5th Grade Garden Math:

Calculating Area and Volume in Raised Beds

Objective: Students will measure an existing garden bed and calculate the area and volume to determine how much soil and compost is needed to fill a new one.

Materials:

Garden map Clipboards, pencil, and worksheet Yard stick or meter stick Measuring tape Calculator

Background:

Healthy soil is the single most important ingredient for a successful garden. Raised beds have an immediate advantage over a regular garden because you can fill them with a blend of topsoil and compost that is better than the native soil in the yard. Soil that's loose and rich with nutrients and organic matter will allow the roots of your plants to grow freely, and ensure that they have access to the water and nutrients they need to sustain healthy growth. A mixture of 70% topsoil and 30% compost will give the flowers and vegetables a healthy medium to grow in.

Procedure:

Students work in pairs and select one raised bed to measure in the garden. They will measure the area of the bed, then calculate the volume of soil in the bed. Lastly, they will calculate how many cubic cm/m of topsoil and compost are needed to fill a new raised bed.

Bonus:

Calculate the volume of soil in the tires.
Calculate the volume of water the rain barrel can fill.

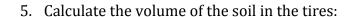
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Name	Date
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	oeds on the map (1-9). Calculate the area of the bed and the ed. Then calculate how much topsoil and compost are needed to
 Raised bed # Calculate the area: 	Area = Length times Width A = L x W
square	
* To convert square cm to	square m you will need to divide by 100.

3.	Calculate the volume of soil in the raised bed: Volume = Length times Width times Depth $V = L \times W \times D$		
	cubic cm		
	cubic m		
* T	To convert cubic cm to cubic meters you will need to divide by 1,0	000.	
4.	Calculate how much topsoil and how much compost is needed to fill the bed. You need a blend of 70% topsoil, 30% compost.		
	cubic cm of topsoil	cubic m of topsoil	
	cubic cm of compost	_ cubic m of compost	

BONUS QUESTIONS:



6. Calculate the volume of water needed to fill the rain barrel.

*Hint: Volume of a cylinder = pi times radius (squared) times height, or V = $\pi r^2 H$ (π = 3.1415)