

Oregon



Agriculture in the  
Classroom Foundation

**Developed By:**

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# Summer Ag Institute Lesson Plans

**Title of Lesson:** Farmer Brown Prepares to Plant

**Academic Subject:** Mathematics

**Theme:** Soil Preparation for Planting

**Grade Level:** 5-6

## **CIM/CAM Standards:**

1. Compute with whole numbers, fractions, decimals, and integers using paper and pencil, calculators, and computers.
2. Estimation – Use estimation to solve problems and check the accuracy of solutions.
3. Measurement – Determine and use appropriate standard and nonstandard units and tools of measurement to measure to the degree of precision desired in particular situations.
4. Problem Solving – Understand and evaluate multiple approaches to solve problems.

## **Learner Objective: (The student will)**

1. Multiply by three or more-digit numbers in context (whole number and decimal).
2. Estimate solutions to problems and determine if the solutions are accurate and reasonable.
3. Solve problems with any of the units from previous benchmark levels (length, perimeter, area).
4. Select and use relevant information in the problem to solve it.

## Vocabulary:

1. Implement (Farm) – any tool that aids a person to make work and effort more productive and effective.
2. Plow – the whole implement, of various types, used to cut, brake, or turn a soil layer in preparation for planting, seeding, or other agricultural practices.
3. Harrow – a farm implement used to level the ground and crush clods, to stir the soil, and to prevent and destroy weeds.
4. Disk (Harrow) – used to cut debris, pulverize the top layer of the soil before or after plowing to prepare ground for planting.
5. Grain Drill – a tractor-drawn implement that plants grain seed in a series of closely spaced rows.
6. Acre – a measurement of land. Area: 4,840 sq. yds.

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**Anticipatory Set:** How many of you have parents involved in agriculture/farming (our school, North Marion School, is surrounded by various types of agriculture)? Have you or your family ever put in a vegetable garden? Discuss how ground is prepared for planting.

### Instructional Outline (Teaching Content)

1. Introduce vocabulary listed in this lesson.
2. Visit High School Agriculture Shop (across the street from our middle school) or farm adjacent to our school property to view farm implements.
3. Class discussion, estimate how long it would take a farmer to prepare 20 acres for planting.
4. Review finding area, how many feet in a mile, area of an acre.
5. Introduce Problem Solving worksheet.

### Strategies (What to do, explain or have students do)

1. Students complete vocabulary worksheet.
2. Arrange visitation with High School Agriculture teacher. Discuss various implements and how they are used on the farm. Demonstrate if possible.
3. Students compare personal experiences with putting gardens in and that of a farmer. Consider types of equipment/implements used.
4. Area = Length x Width  
Feet in a mile = 5,280  
Area of an acre = 4,840 sq. yds. (Multiply by 9 for sq. ft.)
5. While introducing problem solving Worksheet, review problem-solving strategies (see attached).

## **Extensions:**

1. Students could figure fuel required to prepare areas for planting assuming three gallons of fuel consumed by the tractor each hour.
2. Students could figure total time invested by the farmer for soil preparation, fertilizing, planting, and harvesting.
3. Students could do additional research on and give an oral report on other equipment used by the farmer.
4. Students could make a collage using pictures related to farming.

## **Closure:**

After students complete Problem Solving Worksheet, have them compare their work with others and determine correct answer. Discuss how estimations compare to their final answers. Consider farmers that farm much larger areas, 500, 1,000, or 5,000 acres and time invested. Discuss additional time required for planting, fertilizing, and harvesting.

## **Resources:**

1. Oregon Content Standards, Problem Solving Scoring Guide.
2. Ray V. Herren and Roy L. Donahue, *The Agriculture Dictionary*, New York: Delmar Publishing, 1991.
3. Problem Solving Worksheet, "Farmer Brown Prepares to Plant".
4. Pencils, calculators, and scratch paper.

## **Materials:**

Evaluation:

1. Student participation in completing Vocabulary Worksheet.
2. Completed Problem solving Worksheets scored with guide in the areas of Conceptual Understanding, Processes and Strategies, Communication, Verification, and Accuracy.