

TEACHING

# Ecology



1st Grade Reading Level

## Standards

- Science
- Understands the structure and function of cells and organisms.
  - Understands relationships among organisms and their physical environment.
  - Understands biological evolution and the diversity of life.
  - Understands the nature of scientific inquiry.
- Language Arts
- Gathers and uses information for research purposes.
  - Uses the general skills and strategies of the reading process.
  - Uses reading skills and strategies to understand and interpret a variety of informational texts.
  - Uses grammatical and mechanical conventions in written compositions.
- Health
- Knows environmental and external factors that affect individual and community health.

## Multiple Intelligences Utilized

- Linguistic, logical-mathematical, interpersonal, spatial, and naturalistic

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Books in the *Ecology* series include:

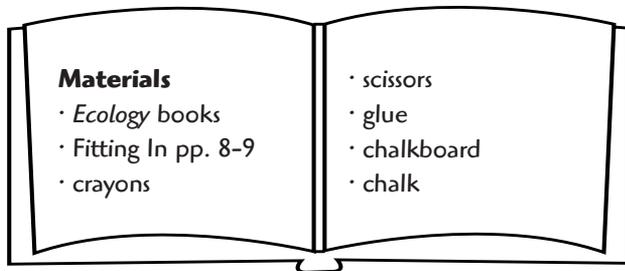
*Animals and the Environment*  
*People and the Environment*  
*Plants and the Environment*



# Lesson 1

## Fitting In

**Purpose:** Students will identify components of Earth's environment.



### Objectives

- Define *environment*.
- Describe things that are in the environment.
- Choose pieces to complete a puzzle.
- Categorize items by their effect on the environment.
- Suggest ways people can help the environment.
- Evaluate how items affect the environment.

### Activity Procedures

#### Prepare

(teacher)

- Copy Fitting In pp. 8–9 for each student.

#### Pretest

(teacher, students)

- What is the environment?
- List student responses on the board.

#### Read

(teacher, students)

- Read *Ecology* books.

#### Discuss

(teacher, students)

- Refer to the list created at the beginning of the lesson. Ask students if they want to add or delete items.
- Discuss which items are good or bad for the environment.
- Have students categorize items on the list as good or bad for the environment.

#### Model

(teacher, students)

- Explain how to complete Fitting In pp. 8–9.
- Students color and cut out the puzzle pieces on page 9 and glue them into the puzzle frame on page 8. The outline of one piece has been provided to help the students get started.
- There are two pieces that do not fit in the puzzle. These pieces should be glued to the bottom of page 8.

#### Practice

(students, teacher)

- Complete Fitting In pp. 8–9.

#### Discuss

(teacher, students)

- Discuss what people can do to help the environment.

#### Evaluate

(teacher)

- Check Fitting In pp. 8–9 for accuracy and completeness.

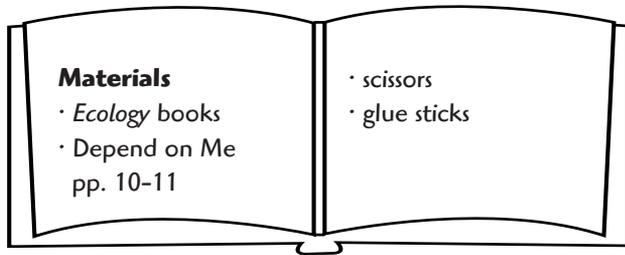




## Lesson 2

# Depend on Me

**Purpose:** Students will identify ways people, plants, and animals depend on each other.



### Objectives

- Define *depend*.
- Describe how plants, animals, and people depend on the environment.
- Identify parts of the environment.
- Predict what would happen if part of the environment disappeared.
- Give examples of how components of the environment are connected.
- Select the most important part of the environment.

### Activity Procedures

#### Prepare

(teacher)

- Copy Depend on Me pp. 10–11 for each student.
- If available, have a volunteer cut on the dotted lines to cut out the spaces on page 10. This step will be the most time consuming for students.
- Complete a Depend on Me slider as a model.

#### Pretest

(teacher, students)

- What does it mean to depend on someone or something?

#### Read

(teacher, students)

- Read *Ecology* books.

#### Discuss

(teacher, students)

- How do you depend on the environment? How do animals depend on the environment? What about plants?
- What would happen to the environment if most of the plants disappeared? What if the animals disappeared? Or the people?
- Describe what you think is the most important part of the environment.

