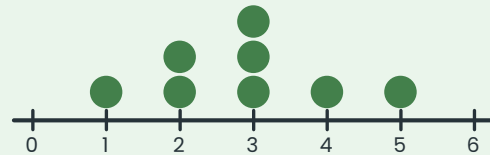


Spring Graph & Garden Math: Garden Club Data, Beds, and Maps

6 complete activities from Spring Graph & Garden Math, each with a worked answer.



HOW TO USE

1. Read the situation and the evidence first.
2. Show your thinking in the work boxes, not only an answer.
3. Explain how you know your answer makes sense.
4. Try the new problem at the bottom of the page.

6 activities • 3 answer pages • From the 16-activity collection

10 US Letter pages • Print at 100% / Actual Size

Original Bobotemp educational printable • Fictional names, places and prices

Seed Packet Tally to Scaled Graph

2

Fraction Sprout Line Plot

Name _____ Date _____

LEVEL 2



Follow the club's counting rule and use the correct number of days in each month.

On the fictional club calendar, seeds in Tray C were planted on April 26, and the first sprout was recorded on May 9. The club counts elapsed days as the number of days after the planting date, so April 26 itself is not counted. How many days passed?

EVIDENCE TO USE

- Planted: April 26
- First sprout recorded: May 9
- April has 30 days
- Club rule: do not count the start day

1. How many days are left in April after April 26?

[illegible]

2. Add the days in May through May 9. What is the total?

A blank sheet of graph paper with a grid pattern. The grid consists of 10 columns and 10 rows of squares. The paper has rounded corners and a light gray background.

3. Explain why the number of days in April matters to your answer.

[illegible]

TRY IT • Using the same rule, how many days pass from May 28 to June 6?

Name _____ Date _____

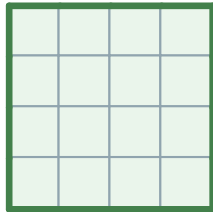
LEVEL 2



Shade the 4 by 4 grid with two different patterns, and include a key.

A fictional square bed is drawn as a 4 by 4 grid of 16 equal sections. The plan gives $\frac{1}{4}$ of the bed to beans and $\frac{3}{8}$ of the bed to squash. The rest is left for flowers. Shade the grid and find the fraction of the bed for flowers.

BED: 16 EQUAL SECTIONS



EVIDENCE TO USE

- Grid: 16 equal sections
- Beans: $\frac{1}{4}$ of the bed
- Squash: $\frac{3}{8}$ of the bed
- Flowers: the remaining part

1. How many grid sections are for beans? How many are for squash?

2. Shade the grid with two different patterns and a key.

[illegible]

3. What fraction of the bed is left for flowers? Write it in simplest form.

TRY IT • A bed is $\frac{1}{2}$ peppers and $\frac{1}{6}$ herbs. What fraction of the bed is left?

Name _____ Date _____

Seeds per Row Ratio Table

LEVEL 3 ●●●

Build a ratio table, and find the unit rate first.

A fictional club planting plan uses the same number of seeds in every row. The plan needs 24 seeds for 3 rows. Build a ratio table and find the unit rate. Then use the unit rate to answer questions about larger plans.

RATIO TABLE

Rows	Seeds
1	
3	24
6	
7	

EVIDENCE TO USE

- 3 rows : 24 seeds
- Every row uses the same number of seeds
- Table rows to complete: 1, 3, 6, 7
- Seeds available for a new plan: 80

1. Find the unit rate in seeds per row.

2. How many seeds do 7 rows need?

3. How many rows can 80 seeds fill?

TRY IT • 5 rows need 30 bulbs. How many bulbs do 9 rows need?

Name _____ Date _____

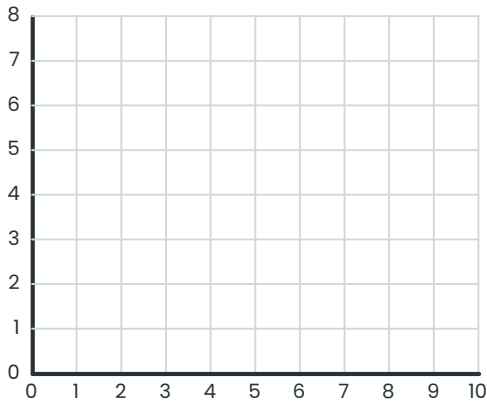
LEVEL 3



Plot the points in order, and use the coordinates to find distances.

The club's fictional garden map is drawn on a coordinate grid where 1 unit = 1 ft. A rectangular bed has vertices at (2, 3), (8, 3), (8, 7), and (2, 7). Plot and connect the points. Use the coordinates to find the side lengths, the area, and the perimeter. Then find the center of the bed.

GARDEN MAP (1 UNIT = 1 FT)



EVIDENCE TO USE

- Vertices: (2, 3), (8, 3), (8, 7), (2, 7)
- 1 grid unit = 1 ft
- Horizontal distance: subtract the x-coordinates
- Vertical distance: subtract the y-coordinates

1. Use the coordinates to find the length and width of the bed.

2. Find the area and perimeter of the bed.

[illegible]

3. Name the point at the exact center of the bed.

TRY IT • A bed has vertices at $(1, 1)$, $(1, 6)$, $(4, 6)$, and $(4, 1)$. Find its area and perimeter.

