

Teaching through Trade Books

Activities inspired by children's literature

Animal Parents and Their Offspring

By Christine Anne Royce

Human parents help their offspring survive by providing food, water, shelter, and care, and the same is true of other animal parents. Although some animals are self-sufficient from birth, others survive to adulthood with assistance from their parents or other adult animals in their group. The activities in this month's column use text-based materials, media, and role-playing activities to help students understand how animal behavior helps offspring survive. Understanding the interdependence and interactions of animals helps students discover that organisms demonstrate patterns of behavior that aid in survival.

This Month's Trade Books



Baby on Board: How Animals Carry Their Young

By Marianne Berkes

Illustrated by Cathy Morrison

ISBN: 978-1584695936

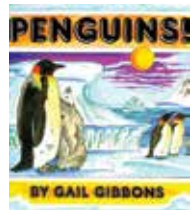
Dawn Publications

32 pages

Grades K–2

Synopsis

This book discusses how a wide range of animals care for, protect, and move their young. The informational text is presented in a rhyme and is accompanied by vivid illustrations.



Penguins

By Gail Gibbons

ISBN: 978-0823415168

Scholastic

32 pages

Grades 1–4



Synopsis

Gibbons provides detailed information about penguins, ranging from where they live to how they work together to raise chicks. General information about how chicks find their parents, huddle together to protect themselves from harsh temperatures, and share responsibilities for watching the egg prior to hatching helps the reader understand these birds. ■

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Additional Texts

Fraser, M.A. 2001. *How animal babies stay safe*. New York: HarperCollins.

Jenkins, M. 2002. *The emperor's egg*. Somerville, MA: Candlewick Press.

Simon, S. 2000. *Gorillas*. New York: HarperCollins.

References

National Governors Association Center for Best Practices and Council of Chief State School Officers (NGAC and CCSSO). 2010. *Common core state standards*. Washington, DC: NGAC and CCSSO.

NGSS Lead States. 2013. *Next Generation Science Standards: For states, by states*. Washington, DC: National Academies Press. www.nextgenscience.org/next-generation-science-standards.

NSTA Connection

Download all student data sheets, fact sheets, and Animal Charade Cards at www.nsta.org/SC1710.

Grades K–2: Raising Their Young

Purpose

To learn about how animal parents protect their babies and help them survive.

Engage

Show students a picture of a human baby and parent. Pose the following questions: “Can you do everything your parents do? What are things that you can’t do because you have not yet been taught how to do them?” Allow students to discuss these questions, and then ask students to describe ways that their parents or other adults in their lives help keep them safe and protect them. Discuss how each type of adult action helps the child be safe and survive. Examples that students might mention include: providing food, holding their hand or carrying them as they cross the street, keeping dangerous things away from them, and watching them at the playground.

After students discuss ways that adults protect them and help them survive, read *Baby on Board: How Animals Carry Their Young* to the class. After reading each page’s text, ask students to examine the illustrations in detail. For each animal, ask students to describe how the parent carries its young and give possible reasons as to why that keeps the baby safe. For example, a sea otter mother keeps her baby on her stomach as she floats in the ocean, thus making sure the baby is safe from predators, keeping the baby out of the chilly water, and ensuring the baby remains close for feeding.

Explore

During this phase, students watch media clips about birds to observe different bird behaviors that help their offspring survive. Show the following videos and engage students in a discussion about what is happening in each. Additional observations can be made via live bird cams (see Internet Resources).

- Northern Cardinals Feeding Babies—www.youtube.com/watch?v=1tWLDhJ6mjQ
- Bird Building a Nest—www.youtube.com/watch?v=hjCD4oNHv8w
- Mother Bird Protecting Her Eggs—www.youtube.com/watch?v=vXRat15hbMo
www.youtube.com/watch?v=Tytzi6Tf1v4
- Robin Learning How to Fly—www.youtube.com/watch?v=qWCJ42VzKf0
- Cardinal Leaving the Nest—www.youtube.com/watch?v=r5jG6KMhFp8

Materials

- picture of human baby and parent
- *Baby on Board: How Animals Carry Their Young*
- internet access
- Bird Fact Sheet (see NSTA Connection)
- variety of age-appropriate books about different animals
- Animal Information Sheet (see NSTA Connection)
- Animal Charade Cards (see NSTA Connection)



Baby cardinals

For each video, ask students: “What is the parent doing to help the baby? What does the baby need from the parent? How are the parent bird’s actions similar to or different from how adult humans help their babies?”