#### Model

(teacher, students)

- Explain how to assemble a Depend on Me slider.
- If not already done, cut out the spaces on page 10.
- Cut on the dotted lines to cut out the slider cards on page 11.
- Fold the top and bottom sections of page 10 backwards on the solid lines.
- Glue the flaps together where they overlap, being careful not to glue the slider shut.
- Once the glue is dry, slide one of the slider cards into the slider so the text and pictures show through the open spaces.

#### Practice

(student pairs)

- Using the Depend on Me slider, have students quiz each other on how plants, animals, and people depend on the environment.

#### Evaluate

(teacher)

- Monitor students for understanding and participation.
- For a more formal assessment, students should choose examples of how animals, people, and plants depend on each other. Create an assessment sheet with the images and text from page 11.

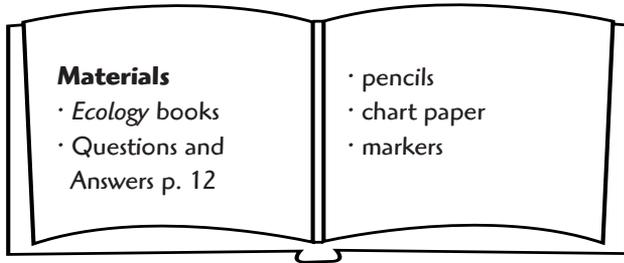




## Lesson 3

# Questions and Answers

**Purpose:** Students will demonstrate comprehension of a nonfiction text.



### Objectives

- Identify a glossary and an index.
- Locate the glossary and index in a book.
- Predict what information will be included in a text based on its title, glossary, and index.
- Categorize information.
- Create questions based on an informational text.
- Explain the connection between questioning and comprehension.

### Activity Procedures

#### Prepare

(teacher)

- Copy Questions and Answers p. 12 for each student.

#### Pretest

(teacher, small groups)

- Preview an *Ecology* book.
- Where can we find the book's important words?
- Review the words in the glossary and index.
- Read the title. Ask students what information they think will be in the book.
- Record student predictions on the chart paper.

#### Read

(teacher, small groups)

- Read one book from the *Ecology* series.

#### Discuss

(small groups)

- Identify which of the students' predictions were included in the book.
- On the chart paper, write the page number where the information was found.

#### Model

(teacher)

- Ask students to recall the six question words (who, what, when, where, why, how).
- Explain to students how their predictions can become questions that will be answered in the book.
- Rewrite one of the students' predictions using one of the question words.
- Have one student read the question aloud. Have another student read the page from the book that answers that question.
- Repeat this process for the remaining five question words.

#### Practice

(small groups, teacher)

- Have students review the glossary and index of one of the remaining *Ecology* titles.
- Students predict what information will be included in the book.
- Have students read the book.
- Students should compose questions using each of the six question words based on information found in the text.
- Students write their questions and where they can find the answers on Questions and Answers p. 12.

#### Discuss

(class)

- Why do you think good readers ask lots of questions before and after they read?
- Ask students to rate their understanding of the books they read.

#### Evaluate

(teacher)

- Keep anecdotal records during the small group sessions.
- For a more formal assessment, compile the student-generated questions on a worksheet and have students record where they found the answers.

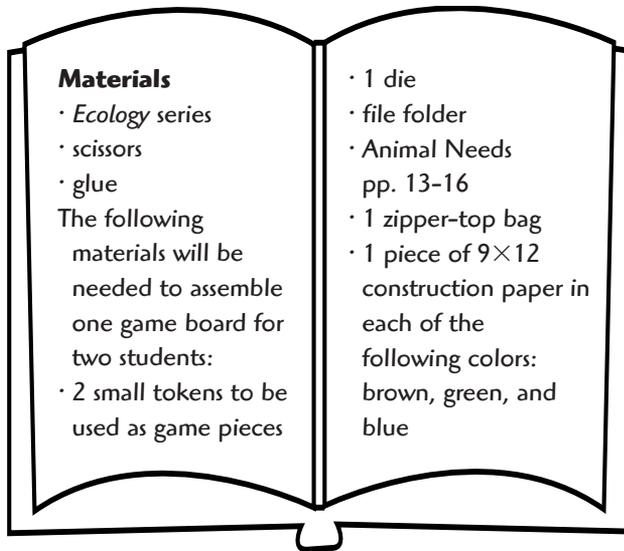




## Lesson 4

# Animal Needs Game

**Purpose:** Students will identify factors that affect an animal's survival in a habitat.



### Materials

- *Ecology series*
- scissors
- glue

The following materials will be needed to assemble one game board for two students:

