

Garden Plot Fractions

Teacher Guide · Solutions · Rubric

Grade 3 · All levels

Overview

Students plan a class garden. They split beds into equal parts, name unit fractions and fractions built from unit fractions, and place trail markers on a fraction number line.

Time: 2 class periods · **Product:** Garden Map
Standards: 3.NF.A.1, 3.NF.A.2.a, 3.NF.A.2.b, 3.G.A.2
Prerequisite skills: Partition shapes into halves, thirds and fourths (Grade 2); Equal parts

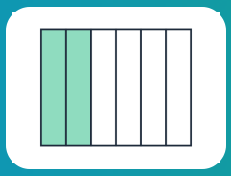
Learning targets

- I can name a unit fraction for one of b equal parts.
- I can explain a/b as a copies of 1/b.
- I can place fractions on a number line, including fractions greater than 1.

Timing and materials

- Day 1 (45 min): beds and equal parts (Parts 1–2).
- Day 2 (45 min): the fraction trail on a number line (Part 3) and the garden map.

Materials: Grid paper and rulers; Colored pencils; Fraction strips (printable support page); String or a paper strip for the trail. No accounts, paid products or student personal information are needed.



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The three versions

- Remedial: hints for a first step, partly filled tables, sentence frames and fewer open choices; the same learning targets.
- Standard: the full task set at grade level; students choose their strategies and models.
- Advanced: open design constraints, missing information, error analysis and a written justification; no hints.

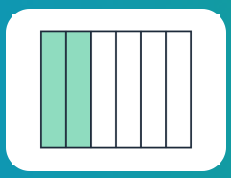
All versions use the same context and learning targets, so groups can share and compare work.

Implementation notes

- Check every partition for EQUAL parts before naming fractions.
- On number lines, have students count jumps aloud from 0.
- Advanced students design a bed with a required fraction for each plant and defend that the parts are equal.
- Before Part 1, read the challenge aloud and ask students to restate the goal.
- Close with a gallery walk: each group explains one strategy.

Rubric

Learning target	4 Exceeds	3 Meets	2 Approaching	1 Beginning
I can name a unit fraction for one of b equal parts.	Correct and complete; explains how	Mostly correct	Partly correct	Not yet
I can explain a/b as a copies of 1/b.	Correct and complete; explains how	Mostly correct	Partly correct	Not yet
I can place fractions on a number line, including fractions greater than 1.	Correct and complete; explains how	Mostly correct	Partly correct	Not yet
I can explain my thinking with pictures, numbers and words.	Clear for every part	Clear for most parts	Some explanation	Little explanation
My garden map is complete and matches my math.	Complete, neat, accurate	Complete	Partly complete	Not complete



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Solutions · Remedial KEY

Part 1: Garden Beds

Bed A is a rectangle split into 4 equal parts.

Plant	Parts	Fraction
Carrots	1	$\frac{1}{4}$
Beans	2	
Empty		

1. What fraction of the bed is one part?
$\frac{1}{4}$

2. Carrots fill 1 part. What fraction of the bed is carrots?
$\frac{1}{4}$

3. Beans fill 2 parts. What fraction of the bed is beans?
$\frac{2}{4}$

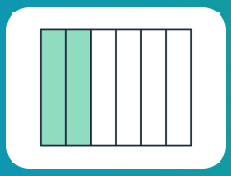
4. What fraction of the bed is still empty?
$\frac{1}{4}$

Part 2: Equal or Not?

Mia split Bed B into 4 parts: two big and two small.

5. Can each part be called $\frac{1}{4}$ of the bed? Explain.

No. The parts are not equal, so they are not fourths.



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Part 3: Fraction Trail

The garden path from the gate (0) to the fountain (1) is marked in fourths.

6. Where is the first marker? Write a fraction.

$\frac{1}{4}$

7. A bird bath is 3 jumps from the gate. What fraction is that?

$\frac{3}{4}$

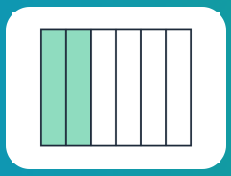
8. Is the bird bath before or after the fountain at 1? How do you know?

