

### Follow-up Activities

- Show students pictures of animals and have them list the characteristics each animal has developed to survive in its environment. Make sure they describe each adaptation in terms of its function. Then assign students a specific environment (pond, desert, mountain, etc.) and have them create an imaginary animal with adaptations that would help it live well in its environment. Have them explain the reasons for their choice of features.
- Have students select animals whose movements they know how to imitate. For example, they might lumber like an elephant or hop like a kangaroo. Divide the students into groups and allow them a chance to practice their movements, then have the whole class demonstrate their ideas. Have the students select animals they are unfamiliar with, and have them guess how that animal would move by what it looks like or where it lives. Be sure to discuss with the class the links between movement and adaptation.
- Divide children into two or three groups and explain that each group will make a calendar that illustrates 12 different animal adaptations, one for each month. Each illustration should be accompanied by a caption describing the animal and its adaptation. Display the finished calendars in the classroom and school office.
- Have students choose a particular environment to draw on construction paper. As they are drawing, explain that they will cut a slot in their paper for the introduction of an animal that does not belong in their environment. When they are finished, have them exchange papers with a partner. Ask them to think of an animal that does not fit in the new environment and make a stick puppet. As they make their puppets, have them think about the features of the animal that make it a "misfit." When they are ready, have them slip their puppets into their partner's pictures and tell a story about the animal in its normal environment and the troubles that it encounters in the new one.

### Suggested Internet Resources

Periodically, Internet Resources are updated on our web site at [www.LibraryVideo.com](http://www.LibraryVideo.com)

- [www.zoomschool.com/coloring](http://www.zoomschool.com/coloring)  
The "Zoom School" web site has a great number of animal printouts useful for comparing features of many different animal species.
- [www.arts.ufl.edu/art/rt\\_room/sparkers/camouflage/camouflage.html](http://www.arts.ufl.edu/art/rt_room/sparkers/camouflage/camouflage.html)  
This web site describes animal camouflage and lists projects and links to other sites about protective coloration in animals.

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- [oncampus.richmond.edu/academics/education/projects/webunits/adaptations/camou1.html](http://oncampus.richmond.edu/academics/education/projects/webunits/adaptations/camou1.html)

This web site provides images of hard-to-find animals that use camouflage to blend in with their surroundings. Some fun classroom activities are provided as well as links to other sites that showcase camouflage.

### Suggested Print Resources

- Goodman, Susan E. & Michael J. Doolittle. *Claws, Coats, and Camouflage: The Ways Animals Fit into Their World*. Millbrook Press, Brookfield, CT; 2001.
- Kalman, Bobbie & Jacqueline Langille. *How Do Animals Adapt?* Crabtree Publishing Company, New York, NY; 2000.
- No Author (Audio Book). *Surviving*. Gareth Stevens Audio, Milwaukee, WI; 2001.
- Tildes, Phyllis L. *Animals in Camouflage*. Charlesbridge Publishing, Watertown, MA; 2000.

### TEACHER'S GUIDE

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### TITLES

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## All About Animal Adaptations

Grades K-4

This guide is a supplement, designed for educators to use when presenting this program in an instructional setting.

**Before Viewing:** Research in learning suggests that it is important for the teacher to discover what the students know — or think they know — about a topic, at the start of a new unit, so that their accurate conceptions can be validated and reinforced, and their misconceptions identified and corrected. Therefore, after reviewing the pre-viewing discussion questions provided for your class, create an "Everything We Know About..." list. Preview key vocabulary words and have students raise additional questions they hope will be answered by this program. Most importantly, students should be told that as "science detectives" they must listen closely, so that after viewing the program, they will be able to tell whether or not the facts/beliefs they put on their list were scientifically accurate.

**After Viewing:** After a brief discussion about the program, challenge your "science detectives" to prove or disprove the accuracy of the facts they put on their "Everything We Know About..." list. Discuss what else they learned and use the follow-up questions and activities to inspire further discussion. Encourage students to research the topic further with the Internet and reading resources provided.



## Program Summary

Animals of all shapes and sizes inhabit the Earth's land, air and water, and each of these creatures has special features that help it survive where it lives. These features are called adaptations. They develop over many years and get passed on from parents to their babies.

There are many different types of adaptations for getting food in the animal kingdom. Some creatures have sharp teeth and claws that they use to eat meat, while other animals have flat teeth for grinding and chewing plants. Special body parts such as the elephant's trunk and the giraffe's long neck are useful adaptations that have developed over many thousands of years and help the animals survive in their environment.

