pedals, and a pulley. When you pedal, the pulley turns the chain, which is connected to the back wheel. The back wheel turns and the bike moves. Invite students to point to the simple machines found in the photo of the bike.
- Next, invite a volunteer to read aloud p.17. Spark a discussion about how balance and speed are also needed to ride a bike. Encourage students to share their stories about riding a bike for the first time.
- Use the activity master on p. T19 to assess student's understanding of the story. Students can also write about their bike riding experiences using the activity master on p. T21.

Content Vocabulary

Display the additional key content vocabulary words: **pedal, pulley, simple machines, wheel**

Together develop the meaning for each word. Next to the word, draw a picture or write a short definition. Students can add these content words to their **science picture dictionary**.

Extend the Learning

Science: Show students photos of the six kinds of simple machines (pulley, lever, wedge, wheel and axle, inclined plane, screw). You can find photos and descriptions of these at <http://www.mikids.com/Smachines.htm>. Divide students into small groups. Encourage each group to page through textbooks, old magazines, and other resources, pointing out things that have one or more of these simple machines.

Bare Bones

Objectives

Students will understand that:

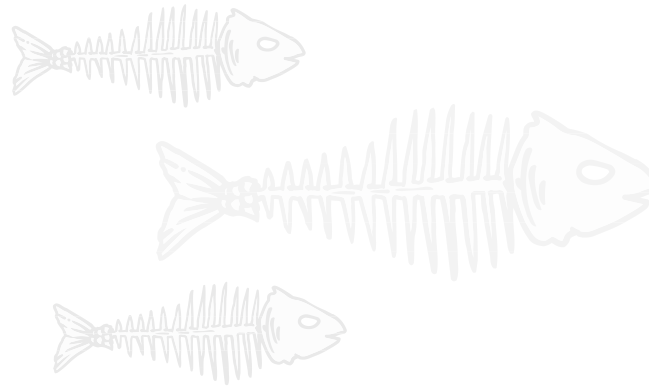
- bones protect animals, give their bodies shape, and help them move

About the Story

Students will read about different animal skeletons so they can compare how they are both the same and different from their own skeletons.

Academic Vocabulary

Display the word *bones*. Ask students to name some of their bones. (*leg, arm, skull, fingers, toes*) Next, ask students to help you come up with a definition for *bone* (the hard material from which a person's or many animal's skeleton is made). Explain that the word *bones* refers to pieces of the skeleton, like a finger or toe. Then ask students to use *bones* in a sentence.



Before Reading

Tap Prior Knowledge Ask students to gently tap their heads. Invite volunteers to describe how it felt (*hard*). Then ask students what makes their head hard and gives it shape. (*their skull*) Next, ask students what they think their skull protects. (*their brain*) Finally, ask students what we call all of the bones in our body? (*a skeleton*) Explain that animal bones are also called skeletons.

Access Science

- Direct students to pp. 18-19. Ask a volunteer to read aloud the title and the introduction on p. 18. Invite volunteers to recall how bones protect and give shape to bodies.
- Next, ask a volunteer to read p. 19 aloud. Say, *I want you to think about why a long, bendable backbone might help fish swim.* Encourage students to share their answers.

Content Vocabulary

Display the additional key content vocabulary words:
backbones, bones, protect, shape, move

Together develop the meaning for each word. Next to the word, draw a picture or write a short definition. Students can add these content words to their **science picture dictionary**.

