**Plants**

**Plants Lessons**

1. WHAT IS A PLANT?
2. PARTS OF PLANTS AND THEIR PURPOSES
3. SEEDS AND THEIR DISPERSAL
4. WHAT PLANTS NEED TO GROW

Exploring Pumpkins p90

Plant Cycle: Grass Man p98

1. USES OF PLANTS
2. REVIEW
3. UNIT EXTENSIONS

**(Lesson Idea from CORE)** Using two different kinds (e.g., White pumpkin, Cinderella pumpkin) of pumpkins (or other faster growing vegetable), students can investigate the relationship of seeds to pumpkins by dissecting seeds, planting seeds, and producing pumpkins. Students can compare the original pumpkins (parent) to the new pumpkins (offspring) to determine which offspring belongs to which parent. Record similarities and differences between generations as well as between the two different kinds. (L) (M) (PoS) (CoS) (NoS)

**SCIENCE STANDARD 4: Life Science**

**Objective 1: Communicate observations about the similarities and differences between offspring and between populations.**

Indicator 1. Communicate observations about plants and animals, including humans, and how they resemble their parents.

Indicator 2. Analyze the individual similarities and differences within and across larger groups.

(CT) All kinds of living things have offspring, usually with two parents involved.

(CT) Offspring are very much alike, but not exactly, like their parents and like one another.

(CT) Some animals and plants are alike in the way they look and things they do, and others are very different from one another.

**Objective 2: Living things change and depend upon their environment to satisfy their basic needs.**

Indicator 1. Make observations of living things and their environment using the five senses.

Indicator 2. Identify how natural earth materials, e.g., food, water, air, light, and space, help to sustain plant and animal life.

Indicator 3. Describe and model life cycles of living things.

(N) Most living things need water, food, and air.

(N) Plants and animals need to take in water, and animals need to take in food. In addition, plants need light.

(N) Animals eat plants and other animals for food.

WHAT IS A PLANT?

1. Ask students what they know about plants.
2. Explain that plants are living things. All living things need air, food, water, and space to live. Plants need all of these things too. Plants are special, because they are able to make their own food. They use the sun to make energy in a process called photosynthesis. Most plants begin as seeds. Plants are everywhere in the world. They grow in oceans, mountains, and deserts.
3. Read the student booklet Where Plants Grow.
4. There are many kinds of plants. Flowers, grass and trees are all plants.
5. Show students the Plant or Not picture cards. Have them sort the cards into “Plants” and “Not a Plant”. This activity could be done as a whole group or in small groups.
6. Have students explain why they placed the cards in that category.
7. Have students complete worksheet “What Am I?”

PLANT OR NOT PICTURE CARDS

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PARTS OF PLANTS AND THEIR PURPOSES

1. Explain that plants, like people, have body parts that help them to do different things. Have students point to their body parts (noses, eyes, ears, legs, etc.) and ask them how each part is used.
2. Divide students into 6 groups and assign each group a work area that has been covered with newspaper. Give each group an uprooted plant, a magnifying lens, crayons and paper.
3. Have students take turns looking at the roots. Explain to students the purpose of the roots (bring water and nutrients to the plant from the soil and hold the plant in place in the ground). Have students draw the root system.
4. Repeat the same procedure for the stem and leaves. Discuss what they look like and their purpose while students examine those parts with their lenses. (Stem holds the plant up and moves the water to the leaves. Leaves use the water and sun in photosynthesis to make food for the plant.) Notice the differences such as color, lines or veins, texture and edges of the leaves, etc. Draw the leaves and stem on the root system of their picture.
5. Repeat the same procedure for the flower if the plant has one. Discuss what they look like and their purpose ( hold the seeds for a new plant). Draw the flower on the plant.
6. Review each of the parts and have the students label each of the parts of their drawing.
7. Show the students a potted plant. Ask “What parts can you see? What is the name of each part?” Discuss how it is different from the uprooted plant.
8. Teach students the song “Parts of Plants”.

**Extensions:**

1. Make a ladder book. Use two sheets of paper. Put the top paper about 1 ½ inches above the bottom paper. Fold over so the bottom three sections that you see are about 1 ½ inches each. The section at the top will be about 2 inches. Staple at the top of the book.