- 2 small tokens to be used as game pieces

- 1 die
- file folder
- Animal Needs pp. 13-16
- 1 zipper-top bag
- 1 piece of 9×12 construction paper in each of the following colors: brown, green, and blue

### Objectives

- Recall information from *Ecology* books.
- Identify key vocabulary.
- Participate in game play.
- Analyze factors that affect the environment.
- Suggest solutions to environmental problems.
- Judge environmental changes as helpful or harmful.

### Activity Procedures

#### Prepare (teacher)

- Assemble an Animal Needs game for each pair of students.
- To assemble the Animal Needs game:
  - Copy Animal Needs pp. 13–16.
  - Trim pages 15–16 on the dotted lines. Glue these pages onto the file folder to connect the game board.
  - Cut page 14 on the dotted line to create two game mats.
  - Cut each piece of 9×12 construction paper into 16 equal sections.

- If desired, laminate completed game board, construction paper sections, and game mats for durability.
- Store page 13, construction paper pieces, game tokens, and the die in a zipper-top bag.
- Review game directions on page 13.

#### Pretest

(teacher, students)

- Imagine you are a wild animal. What would you need to live? Would it be easy or hard to survive?

#### Read

(teacher, students)

- Read *Ecology* books.

#### Model

(teacher)

- Review vocabulary on the Animal Needs game board.
- Explain the real-life reasons for the special game board spaces, such as losing food to care for a baby or getting to chose shelter, food, or water at a wildlife refuge.
- Demonstrate how to play the Animal Needs game.

#### Practice

(student pairs)

- Have students play five rounds of the Animal Needs game. (They should play the standard game and the variations described on page 13.)
- Students should discuss the game result with their partner or the whole class between each round. They should compare the results of the different rounds.

#### Discuss

(class)

- In this game, what changed the environment more—people, plants, or animals?
- Were the changes helpful or harmful?
- What can people do to fix the environment?
- Can all the problems be fixed, such as forest fires, bigger animal populations, or drought?

#### Evaluate

(teacher)

- Observe students during game play for cooperation and understanding of the material.



## Additional Resources

### BOOKS

Aruego, Jose, and Ariane Dewey. *Weird Friends: Unlikely Allies in the Animal Kingdom*. New York: Harcourt, Inc., 2002.

Young readers will discover how different kinds of animals work together to survive.

Glaser, Linda. *Our Big Home: An Earth Poem*. Brookfield, CT: Millbrook Press, 2000.

Readers learn that the environment is shared not only by all people but by plants and animals as well.

Guiberson, Brenda. *Cactus Hotel*. New York: Henry Holt and Company, 2007.

This illustrated book demonstrates plant development and adaptation techniques for survival in a desert habitat. Readers also learn about the connection between the saguaro cactus and desert animals.

Mitchell, Melanie. *Butterflies*. Minneapolis: Lerner Publishing Group, 2003.

\_\_\_\_\_. *Ducks*. Minneapolis: Lerner Publishing Group, 2003.

\_\_\_\_\_. *Frogs*. Minneapolis: Lerner Publishing Group, 2003.

\_\_\_\_\_. *Rabbits*. Minneapolis: Lerner Publishing Group, 2003.

\_\_\_\_\_. *Snakes*. Minneapolis: Lerner Publishing Group, 2003.

Captivating photographs of familiar animals engage readers as they learn about a variety of animal life cycles.

Rivera, Sheila. *Desert*. Minneapolis: Lerner Publishing Group, 2005.

\_\_\_\_\_. *Forest*. Minneapolis: Lerner Publishing Group, 2005.

\_\_\_\_\_. *Ocean*. Minneapolis: Lerner Publishing Group, 2005.

\_\_\_\_\_. *Wetland*. Minneapolis: Lerner Publishing Group, 2005.

Readers travel to a variety of environments in the *First Step Nonfiction Habitats* series. The simple text and striking photography explore the types of plants and animals that live in each habitat.

