

Is it Alive? Area and Perimeter Lesson Plan

Context (InTASC 1,2,3)

Teacher Name: Shelby Strand

Date:

Lesson Topic: Area and Perimeter

Grade Level: 4

Duration: 1 day

Kit Contents: http://odin-primo.hosted.exlibrisgroup.com/nmy:NMY_ALEPH:ODIN_ALEPH007372733

Desired Results (InTASC 4)

Purpose: Design a garden and figure out the area and perimeter of the full garden as well as each of the plant sections inside the garden. (this lesson would go best after doing the 'How Does Your Garden Grow?' activity)

Standards:

Visual Arts Standard:

- **4.1.2** Know the different techniques* used to create* visual art.

Grade 4 Math Standards:

- **4.MD.3** Apply the area and perimeter formulas for rectangles in real world and mathematical problems.
- **4.G.1** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
- **4.NF.2** Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$ and justify the conclusions.
- **4.NF.3a** a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.

Objectives: The students will be able to:

- Design a garden with at least 5 different plants inside of it.
- Calculate the area and perimeter of the garden as a whole and each sub-section of plants inside
- Determine what fraction of the full garden each plant section represents based on its area.
- Compare fractions from their garden with a classmate's fractions.

Assessment Evidence (InTASC 6)

Evidence of meeting desired results: The teacher will walk around and monitor the progression of the gardens and check for proper angles and sizes. This will be an informal formative assessment and the end product will be used as a formal formative assessment. The discussion to wrap up the activity will be used as another informal formative assessment to demonstrate and compare understandings of area and perimeter.

Learning Plan (InTASC 4,5,7,8)

Instructional Strategy: (Check all that apply)

Direct Indirect Independent Experiential Interactive

Technology Use(s): (Check all that apply)

- Student Interaction Align Goals Differentiate Instruction Enhance Lesson
- Collect Data N/A

Hook and Hold: Lay out lots of white papers on the floor in a rectangle or square in the middle of the floor. Have the students gather around the polygon and ask them what they think the area and perimeter are without giving them enough time to actually calculate it out. Then as a class figure out the area and perimeter of that shape. You should only need to measure one of the papers to figure out the length and width of each side. Have each student pick up one of the pieces of paper when the activity is done and go back to their seats.

Procedures:

1. They need to first put their names on their papers. Then explain to them that this piece of paper is the land they have to plant a garden on. They can use as much of the paper as they want, but they must plant at least 5 different crops in their garden. Their garden must also be at least 10 square inches in area. They need to color each different plant section of their garden with a different color and have some sort of line design inside that area to represent the plant (diagonal lines, wavy lines, zig zag, etc). They need to use rulers and protractors to ensure their lines are straight and every angle is 90 degrees. Their garden does NOT have to be a single rectangle or square. (They could make a 'T', 'H', 'L', shape, etc.)
2. Give them time now to start designing their gardens.
3. When most are nearing the end of their designing, tell them they also need to figure out the fraction that each area of crop inside their garden takes up. (Example: if the total area of their garden is 25 square feet and they planted corn in 5 square feet of the garden the corn takes up $\frac{1}{5}$ of the garden) They need to label the area and perimeter of the entire garden off to the side of their paper and the area and perimeter of each section inside that particular section along with the fraction of the whole it represents.

Materials:

- White paper
- Rulers
- Pencils
- Protractors
- Colored pencils/crayons

Summary: Let the students share their garden creations with the people sitting around them and compare what crops they planted and the fraction amounts. Give them time to compare the fractions and see who planted more! The final product will be handed in to the teacher.

Reflection (InTASC 9)**Reflect On:**

- *Preparation*
- *Planning*
- *Teaching*
- *Student Engagement and Participation*
- *Evidence of Student Learning*

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