Pattern Pathways

Build patterns that grow and shrink.

3.PFA.1.d · Create increasing and decreasing patterns using objects, pictures, numbers, and number lines.

Name _____ Date _____

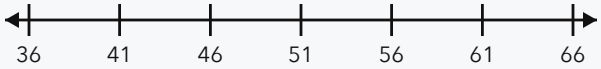
Pattern Rules

Increasing patterns get larger and decreasing patterns get smaller. These examples repeatedly add or subtract the same whole number. Compare neighboring terms to identify that change.

Worked example

Continue the increasing pattern: 41, 46, 51, 56, ___.

1. Find the change: 46 - 41 = 5.
2. Each number is 5 more than the number before it.
3. Add 5 to 56: 56 + 5 = 61.



61

1. Practice

Continue the pattern: 7, 14, 21, ___, ___.

2. Practice

Continue the pattern: 50, 45, 40, ___, ___.

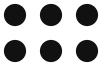
3. Practice

Start at 5. Hop right by 5 each time. Write the next three landing numbers.



4. Practice

The dot picture shows 6 dots. Each new picture has 3 more dots. Write the numbers in the first four pictures.



5. Practice

Choose your own whole-number start and a constant addition/subtraction rule. Create four increasing terms that remain nonnegative. Draw matching object groups. Explain your rule.

6. Practice

Choose your own whole-number start and a constant addition/subtraction rule. Create four decreasing terms that remain nonnegative. Draw matching labeled hops on a number line. Explain your rule.

7. Apply

Maya has 18 game tokens. She earns 7 more tokens after each level. Write how many tokens she has after the next three levels.

8. Apply

Luis has 65 trading cards. He gives 6 cards to his cousins each week. Write how many cards he has after the first three weeks.

9. Challenge

A pattern has five numbers. It starts at 15 and ends at 39. It increases by the same amount each time. Write the pattern and explain how you found the amount added.

What to accept

Accept commas or spaces between pattern numbers. For the challenge, accept any clear explanation that the pattern increases by 6 each time.

1. Practice

28, 35

2. Practice

35, 30

3. Practice

10, 15, 20

4. Practice

6, 9, 12, 15

5. Practice

Answers vary. Example: 2, 4, 6, 8; add 2; draw groups of 2, 4, 6, 8 dots.

6. Practice

Answers vary. Example: 12, 9, 6, 3; subtract 3; show equally spaced landing points and three leftward hops of 3.

7. Apply

25, 32, 39

Start with 18 and add 7 for each level. The totals are 25, then 32, then 39.

8. Apply

59, 53, 47

Start with 65 and subtract 6 for each week. The totals are 59, then 53, then 47.

9. Challenge

15, 21, 27, 33, 39; add 6 each time because 39 - 15 = 24, and 24 split into 4 equal changes is 6.