



Cardinal Adventures

Introduction

In the book ***Jo MacDonald Had a Garden***, author Mary Quattlebaum introduces children to the plants and creatures in a garden and shows how to create gardens that benefit people and wildlife. In this activity, children focus on the cardinal and dramatize, draw, and write about its growth cycle and garden experience.

Materials Needed

- ◆ Several pieces of paper
- ◆ Colored markers or crayons

Procedure

1. Ask children to find the cardinal in every picture in the book. What is it doing?
2. Explain that the book's pictures mostly show the adult cardinal but that its life cycle includes three stages of growth: eggs, nestlings, and adults.
3. Show children pictures of these three stages from other books or on the internet. How do the eggs, nestlings, and adult cardinals move? What body parts allow them to move that way? What do they eat?
4. Have children act out the different stages (still eggs, baby birds in a nest, flying adults).
5. Ask children to draw a picture of each growth stage.
6. Invite children to write and illustrate a story about the adult cardinal. What does it see at the garden? What other creatures does it meet? What does it do when it's winter?

Key Concepts

- ◆ Environments are the space, conditions, and factors that affect an individual's and a population's ability to survive and their quality of life.
- ◆ The environment must supply the needs of organisms.
- ◆ Plants and animals have life cycles.
- ◆ Each organism has different structures for different functions.

For standards correlation please see our website.

Nature Connections

- ◆ Invite children to write and illustrate a story from the perspective of a cardinal nestling that is hungry. What does it see in the garden? What does it do when its parents arrive with an insect for feeding? How does it learn to fly?

Additional Resources

Cardinal Life Cycle and Song

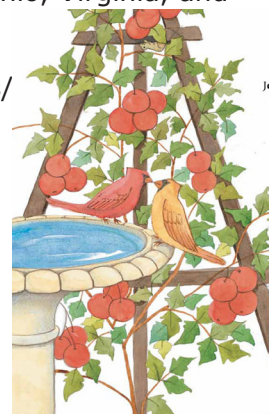
http://www.squidoo.com/naturally_native_cardinals_nest#module9587180

State Bird

The cardinal is the official state bird of Illinois, Indiana, Kentucky, North Carolina, Ohio, Virginia, and West Virginia.

http://statesymbolsusa.org/Illinois/bird_cardinal.html

What is your state bird?



School Garden for Wildlife



Introduction

In the book *Jo MacDonald Had a Garden*, author Mary Quattlebaum introduces children to the plants and creatures in a garden and shows how to create gardens that benefit both people and wildlife. In this activity, children plant native plants in containers or small school garden and observe their effect on wildlife.

Materials Needed

- ◆ Two or more large flower pots or patch of soil in school garden
- ◆ Soil from plant store
- ◆ Watering can and spade
- ◆ One or two coneflower plants
- ◆ Packet of sunflower seeds to plant
- ◆ One scientific notebook per child
- ◆ Pencils
- ◆ Magnifying glass

Key Concepts

- ◆ Using scientific resources combined with observations, plan and conduct a simple systematic observation.
- ◆ Use simple instruments such as magnifier and ruler to gather data and extend the senses.
- ◆ Use knowledge and evidence (data) to formulate explanation.
- ◆ Communicate investigations that might be drawn or spoken as well as written.

For standards correlation please see our website.

Procedure

1. Read the book and point out, through How to Be a Gardener Like Jo in back matter
2. Tell children that they are scientists and will be creating a garden to help wildlife and making careful observations of the insects, birds, and animals that visit.
3. Read the descriptions of sunflowers and coneflowers in back of book. With children's help, plant the coneflower in big pot (first pointing out its roots, stem, leaves, flowers, fruit, and seeds) or in garden. Next, have children look carefully at sunflower seeds and then plant them in the other container or in garden.
4. Place containers outdoors in sunny spot and water. Observe plants carefully for 5 minutes. Did any wildlife visit?
5. Have children date the first page of scientific notebook, write down what they planted, and list any creatures that visited and what creature did.
6. Water and observe plants (from distance and then close up) every 2-3 days. With each visit, ask children to put date at top of new page in scientific notebook, to record any changes in plant, and to list the name and activity of any wild creatures that visit. They can also draw what they see. Every week measure plant growth with ruler and observe with magnifying glass to note small insects or their eggs on plants.
7. At the end of two months, discuss findings. Did the number and types of wildlife increase over time? How were creatures using the plants (food, nectar, shelter/resting spots, places for egg laying)? Would students conclude that their container gardens helped wildlife? Point out that even small things, like planting certain types of flowers, can help local wildlife.
8. Ask children what they liked best about the garden experience. What was most/least interesting?