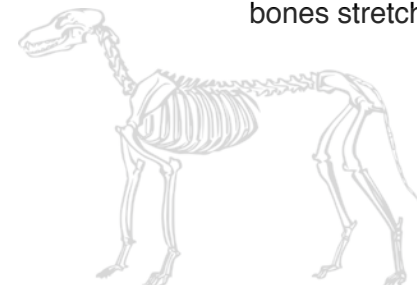
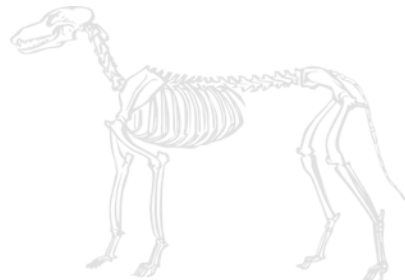
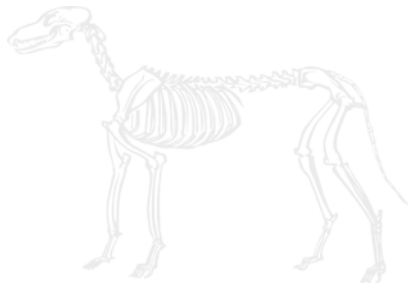
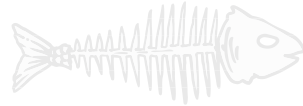
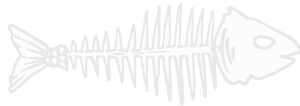
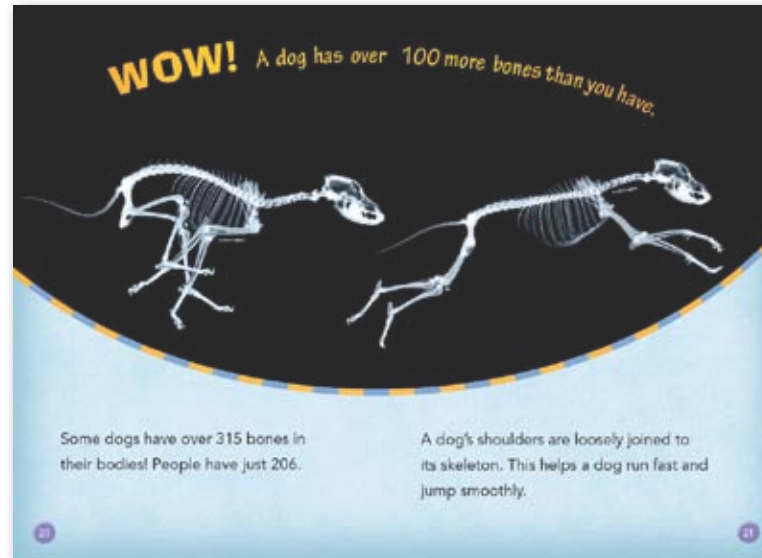
Fast Facts

- Fish are the largest group of animals with backbones.
- A human and a giraffe have the same number of neck bones!
- Birds have very light bones so they can fly. Some of their bones are even hollow.

Bare Bones

Access Science

- Ask a volunteer to read aloud p. 20. Choose a second volunteer to read aloud the caption that runs across pp. 20-22. Then ask students to look closely at the photos on pp. 20-21 and to think about why a dog has more bones than a person. (*Dogs have four legs; they have a tail; they have snouts, or long noses.*)



Access Science

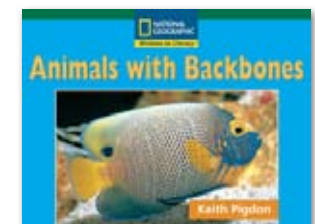
- Ask a volunteer to read aloud p. 21. Ask, *How do the dog's bones help it move?* (Its shoulders are loosely connected to its skeleton. This helps a dog run fast and jump smoothly.)
- Explain that the way the dog's bones are put together help it move like a dog (run and jump with four legs).
- Have students use what they already know to identify some of the bones they see. For example, have them point out the *skull*, *legs*, *tail*, and *backbone*. Ask: *How do the bones shown in the photos change as the dog runs?* (The bones stretch out and pull back.)

Content Vocabulary

Display the additional key content vocabulary words:
shoulder, skeleton

Together develop the meaning for each word. Next to the word, draw a picture or write a short definition. Students can add these content words to their **science picture dictionary**.

