Area Builder problems:

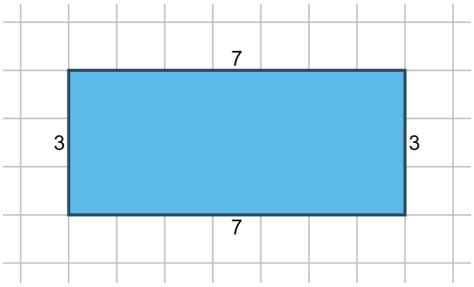
name:_____

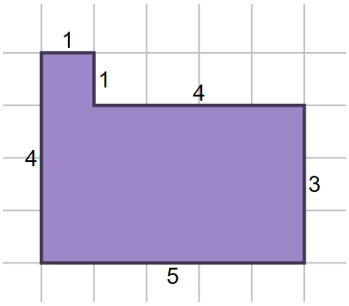
https://phet.colorado.edu/en/simulation/area-builder

Play the game levels 1, 2 and 3.

Game level 1 find the area

1. Here are two questions I got when I played level 1. Talk to your partner about what the grid says about area. How is finding the area with the grid similar to, or different from, finding the area using the numbered lengths?

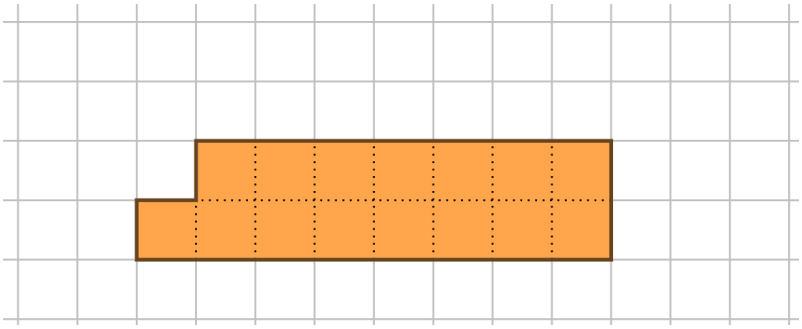




Game Level 2:

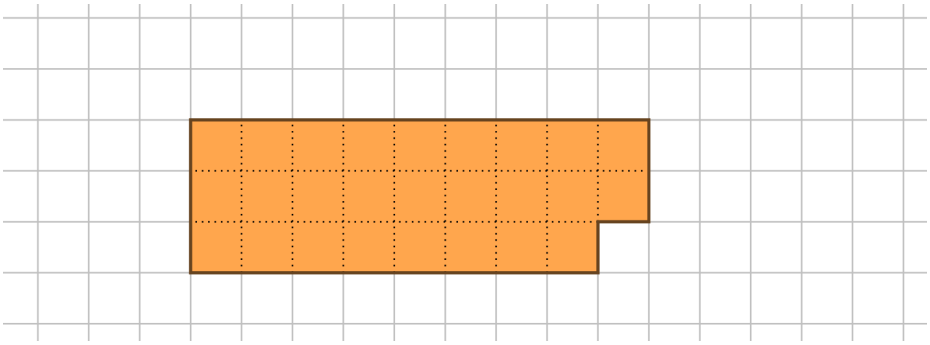
2. One of the level 2 challenges I got was to make a shape with area 15 and perimeter 16.

I made this shape that has the right area, but the perimeter is too long. How can I move some of the squares around to get a shorter perimeter?



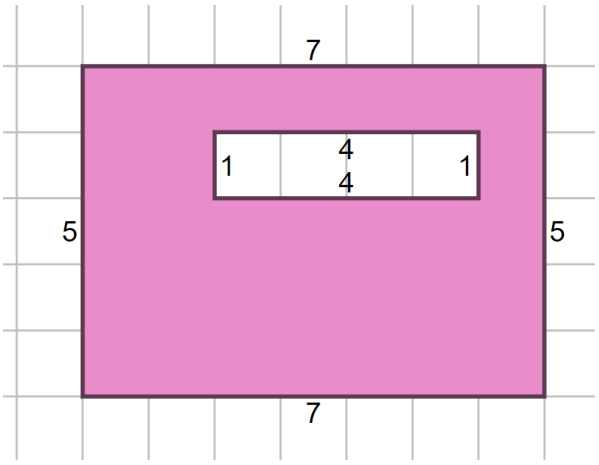
3. Another level 2 challenge I got was to make a shape with area 26 and perimeter 30.