1. Seed Packet Tally to Scaled Graph

LEVEL 1

Bars: Sunflower 7 units, Pea 4 units, Bean 11 units ($22 \div 2 = 11$), Carrot 3 units. Total: 50 packets. The Bean bar is 7 units taller than the Pea bar, which is 14 packets.

WORKED REASONING • Divide each count by the scale: $14 \div 2 = 7$, $8 \div 2 = 4$, $22 \div 2 = 11$, and $6 \div 2 = 3$ units. All four bars fit on the 12-unit grid. Total: $14 + 8 + 22 + 6 = 50$ packets. (Check: $7 + 4 + 11 + 3 = 25$ units, and $25 \times 2 = 50$.) Bean minus Pea: $11 - 4 = 7$ units, and $7 \times 2 = 14$ packets. (Check: $22 - 8 = 14$.)

WATCH FOR • Some students draw each bar as tall as the count, such as a Bean bar 22 units tall, which treats the scale as 1. Others answer '7 more packets' because they forget to multiply the unit difference by 2.

TRANSFER • $9 \times 2 = 18$ packets.

2. Fraction Sprout Line Plot

LEVEL 1

Most common height: $5/8$ in. Greatest: $7/8$ in. Least: $1/4$ in. Difference: $7/8 - 2/8 = 5/8$ in (0.625 in).

WORKED REASONING • In eighths, the heights are $3/8$, $5/8$, $4/8$, $7/8$, $5/8$, $2/8$, $6/8$, and $5/8$. The plot has three X's at $5/8$, so $5/8$ in is the most common height. The greatest height is $7/8$ in. The least is $2/8$ in, which equals $1/4$ in. Difference: $7/8 - 2/8 = 5/8$ in.

WATCH FOR • Students may think $1/4$ is greater than $3/8$ because 4 is greater than 3. Others subtract $7/8 - 1/4$ and get $6/4$. Rewrite every value with a denominator of 8 before you compare or subtract.

TRANSFER • $9/8 - 3/8 = 6/8 = 3/4$ in.

6. Growth Calendar Across Months

LEVEL 2

13 days (4 days in April + 9 days in May).

WORKED REASONING • Days after April 26 in April: $30 - 26 = 4$ (April 27, 28, 29, and 30). Days in May through May 9: 9. Total: $4 + 9 = 13$ days. If April had 31 days, the answer would be 14, so the month length changes the answer.

WATCH FOR • Students may count both April 26 and May 9 and get 14, or assume every month has 31 days. Students must use both the club's counting rule and the actual month length.

TRANSFER • May has 31 days, so $31 - 28 = 3$, and $3 + 6 = 9$ days.

7. Bed Fractions

LEVEL 2

Beans: 4 sections. Squash: 6 sections. Flowers: 6 sections, which is $6/16 = 3/8$ of the bed (0.375).

WORKED REASONING • $1/4$ of 16 = 4 sections. $3/8 = 6/16$, so squash gets 6 sections. Used: $1/4 + 3/8 = 2/8 + 3/8 = 5/8$. Remaining: $1 - 5/8 = 3/8$. Grid check: $16 - 4 - 6 = 6$ sections, and $6/16 = 3/8$.

WATCH FOR • Some students add $1/4 + 3/8$ and get $4/12$ by adding the numerators and the denominators. The grid shows the real total is 10 of 16 sections, or $5/8$.

TRANSFER • $1/2 + 1/6 = 3/6 + 1/6 = 4/6$, and $1 - 4/6 = 2/6 = 1/3$.

11. Seeds per Row Ratio Table

LEVEL 3

Unit rate: 8 seeds per row. 7 rows need $8 \times 7 = 56$ seeds. 80 seeds fill 10 rows.

WORKED REASONING • Unit rate: $24 \div 3 = 8$ seeds per row. Table: 1 row $\rightarrow$ 8 seeds, 3 rows $\rightarrow$ 24, 6 rows $\rightarrow$ 48, and 7 rows $\rightarrow$ 56. For 7 rows: $8 \times 7 = 56$ seeds (or $48 + 8$). Rows for 80 seeds: $80 \div 8 = 10$ rows. Check: $10 \times 8 = 80$.

WATCH FOR • Additive thinking: since 3 rows need 24 seeds, a student adds 4 to both numbers and says 7 rows need 28 seeds. Equivalent ratios come from multiplying both quantities by the same number, not from adding the same amount to each.

TRANSFER • $30 \div 5 = 6$ bulbs per row, and $6 \times 9 = 54$ bulbs.

12. First-Quadrant Garden Map

LEVEL 3

Length: 6 units. Width: 4 units. Area: $6 \times 4 = 24$ square units. Perimeter: 20 units. Center: (5, 5).

WORKED REASONING • Length from (2, 3) to (8, 3): $8 - 2 = 6$ units. Width from (8, 3) to (8, 7): $7 - 3 = 4$ units. Area: $6 \times 4 = 24$ square units (24 sq ft). Perimeter: $2 \times 6 + 2 \times 4 = 20$ units. Center: halfway across is $2 + 3 = 5$, and halfway up is $3 + 2 = 5$, so the center is (5, 5).

WATCH FOR • Students may reverse the coordinates and plot (3, 2) instead of (2, 3). Others count grid dots instead of spaces and get 7 instead of 6. A distance is the difference of the coordinates.

TRANSFER • It is 3 by 5, so the area is 15 square units and the perimeter is 16 units.