Nature Connections

- ◆ As a class, share your observations, as citizen scientists, with the National Wildlife Federation's Wildlife Watch program. <http://www.nwf.org/WildlifeWatch/obs.aspx>
- ◆ Visit a large garden and make observations there. Ask children if they see the same types of wild visitors as for their container garden? Any different ones? Overall, are there more or fewer visitors?

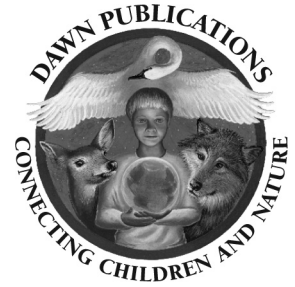
Additional Resources

National Wildlife Federation: How to Create a Schoolyard Habitat

<http://www.nwf.org/Get-Outside/Outdoor-Activities/Garden-for-Wildlife/Schoolyard-Habitats.aspx>

National Wildlife Federation: How to Create a Backyard Habitat -<http://www.nwf.org/Get-Outside/Outdoor-Activities/Garden-for-Wildlife.aspx>.





Garden Drama

Introduction

In the book ***Jo MacDonald Had a Garden***, author Mary Quattlebaum introduces children to the plants and creatures in a garden and shows how to create gardens that benefit people and wildlife. In this activity and its connections, children do the movements of the song, create pictures of the creatures, and explore seasonal changes.

Materials Needed

- ◆ Paper
- ◆ Markers or crayons
- ◆ Large brown blanket or fabric (optional)

Key Concepts

- ◆ Environments are the space, conditions, and factors that affect an individual's and a population's ability to survive and their quality of life.
- ◆ Plan and conduct a simple systematic observation.
- ◆ Communicate or analyze investigations that might be drawn or spoken as well as written.
- ◆ Weather changes from day to day and over the seasons.

For standards correlation please see our website.

Procedure

1. Read the book, with children doing the dig, wiggle, pat and other movements of the song. Point out the shovel for digging and the watering can for sprinkling in the pictures. Guide children to find the plants and creatures that are not part of the song but are included in the illustrations. Assign each student to one of the fourteen plants and creatures in the book (shrub, cardinal, butterfly, etc.).
2. Have students draw a picture of their creature using the book's illustrations as a guide or provide a large photo of each plant/creature.
3. Spread the blanket on the floor and have each child place her picture in the garden.
4. Now, sing the song again, with all the children doing the movements. What a wild dance! Explain that they have created a garden that helps people (provides food) and benefits wild creatures (provides food, shelter, and places to lay eggs).

Nature Connections

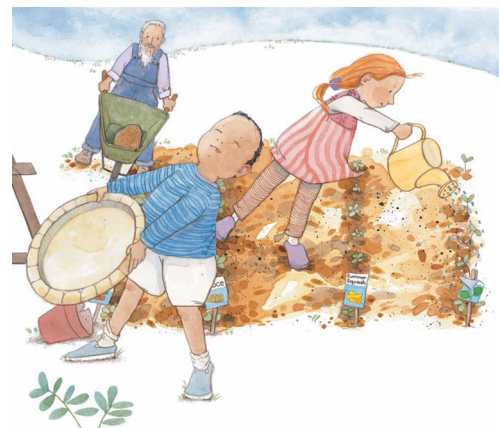
◆ At the end of the book, there is a picture of all 14 creatures and plants. See if students can find them, and then ask them to draw their own gardens.

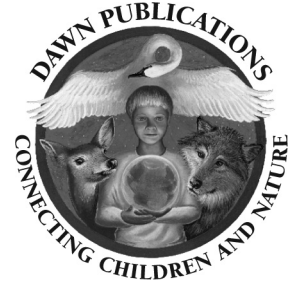
◆ The book shows how a garden changes over the course of a year. How does it and weather change over the four seasons? Which plants and animals are seen during each of the seasons? Which animals stay during the winter and which ones migrate? Guide children to look for seasonal changes in the natural world that surrounds them. Every month have children examine a tree close to the school and its surroundings within a radius of five feet and discuss/record the changes in the tree and surroundings over time.

Additional Resources

Seasonal Changes and Crafts

Young Gardener by Stefan and Beverley Buczacki.





Garden Treats

Introduction

In the book ***Jo MacDonald Had a Garden***, author Mary Quattlebaum introduces children to the plants and creatures in a garden and shows how to create gardens that benefit both people and wildlife. In this activity, children explore garden fruits and vegetables and make and eat a garden treat.

Materials Needed

- ◆ Radishes, leaf lettuce, summer squash, tomatoes
- ◆ Small paper plates

Key Concepts

- ◆ Nutrition is essential to health.
- ◆ Some resources are produced (food).
- ◆ Humans depend on environments.