Ross, Kathy. *All New Crafts for Earth Day*. Minneapolis: Millbrook Press, 2006.

Every day is full of opportunities to recycle the earth's resources. The author offers many ways to recycle household throwaways into useful items.

Schwartz, David M. *At the Pond*. Huntington Beach, CA: Creative Teaching Press, 2002.

\_\_\_\_\_. *At the Seashore*. Huntington Beach, CA: Creative Teaching Press, 2002.

\_\_\_\_\_. *In the Desert*. Huntington Beach, CA: Creative Teaching Press, 2002.

\_\_\_\_\_. *In the Forest*. Huntington Beach, CA: Creative Teaching Press, 2002.

\_\_\_\_\_. *In the Meadow*. Huntington Beach, CA: Creative Teaching Press, 2002.

Examine plant parts and animal features up-close and then turn the page to see how these smaller parts fit into the bigger picture.

### WEBSITES

*BBC School Science Clips*

[http://www.bbc.co.uk/schools/scienceclips/ages/10\\_11/interdependence.shtml](http://www.bbc.co.uk/schools/scienceclips/ages/10_11/interdependence.shtml)

This online activity allows students to identify organisms in an environment. The organisms can then be sorted by trait or placed in a food web.

*Earth Day: Activities*

[http://www.eduplace.com/monthlytheme/april/earth\\_activities.html](http://www.eduplace.com/monthlytheme/april/earth_activities.html)

Teachers will find a list of early elementary activities with an Earth Day theme.

*Endangered Means There's Still Time*

<http://training.fws.gov/deo/endang/lrg/sld01.html>

This slide show from the U.S. Fish and Wildlife Service presents information on endangered and extinct animals.

*EPA Environmental Kids Club*

<http://www.epa.gov/kids/>

At this site from the Environmental Protection Agency, kids can explore the environment and learn how to protect it. Includes games, pictures, and stories.

*Gould League Food Webs*

[http://www.gould.edu.au/foodwebs/kids\\_web.htm](http://www.gould.edu.au/foodwebs/kids_web.htm)

Place animals and plants into the food webs of four different habitats.

*The Imagination Factory*

<http://www.kid-at-art.com/>

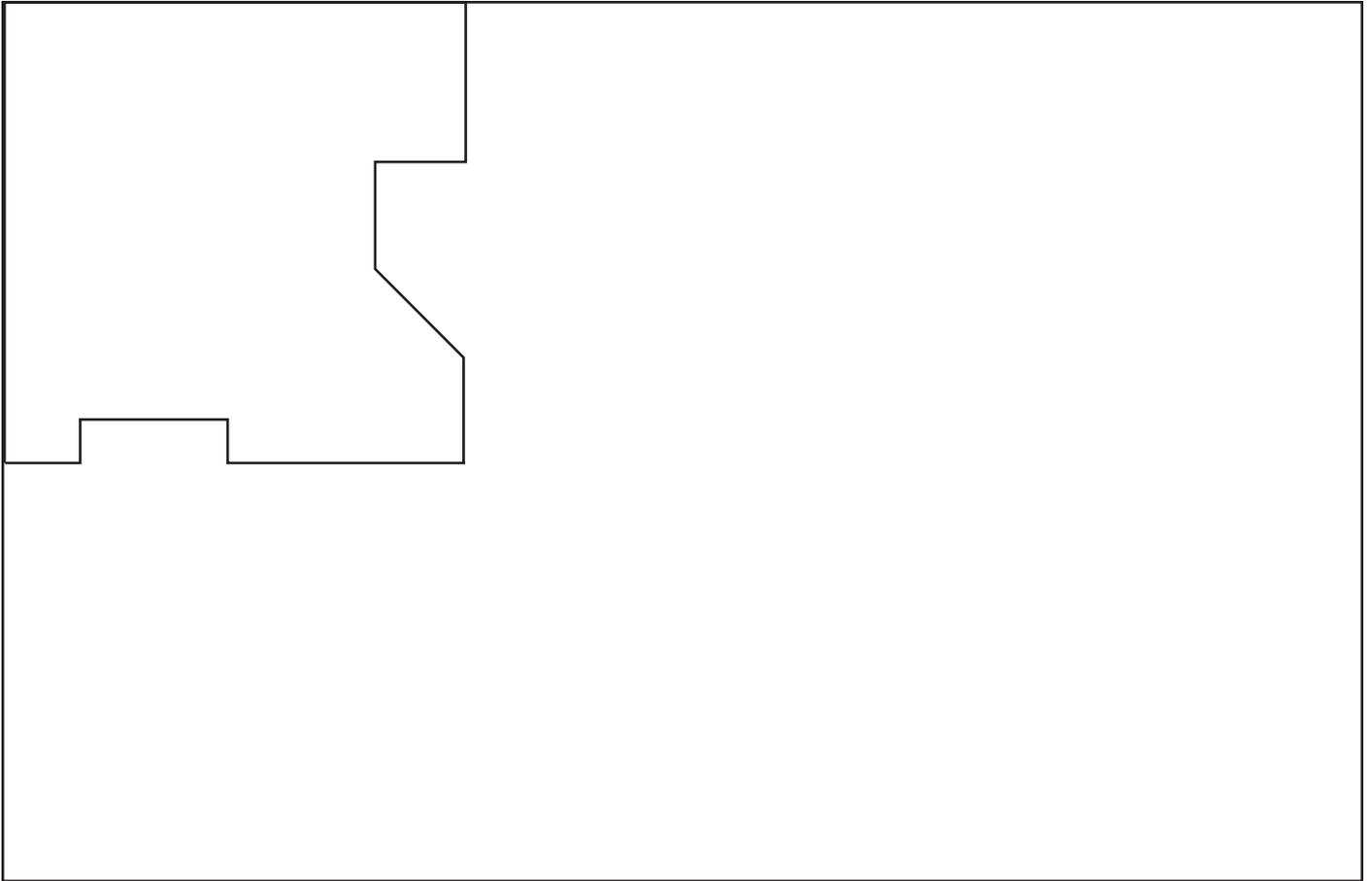
This site encourages kids to recycle by providing directions for art projects made from trash items.