Before

Extension

The path goes from 0 to 2 in fourths. Name every marker past 1.

$\frac{5}{4}$, $\frac{6}{4}$, $\frac{7}{4}$, $\frac{8}{4}$



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Solutions · Standard KEY

Part 1: Garden Beds

Bed A is a rectangle split into 6 equal parts.

Plant	Parts	Fraction
Carrots	2	
Beans	3	
Empty		

1. What fraction of the bed is one part?

$\frac{1}{6}$

2. Carrots fill 2 parts. What fraction of the bed is carrots?

$\frac{2}{6}$

3. Beans fill 3 parts. What fraction of the bed is beans?

$\frac{3}{6}$

4. What fraction of the bed is still empty?

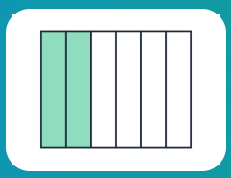
$\frac{1}{6}$

Part 2: Equal or Not?

Mia split Bed B into 4 parts: two big and two small.

5. Can each part be called $\frac{1}{4}$ of the bed? Explain.

No. The parts are not equal, so they are not fourths.



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Part 3: Fraction Trail

The garden path from the gate (0) to the fountain (1) is marked in fourths. It keeps going to the shed at 2.

6. Where is the first marker? Write a fraction.

$\frac{1}{4}$

7. A bird bath is 5 jumps from the gate. What fraction is that?

$\frac{5}{4}$

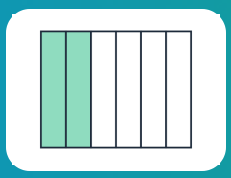
8. Is the bird bath before or after the fountain at 1? How do you know?

After

Extension

The path goes from 0 to 2 in fourths. Name every marker past 1.

$\frac{5}{4}, \frac{6}{4}, \frac{7}{4}, \frac{8}{4}$



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Solutions · Advanced KEY

Part 1: Garden Beds

Bed A is a rectangle split into 8 equal parts.

Plant	Parts	Fraction
Carrots	3	
Beans	2	
Empty		

1. What fraction of the bed is one part?

$\frac{1}{8}$

2. Carrots fill 3 parts. What fraction of the bed is carrots?

$\frac{3}{8}$

3. Beans fill 2 parts. What fraction of the bed is beans?

$\frac{2}{8}$

4. What fraction of the bed is still empty?

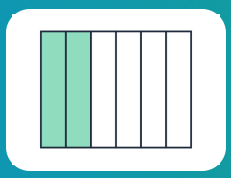
$\frac{3}{8}$

Part 2: Equal or Not?

Mia split Bed B into 4 parts: two big and two small.

5. Can each part be called $\frac{1}{4}$ of the bed? Explain.

No. The parts are not equal, so they are not fourths.



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Part 3: Fraction Trail

The garden path from the gate (0) to the fountain (1) is marked in thirds. It keeps going to the shed at 2.

6. Where is the first marker? Write a fraction.

$\frac{1}{3}$

7. A bird bath is 7 jumps from the gate. What fraction is that?

$\frac{7}{3}$

8. Is the bird bath before or after the fountain at 1? How do you know?

After

Part 4: Design Challenge

Design Bed C (a rectangle on grid paper) for 4 plants.

9. Use eighths. Tomatoes $\frac{3}{8}$, peppers $\frac{2}{8}$, herbs $\frac{2}{8}$ and flowers the rest. What fraction is flowers?

$\frac{1}{8}$

10. Draw it so all parts have equal area even if they are different shapes. Explain how you know.

Answers vary; each eighth must have the same number of grid squares.

Extension

The path goes from 0 to 2 in fourths. Name every marker past 1.

$\frac{5}{4}, \frac{6}{4}, \frac{7}{4}, \frac{8}{4}$