For standards correlation please see our website.

Procedure

1. Read the book, and point out that Jo MacDonald and Mike grew four things to eat: tomatoes, summer squash, leaf lettuce, and radish.
2. Show children a picture of a plant and point out the leaves, fruit/seeds, and roots. Explain that people eat different parts of certain plants. Jo and Mike ate two fruits (tomato and summer squash), one root (radish), and one leaf (lettuce). Explain that fruits and vegetables are healthy food choices because they contain important vitamins, minerals, and calories.
3. Give each child some radish, lettuce, tomato, and summer squash on a paper plate. Ask them to identify, smell, touch, and taste each one. Which did they like best? Least?
4. If they wish, children can create a salad like Jo MacDonald's by mixing the four things together. Or they can eat each separately.

Nature Connections

- ◆ Ask children if they have ever eaten sunflower seeds. Point out that Jo MacDonald grew sunflowers and gave seeds to the birds but that sunflower seeds are another garden treat enjoyed by people. Pass out sunflower seeds for children to taste, ensuring in advance that there are no allergies.
- ◆ Have youngsters name other garden plants that are good to eat alone or in salads (carrots, cucumbers, celery, cabbage, green peppers). Bring in the things named and invite children to sample.

Additional Resources

A great website to visit and learn more about tasty garden treats:

Kids Gardening

<http://www.kidsgardening.org/activity/cooking-classroom>





In a Speck of Soil

Introduction

In the book *Jo MacDonald Had a Garden*, author Mary Quattlebaum introduces children to the plants and creatures in a garden and shows how to create gardens that benefit both people and wildlife. In this activity, children use observation and several scientific tools to examine garden soil.

Materials Needed

- ◆ Small bucket of soil from garden
- ◆ Scientific notebook
- ◆ Pencils
- ◆ Magnifying glass
- ◆ Microscope
- ◆ Slide and slide cover

Key Concepts

- ◆ Scientific resources combined with observations.
- ◆ Conduct a simple systematic observation or investigation.
- ◆ Use simple instruments such as magnifier and microscope to gather data and extend the senses.
- ◆ Communicate investigations that might be drawn or spoken as well as written.
- ◆ Tools help scientists make better observations, measurements, and equipment for investigations.
- ◆ Soils have different properties and abilities to support plants.

Procedure

1. Tell children that they are scientists and will be making careful observations of soil using three types of scientific tools (eye, magnifying glass, and microscope).
2. Ask them to draw one big circle on each page of scientific notebook.
3. Give each child small handful of soil. Explain that soil is made largely of small rocks and decomposing plants and animals. Have children examine soil with hands and eyes. This is Observation 1. Ask what they feel/see or "observe" (any tiny rocks or bits of old leaves, for example); have them list and then draw their observations inside the first circle in notebook. The eye is usually the scientist's first tool.
4. Have children observe a bit of their soil with a magnifying glass and draw what they see inside the second circle in notebook. This is Observation 2.
5. Place a bit of soil on slide with cover slip. Have children observe with microscope and draw what they see inside the third circle of notebook. This is Observation 3.
6. Have children compare their different observations. What are similarities and differences between the three drawings?
7. Explain that Jo MacDonald was able to see many garden plants and creatures with her naked eye. Some creatures are so tiny, though, that you can see them only with a microscope—but they are very important. Some tiny bacteria act to decompose or break down dead plants and animals; others help plants to use the nutrients in the soil.

Nature Connections

- ◆ Invite children to examine dirt collected from a spot where nothing is growing by repeating steps 2-6 in procedures above. Have them compare their observations/drawings of soil and dirt. What are similarities? Differences?
- ◆ Have children examine a bit of soil to which a drop of bleach or other chemical has been added. As teacher, repeat step 5 in procedures above and do not let children handle/feel the polluted soil. Have them compare their observations/drawings of soil and soil with bleach. Discuss with children: How might pollutants and chemicals affect the microorganisms that enrich the soil? What might be the effect upon food grown in polluted soil? The effect upon creatures that then eat that food?

Additional Resources

Soil Composition

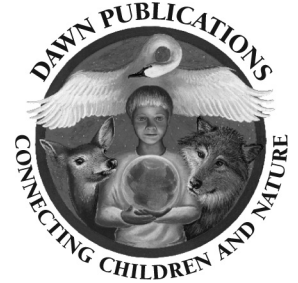
http://www.soil-net.com/cms_test/ks2/topic5/top-ic5_factsheet.pdf

Microscopic Soil Bacteria

http://www.youtube.com/watch?v=7sB_cTCyEA0

A Handful of Dirt by Raymond Bial Walker.