Name \_\_\_\_\_

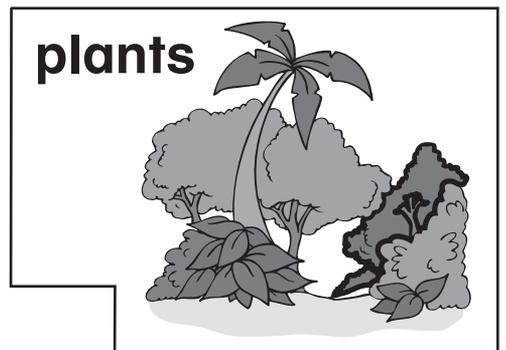
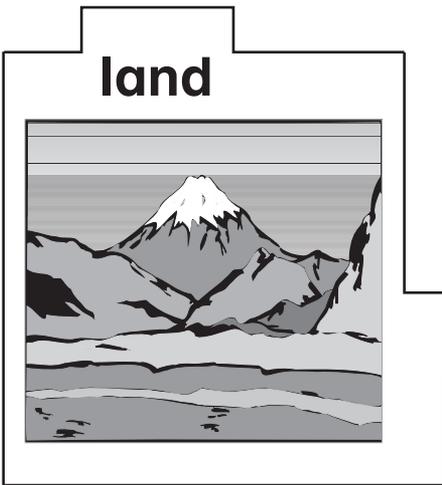
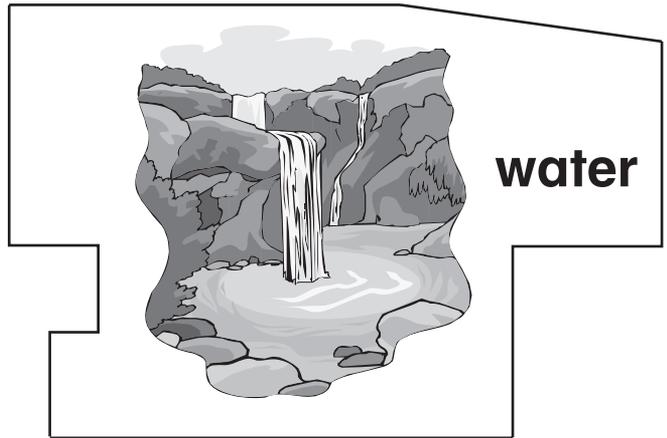
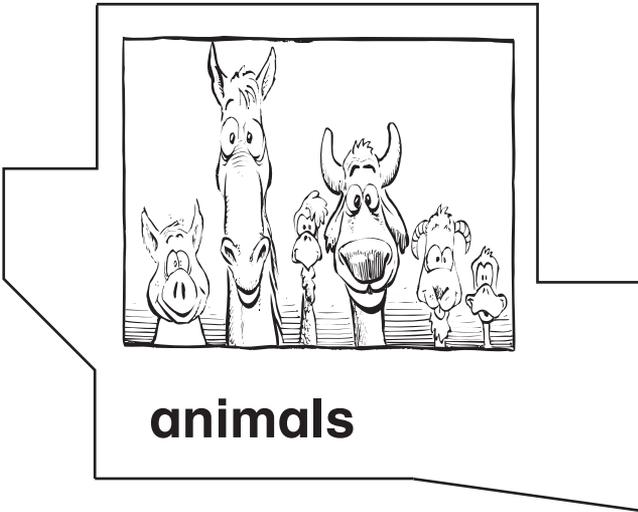
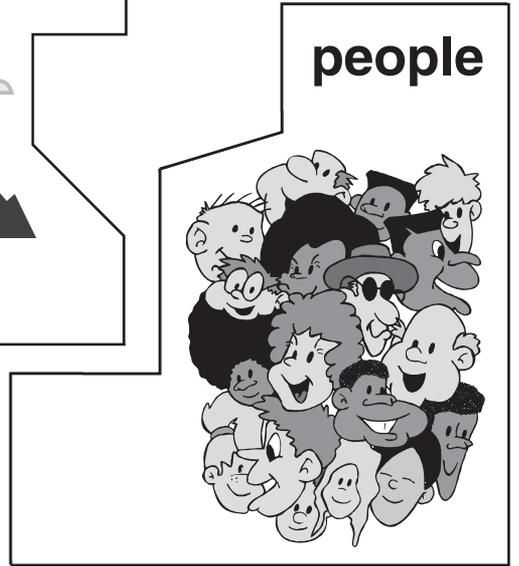
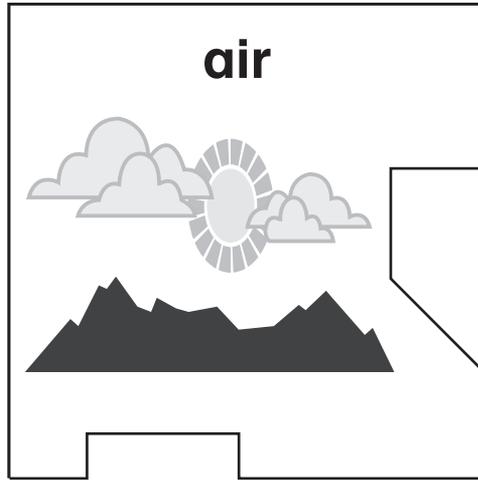
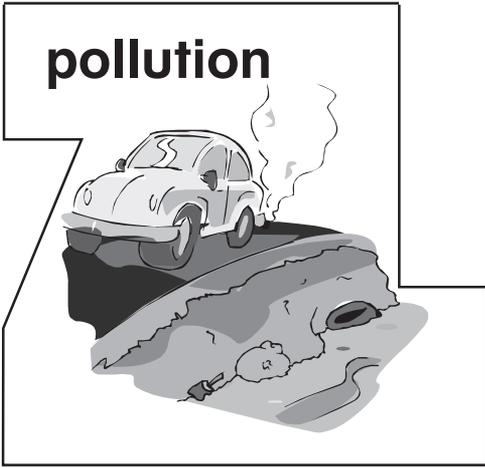
## Fitting In

**Directions:** Cut out the puzzle pieces on page 9. Glue the pieces in the box below to complete the puzzle. Two pieces will not fit. Glue them at the bottom.



Many things fit in the environment. These things do not.