Explain

After watching and discussing the videos, point out that the birds need several things to survive: food, shelter, space, and protection from predators. Ask students to draw a picture that explains how mother birds help their young survive in each of these areas. For example, when addressing space needed to live, students can draw the type of nest or environment in which the bird might live. The Bird Fact Sheet (see NSTA Connection) has space for students to sketch their answers and provide a reason.

Students can also complete this activity for other animals using the Animal Information Sheet (see NSTA

Connection). Ask the school librarian to create a classroom set of books related to animals and their young so students have references. Once students have selected a book, ask them to read about the animal to learn about how they protect their young. Any of the animals that were presented in the trade book read at the beginning of the lesson will work.

Elaborate

Using the Animal Charade Cards (see NSTA Connection), ask students to randomly draw a card and act out the type of animal and the action described on the card. All of the information comes from *Baby on Board* or the videos about birds. Allow other students to guess what the animal is and how the parent’s behavior is helping its offspring survive. Once students guess, ask them to place the information in a sentence, such as, “The mother bird brings food to the baby bird and places it in the baby bird’s mouth. This helps the baby bird grow strong.” Another

way to use the book is to print bookmarks available from Dawn Publications (see Internet Resources) and have students act out the image on the bookmark.

Evaluate

Using the video link for National Geographic’s “Animal Mothers and Their Babies,” show students the different pictures of animal mothers and their babies. Good ones to use are of the cheetah, king penguin, orangutan, red-necked grebe, and the lion. As you show each picture, ask students what is happening in each image (e.g., parent is moving the baby; parent is protecting the baby) and how the parent is performing that action. By explaining that some parents move or keep a watchful eye over their offspring, students demonstrate an understanding of behaviors that help offspring survive. Formative evaluation occurs throughout the prior activities through question-and-answer, discussion, and application of concepts.

Connecting to the Next Generation Science Standards (NGSS Lead States 2013):

K–2: Raising Their Young

1-LS1-2 From Molecules to Organisms: Structures and Processes

www.nextgenscience.org/pe/1-ls1-2-molecules-organisms-structures-and-processes

The chart below makes one set of connections between the instruction outlined in this article and the NGSS. Other valid connections are likely; however, space restrictions prevent us from listing all possibilities. The materials, lessons, and activities outlined in the article are just one step toward reaching the performance expectation listed below.

Performance Expectation	Connections to Classroom Activity <i>Students:</i>
1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.	<ul style="list-style-type: none"> gather information from texts and media to identify ways a parent helps protect and feed offspring.
Science and Engineering Practice	
Obtaining, Evaluating, and Communicating Information	<ul style="list-style-type: none"> complete information on a Bird Fact Sheet and an Animal Information Sheet to explain how animal parents help provide their offspring food, shelter, space, and protection.
Disciplinary Core Idea	
LS1.B Growth and Development of Organisms <ul style="list-style-type: none"> Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. 	<ul style="list-style-type: none"> demonstrate, by playing charades, their understanding of how animals shown in media and text protect their young.
Crosscutting Concept	
Patterns	<ul style="list-style-type: none"> identify ways that animals bring food to and help protect their young, as well as other patterns of behavior that help offspring survive.

Grades 3–5: Living in Groups

Purpose

To research several types of animals and describe how they live and work together in groups to survive.

