

Six Plant Parts

Grades: K-4th

Duration: 30 minutes

Program Description

Students will learn about the six parts of a plant using song and dance. They will build a plant made of these parts and talk about plant part functions and how they are used as food.

Louisiana GLE:

Science

Kindergarten

1. Ask questions about objects and events in the environment (e.g., plants, rocks, storms) (SI-E-A1)
2. Pose questions that can be answered by using students' own observations and scientific knowledge (SI-E-A1)
4. Use the five senses to describe observations (SI-E-A3)
24. Compare the human body with plants and animals (LS-E-A3)

English Language Arts

33. Initiate and sustain normal conversation on a specific topic with the teacher
40. Participate in designated roles within classroom activities

Grade 1

1. Ask questions about objects and events in the environment (e.g., plants, rocks, storms) (SI-E-A1)
2. Pose questions that can be answered by using students' own observations and scientific knowledge (SI-E-A1)
5. Use the five senses to describe observations (SI-E-A3)
26. Describe the differences between plants and animals (LS-E-A1)
27. Identify what animals and plants need to grow and develop (LS-E-A1)

English Language Arts

45. Speak clearly at a speed and volume appropriate for the purpose and setting
53. Use active listening strategies
54. Listen and respond to information presented in a variety of ways,

Grade 2

1. Ask questions about objects and events in the environment (e.g., plants, rocks, storms) (SI-E-A1)
2. Pose questions that can be answered by using students' own observations, scientific knowledge, and testable scientific investigations (SI-E-A1)
6. Use the five senses to describe observations (SI-E-A3)
28. Describe structures of plants (e.g., roots, leaves, stems, flowers, seeds) (LS-E-A3)

English Language Arts

20. Apply basic reasoning skills
38. Adjust speaking tone and volume to suit purpose and audience
42. Deliver informal presentations that demonstrate an understanding of a topic
44. Use active listening strategies, including asking for clarification and explanations

Grade 3

1. Ask questions about objects and events in the environment (e.g., plants, rocks, storms) (SI-E-A1)
2. Pose questions that can be answered by using students' own observations, scientific knowledge, and testable scientific investigations (SI-E-A1)
6. Use the five senses to describe observations (SI-E-A3)
36. Compare structures (e.g., roots, leaves, stems, flowers, seeds) and their functions in a variety of plants (LS-E-A3)
37. Describe how plant structures enable the plant to meet its basic needs (LS-E-A3)

English Language Arts

Reading and Responding

Standard 7

21. Apply basic reasoning skills

Speaking and Listening

Standard 4

38. Give and follow precise directions and instructions
42. Use active listening strategies
43. Assume the role of contributor and active listener

Grade 4

1. Ask questions about objects and events in the environment (e.g., plants, rocks, storms) (SI-E-A1)
2. Pose questions that can be answered by using students' own observations, scientific knowledge, and testable scientific investigations (SI-E-A1)
7. Use the five senses to describe observations (SI-E-A3)
40. Explain the functions of plant structures in relation to their ability to make food through photosynthesis (e.g., roots, leaves, stems, flowers, seeds) (LS-E-A3)

English Language Art

34. Adjust pacing to suit purpose, audience, and setting when speaking
35. Interpret, follow, and give multi-step directions
37. Demonstrate active listening strategies, including asking questions, responding to cues, and making eye contact
38. Adjust speaking content according to the needs of the audience
45. Paraphrase or summarize information from a variety of sources

Key Terms:

Carbon dioxide – A colorless, odorless, incombustible gas (CO₂) formed during respiration and used by green plants to form carbohydrates used for food.

Chlorophyll – Any of a group of green pigments that are found in the chloroplasts of plants and in other photosynthetic organisms used to capture the energy from sunlight and allow this energy to be used in the production of the plant's food

Flower – Reproductive structure in higher plants that usually has sepals. Petals, stamens (made of anthers and filaments), and carpels (made of stigma, style and ovary), all borne on a receptacle

Fruit – A structure consisting of one or more ripened ovaries, with or without seeds, and sometimes with accessory structures derived from other parts of the flowers, as an apple, bean pod, nut, berry, melon, or grain. Usually used as a method of disseminating the seeds.

Leaf – A green lateral growth of a stem of a plant in which the functions in photosynthesis, transpiration, and respiration are concentrated; consisting typically of a blade, petiole, and stipules. Other functions may include protection, food and water storage, attachment, insect capture, and reproduction.

Macronutrients – Major nutrients used by plants for growth and survival; the primary macronutrients include nitrogen, potassium, and phosphorus; the secondary macronutrients are calcium, magnesium and sulfur.

Photosynthesis – The process in green plants and certain other organisms by which carbohydrates are synthesized from carbon dioxide and water using light as an energy source. Most forms of photosynthesis release oxygen as a byproduct.

Phloem – The food conducting tissue of roots and stems

Root – The part of the main axis of a vascular plant, which grows downward into the soil. It functions in anchorage, absorption, conduction of water, and food storage.

Seed – A mature or ripened ovule consisting of an embryo enclosed within a seed coat or coats.

Stem – Part of the main axis of a vascular plant; the ascending portion which bears buds in contrast with the descending end bearing roots; functions in transportation of water from root to leaves and food from the leaves to the roots.

Transpiration – Loss of water vapor from land plants into the atmosphere, causing movement of water through the plant from the soil to the atmosphere via roots, shoot and leaves. Occurs mainly through the stomata.

Xylem – The water conducting tissue of roots and stems

Water – A clear, colorless, odorless, and tasteless liquid (H₂O) essential for most plant and animal life and the most widely used of all solvents; the hydrogen and oxygen source for plants in the formation of carbohydrates for food.