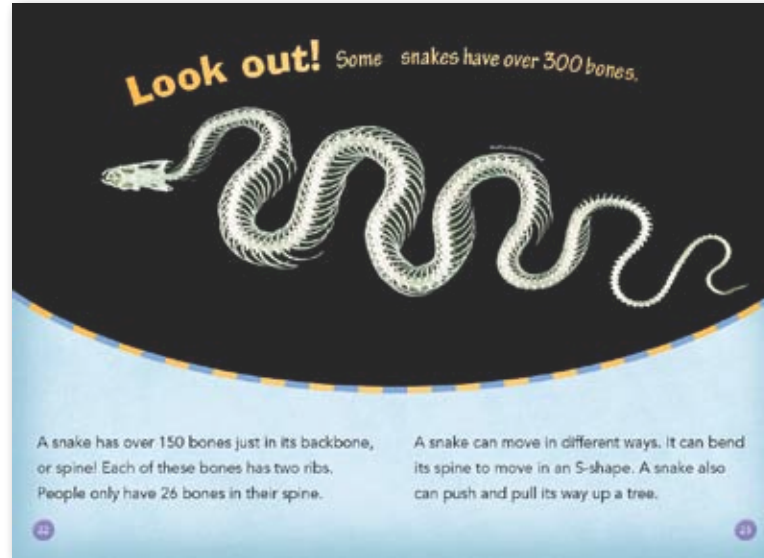
National Geographic Connection



Bare Bones

Access Science

- Ask a volunteer to read aloud p. 22 aloud. Choose a second volunteer to read the caption that runs across pp. 22-23 aloud. Say, *Wow! I wonder how a snake can have almost as many bones as a dog—and more than a person? It doesn't even have arms or legs! Let's look closely at the photo.* Encourage students to share why a snake has more bones than a person. (*Each bone in its back has two bones, or ribs, attached to it. A snake has more bones in its spine than a person.*)



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Name: _____

About Bones

Name two things bones do for an animals' body.

How many bones can a dog have?

How many bones does a snake have in its spine?

An illustration at the bottom of the page shows three fish on the left and a kangaroo on the right. The kangaroo is depicted with a semi-transparent skeletal overlay, showing its internal bone structure, including the spine, ribs, and limb bones. The fish are simple line drawings of various species.

Access Science

- Ask a volunteer to read aloud p. 23. Ask: *How does the snake's bones help it move?* (It can bend its spine to move in an S-shape. It can push and pull its body to move without legs.)
- Explain that the way the snake's bones are put together, or attached to one another, help it bend so it can move without arms or legs.

Use the activity master on p. T22 to assess student's comprehension of the story.

Content Vocabulary

Display the additional key content vocabulary words:
backbone, pull, push, ribs, spine

Together develop the meaning for each word. Next to the word, draw a picture or write a short definition. Students can add these content words to their **science picture dictionary**.

Extend the Learning

Science: Set up a compare and contrast chart for students. Display a picture of a human skeleton. Explain that together, you will choose one of the animal skeletons from the story and compare it to a human skeleton to see how they are both the same and different.

Words to Explore

Write the word that goes best with each photo.



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Word
Bank

bones run fly slither machine swim

Words to Explore

Write the word that goes best with each photo.



© PHOTOBAR/Shutterstock

run



© AMEE CROSS/Shutterstock

slither



© ANDEBOBANDY/Shutterstock

machine



© SRDIJAN DRASKOVIC/Shutterstock

bones



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fly



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swim

Word
Bank

bones run fly slither machine swim

Match the Motion

Draw a line to match each animal to the word that best tells how it is moving.



hop



walk



fly



swing



swim



slither



run

Match the Motion

Draw a line to match each animal to the word that best tells how it is moving.