Write roots on the bottom section and draw the root system just on that section. Write stem on the next section up and draw the stem just on that section connecting to the roots on the bottom. Continue with leaves and then flower at the top. Lift the flap for each section and write the purpose of that plant part in the space under the flap. Roots – They soak up water and minerals. They hold it in place. Stem – It moves water up the plant. Leaves – They make the food. Flower – They make seeds. Flower will be written on the top rather than under a flap.

1. Complete one of the worksheets reviewing plant parts.
2. Teach the lesson “Plants(Simple/Compound Leaves)”
3. Make a collection of different types of leaves.
4. Make “Flowering Plants” booklet and fill in the blanks on the last page to review the parts of plants. Cut each page on the dotted lines and staple together on the side.
5. Teach the song “Plant Parts” sung to “There’s a Tavern in the Town.”
6. Watch the video Harold and His Amazing Green Plant.
7. Read Parts of a Plant book with tape. Part of the set “What is a Plant?”
8. Watch and discuss the video segments from AIMES Multimedia about each part of the plant.
   1. Cones 25 sec. Plants that don’t have flowers grow seeds in cones.
   2. Leaves 1:35 How leaves make food through photosynthesis
   3. Roots 45 sec. How they absorb water and nutrients
   4. Seeds 1:10 Their parts and purposes
   5. Stems 1:10 Different types of stems
   6. Plant Life Cycle 26 sec
9. Use an Online Interactive Activity:

How flowers turn to fruit and hold the seeds, and how the seeds are planted and grow.

<http://www.harcourtschool.com/activity/science_up_close/109/deploy/interface.html>

Parts of a plant and what they do. It reads the descriptions aloud.

<http://www.harcourtschool.com/activity/science_up_close/213/deploy/interface.html>

Pick from 5 different types of plants and see how they look fully grown. Click on the links to identify the parts of each plant and their purposes.

<http://www.fossweb.com/modulesK-2/NewPlants/index.html>

SEEDS AND THEIR DISPERSAL

Parts of a Seed

1. Soak a lima bean for each student overnight in water.
2. Share the poem “The Seed” by Aileen Fisher.
3. Give each student a magnifying lens and a seed to examine.
4. Discuss what they notice about the seed. Seeds need to have water in order to grow. The water softens the seed coat so the baby plant inside can push its way out. Explain that the thin covering on the seed is called the seed coat. It protects the tiny plant.
5. Have the students carefully take off the seed coat. Open the lima bean and have them find the tiny plant (embryo) inside along the side. See if they can see the tiny leaves and root. The main part of the seed that takes up the most space is the food storage. As the tiny plant grows in the seed, it uses the food storage for energy.
6. Label the worksheet “Inside a Seed”.
7. Make “What’s a Seed?” cut and peek book.

Extension:

1. Complete the worksheets about seeds.
2. Sort seeds and compare the different types of seeds. Give each student a small cup of either a bean soup mix or a variety mix of planting seeds. Use one or both of the sort mats to compare and contrast the types of seeds.
3. Read “Seed Chant” as a class and discuss how a bean seed will always become a bean plant; a corn seed will always become a corn plant, etc.
4. Read What is a Seed? In the kit “What is a Plant?”

Seed Dispersal

1. Have students imagine what would happen if all the seeds from a plant dropped straight down from the parent plant. The plants would be too crowded to grow. Seed dispersal is an adaptation to help the plants grow. Dispersal means to break up and scatter.
2. Read The Tiny Seed by Tommy dePaola. Discuss how the seeds were dispersed and which of the things were helpful or harmful.
3. Discuss the four main methods of seed dispersal: hitchhiking on animals, floating on water, wind, and passing through digestive systems of other animals (which also provides fertilizer as well!). If possible, show seeds from your area that fit each category.
4. Complete The Tiny Seed worksheet.

Extension:

1. Complete a worksheet about seed dispersal.
2. Make a booklet of “Seeds Travel.” Cut along the dotted lines and staple pages in order along the side.
3. Make the booklet “Seeds on the Go.”
4. Collect or study different types of seeds and record them in the “Seed Dispersal” pamphlet in the correct category according to dispersal type.
5. Take a Walk on the Wild Side to collect seeds.
6. Science in a Nutshell – make a collection and booklet of leaves, seeds, nuts, cones and pods.