Connections to Permanent Exhibits: These Exhibits are found in Red River.

Count the Years: Examine a large section of a cypress tree; count the rings to determine the tree's age.

Staying Alive: Get a close-up view of Louisiana plant life in a variety of terrariums and aquariums.

Web Resources:

Science, Song, & Celebration

Banana Slug String Band

www.bananaslugstringband.com

Videos and songs that deal with ecology, the Earth, and conservation that will energize your students. Also sign up to be on their mailing list.

Junior Master Gardeners

Elizabeth Rains, JMG

<http://www.jmgkids.us/index.k2?did=3116§ionID=2019>

Sign up for a newsletter, download the Junior Master Gardner's curriculum. Go to Kids Zone and click on more activities and cool stuff. There are experiments and interactive web activities here.

Just for Kids

University of Illinois Extension

<http://www.urbanext.uiuc.edu/kids/>

This website has tours of the Great Plant Escape, the Secret of Trees, Dr. Arbor Talks Trees, My First Garden, and much more. There are activities for students and teachers.

Bite Size Revision

British Broadcasting Corporation

http://www.bbc.co.uk/schools/ks2bitesize/science/living_things.shtml

This is a link to the Science: Living things section of this website. There are computer interactive games that deal with plant parts and things needed to help plants grow.

Plant Explorer

Canterbury Environmental Education Centre

<http://www.naturegrid.org.uk/plant/index.html>

This is a link to the Plant Explorer page for kids. It has interactivities about parts of a plant., plant terminology, plant needs, and plant food.

Discovery Education

DiscoverySchool.com

<http://school.discovery.com/lessonplans/plants.html>

Lesson plans for grades K-5: All About Plants, Habitats of the World, and Pollination Parties!

Can Teach-Life Science

Can Teach California

<http://www.canteach.ca/elementary/life.html>

This link provides a variety of plant lesson plans for K-3rd grade.

Pre-Visit Activity:

How we use Plants

Post-Visit Activity

Plants in Space

How We Use Plants

Think about the ways we use plants. We eat plants. We make paper from plants. We even build hoses and make clothes from plants.

Make a list of things people use plants for.



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____



Plants in Space

Making the Connection: Studying how plants grow in space can not only help scientists discover new sources of oxygen and food for astronauts but also new products for those here on earth.

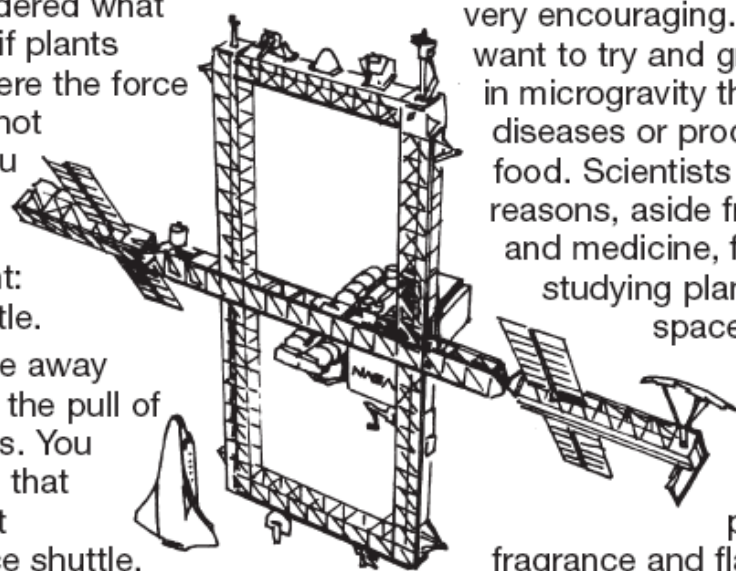
You know that plants have roots that grow into the ground and shoots that grow skyward. Plants grow in this way because of the earth's gravity. It pulls down the roots of a plant. If the force of gravity did not exist, objects on earth would drift into space. Scientists wondered what would happen if plants could grow where the force of gravity was not very strong. You probably know of a place like this. That's right: the space shuttle.

When you move away from the Earth, the pull of gravity weakens. You may have seen that astronauts float inside the space shuttle. They float because they are far away from earth. Where they are, gravity is not strong enough to pull them to their seats. The astronauts do experience a weak force of gravity called microgravity. Scientists are very interested in how plants grow in microgravity. If people are to travel or live in space for long periods of time, they must be able to grow plants in microgravity. Plants can supply people living in space with oxygen

and food. Scientists believe that a plant that can grow quickly in a small area and provide a large amount of nutrition would be the best for traveling in space.

In 1997, astronauts successfully planted and grew the first seeds in space. Scientists found the results very encouraging. Now they want to try and grow plants in microgravity that fight off diseases or produce more food. Scientists have other reasons, aside from food and medicine, for studying plants in space. For example, they think the oils that give plants their fragrance and flavor may develop differently in space.

In a recent experiment on the space shuttle, astronauts tested a rose plant to see if microgravity changed the scent of its flower. If it does, then we have discovered a fragrance that is unknown on earth. The rose plant results are not in yet. Scientists are also looking for new flavors, so, who knows, the next great ice cream flavor may come from outer space!



Make up a name for a plant you want to grow in space. Then answer these questions about the plant. Record your answers on the chart.

Plant name	How much food does it provide for people?	How much growing space does it need?	How fast is the plant's growth cycle?

On a separate sheet of paper, write and illustrate an advertisement about why your plant should be grown in space.

What would you like to find out about plants grown in space?