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© JAVARMAN/SHUTTERSTOCK



© TIM JENNER/SHUTTERSTOCK

hop

walk

fly

swing

swim

slither

run



© JOSHUA HAWV/SHUTTERSTOCK



© AMEE CROSS/SHUTTERSTOCK



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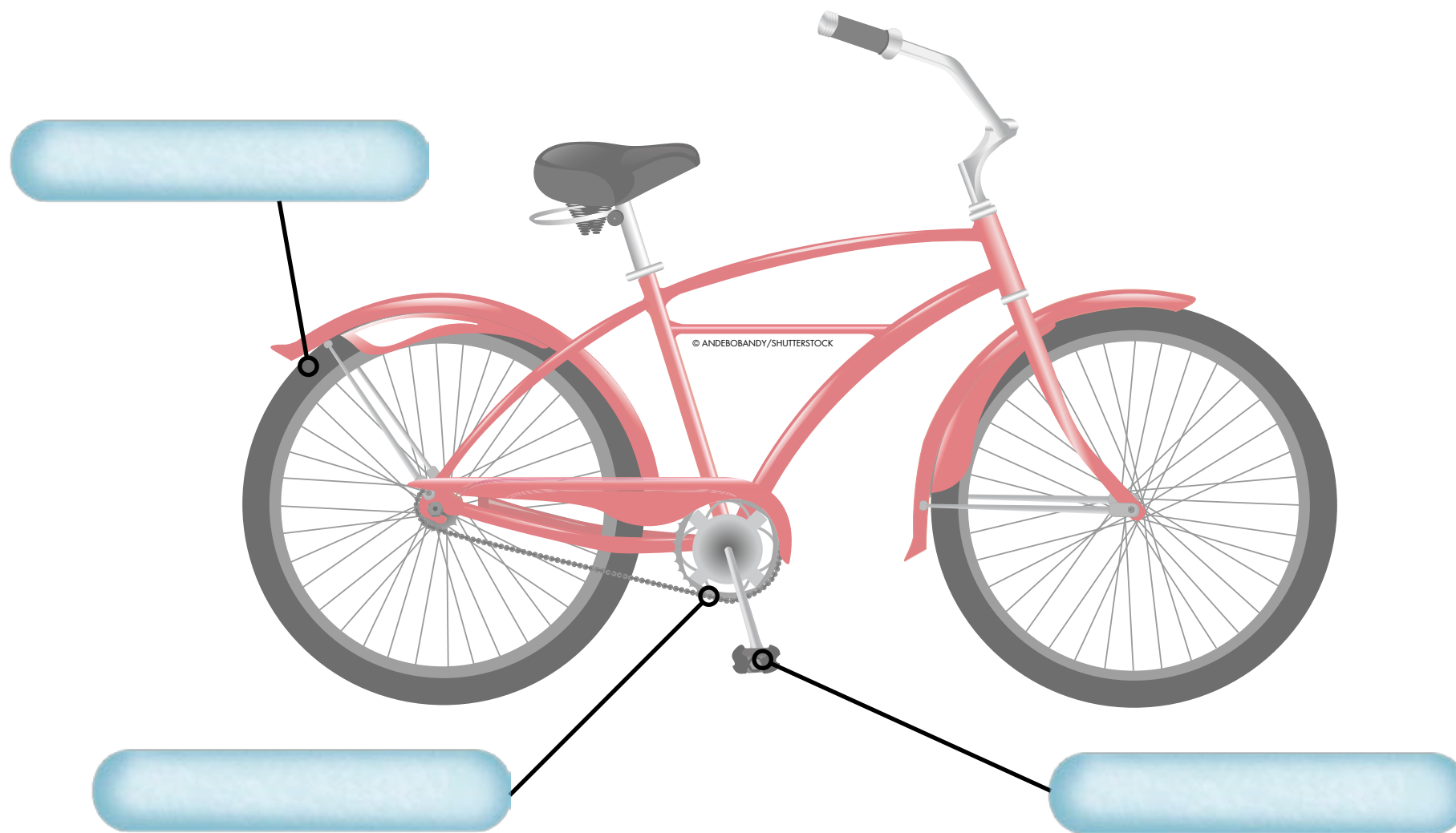