Engage

Begin by asking students why some animals live in groups and why living together might help animals survive. Ask students to discuss this with a group of three or four peers and then report to the class. As students are discussing their ideas, ask them whether they can name different animals that live in groups. Then, read *Penguins* to the class and stop at the following points to discuss the ideas:

- Discussion about rookeries (pp. 11–13): Why do the penguins come together to form rookeries once a year? What are some of the behaviors that change when they are in these groups?
- Building nests (pp. 14–15): What happens when the penguins are ready to lay eggs? How do the penguins work together to protect the egg?
- Emperor penguins (pp. 16–19): Which parent keeps the egg warm while the other one goes to feed? How do groups of penguins work together to keep warm during frigid conditions?
- Penguin parents (pp. 20–24): What are the different things that the mother and father penguin take turns doing as the chick grows?

To help illustrate the points raised in the reading, show students two short video clips about emperor penguins (see Internet Resources). Ask them to compare what they see to the information in the text.

Explore

After students discuss the idea that penguins live in groups to help them survive, as well as the behaviors these birds use to do so, they explore other animal groups on their own by researching a series of questions. Introduce Jane Goodall to the class using a video (see Internet Resources) and explain that she has spent her entire life studying chimpanzees. She, like other scientists who study animal groups, helps us understand these animals' behaviors. In this activity, students take on the role of animal scientist for a particular animal group. Students should work in groups of three or four and either be assigned an animal group or select one on their own to research. Following the Animal Group Sheet (see NSTA Connection), students should use texts from the library, websites, or

Materials

- *Penguins*
- internet access
- Animal Group Sheet (see NSTA Connection)
- Animal Comparison Sheet (see NSTA Connection)
- sugar
- crackers
- locations of nearby anthills

videos to collect information about their animals and how their group behavior helps them survive. Students can investigate animal groups such as termites, bees, wolves, gorillas, dolphins, orcas, meerkats, elephants, lions, and chimpanzees. Students should focus on the animals' behaviors rather than ascribing any emotions to them. It is important to help students realize that animal behaviors are just that: behaviors that have helped them survive.

Questions that students should focus on as they complete their information sheet include:

- Who belongs to the group of animals?
- Do the members of the group help find or build shelter together? Gather food?
- What types of social behaviors do members of the group demonstrate (e.g., grooming or playing)?
- Is there a hierarchy or lead member of the group? If so, describe how they are selected or what their role is.
- Do the animals have a way to communicate with each other? What type of information do they communicate?
- What other behaviors do the members of the group demonstrate that help them survive?



Explain

Once each group has researched its particular animal, set the stage for students to give a briefing to the rest of the animal scientists. Each group should present the information it found about their animal to the class. As groups present, students should fill in a comparison chart (see NSTA Connection) about the different animal groups.

Elaborate

Students now have information about penguin colonies and other animal groups from their research. They are now presented with one additional animal group—ants—and use information and evidence to argue about how ants work together in their colony. If there are local anthills you can observe, allow students to observe how ants find food (that you provide) and begin to carry it back to their colony. Remind the students that, like Jane Goodall, scientists are always respectful of the environment and animals, so they should not disturb or disrupt the ants. Place small piles of food such as sugar or crackers near the ant colonies and ask students what they think the ants will do with the food. Encourage students to record information, observations, and

sketches with labels on a sheet of paper. If local anthills are not available, show students several of the video clips about ants (see Internet Resources) and allow them to make observations and discuss what they see with their groups. If a classroom ant farm is available, it will provide another way to make similar observations, although at a smaller scale.

Once students have made observations, ask them to respond to the following claim: “Ants work together in the colony to survive by ...” Make sure students understand that they need to provide evidence from their observations that supports the claim.

Evaluate

Throughout this investigation, students demonstrate their understanding of animal groups and the behaviors that help them survive. Through the use of text and media resources, students examine a particular animal group and share their information with others. As they listen to other groups’ presentations, students identify the purpose of the animals’ behaviors. Finally, students write a claim about how ants work together in a colony to survive and support their claim with evidence.