Sunflower Fun

Introduction

In the book ***Jo MacDonald Had a Garden***, author Mary Quattlebaum introduces children to the plants and creatures in a garden and shows how to create gardens that benefit both people and wildlife. In this activity, children learn about the importance of sunflowers to humans. Native Americans used sunflowers for food, oil, ornamentation, and dye. Children will create their own large sunflowers, sample sunflower seeds, and make a treat for birds.

Materials Needed

- ◆ Construction paper (green, yellow, brown)
- ◆ Strong white paper
- ◆ Scissors
- ◆ Sunflower seeds in shells
- ◆ Crayons or markers

Key Concepts

- ◆ Plants are the base of an ecosystem.
- ◆ All animals depend on plants.
- ◆ Humans depend on environments.
- ◆ All organisms have different needs.

For standards correlation please see our website.

Procedure

1. Show how sunflowers were used by Native Americans by sharing the link <http://www.historyforkids.org/learn/food/sunflowers.htm>. Seeds were eaten, ground into meal and made into flat bread, and pressed to make oil.
2. Purchase sunflowers from a florist or nursery and guide the children to observe them carefully (what is the color and shape?), smell them, and touch them. Have them identify the six parts of plant (roots, stem, leaves, flowers, fruit, and seeds). What we call the sunflower seed is actually the fruit of the sunflower!
3. Distribute sunflower seeds in shells and let children open and taste them, first ensuring there are no food allergies.
4. Pass out construction paper and ask children to cut out green leaves and stem, yellow petals, and brown center and glue these onto poster paper.
5. Share more sunflower seeds in shells and ask children to glue them into the brown center of their paper sunflower.
6. Ask children to draw some of the creatures from Jo's garden on the paper with their sunflower.
7. Tape these flowers onto classroom walls to create an indoor garden.

Nature Connections

- ◆ Read aloud the description of sunflowers in the back of ***Jo MacDonald Had a Garden***. Sunflowers can provide food for birds, nectar for bees and butterflies, and an egg-laying place for certain insects. Ask children to look at each picture to discover whether an animal is using it in one of those three ways.
- ◆ Scatter sunflower seeds in shells outdoors. What birds and animals eat them?

Additional Resources

Sunflower Facts

http://sunflowerfestival.tripod.com/sunflower_facts.htm





Toad Tales and Homes

Introduction

In the book ***Jo MacDonald Had a Garden***, author Mary Quattlebaum introduces children to the plants and creatures in a garden and shows how to create gardens that benefit both people and wildlife. In this activity and its connections, children focus on toads, explore their growth cycle through writing and drawing, and create a toad home.

Materials Needed

- ◆ Several pieces of paper
- ◆ Colored markers or crayons
- ◆ Styrofoam flower pot for toad home

Procedure

1. Have children find the toad in the pictures in the book. What is it doing?
2. Explain that the pictures show the adult toad but that its life cycle includes three stages of growth: eggs, tadpoles, and adult toads. Adult toads lay eggs in water (often ponds) but live on land.
3. Show children pictures of these three stages in other books or on the internet. How does the toad move at each stage? What parts of its body allow it to move? What does it eat?
4. Have children act out the different stages (still eggs, wriggly, swimming tadpoles, leaping adult toads).
5. Explain that when a tadpole becomes a toad, it leaves its pond home and lives on land. Adult toads breathe and drink through their skin, though, and so they like moist places and even burrow in moist soil. Ask students to write a story about a young toad that leaves its pond, searches for a home, and finds a garden with moist soil and shelter from predators. What does it do when it finds a toad home (as created in Nature Connections)? Ask children to illustrate their story.

Key Concepts

- ◆ Environments are the space, conditions, and factors that affect an individual's and a population's ability to survive and their quality of life.
- ◆ Plants and animals have life cycles.
- ◆ Each organism has different structures for different functions.

For standards correlation please see our website.

Nature Connections

◆ Children can create individual toad homes for backyard gardens or, as a group, one or two homes for school garden. Turn pot upside down; cut two large arches into rims—one across from the other. Cut a small hole in top of pot. Find a sheltered spot in garden and dig pot into moist soil deep enough so that it is secure. Make sure toad has enough room to enter through the arches. (Two arches ensure that toad can escape through one should a predator try to enter by the other.) Every few days sprinkle a little water through the hole in the top to ensure that the soil stays moist. Do not disturb toads.

◆ Research differences between frogs and toads.

Additional Resources

Life Cycle of a Toad

http://www.dougwechsler.com/toad/toad_life_cycle.html

<http://www.youtube.com/watch?v=1QBqp068jkI>

FrogWatch USA

<http://www.aza.org/frogwatch/>