ASSESS

Name: _____

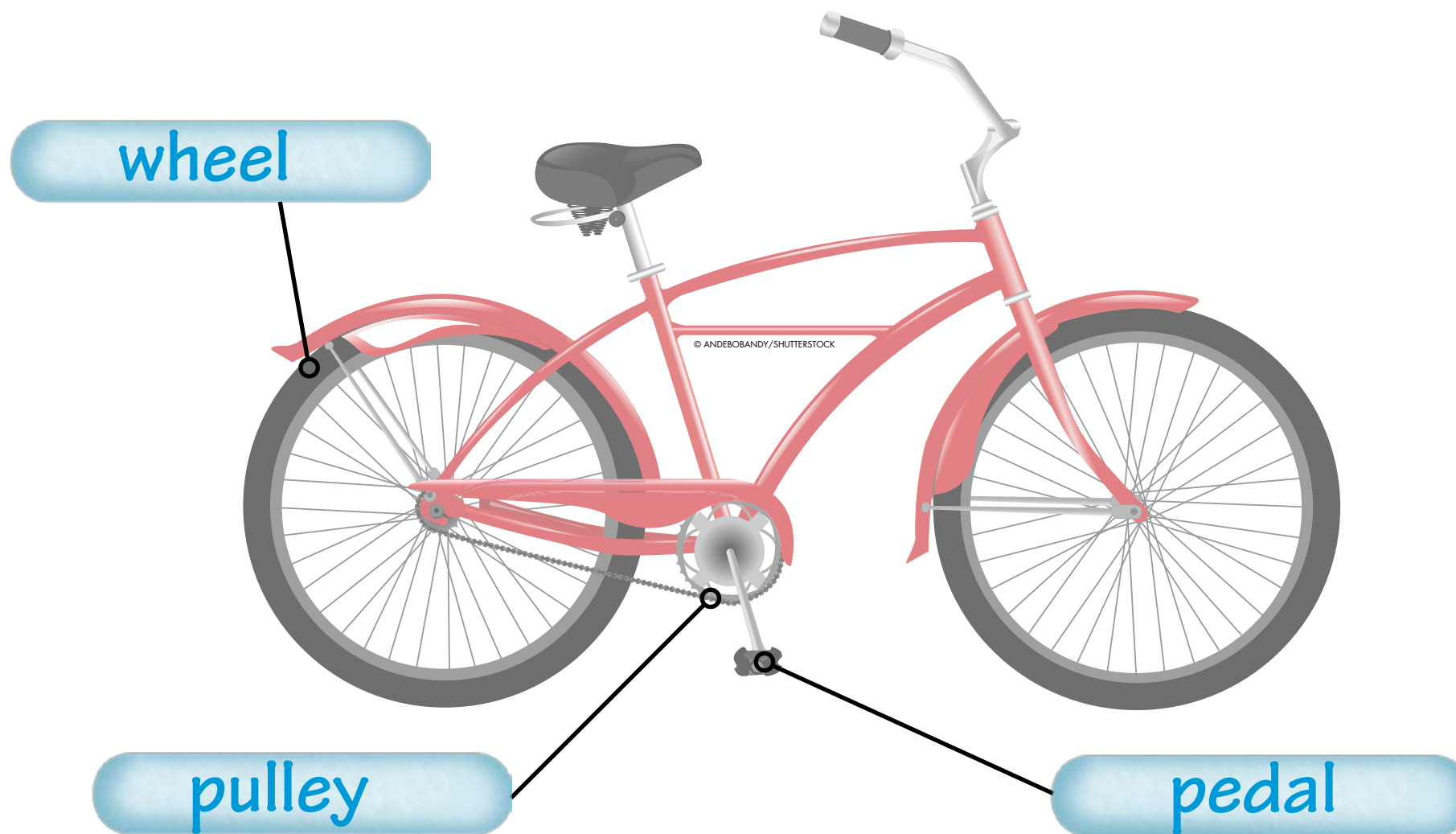
Label A Picture

Read the story. Then label the bike.



Label A Picture

Read the story. Then label the bike.





WRITING

Name: _____

A Bike Ride

Write or draw a story. Describe why you want to ride a bike. Use the back of your paper if you need more space.

Handwriting practice lines consisting of solid top and bottom lines with a dashed middle line. There are five sets of these lines.

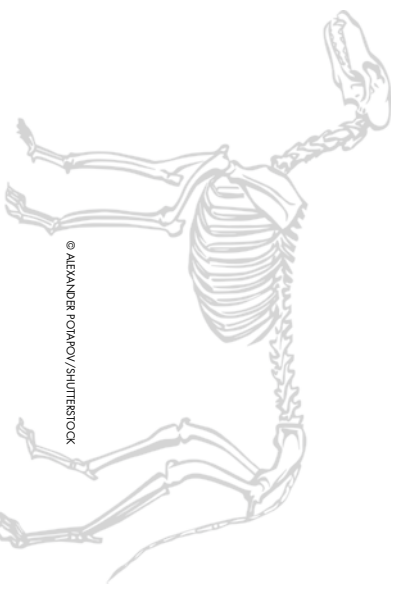
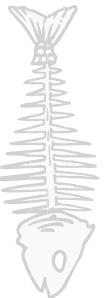
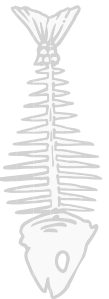
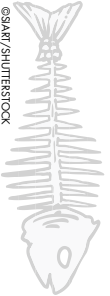
A large empty rectangular box for drawing or additional writing.

About Bones

Name two things bones do for an animals' body.

How many bones can a dog have?

How many bones does a snake have in its spine?



About Bones

Name two things bones do for an animals' body.

protect

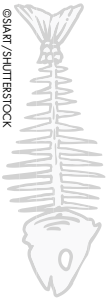
give a body shape

How many bones can a dog have?

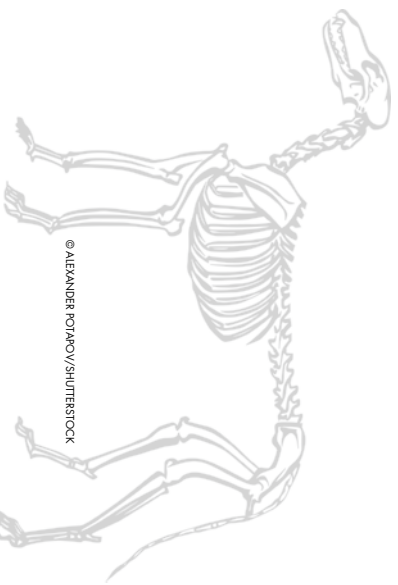
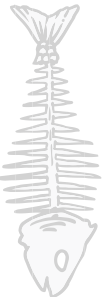
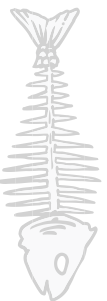
315

How many bones does a snake have in its spine?

