

Plants and Animals

Standard IV

Students will gain an understanding of Life Science through the study of changes in organisms over time and the nature of living things.

Objective 1

Tell how external features affect an animals ability to survive in its environment.

Intended Learning Outcomes

Communicating Science: Communicating effectively using science language and reasoning.

Knowing in Science: Understanding the nature of science.

Content Connections: Language Arts, Writing

Background Information

There are six main classes of the animal kingdom: insects, birds, fish, mammals, amphibians, and reptiles. All animals live in a habitat that is suited to fit their needs. Animals also have adaptations that allow them to survive in their habitat. In addition, plants have adaptations that allow them to live in a specific habitat. All living things depend on plants to survive.

Research Basis

Gallenstein, N. (2005). Engaging young children in science and mathematics. *Journal of elementary science education*, Volume 17.

A key element for children in understanding science and mathematics knowledge on the early childhood level is through active, creative, and intellectual engagement. According to Jerome Bruner, instruction should include a variety of developmentally appropriate techniques. These techniques include the representation of knowledge through actions, drawings, and words. The process skills of observing, communicating, and inferring are also crucial to the understanding and problem solving in science and mathematics. In addition, basic mathematics concepts-such as comparing, sorting, counting, and graphing-are crucial to the understanding and organization of data in science

Invitation to Learn

Get a collection of small plastic animals that represent each of the six classes of animals. Label containers or sections off a table and label with the names of the classes. Give each student at least one animal and tell them to put it where they think it belongs. If the students place the animals in the incorrect class, just ignore it for now. As the students learn about the different classes, let them rearrange the animals to put them in the correct place.

Instructional Procedures

1) Animal Kingdom

Spend some time discussing facts from each of the six main classes of the animal kingdom using nonfiction literature, videos, etc. As you discuss each kingdom, give each student a copy of the "Flap Book Page." Have them write down facts about the animals as you write them on the board or an overhead. Then have them cut out their "Flap Book Page" and fold it.

- 2) Next, have the students color the “Animal Pictures” and cut them out. Then have the students cut out the “Animal Kingdom Labels” and glue them on the front of each page of their book. Finally, have the students glue the “Animal Pictures” on each appropriate class on the book.
- 3) Arrange the book pages onto the sheet of construction paper. Have the students label their flap book poster with a marker.

These are the basic facts from each of the classes that can be written in the flap books.

Insects:

- Have an exoskeleton
- Have three body parts (head, thorax, abdomen)
- Have six legs
- Have two antennae
- Mouthparts

Mammals:

- Usually have fur or hair
- Use lungs to breathe
- Give birth to live young
- Drink milk from the mother
- Mom takes care of her young

Birds:

- Have feathers
- Two legs
- Have wings
- Lay eggs
- Have a beak instead of a mouth

Amphibians:

- Begin life in the water and move onto land as adults
- Lay eggs in the water and eggs hatch in the water

- Have wet skin
- Begin with gills that then change into lungs
- Grow front and back legs to live on land
- The words amphibian comes from two Greek words. “amphi” means double, and “bios” means life. Amphibians live a double life.

Fish:

- Live their whole life in the water
- Breathe with gills
- Have scales
- Most fish lay eggs, but some give birth to live young
- Have fins to help them move

Reptiles:

- Land animals
- Have dry skin covered with scales
- Use lungs to breathe
- Some young hatch from eggs and some are born alive
- Babies take care of themselves

Materials for Animal Kingdom

- Plastic animals
- Containers for animals placement or a table sectioned off
- “6 flap book pages”
- “Animal Kingdom Labels”
- “Animal Pictures”
- 12 x 18 sheets of construction paper

What Do Plants and Animals Need?

Instructional Procedures:

1. Explain to the students that plants and animals have needs in order to survive.

2. Tell the students that plants need water, sunlight, soil and air (carbon dioxide) to survive. Explain that people and animals give off carbon dioxide when they breathe out. Tell the students that plants make their own food from each of these needs. Do the following experiments with the students.

What happens when a plant doesn't get enough light?

