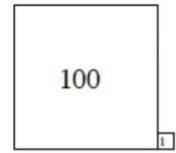


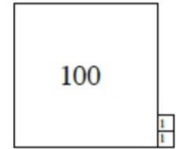
## College Preparatory Mathematics Chapter 2 Sample Argumentation Task

### 2-40. CHANGING THE AREA

Jay arranged a hundred block and a one block as shown at right. Explore using: *Base Ten Blocks* (CPM).



- What is the area of Jay's shape? What is the perimeter? Explain how you know.
- Jay added another one block to his shape as shown at right. Did the area of his shape change? Did the perimeter change?
- What if Jay added his new one block to a different part of the hundred block? Would it change the perimeter? Discuss this with your team and be ready to explain your ideas to the class.
- Summarize what you discovered in parts (a) through (c) above. That is, what can happen to the perimeter when the area of a shape is changed?



### 2-41. CHANGING THE PERIMETER

Instead of changing the area, as Jay did in the previous problem, what if you keep the area the same? Will the perimeter still change sometimes? Consider this as you complete parts (a) and (b) below. Explore using: *Base Ten Blocks* (CPM).

- What different combinations of Base Ten Blocks could you use to make a figure with an area of  $101 \text{ cm}^2$ ? Carefully list the ways.
- Create a shape with Base Ten Blocks that has an area of  $101 \text{ cm}^2$  with the *largest possible perimeter*. How can you tell there is no larger perimeter possible?

Samples 2-40 and 2-41 can be accommodated and combined to make a HIGH QUALITY argument task. The idea of adding blocks to change area of perimeter can be a more difficult concept for students and many will confuse the two. Combining 2-40 part c and the opening question in 2-41 will help address some **mathematical misconceptions** and drive students to use logic in their response.

"Jay arranged a hundred block and a one block as shown at the right. Jay believes that if he moves his one block to a different part of the hundred block, the perimeter of the shape would change. Do you agree with Jay's idea? Explain your reasoning."