150



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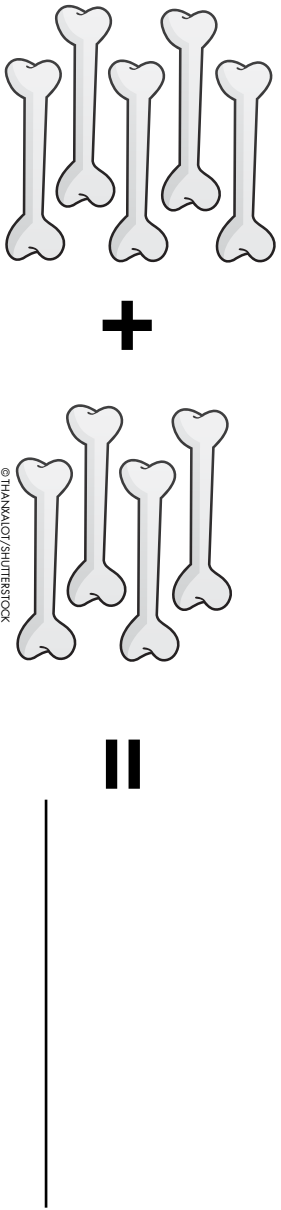


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Name: _____

How Many Bones?

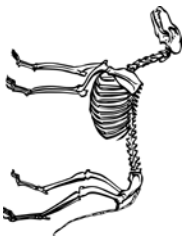
1. How many bones in all? Write the number.



$$\text{10 bones} + \text{8 bones} = \underline{\hspace{2cm}}$$

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2. Circle the picture that shows the most bones.



315

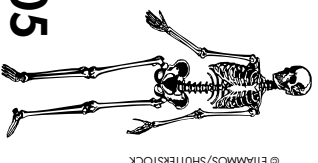


300

3. Circle the picture that shows the fewest bones.



315



205

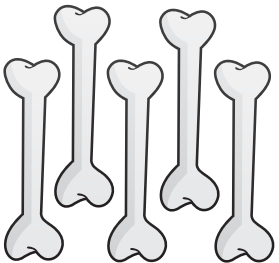
4. Write the number of legs each animal has.



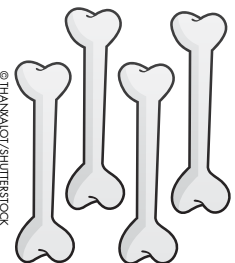
Now circle the animal that has the most legs.

How Many Bones?

1. How many bones in all? Write the number.



+

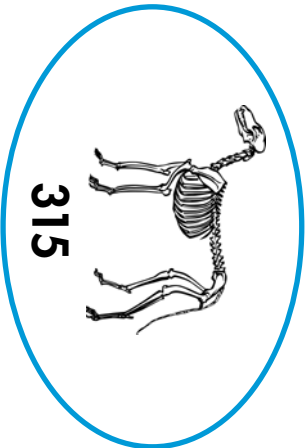


=

9

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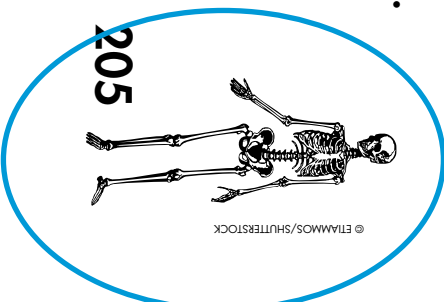
2. Circle the picture that shows the most bones.



315



300



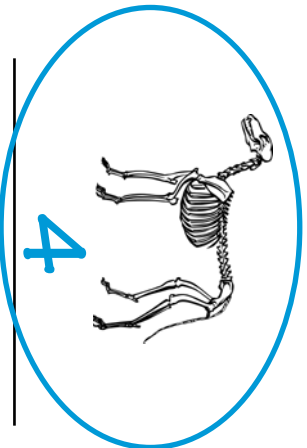
205

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3. Circle the picture that shows the fewest bones.



315



4



0

4. Write the number of legs each animal has.

Now circle the animal that has the most legs.