

An even spread

Purpose:

The purpose of this activity is to engage students in carrying out a division, where the solution is not a whole number.

Achievement Objectives:

NA2-1: Use simple additive strategies with whole numbers and fractions.

NA2-5: Know simple fractions in everyday use.

NA2-6: Communicate and interpret simple additive strategies, using words, diagrams (pictures), and symbols.

Description of mathematics:

In readiness for this problem, the students should have familiarity with each of the following components of mathematics. The problem may be solved with different combinations of these components.

- counting strategies
- grouping strategies to partition whole numbers
- using equal sharing fractions
- addition of basic fractions ($\frac{1}{2}$, $\frac{1}{4}$)
- find fractions of a value

This activity may be carried out with guidance, or by allowing the student to follow their own method of solution. The approach should be chosen in sympathy with students' skills and depth of understanding.

Activity:

A gardener has 7 bags of compost to spread evenly over 4 flower beds.

How many bags of compost does each bed get?



The arithmetic approach

The student is able to partition a whole number to form evenly sized sets involving fractions.

Prompts from the teacher could be:

1. How many **whole** bags will each bed get?
2. How many bags are left over after sharing?
3. Imagine cutting these left over bags up to share around the four beds. How much of a bag will each bed get?
4. How many bags of compost does each bed get?

7 into 4 beds

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$7 = 4 + 3$

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$1 \frac{3}{4}$

T: I could see you thinking deeply to work this out.

S: I was splitting up the 7 into bits. It's 4 and 3. The 4 is good to split up but the 3 has to be like pizzas. So everyone gets a quarter of a pizza... do that three times.

The visual approach

The student is able to represent a partitioning problem, with a diagram and/or materials, to find a solution.

Prompts from the teacher could be:

1. How can you represent the flower beds?
2. How can you represent the bags of compost?
3. Share out the compost evenly.
4. How many bags of compost does each bed get?

T: Talk me through your diagram.

S: The squares are the beds and the rectangles are the compost. First I put one bag on each. Then there's not enough for one more so I put half on each and that used up 2 more bags and there's one left so that's half of a half.

$$\begin{array}{r} 3 \\ \hline 4 \end{array}$$

$1 \frac{1}{2}$ $\frac{1}{4}$	$1 \frac{1}{2}$ $\frac{1}{4}$	$1 \frac{1}{2}$ $\frac{1}{4}$	$1 \frac{1}{2}$ $\frac{1}{4}$
✓	✓	✓	
✓	✓		✓