

JR TEACHER GUIDE: ANIMAL COMMUNICATION

FEBRUARY 2007

Dear Teachers,

In this guide we hope to offer you ways to incorporate *Greentimes JR: Animal Communication* into your classroom. Your input directly affects our decisions of what to include in future guides, so please feel free to send feedback and suggestions to freemahe@bc.edu. Also, you can visit www.greenscreen.org for more information.

Happy Learning,
Heather Freeman
Greentimes Program Director

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Background Information

- **The Five Senses:** Every animal has adapted to, and senses, their environment in a different way. Humans use sight and sound as their primary means of communication and survival but ants see polarized light, bats use echolocation, honey bees can detect magnetic fields, and dogs hear sounds at large frequencies that are silent to humans. Visit <http://faculty.washington.edu/chudler/amaze.html> to learn more about how other animals sense their environment.
- **Bee Dances:** Bees are amazing communicators! Visit <http://www.pbs.org/wgbh/nova/bees/> to learn all about bees before trying some of the activities with your students. The site includes interactive information on bee dances, bee hives, fascinating bee facts, and more. A few sections we'd like to point out are:
 - The Waggle: <http://www.pbs.org/wgbh/nova/bees/danceswagg.html>
 - Another Bee Dance, the Round Dance: <http://www.pbs.org/wgbh/nova/bees/dancesroun.html>
 - Bee Facts: <http://www.pbs.org/wgbh/nova/bees/buzz.html>
- **Eyes:** <http://www.sdnhm.org/kids/eyes/basics.html> is a great site that outlines basic information about what vision is, different kinds of animal eyes, how the brain interacts with eyes, and more! Not all animals have eyes like the one pictured in the newsletter. Some have what are called "eye spots" (earthworms) or "eye cups" (starfish). Then there are animals with "single lens eyes", like ours! All vertebrates have single lens eyes. And insects and crustaceans have "compound eyes" that are made up of separate units, each with their own lens.

Quick, Hands-On Science

Bee Dancing—Communication Exercise

Bees perform a dance called the waggle to tell other bees where to find a food source. The dance explains how far to travel, in what direction, and the quantity and quality of the food. When the bees dance, they indicate direction by “wagging” in the compass direction of the food. And they indicate distance by the rate of circling and length of their buzzing.

In this activity, put students in pairs. Instruct each pair to design their own bee dance. Suggested indicators include: number of steps or hops to show distance in feet or yards and direction of arm movements or of the dance as a whole to show direction.

Give each pair of students either a real item of food or candy, or an object to designate food. Ask the rest of the class to close their eyes, and have the students put their item out-of-sight (behind or beneath a book, in a desk, etc.). Then ask the students to open their eyes, and the pair can perform their dance. Have them perform it twice, then ask other students to identify where they think the food is.

For younger students, do this activity as a whole class. You can jointly decide on the indicators, and then design dances for the food in several locations.

This can also be done outside.

Test Your Senses!

Have you ever been to a hands-on museum where they have a display in which you can put your hand into a box, feel an item, and guess what it is? Well, you can set this up in your own classroom!

For this experiment, you will need to collect a selection of items that have different textures and shapes. We suggest using items from your classroom or school. You will also need either boxes or bags to keep the items out-of-sight. We suggest shoe boxes (you can cut a hole big enough for a child’s hand) or even simpler, paper grocery bags taped shut at the top with a hole cut in the side.

You can also test your students’ sense of taste and smell by setting up a similar activity.

Art Activity

A simple but creative art activity about communication and the senses is easy to set up. All you need to do is create a list of “sensing scenarios”, such as the suggestions listed below, and then ask students to draw their description of one of the scenarios. After they are done drawing, other students can guess which scenario they chose to depict.

- An animal tells other animals that there is danger nearby.
- An animal senses that another of its kind has “marked” its territory.
- An animal tracks a missing person.
- An animal explains to others of its kind where to find food.
- Or make up your own!