WHAT PLANTS NEED TO GROW

PLANT SEEDS AND WATCH THEM GROW

1. Lesson: Exploring Pumpkins

Show a time lapse video of a pumpkin growing. Put life cycle of a pumpkin in order. Examine soaked pumpkin seeds. Plant a seed in a paper towel in a plastic bag and watch it sprout. Track growth of the seed each day. You can use “My Little Sprout House” or the “Greenhouse” to put on the front of the plastic bag. The ruled strips can be copied on transparency and stapled inside the bag where the seed is to help track growth.

1. Lesson: Plants: Plant Cycle Grass Man

Decorate cups and plant grass seed in the cups for hair. A rounded strip can also be copied for each student to draw a face and tape around a cup.

1. Plant any type of seed and track the growth on either the Plant Life Cycle Observations sheet or the Science Journal.

PLANT NEEDS

1. Discuss that plants need soil, water, sunshine and air to grow. What would happen if one of those things were missing? Explain that the class is going to do an experiment to find out what the effects will be on each plant.
2. Use several of the same type of plant.
   1. Air – Put one plant in a Ziploc bag but leave it in the sunlight and water it. (You’ll only need to water it once since the water cycle will happen inside the bag.) Another plant can also be placed in the freezer to show what cold air can do to a plant.
   2. Sun – Put one plant in a dark place with no light.
   3. Water – Do not water the plant for several days.
   4. Control – Give this plant sun, air and water.

Have students make predictions about what will happen to each plant. Leave the plants for several days, and then come back and review the effects on the plants.

1. Teach the song “Green Plants Need” sung to the tune “Three Blind Mice”.
2. Complete the worksheet “What Do Plants Need To Grow?”
3. Divide the class into 4 groups and have them perform the reader’s theater “From Seed to Plant”.
4. Complete the Cause and Effect worksheet about plant needs.

HOW PLANTS GROW

1. Read A Seed Grows student booklet and discuss.
2. Teach the songs “Little Seed” and “The Farmer Plants the Seed”.
3. Watch a time lapse video of plants growing and germinating.
4. Have students sequence and write the story of the germination of a seed.

Extensions:

1. Read The Carrot Seed.
2. Have students make their own booklet of “The Story of a Seed”.
3. Perform “The Little Seed” Playlet with the students.
4. Little Brown Seeds booklet
5. Make the Dandelion life cycle wheel.
6. Worksheets about how plants grow.

USES OF PLANTS

Day 1 – How We Use Plants

1. Explain that plants are an important part of nature and our daily lives. Brainstorm as a class the uses of plants.
2. Make and read “People and Animals Need Plants” booklet. Add the other uses of plants listed in the booklet to the class list.
3. Other uses of plants include perfumes from plants and tires from trees. Plants also make nature and the world around us beautiful.
4. Complete the worksheet “How Can We Use Plants?”
5. Read Importance of Plants book with tape.

Day 2 – We Eat Plants

1. Read the book Tops and Bottoms or Growing Vegetable Soup. Discuss the different types of foods we eat that come from plants. Each food is a different part of the plant.
2. Show the Powerpoint “Plant Parts Food Sort” and have the students name the part of the plant that we eat.
3. Divide students into groups. Give them a poster to brainstorm foods they eat that fit in each of the plant part categories.

Roots – carrots, beets, turnips, rutabagas

Fruits – tomato, apple, cucumber, strawberries, blueberries

Leaves – kale, lettuce, spinach, cabbage, collards, mustard

Seeds – lima beans, peas, green beans, sunflower, seeds, pinto beans

Flowers – broccoli, cauliflower, squash blossoms

Stems – celery, rhubarb, onions

Extension:

Complete a worksheet about the uses of plants.

REVIEW

1. Play the Plant Game in small groups.
2. Have students make “The Plant Book”.
3. Plant Puzzles worksheet
4. Make a Plant Book

UNIT EXTENSIONS

1. Jack and the Beanstalk: How Does Your Garden Grow?
2. Kid Scientist: Design Your Own Plant
3. The Little Red Hen: Reader’s Theater

AIMES Multimedia Video: Bread: From Farm to Table (16:10) How wheat is grown, harvested, made into dough and packaged into bread for the store.

1. Bill Nye Plant Video
2. Magic School Bus Goes to Seed
3. Songs and Poems