

Grade 2

WEEDING MATH

Georgia Performance Standards Covered:

- MCC2.OA.1 – Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions
- MCC2.OA.2 – Fluently add and subtract within 20 using mental strategies. By end of grade 2, know from memory all sums of 2 one-digit numbers
- MCC2.MD.10 – Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to 4 categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph

Essential Question:

Why do we pull weeds?

Objectives:

- Explain the nature and importance of garden upkeep (namely weeding)
- Practice grade level math skills in applied setting
- Introduce garden ecology principles

Key Words & Terms:

- Weed (noun & verb)
- Maintenance
- Competition
- Resources
- Field guide
- Category

Abstract:

Make this essential yet often mundane garden maintenance task relevant and fun by explaining the purpose of weeding and engaging the students in a related math activity. All of the lesson can be done in the school garden.

Materials:

- Weed field guide of Georgia/ Southeastern US – 1 per adult supervisor
- Gardening gloves – 1 pair per student
- Screen to show Powerpoint – 1 per class
- Pencil & paper for summing & graphing – 1 each per student
- Coloring materials (markers, colored pencils, or crayons) for graphs

Procedure:

Before weeding

1. What are weeds? Ask students to share their thoughts and potential definitions of weeds before writing the definition below on the board.
 - “A **weed** is defined as any plant that is considered undesirable, unattractive, or troublesome, especially one growing where it is not wanted.”
-University of Minnesota Extension
<http://www.extension.umn.edu/garden/diagnose/weed/>
2. Next ask students to brainstorm any examples of weeds they are familiar with before sharing either the pictures from a guidebook or the following Powerpoint presentation of 10 of the most common weeds of North America (drawn from OrganicGardening.com --
<http://www.organicgardening.com/learn-and-grow/12-most-common-weeds?page=0,2>).
 - Try prompting them to think beyond gardens and into lawn weeds to broaden the context. Engage student interest while showing pictures by asking if students have ever seen the weed displayed (if so where, next to what plant(s), in a garden/lawn/other setting, etc.). Are the weeds attractive? Can they think of uses for the weeds outside of the garden? Are they edible, decorative, etc.?

*Insert “Common Garden Weeds” ppt

3. Why do we pull weeds? Prompt students and give hints as needed to get them to cover the following points.
 - Example – ask them what would happen to the garden plants if they never pulled weeds. Would the weeds grow more? Would the garden plants grow less? Why?
*Key: weeds are competition for the plants we are trying to grow in the garden.
 - How do they compete with the garden plants? What do they compete *for*?
*Prompt: what do plants need to survive?
*Space/ area to grow both wide and tall, water, sunlight, nutrients (“food”) in soil
If weeds are using these resources of survival, there is less available for the plants they are trying to grow in the garden to eat.

Time to weed!

4. Divide the students into groups according to the number of beds in the garden there are to weed. Number or name each group by the plant growing in the bed.
5. Explain that as they are doing their routine weeding, they should keep neat piles of the different categories of weeds.
 - Categorize as you see fit – by the different common types of weeds shown in Powerpoint with an “other” group; by grassy, leafy, woody, and other; by large, medium and small - could even incorporate additional math standards of measuring in inches or cm to designate size groups. The idea is simply to create groups of data to graph at the end.)
 - You might designate a monitor/ sorter for each bed to keep the piles, counting, and data organized.
6. As you and/or the Master Gardener move between the groups of students, use the guidebooks and your knowledge to help them identify the main weeds they are finding in the garden. Also take this opportunity to teach the students about how to use guidebooks in general.
 - Help them find the common and scientific names of the weeds they are pulling, and see if they can determine why these particular weeds might be so prominent in the garden using the information provided in the books or by the Master Gardener.
 - Are they known to grow near certain crops?
 - Do they like the environment provided by your garden (e.g. sunny vs. shady) or the local climate (temperature, amount of precipitation) or geography (type of soil)?

Post-Weeding

7. When they are finished weeding, have each student participate first in sorting the weeds into the designated categories and then in working together to count the number of weed clumps or pieces in each category.
8. Make a place for each group to write on the board or chart paper the numbers corresponding to each category.
9. On a piece of paper, have each student work independently, in pairs, or in the groups they were previously working in to sum the total clumps/pieces for each category.
10. Then have them create one picture graph and one bar graph to represent the 4 categories of weeds in the garden. Be sure they include titles of the graphs and the axes.

Note:

It would be great to have the expertise of a GA Master Gardener for this particular section. If you aren't able to get a Master Gardener to volunteer, try to get a weed identification book from the list below to take with you to the garden. Several are available used online (try Amazon and Google) for \$4-14, or you can try your local public library.

- [Weeds of the South](#) by Charles Bryson and Michael DeFelice
- [Weeds of the Northern U.S. and Canada: A Guide for Identification](#) by France Royer and Richard Dickinson
- Weed Identification Field Guide by Iowa State University – University Extension and the Iowa Soybean Association
- Rodale's Garden Insect, Disease, and Weed Identification Guide by Miranda Smith
- Just Weeds by Edwin Rollin Spencer (pictures not in color)