

## Where Do Penguins Live?

Three friends are watching a cartoon about penguins. They wonder how many types of penguins there are and where they live.



Sarah: Penguins live only in Antarctica.

Joseph: Penguins can live only in cold places. They live in cold places all over the world – in the Northern and Southern Hemispheres.

Andy: Penguins live in the Southern Hemisphere. Some live in Antarctica. Others live in warm places like Africa, Australia, South America, and the Galapagos Islands. Different types of penguins live in different places.

Which friend has the best idea? Explain your thinking.

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### Teacher Notes

#### Purpose

The purpose of this assessment probe is to elicit student ideas about the diversity of penguin species and their geographic distribution. The probe is designed to determine whether students realize that penguins live outside of Antarctica.

#### Related Concepts

Northern and Southern Hemispheres, animals, birds, diversity

#### Explanation

The best answer is Andy's. Penguins are found only in the Southern Hemisphere. Within the Southern Hemisphere, however, there are many different species found in many different geographic locations.

While some debate exists about the exact number, there are at least 17 species of penguins in the world today. Penguins are found on the Galapagos Islands, along the southern coasts of Australia, New Zealand, Africa, and South America, on subantarctic islands between 45 and 55 degrees S, and in Antarctica. As the locations indicate, some species of penguins do not live in cold climates, but in temperate climates and even near the equator (Galapagos).

#### Curricular and Instructional Considerations

Students may be familiar with the emperor penguins of Antarctica, thanks to a host of recent animated films and cartoons. These media influences may lead to the formation of misconceptions, such as the idea that penguins and polar bears live together in the Arctic. Also due to the media emphasis on emperor penguins, students may not realize that more than one species of penguins exists.

Students in the elementary grades are developing geographic concepts such as the names and locations of continents and the Northern and Southern Hemispheres. While teachers should make sure that students understand these terms before they complete the probe, the focus should not be solely on geography. Rather, the intent is to determine students' ideas about where penguins are found.

#### Administering the Probe

Use a map or a globe to locate the Northern and Southern Hemispheres, Antarctica, Africa, South America, and Australia before completing the probe. It may also be helpful to show students a picture of a penguin before asking them to complete the probe.

<http://beyondpenguins.nsd.org/>

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Teachers may choose to have students mark or color a map to indicate where penguins are found instead of completing the probe as written.

### **Related Ideas in *National Science Education Standards* (NRC 1996)**

#### K-4 The Characteristics of Organisms

- Organisms have basic needs. For example, animals need air, water, and food; plants require air, water, nutrients, and light. Organisms can survive only in environments in which their needs can be met. The world has many different environments, and distinct environments support the life of different types of organisms.
- Each plant or animal has different structures that serve different functions in growth, survival, and reproduction. For example, humans have distinct body structures for walking, holding, seeing, and talking.

#### 5-8 Diversity and Adaptations of Organisms

- Millions of species of animals, plants, and microorganisms are alive today. Although different species might look dissimilar, the unity among organisms becomes apparent from an analysis of internal structures, the similarity of their chemical processes, and the evidence of their common ancestry.

### **Related Ideas in *Benchmarks for Science Literacy* (AAAS 1993)**

#### K-2 Diversity of Life

- Some animals and plants are alike in the way they look and in the things they do, and others are very different from one another.
- Plants and animals have features that help them live in different environments.

#### 3-5 Diversity of Life

- A great variety of kinds of living things can be sorted into groups in many ways using various features to decide which things belong to which group.

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### Suggestions for Instruction and Assessment

Learning about the many penguin species found throughout the Southern Hemisphere is the best way to help students correct this misconception. Students can use web sites and books to learn about various species, their habitats, and their characteristics. Just a few ideas for teaching about the diversity of penguins include:

**Research reports.** Students research a single species and write or present a report.

**ABC books.** Students work individually or collaboratively to create an ABC book about the many species found throughout the Southern Hemisphere.

**Mapping.** Students color and label maps showing the locations of various species. A wall, bulletin board, or area of the classroom could be used to create a large map of the Southern Hemisphere. As students learn about various species, they draw pictures and place them in the appropriate locations. Older students could color and label maps individually. *This is a great way to practice continents and hemispheres!*

**Penguin books.** Students create books and record information they learn during their penguin unit. Students might draw a picture of each species and record interesting information.

These two web sites provide information about penguin species and habitats.

Penguins

<http://www.penguins.info>

Includes species information, maps, and a photo gallery.

Penguins Around the World

<http://www.siec.k12.in.us/~west/proj/penguins/main.html>

This interactive site includes lesson plans, a kid-friendly interactive map, a slide show, an online treasure hunt for penguin facts, and two online quizzes.

Teachers can also capitalize on the many animated films, cartoons, and children's literature that are about penguins by asking students to reflect on the factual and fictional information presented. Doing so helps students understand that stories give animals and plants attributes they do not really have, another important concept for elementary students.

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### References

American Association for the Advancement of Science (AAAS). 1993. *Benchmarks for science literacy*. New York: Oxford University Press.

Keeley, P., F. Eberle, and L. Farrin. 2005. *Uncovering student ideas in science, vol. 1: 25 formative assessment probes*. Arlington, VA: NSTA Press.

Keeley, P., F. Eberle, and J. Tugel. 2007. *Uncovering student ideas in science, vol. 2: 25 more formative assessment probes*. Arlington, VA: NSTA Press.

Keeley, P., F. Eberle, and C. Dorsey. 2008. *Uncovering student ideas in science, vol. 3: Another 25 formative assessment probes*. Arlington, VA: NSTA Press.

National Research Council (NRC). 1996. *National science education standards*. Washington, DC: National Academies Press.

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