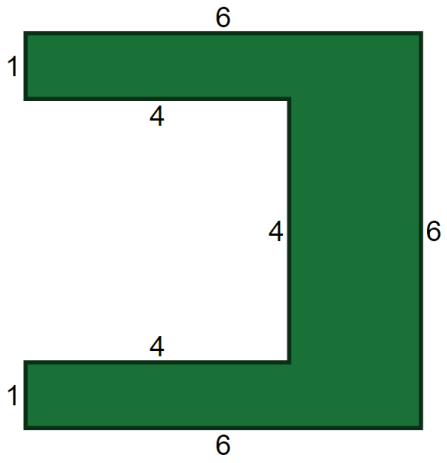
I made this shape. It has the right area, but its perimeter is too short. How can I move squares to get a longer perimeter?



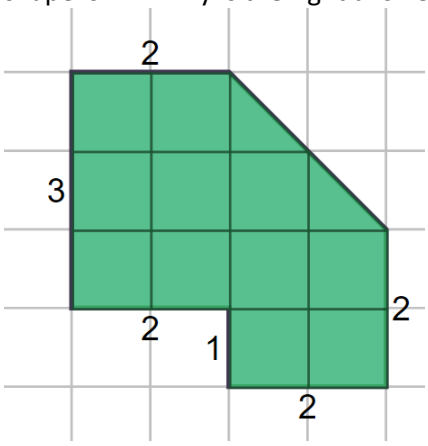
Game Level 3:

4. These are two problems I got on level 3 (find the area). What strategies can I use to find these two areas? Talk to your partner—can you come up with more than one strategy that works?

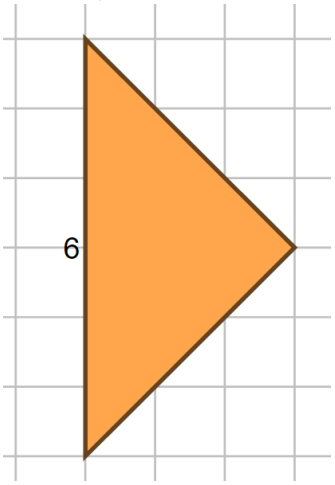




5. For this level 3, find the area problem, I filled the shape with 11 squares and 2 triangles. The right area for the shape is 12—why is the right answer 12 and not 13?

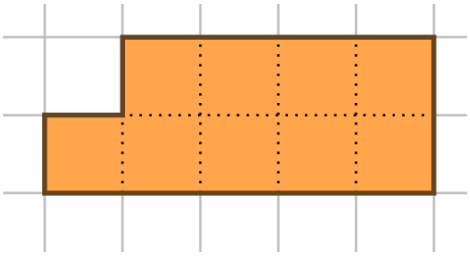


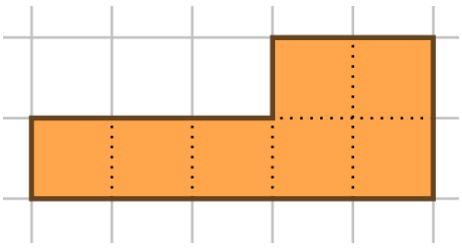
6. I thought this was a really cool, tricky level 3 problem. Talk to your partner about how you can find the area of this one, and show me how you'd solve it:

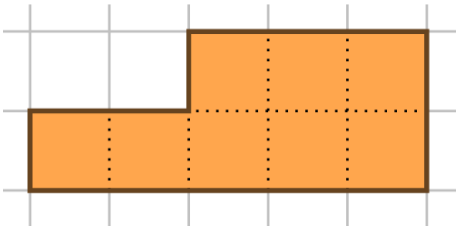


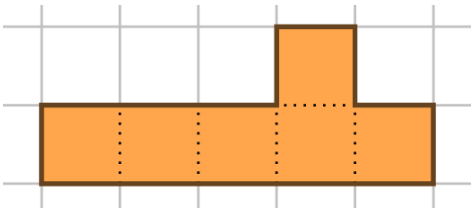
Explore:

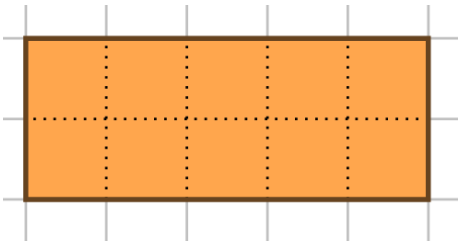
7. I built these shapes in the explore tool. Figure out the perimeters and areas, talk to your partner, and then write an explanation of what all of these shapes have in common, and what you notice that might explain why it's the same for all of these:











8. Make an example of two shapes that both have a perimeter of 12, and have different areas. Draw your shapes here: