

# Plant Growth Lesson Plan 2<sup>nd</sup> Grade

## Standards:

Math: Common Core – **Measurement: 2MD**

1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

Science: Current –

**GLE 0207.1.1** Recognize that plants and animals are made up of smaller parts and use food, water, and air to survive.

Next Generation –

**2.IOS** Interdependence of Organisms and Their Surroundings

- c. Plan and carry out investigations to test whether plants from different settings have different needs for water, sunlight, and type of soil.

## Overview:

The learner will:

- discuss conditions suitable for the growth of plants.
- identify the major parts of a plant.
- plant seeds and care for the growing seedlings.
- record measurements and observations on a graph and in a science log.
- explain how the love and care needed for plants is similar to that needed by humans.

## Purpose:

In this lesson, the students will gain respect for the beauty and value of plants and the natural environment. Students will learn how various conditions affect the growth of plants. They will also compare the love and care needed by plants to the love and care needed by people also. Students will also measure and observe the growth of their seedlings.

## Duration:

Three Thirty-Minute Class Periods (Plus brief responsibilities over the following three weeks)

## Objectives:

*The learners will:*

- discuss conditions suitable for the growth of plants.
- identify the major parts of a plant.
- plant seeds and care for the growing seedlings.
- record measurements and observations on a graph and in a science log.
- explain how the love and care needed for plants is similar to that needed by humans.

## Materials:

- Copies for each student of **Attachment One: *Parts of a Plant***
- \*\* Biodegradable pots (2"x2"x2")
- \*\* Potting soil—enough for each student and the teacher to fill at least two pots each
- \*\* Zinnia seeds—enough for each student and the teacher to plant at least two each
- Water
- \*\* Fertilizer
- \*\* Small plastic containers for water and water droppers
- Copy of graph for overhead projector. (**Attachment Two: *Plant Growth***)
- \*\* Ruler
- Graph paper (1"x1" grids)
- Camera

\*\*Materials included

Handout 1

Parts of a Plant

Handout 2

Plant Growth

## Instructional Procedure(s):

### *Anticipatory Set:*

Invite a **volunteer** who is knowledgeable about plants to talk to the class. The teacher should have six labeled plants (planted a few weeks in advance), with each plant grown under different conditions (no water, over watered, no sun, fertilized, non-fertilized and optimal). Have the **volunteer** talk to the class about his or her experiences with planting under optimal conditions as well as not-perfect conditions. The **volunteer** should attempt to communicate his or her love of caring for plants.

### **Day One:**

- The **volunteer** explains the different ways in which each plant on the table was cared for (sunlight, no water, too much water, fertilized, non-fertilized and optimal conditions). The **volunteer** explains to the students the proper way to care for plants. Discuss the variables (sun, water, soil, fertilizer) that **contribute** to healthy plants.
- On a large sheet of paper the teacher writes students' comments about what they learned from their guest.
- On this and other days, have students take turns taking pictures of the events in the unit.

### **Day Two:**

- Read aloud the book *From Seed to Plant* by Gail Gibbons (see **Bibliographical References**). Teacher will use the book to describe in detail the parts of the plant (flower, leaf, stem, roots) and their functions.
- Hold a class discussion about the basic **needs** of plants. The students should recall that water, sunlight, soil and fertilizer are important. Other answers that may be explored include love, care, respect, etc.
- Give each student a copy of a flower to label (**Attachment One: Parts of a Plant**). Students fill in the blanks with the following words: flower, stem, leaf and roots. A copy of the diagram may be found on the Web at: <http://www.naturegrid.org.uk/plant/parts.html>

### **Day Three**

- Each student writes his or her name on two biodegradable planting pots.

- The teacher calls students up in small groups to fill their pots with soil (have soil in a large dishpan on top of newspaper or outside). Soil can be spooned into the pots until approximately ½ inch from the top of pot.
- Students put one seed in each pot. **Demonstrate** pressing thumb in center of soil, creating a hole ½ inch deep. Put the seed in and cover with soil from the pot. Students follow the procedure while the teacher monitors for progress and accuracy.
- Students will then use water droppers to measure out one ounce of water (approximately two full water droppers) and water each plant pot. (Keep the water in small plastic containers for easy accessibility.)
- Add the appropriate amount of fertilizer according to the directions on the package.
- Place the pots on a windowsill or other suitable area where sunlight is available.

#### **Following Days (may be brief sessions over several weeks)**

- Prepare a science log for each student to record his/her observations. Students start by writing their observations (either in writing or illustrations) of the seed planting. Have students record observations at least once every three days. They can record the date for each entry, how much water and fertilizer they add, what they see and measurements.
- Students water and fertilize their plants as needed.
- **Demonstrate** how to make a bar graph and record growth over time. Use the attached graph as a model (**Attachment Two: *Plant Growth***).
- For younger students, the teacher may wish to prepare the graph and labels on graph paper. Older students may be able to use prior experience to determine labels for the blank graph. Example: vertical axis: Height in Centimeters; horizontal axis: Date Measured).
- When the flower seedlings appear above the soil, the students will start measuring the height of the plant using metric rulers (every other day). Show them how to measure accurately and record their measurements on the graphs. Measurement of plant should begin at top of soil. Students will gently place the ruler in the pot at the top of the soil and measure the

height of the plant. Height will be determined by the highest point of the plant above soil.

## **Assessment:**

- Teacher may evaluate student participation in class discussion.
- Assess student understanding of the parts of the plant through the completion of the plant diagram (**Attachment One: *Parts of a Plant***).
- Monitor student comprehension and measuring skills through their work on the graph and in the science logs.

## **Cross-Curriculum Extensions:**

Invite an elderly member of the community to speak to the class. Choose an individual who is an active volunteer in the community—especially someone who helps in a way related to gardening or the environment. Through the experience, students will gain appreciation for people who share their time, talent and interests. Ask the volunteer to speak about the importance of volunteering, why he or she volunteers, and why he or she chooses to volunteer in the particular area of interest.

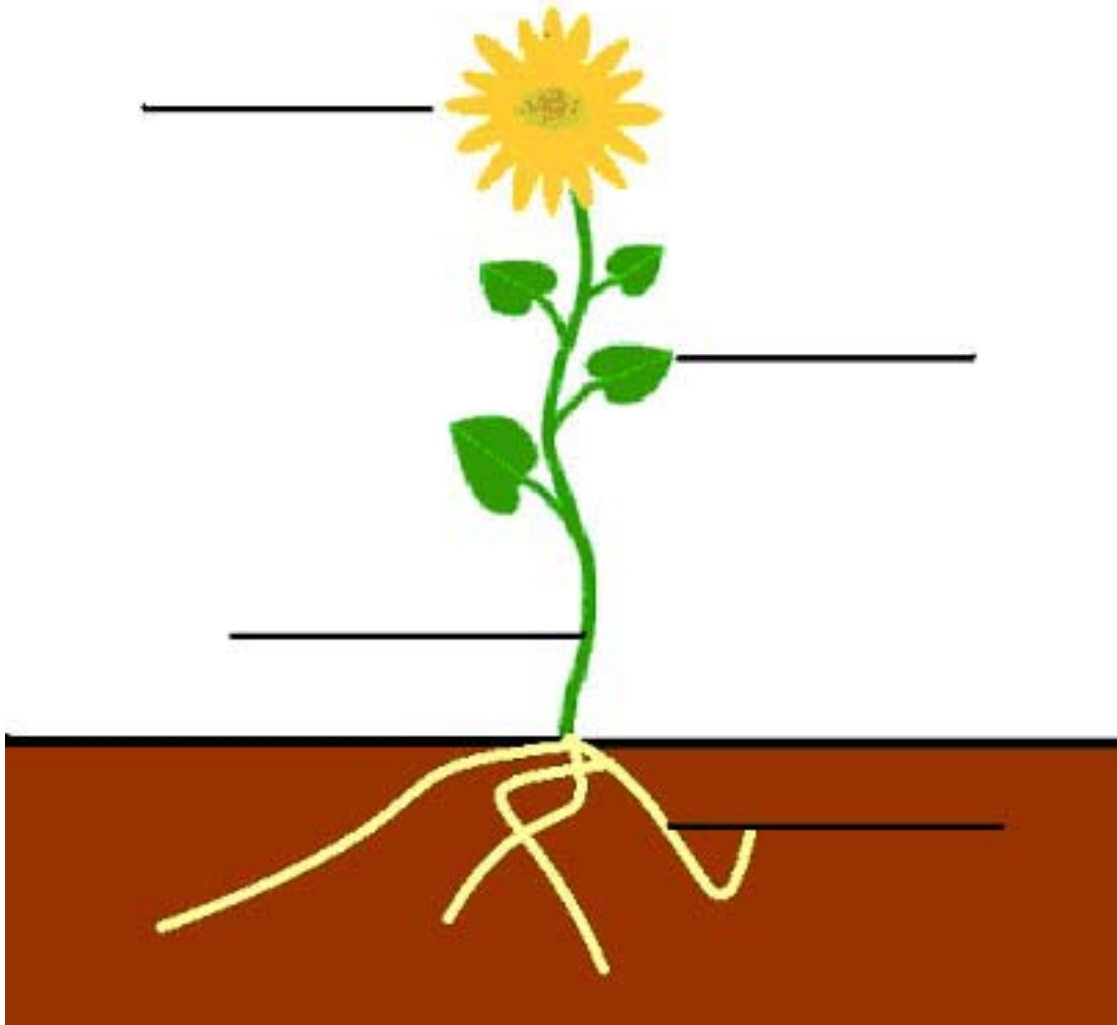
## **Bibliographical References:**

- Gibbons, Gail. *From Seed to Plant*. New York: Holiday House, 1993. ISBN: 0823410250
- Parts of a Plant  
<http://www.naturegrid.org.uk/plant/parts.html>

**Handout 1**  
**Parts of a Plant**

Label the plant with the following words:

**flower**      **roots**      **stem**      **leaf**



## MEASUREMENT OF PLANT GROWTH

Measurement in inches	Plant with water, sun and fertilizer	Plant with water and no sun	Plant with sun and no water	Plant with no water and no sun	Plant with no fertilizer
5 inches					
4 $\frac{1}{2}$ inches					
4 inches					
3 $\frac{1}{2}$ inches					
3 inches					
2 $\frac{1}{2}$ inches					
2 inches					
1 $\frac{1}{2}$ inches					
1 inch					
$\frac{1}{2}$ inch					

\*\*Students will need to measure several times throughout the experiment and place their final findings in a graph for final comparisons of which plant grows the best.