Animals also have many different adaptations for protection, for movement and for caring for their young. Every animal has skin, fur, feathers, scales or some other characteristic which is passed down through reproduction and is instrumental in determining how successful that animal's chances for survival are. Some creatures can fly, while some get around by slithering. Others swim, walk, leap or waddle.

Even though some animals have not changed for millions of years, animals never become totally adapted because the environment is constantly changing. Some changes are helpful to certain animals and harmful to others. If the environment changes too quickly, animals may not be able to adapt and can die out completely. This is called extinction.

## Vocabulary

The following words are included for teacher reference or for use with students. They are listed in the order in which they appear in the video.

**adaptation** — Changes in an animal's body structure or behavior that occur over long periods of time and make the animal more fit for living in its environment.

**environment** — The place an animal lives.

**generation** — A group of animals of a particular species that are of the same age.

**species** — A group of animals that share certain characteristics and are capable of reproduction.

**climate** — The temperature and rainfall of a particular place.

**predator** — Animals who hunt and kill other animals for food (like sharks, lions and eagles).

**prey** — Animals that are hunted and killed for food by predators.

**quill** — Specialized sharp hairs on mammals like the porcupine that help protect them from being eaten.

**camouflage** — The ability of some animals to blend in with their surroundings.

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**defense** — The act of protecting oneself.

**mammal** — Warm-blooded vertebrates that have hair and mammary glands in females of the species. The mammary glands produce milk to feed their young.

**blubber** — A thick, oily, fatty substance that insulates marine mammals living in cold habitats, helping to keep in their body heat.

**reptile** — Cold-blooded animals with backbones and scales that breathe air and lay leathery eggs.

**cold-blooded** — A term that describes animals that cannot control their own body temperature, so they assume the temperature of their environment (like fish, reptiles and amphibians).

**offspring** — Baby animals.

**curator** — Someone in charge of a zoo, museum or other place with exhibits.

**specialized** — Designed for a special purpose. A bird's beak is specialized for gathering and eating a particular type of food.

**extinction** — When a species dies out completely because it cannot adapt to changes in the environment.

## Pre-viewing Discussion

Before students generate their list of "Everything We Know About..." this topic, stimulate and focus their thinking by raising these questions so that their list will better reflect the key ideas in this show:

1. Why aren't all animals alike?
2. What do animals need to survive in different environments?

After the class has completed their "Everything We Know About..." list, and before watching the show, ask them what other questions they have that they hope will be answered during this program. Have students listen closely to learn if everything on their class list is accurate and to hear if any of their own questions are answered.

## Focus Questions

You may wish to ask your class the following questions to assess their comprehension of key points presented in the program:

1. What is an adaptation?
2. What special adaptation makes polar bears different from brown grizzly bears?
3. How long can it take for an adaptation to develop?
4. What is an environment? How does an animal's environment help it survive?
5. What tools do big cats like lions have for getting and eating food?
6. What types of adaptations do sharks have? *(Continued)*

7. What special adaptation do giraffes have that helps them survive?
8. What are some adaptations that an animal might have for defending itself?
9. Why do Madagascan cockroaches hiss?
10. What is the difference between a predator and prey?
11. How does camouflage help animals survive?
12. What adaptation do mammal mothers have to help their babies survive?
13. What are some adaptations for living in a cold environment?
14. What adaptations do birds have that help them move? What adaptations do fish have for movement?
15. How do birds get their food?
16. What adaptations do tamarind monkeys have that help their babies survive?
17. What happens to animals that cannot adapt to changes in the environment?

## Follow-up Discussion

The most important part of this segment is to examine both the facts and beliefs generated by the class in their "Everything We Know About..." list. Research indicates that students will retain their previous misconceptions — in preference to the new information — until they actively recognize and correct their own errors. Because of this, it is important to lead students to the correct ideas while identifying and correcting any misconceptions from the class list. After reviewing the list, encourage students to share the answers they got to the questions raised before viewing the program.

Raising a thought-provoking question is a good way to assess the overall depth of understanding. A few suggestions are listed below:

1. Discuss the reasons why some animals survive well in certain environments and other animals do not.
2. What features do animals such as anteaters, kangaroos and skunks have that are adaptive? Can you think of some other animals that have special features that make them especially well suited to their environment?
3. Discuss the adaptations of flightless birds like the penguin and the ostrich, explaining that the ancient relatives of these animals did fly but the ability has been lost. What are some possible reasons for this?