Community Garden (5.MD.4)

Summary

Students will apply their understanding of perimeter, area, and volume to design a community garden.

Main Core Tie

Mathematics Grade 5

Strand: MEASUREMENT AND DATA (5.MD) Standard 5.MD.4

Additional Core Ties

Mathematics Grade 5

Strand: MEASUREMENT AND DATA (5.MD) Standard 5.MD.5

Time Frame

3 class periods of 45 minutes each

Group Size

Pairs

Life Skills

Aesthetics, Thinking & Reasoning, Communication, Social & Civic Responsibility, Employability, Systems Thinking

Materials

- Paper
- Pencils
- Colored pencils
- Graph paper
- Linking cubes
- Seed catalogs
- Task sheet

Background for Teachers

Teachers will need an understanding of the relationship between perimeter, area, and volume of rectangular prisms. They will need to understand the relationship between arrays and fractional parts of a whole.

Student Prior Knowledge

- Students will need a working knowledge of perimeter, area, volume and how they apply to rectangular prisms.
- They will need to understand the meaning of cubic units.
- They will need to know that 1 foot = 12 inches
- They will need to understand fractional parts of a rectangle

Intended Learning Outcomes

Students will apply their knowledge of perimeter, area, and volume to the design of a community garden. CCSS.MATH.CONTENT.5.MD.C.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

Strategies for Diverse Learners

Supports for struggling students include:

- Definition of rectangle and rectangular prism
- Formulas for perimeter, area, and volume
- Simplifying the task to make only one garden
- Using the linking cubes for all components of the task

Extensions

Additional activities include:

- Extensions described in the lesson plan
- Determining the possible income that could be generated from sales of the food
- Determine the support that might be needed to actually build a community garden

Bibliography

Adapted from: Smith, Margaret Schwan, Victoria Bill, and Elizabeth K. Hughes. "Thinking Through a Lesson Protocol: Successfully Implementing High-Level Tasks." Mathematics Teaching in the Middle School 14 (October 2008): 132-138.

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