

Student Guide

Stencilrama (SG p. 212)

Questions 1–11

- 1.* The main variables: Number of Stencils (N) and Length of Border (L)
- 2.* Size and shape of the stencil must stay the same, how the stencils are spaced with no space between the stencils, and the orientation of the stencil must be the same.
- 3.* The girls used the stencil five times to make a border and then they measured the length of one, two, four and five stencils.
- 4.* They need to measure the length of the blackboard and then use their measurements to figure out the number of stencils in a border the length of the blackboard.
- 5.* 15 stencils; Possible strategy: I skip counted by 2 to 30 because each stencil adds 2 inches to the border length.
- 6.* 7 stencils; Possible strategy: The number of stencils is half the length of the border. So a 14-inch border would need 7 stencils.
- 7.* 16 inches; Possible strategy: According to the table 4 stencils is 8 inches. A 16-inch border is twice as long and will need twice as many stencils $4 \times 2 = 8$ and $8 \times 2 = 16$.
- 8.* 40 inches; Possible strategy: I extended the table. 5 stencils are 10 inches; 10 stencils are 20 inches; 20 stencils are 40 inches.
9. 25 stencils; Possible strategy: There are 5 stencils in a 10-inch border. Five 10-inch borders are needed to make a 50-inch border. 5 stencils x 5 10-inch borders = 25 stencils for a 50 inch border.
- 10.* $25 \frac{1}{2}$ stencils; Possible strategy: If I add one more stencil to the 50-inch border the border is 52 inches. One more is too many. Half of a border is 1 inch. So 25 stencils plus $\frac{1}{2}$ of one stencil will make a border that is 51 inches.
- 11.* Stencil designs will vary.



Use the data in Liz and Diana's Stencil Border table to solve each problem. Tell your partner how you decided. Be prepared to share your strategy.

1. What variables did Liz and Diana compare in their data table?
2. What stayed the same as they made their borders?
3. What did Liz and Diana do to collect the data they wrote in their data table?
4. Suppose Liz and Diana wanted to make a border across the top of the blackboard. What would they need to know to find the number of times they will use the stencil?
5. Liz and Diana decided to add a stencil border to the length of Mr. Martin's desk. How many stencils are needed if his desk is 30 inches long?
6. The girls decided to make a 14-inch border. How many stencils are in the border?
7. Diana made a border with 8 stencils. How long is the border?
8. Liz made a border with 20 stencils. How long is the border?
9. How many stencils are needed to add a border to a bulletin board that is 50 inches wide? Tell your neighbor how you decided.
10. How many stencils are needed to add a border to a table that is 51 inches wide?
11. Use an index card to make your own stencil design. Use the designs on the following pages to guide your stencil design. Follow Liz and Diana's steps from earlier in the lesson to make your stencil.

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