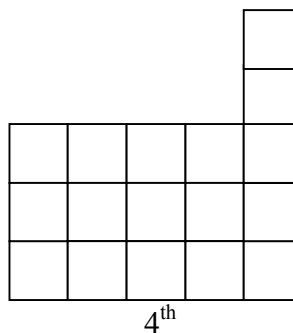
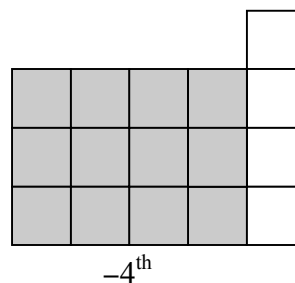
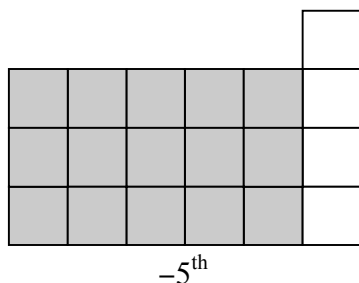


TASK 1.1.4: PATTERNS WITH NEGATIVES**Solutions**

1. Sketch the 3rd and 4th designs.



2. Sketch the -4th and -5th pattern.



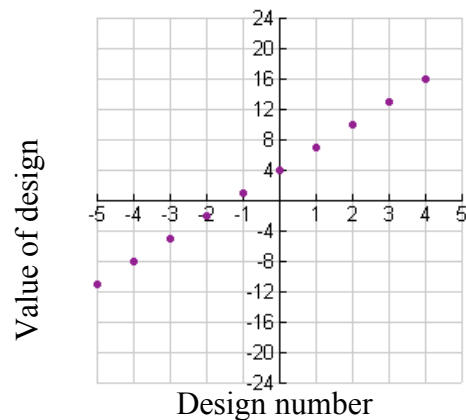
3. Explain how the designs are growing to the right of the original. Explain how the designs growing to the left of the original.
To the right of the original 4 yellow tiles, the design is growing by the addition of 3 yellow tiles for each design number. To the left of the original 4 yellow tiles, the design is growing by the addition of 3 red or negative tiles for each design number.
4. Using the red tiles as negative and the yellow tiles as positive, what is the value of each of the patterns to the left of the zero design?
The -1st design has a value of 1, the -2nd design has a value of -2, the -3rd design has a value of -5, the -4th design has a value of -8, and the -5th design has a value of -11.
5. Use your calculator and put the design number in L₁. Put the value of the terms in L₂. Create a scatter plot of the data, use the design number as the x values and the total value of the design as the y values.

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6. What is the domain for this pattern? What is the range? Why is knowing the range and domain important when you use your graphing calculator to see a graph?

Answers will vary.

7. Sketch the graph on the grid.

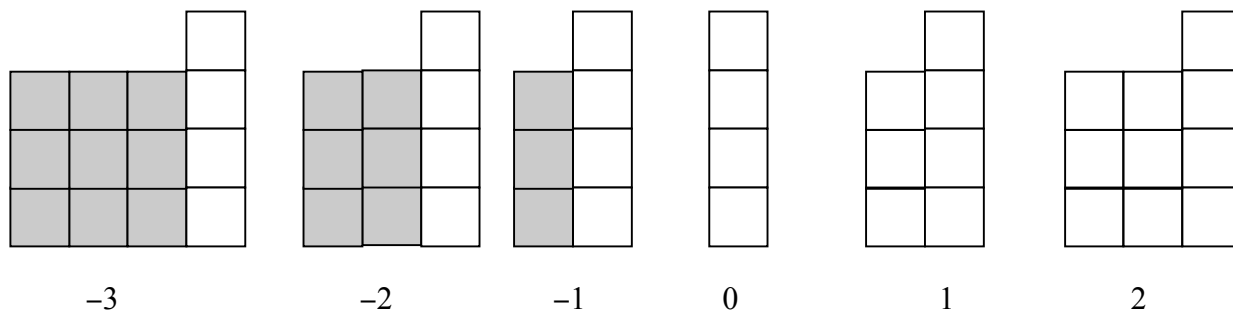


Teacher notes

High school students should have been introduced to concrete representations of negative and positive numbers in 8th grade. However, if students seem unfamiliar with this representation, the teacher may need to spend time explaining zero pairs and combinations of negative and positive integers.

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Quila laid out her designs as below to examine them thoroughly.



She wondered what a graph of this would look like. Help Quila with her pattern and answer the following questions.

1. Sketch the 3rd and 4th design.
2. Sketch the -4th design and -5th design.
3. Explain how the design is growing to the right of design 0. Explain how the design is growing to the left of design 0.
4. Using the red tiles as negative and the yellow tiles as positive, what is the value of each of the designs to the left of the zero design?
5. Use your calculator and put the design number in L_1 . Put the value of the terms in L_2 . Create a scatter plot of the data, use the design number as the x values and the total value of the design as the y values.
6. If a package of algebra tiles contains 70 yellow tiles and 30 red tiles, what is the domain for this pattern? What is the range? Why is knowing the range and domain important when you use your graphing calculator to see a graph?
7. Sketch the graph on the grid.

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