Writing & Reading Comprehension

Spelling: Hold a spelling bee based on vocabulary words in the articles. For an added twist, ask students to define the words for extra points! Vocabulary words include:

- Nectar
- Waggle
- Vision
- Pupil
- Retina
- Optic Nerve
- Odors
- Mucus
- Territory
- Communication

Matching Senses: Ask students to list ways they use their own senses. Then for each example, ask them to think of an animal that might do the same thing, or something similar. For example, if a student writes down, "Smell what's cooking for dinner," they can say their dog or cat smells the food when they put it in their bowl.

Question and Answer: Each of the three articles on pages 2 and 3 in *Greentimes JR* end in a question. Ask students to pick one or more of the questions to answer. Then they can each read their answers aloud and hear how they each answered the same questions with different examples!

Compare and Contrast: Ask students to write about how a specific animal is similar to and different from humans. Students should concentrate on things they learned about animal communication in *Greentimes JR* or other animal related lessons the class has completed. This is a fun "compare and contrast" activity that can be done in paragraph form or chart form. It can also be done as a group activity with students presenting their work to the class.

Reading Suggestions

The Five Senses (It's Science!) by Sally Hewitt

This book is great for the youngest *Greentimes JR* readers in grade 2 or 3.

The Listening Walk by Paul Showers

Another great book for the younger students.

Helen Keller: A Light for the Blind by Kathleen Kudlinski

Great for grades 3-5.

When the Bees Fly Home by Andrea Cheng

This is a great story involving bees. Good for grades 3-5.



Tips on buying books... many people aren't aware that websites like www.amazon.com sell both new and USED books. This is a great way to save money when you're trying to enlarge your classroom library.



Worksheet Instructions, Framework Connections and Answer Key

Worksheet 1

This worksheet is about reinforcing vocabulary and ideas found in the newsletter. The two activities could be completed as students read the newsletter or as a quiz afterwards. This could also be an easy take home assignment.

Answers:

True or False?

1. False (Bees dance to communicate with each other.)
2. False (Mucus helps you smell!)
3. False (The waggle tells bees where to find food.)
4. True
5. True

Worksheet 2

This worksheet offers students the opportunity to practice vocabulary and writing complete sentences. It is also an exercise in reading comprehension and using new terms in context.

Greentimes JR (back page) Activity Answers

Fill in the Blank:

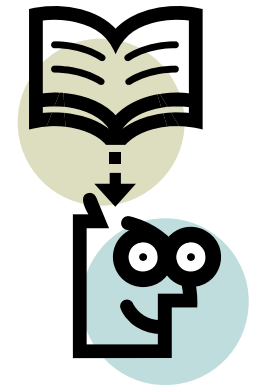
1. Cheetah
2. Odor
3. The ability to see
4. Flowers

Word Scramble:

1. Pupil
2. Nectar
3. Waggle
4. Retina
5. Vision
6. Oder

True or False:

1. False
2. True
3. True
4. False



Connections to MA Curricular Frameworks

Life Science, Grades PreK—2
Learning Standard #6

“Recognize that people and other animals interact with the environment through their senses of sight, hearing, touch, smell and taste.”



Name: _____

Date: _____

GREENTIMES JR: ANIMAL COMMUNICATION
Worksheet 1

True or False?

For each statement, write "true" or "false" in the blank provided.

1. Bees dance just for fun. _____
2. Mucus has nothing to do with your sense of smell. _____
3. The "waggle" tells bees there is danger coming. _____
4. The optic nerve connects to your eye. _____
5. You can use more than one sense at a time. _____

Make Your Own Sentence

Write a complete sentence using each word or pair of words.

1. Oder

2. Sound

3. Pupil

4. Communication

Name: _____

Date: _____

GREENTIMES JR: ANIMAL COMMUNICATION
Worksheet 2

1. Pick an animal that can be a household pet. How does this animal communicate?

2. Name all five senses.

3. List two things you learned about bees.

4. Name four parts of an eye.

5. There were many animals mentioned in *Greentimes JR*. List as many as you can remember!

6. What is it that bees are telling each other when they dance the waggle?