- a. Attach a piece of black paper to the top of a leaf using paper clip.
- b. Check the leaf each day for one week. Observe and describe what the leaf looks like each day. Have the students record results using words and pictures in a science journal.
- c. Discuss what happens when a plant doesn't get the sunlight it needs to survive.

What happens when a plant doesn't get enough carbon dioxide?

- d. Cover a few leaves of the plant with petroleum jelly.
 - e. Check the leaves each day for one week. Observe and describe what is happening to the leaves each day. Have the students record the results in a science journal using pictures and words.
 - f. Discuss what happens when a plant doesn't get enough carbon dioxide.
3. Animals need food, water, a home, and oxygen to breathe in order to survive. Plants give off oxygen. Land animals get oxygen from the air by breathing with their lungs. Insects get oxygen by breathing through tiny holes in their bodies, and water animals get oxygen from the water. Animals don't make their own food, but they have body parts that help them to get their food. Do the following experiment with the students.

How do animals that live in the water get oxygen?

- a. Explain to the students that water plants help to add oxygen to the water.
 - b. Fill the jar up with water and water plants.
 - c. Put the bowl on top of the jar and carefully flip it over so that the jar is upside down in the bowl.
 - d. Pour a few inches of water into the bowl.
 - e. Slide the four pennies underneath the rim of the jar
 - f. Leave the bowl and jar in the sun for a few hours. Oxygen bubbles will start to form on the plants and float to the top of the jar.
4. Make a Venn diagram of plant and animal needs.

Materials for What Do Plants and Animals Need?

- Green plant
- Black construction paper
- Paper clips
- Petroleum jelly
- Clear bowl
- Jar
- Pond plants
- Four pennies
- Water

How Plants and Animals Help Each Other

How Do Plants Help Animals?

1. Tell the students that they are going to discover how plants help animals. Read “Animal Homes, From Seed to Plant,” and “The Secret Life of Trees,” and tell students that when you are finished reading each one, they will help produce a list of ways that plants help animals.
2. Read each book. After each book, write down ideas that the students discovered including: Plants provide food for animals; Plants provide shelter for animals; Plants produce oxygen for animals.
3. Read “Forest Night/Forest Bright” and tell the students that they are going to make a book similar to this. Give the students three book pages of “How Plants Help Animals.” On each page, have the students write about one way plants help animals, and illustrate the idea.

How Do Animals Help Plant?

1. Tell the students that now they are going to list how animals help plants. Review the books previously read and make a list of ways animals help plants including: Pollination; Scattering seeds; Providing Carbon Dioxide.
2. Give the students three book pages of How “Animals Help Plants.” On each page, have the students write about one way plants help animals, and illustrate the idea.
3. Put the pages of “How Plants Help Animals” and “How Animals Help Plants” together to form a book that can be read from either cover. Put a cover on the book and have the students write the title and decorate or illustrate the cover.

Materials for How Plants and Animals Help Each Other

- “Animal Homes” or another book about how animals make their homes from plants
- “From Seed to Plant”
- “The Secret Life of Trees”
- “Forest Night/Forest Bright”
- Book pages “How Plants Help Animals and How Animals Help Plants”

Assessment Suggestions

- Check student journals for understanding of the concepts taught
- Have students read their book about “How Plants Help Animals/How Animals Help Plants,” and ask questions to check for understanding

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- Have students do a picture sort using animals from the different classes and have them put them in order
- Ask students to identify characteristics of animals in each of the six classes.

Curriculum Extensions/Adaptations/Integration

Read “Frog in a Bog,” by John Himmelman. Make a cause and effect chart using the events in the story.