# Fitting In



# Depend on Me

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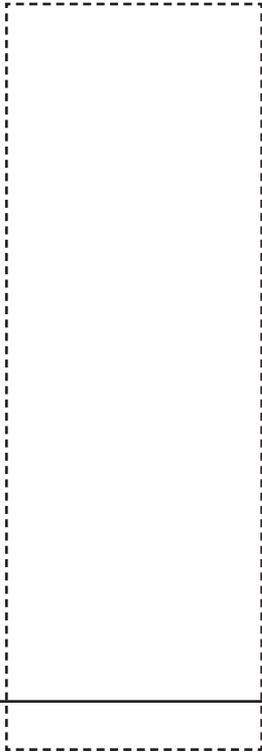


depend on



for

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Glue

Plants

People

animals

animals

food

food



animal droppings



turkey leg

spreading seeds

clothing



squirrel and acorn



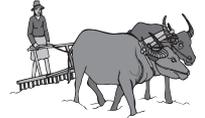
leather jacket

spreading pollen

work



bee and flower



oxen and plow

Animals

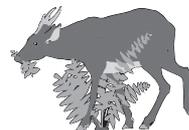
People

plants

plants

food

food



eating leaves



vegetable garden

homes

homes



bird's nest



log cabin

safety

clothes



camouflage



cotton shirt

# Questions and Answers

Title of Book \_\_\_\_\_

Question	Answer Page
Who _____ _____ _____ _____	
What _____ _____ _____ _____	
Where _____ _____ _____ _____	
When _____ _____ _____ _____	
How _____ _____ _____ _____	
Why _____ _____ _____ _____	

# How to Play Animal Needs

## 2-player game

### To start the game:

Remove two brown cards, four green cards, six blue cards, two game pieces, and a die from the zipper-top bag. Place the blue cards in the water space, the green cards in the food space, and brown cards in the shelter space on the game board. Give each player a game card mat and a game piece. Place the game pieces on the START space. Roll to see who goes first.

### Winning the Game:

The first player to collect three water cards, two food cards, and a shelter card is the winner.

### Special Spaces:

**Needs** – Choose one of the game cards from the center of the game board and place it on your game mat. You may only take one if you have an open space on your game mat. You may not place a card in the bonus space. If none of the cards you need are in the center, your turn ends and the next player rolls the die.

**Bonus** – When you land on these spaces you receive a bonus game card. Some spaces are specifically for water, food, or shelter. Some spaces allow you to choose which card you need most. Take a card from the **Bonus Bag**. (This is the zipper-top bag which holds the extra cards.) Place it in an open space on the game mat. If your spaces are already filled, you may keep your bonus card in the bonus spot on the game mat. You may collect as many bonus cards as you can. These cards can be used if you land on any **Lose** spaces.

**Lose** – When you land on these spaces you must remove the type of card specified from your game mat and place it back in the center of the game board. You may fill in the empty spot on your game mat if you have that type of card in your **Bonus** spot.

### Variations:

Many things can change the environment. Choose a change and try the game again.

#### Pollution

The water is polluted. Replay the game with 4 water cards, 2 shelter cards, and 4 food cards.

#### Pests

Bugs have killed many of the plants. Replay the game with 6 water cards, 2 shelter cards, and 2 food cards.

#### Fire

Fire has destroyed the habitat. Replay the game with 6 water cards, 1 shelter card, and 3 food cards.

#### Bigger Population

More animals are living in the habitat. Replay the game with four players. Use 6 water cards, 2 shelter cards, and 4 food cards.

# Animal Needs Game Mat

	water	water	water
shelter	food	food	bonus

# Animal Needs Game Mat

	water	water	water
shelter	food	food	bonus

<p><b>START</b></p> 	<p><b>NEEDS</b></p>	<p>trees planted</p> <p>bonus shelter</p>	
<p>rainstorm</p> <p>bonus water</p>		<p><b>NEEDS</b></p>	<p>baby care</p> <p>lose food</p>
<p><b>NEEDS</b></p>		<p>food</p> <p>cards</p>	<p>shelter</p>
<p><b>NEEDS</b></p>		<p><b>NEEDS</b></p>	<p><b>NEEDS</b></p>
<p>coral reef damaged</p> <p>lose shelter</p>		<p>wildlife refuge</p> <p>bonus</p>	
<p><b>NEEDS</b></p>	<p><b>NEEDS</b></p>		

	national park bonus	<b>NEEDS</b>	<b>NEEDS</b>
<b>NEEDS</b>	<b>NEEDS</b>		no rain lose water
			<b>NEEDS</b>
			rainstorm bonus water
hurt leg lose food	<b>NEEDS</b>		<b>NEEDS</b>
	bird bath bonus water	<b>NEEDS</b>	new houses bonus water

cards

water  
cards