Connecting to the Next Generation Science Standards (NGSS Lead States 2013):

3–5: Living in Groups

3-LS2-1 Ecosystems: Interactions, Energy, and Dynamics

www.nextgenscience.org/pe/3-ls2-1-ecosystems-interactions-energy-and-dynamics

The chart below makes one set of connections between the instruction outlined in this article and the NGSS. Other valid connections are likely; however, space restrictions prevent us from listing all possibilities. The materials, lessons, and activities outlined in the article are just one step toward reaching the performance expectation listed below.

Performance Expectation	Connections to Classroom Activity <i>Students:</i>
3-LS2-1. Construct an argument that some animals form groups that help members survive.	<ul style="list-style-type: none"> research different animal groups to describe group behaviors that help them survive.
Science and Engineering Practice	
Engaging in Argument From Evidence	<ul style="list-style-type: none"> provide evidence from observations to support the claim that ants live together in colonies for survival.
Disciplinary Core Idea	
LS2.D Social Interactions and Group Behavior <ul style="list-style-type: none"> Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size. 	<ul style="list-style-type: none"> research different animal groups to describe group behaviors that help them survive. use text and media sources to make observations about penguins that demonstrate group behavior that aids in survival.
Crosscutting Concept	
Cause and Effect	<ul style="list-style-type: none"> describe how certain behaviors in animal groups aid in the survival of all members.

Internet Resources

- Cornell Lab of Ornithology Live Bird Cams
<http://cams.allaboutbirds.org>
- Dawn Publications Bookmarks
<https://dawnpub.com/activity/baby-on-board-activities>
- Emperor Penguin Colony
www.youtube.com/watch?v=MfstYUscBc
- Emperor Penguins Huddle for Warmth
www.youtube.com/watch?v=OL7O5O7U4Gs
- Jane Goodall
<http://video.nationalgeographic.com/video/jane-goodall-retrospective>
- National Geographic's Animal Mothers and Babies
www.nationalgeographic.com/photography/photos/animal-mothers-babies
- Six Animal Species with Strong Family Bonds

www.onegreenplanet.org/animalsandnature/animal-species-with-strong-family-bonds

Videos About Ant Colonies

- Ant Team Work
www.youtube.com/watch?v=c7gF3hDoUqk
- Ants: Life in the Undergrowth
www.youtube.com/watch?v=Er-OnJCn1gg
- Giant Abandoned Ant Colony Excavated
www.youtube.com/watch?v=CmD5ahkOPAQ
- Life Inside the Colony
www.youtube.com/watch?v=8n0SkIGARuo
- Wild City of Ants
www.youtube.com/watch?v=55tXhnZoOg
- The Work Force of Ants
www.youtube.com/watch?v=wxqQLrCic5k

Connecting to the *Common Core State Standards* (NGAC and CCSSO 2010):

This section provides the *Common Core State Standards for English Language Arts and/or Mathematics* addressed in this column to allow for crosscurricular planning and integration. The Standards state that students should be able to do the following at grade level.

English/Language Arts

Reading Standards for Informational Texts K–5 – Key Ideas and Details

- Grade 3: “ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.”

Writing Standards – Research to Build and Present Knowledge

- Grade K: “With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.”
- Grade 4: “recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.”

Writing Standards K–5 – Text Types and Purposes

- Grade K: “use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.”

- Grade 2: “write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.”
- Grade 4: “write informative/explanatory texts to examine a topic and convey ideas and information clearly.”

Writing Standards K–5 – Research to Build and Present Knowledge

- Grade 3: “conduct short research projects that build knowledge about a topic.”

Speaking and Listening Standards K–5 – Presentation of Knowledge and Ideas

- Kindergarten: “add drawings or other visual displays to descriptions as desired to provide additional details.”
- Grade 1: “add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.”

Vocabulary Acquisition and Use is one of the standards for language. This particular standard is across grade levels. “Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade [appropriate] reading and content.”

Furthermore, the *Common Core for ELA* provide a standard related to the Range of Text Types for K–5 where it indicates that students in K–5 should apply the Reading standards to a wide range of texts to include informational science books.