Family Connections

- Have the students observe animal and plant life in their neighborhood.
- Encourage students to teach family members what they have learned

Additional Resources

Books

Animal Homes, by Sally Hewitt; ISBN 1587288605

Animal Faces in the Forest, by Hannah Kate Sackett; ISBN 1-57768-428-1

Life in a Pond; by Allan Fowler; ISBN 0-516-06053-8

Peek at a Pond, by Neecey Twinem; ISBN 0-448-41953-X

What’s in the Pond? by Anne Hunter; ISBN 0-395-91224-5

Pond Plants, by Ernestine Giesecke; ISBN 0-8234-1529-5

Who’s Who in the Garden? by Very Rosenberry; ISBN 0-8234-1529-5

Box Turtle at Long Pond, by William T. George; ISBN 0-688-08184-3

Around the Pond: Who’s Been Here? by Lindsey George Barrett; ISBN 0-688-14376-8

In the Snow: Who’s Been Here? by Lindsey George Barrett; ISBN 0-688-12321-X

Forest Bright, Forest Night, by Jennifer Ward; ISBN 1-58469-066-6

Animal Homes by Diane James and Sara Lynn; ISBN 0-590-20585-4

Finding a Friend in the Forest, by Dean Bennett; ISBN 0-89272-662-8

Frog in a Bog, by John Himmelman; ISBN 1-57091-518-0

Plants that Eat Animals, by Allan Fowler; ISBN 0-516-27309-4

Animal Babies Series\Reptiles, by Rod Theodorou; ISBN 157572884-2

Mammals, by Rod Theodorou; ISBN 1575728834

Insects, by Rod Theodorou; ISBN 157572-880-X

Fish, by Rod Theodorou; ISBN 157572882-6

Birds, by Rod Theodorou; ISBN 1575728818

Amphibians, by Rod Theodorou; ISBN 1575729504

How and Why Seeds Travel, by Elaine Pascoe; ISBN 1574716581

A Walk in the Woods, by Caroline Arnold; ISBN 0382246500

The Dancing Deer and the Foolish Hunter, by Elisa Kleven; ISBN 0525468323

The Secret Life of Trees, by Chiara Chevalier; ISBN 0789447606

From Seed to Plant by Gail Gibbons; ISBN 0823410250

Flap Book Page

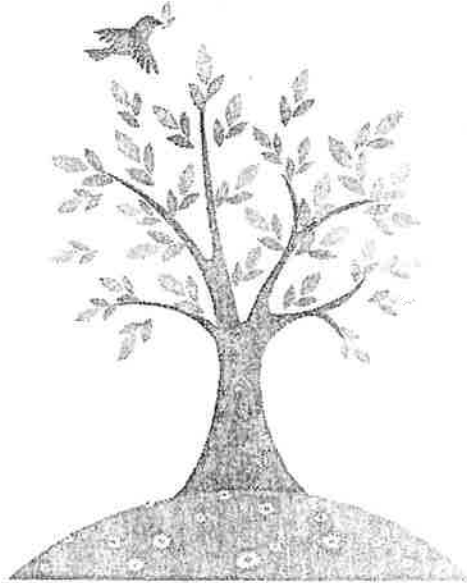
Animal Pictures



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How Plants Help Animals

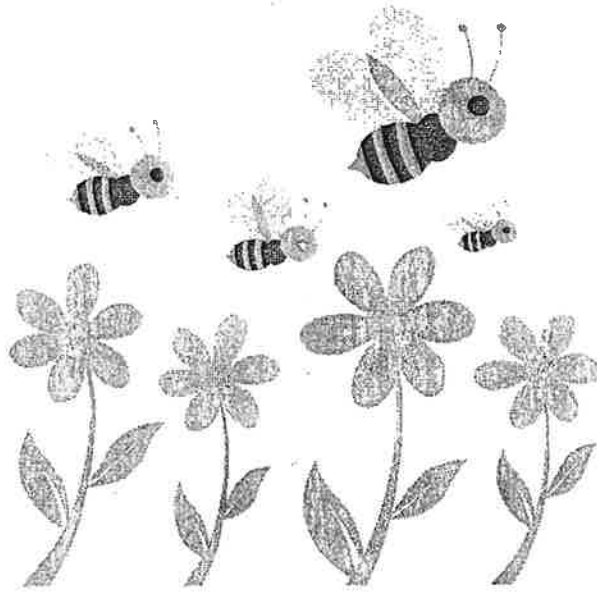
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How Animals Help Plants

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