

Plant Growth Investigation

Teacher Guide & Answer Keys

Grade 5 · All levels

Overview

Students run a plant-growth investigation. They organize fraction measurements of seedlings in a line plot, find totals and differences, find an equal (fair) share of water, and solve a multi-step problem with the data.

Time: 2 class periods · **Product:** Investigation Report · **Standards:** 5.MD.B.2, 5.NF.A.2, 5.NF.B.6

Suggested pacing

- Day 1: Introduce the challenge, read the scenario together, and work Parts 1–2 in pairs.
- Day 2: Finish the remaining parts and create the final product.
- Wrap-up: Share products and reflect on strategies.

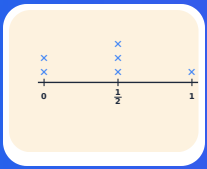
Levels

- **Remedial:** smaller numbers, fewer steps, more structure.
- **Standard:** grade-level numbers and the full set of tasks.
- **Advanced:** harder numbers, extra reasoning and multi-step questions.

All three levels practice the same learning goals, so the class can share and compare work.

Rubric

Category	4 Excellent	3 Good	2 Developing	1 Beginning
Math accuracy	All answers correct	Most answers correct	Some answers correct	Few answers correct
Shows work	Clear work for every step	Work for most steps	Some work shown	Little work shown
Explains thinking	Clear, complete explanations	Mostly clear explanations	Some explanation	Little explanation
Final product	Complete, neat and creative	Complete and neat	Partly complete	Not complete



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Answer key · Remedial KEY

Part 1: Make a Line Plot

1. Which height appears most often?

$\frac{1}{2}$ in.

2. How many seedlings were measured?

7

Part 2: Compare Heights

3. What is the difference between the tallest and shortest seedling?

1 in.

4. What is the total of all the heights?

6 in.

Part 3: Fair Share of Water

5. What is the total amount of water?

2 L

6. If the water is shared equally among the cups, how much is in each cup?

$\frac{1}{2}$ L

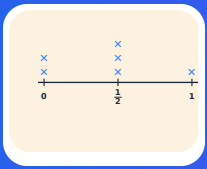
Part 4: Report

7. Report:

Answers vary.

Extension

$7\frac{3}{4}$ in.



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Answer key · Standard KEY

Part 1: Make a Line Plot

1. Which height appears most often?

$1\frac{1}{4}$ in.

2. How many seedlings were measured?

8

Part 2: Compare Heights

3. What is the difference between the tallest and shortest seedling?

$\frac{3}{4}$ in.

4. What is the total of all the heights?

$12\frac{1}{4}$ in.

Part 3: Fair Share of Water

5. What is the total amount of water?

3 L

6. If the water is shared equally among the cups, how much is in each cup?

$\frac{3}{5}$ L

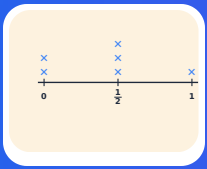
Part 4: Report

7. Report:

Answers vary.

Extension

$14\frac{1}{4}$ in.



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Answer key · Advanced KEY

Part 1: Make a Line Plot

1. Which height appears most often?

$1\frac{3}{8}$ in.

2. How many seedlings were measured?

10

Part 2: Compare Heights

3. What is the difference between the tallest and shortest seedling?

$\frac{3}{4}$ in.

4. What is the total of all the heights?

$16\frac{1}{2}$ in.

Part 3: Fair Share of Water

5. What is the total amount of water?

4 L

6. If the water is shared equally among the cups, how much is in each cup?

$\frac{2}{3}$ L

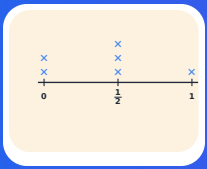
Part 4: Report

7. Report:

Answers vary.

Extension

19 in.



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Worked teacher example (Standard, Part 1)

Which height appears most often?

$1\frac{1}{4}$ in.

How many seedlings were measured?

8

Model the first part aloud: read the situation, name the operation, estimate, solve, and check. Then let partners try Part 2.

Look for

- Students use correct notation and units in every answer.
- Students explain why an answer is reasonable (estimates, benchmarks, pictures).
- Final products show the math clearly, not just the answers.