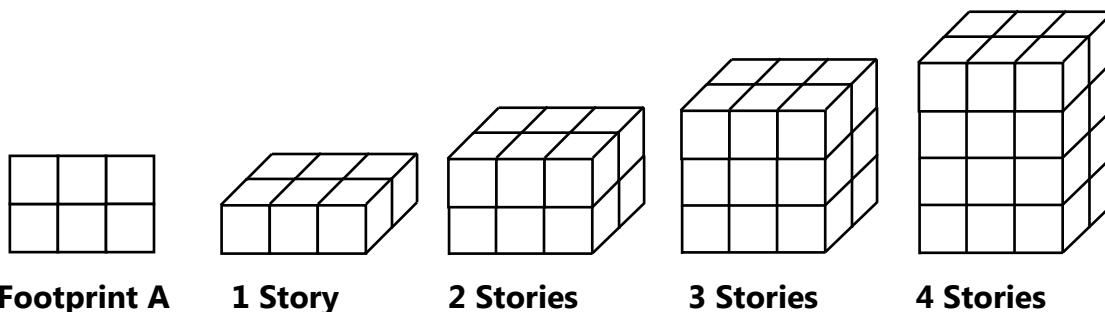# Best Practices Worthwhile Task #1

Author: Crista Harrison
Task Name: Exploring 3-D Geometry Using Block Towers
Strand: Apply appropriate techniques, tools, and formulas to determine
             measurements.
             MA.07.ME.03, .04, .05
Core Math: Developing an understanding of the components of Volume
Level: 7th Grade Math (Course 2), Grade 7 Benchmark
Curriculum: After area, before direct instruction on <u>determining</u> Volume
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Exploring 3-D Geometry Using Block Towers

All buildings have a "footprint." This footprint shows the outline of a building on the ground, no matter how many stories tall the building is. In this task, you will use block footprints to determine the total number of blocks in different sizes of block towers.

<u>Task #1</u>

Footprint A   1 Story   2 Stories   3 Stories   4 Stories

For Footprint A (above), how many blocks are there in
- a 5-story Footprint A tower?
- a 10-story Footprint A tower?
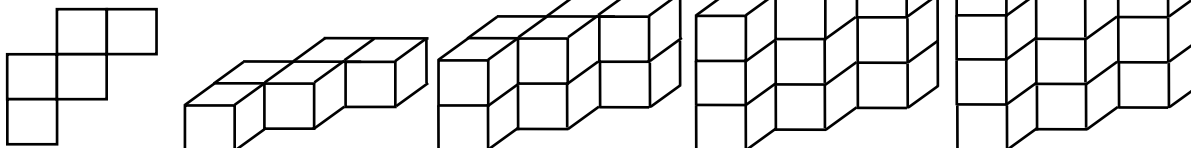- a 15-story Footprint A tower?

How could you determine the number of blocks in a 100-story Footprint A tower <u>without</u> drawing the tower?

Write a rule for determining the number of blocks in a Footprint A tower of any number of stories.

Task #2

Footprint B

How many blocks are there in
- a 5-story Footprint B tower?
- a 10-story Footprint B tower?
- a 15-story Footprint B tower?
- a Footprint B tower with any number of stories?

Is there a rule for determining the number of blocks in a Footprint B tower with any number of stories? If so, is this rule related to your rule for Footprint A towers?

Task #3

3A. Create your own tower footprint using 5-10 blocks. How many blocks are there in the 1892-story tower with your chosen footprint?

3B. If someone gave you a tower footprint, how would you determine the number of blocks in a tower of the footprint with any number of stories?
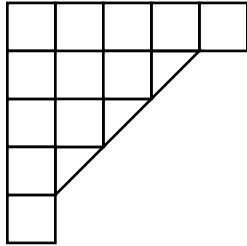
Goal

Construct a sheet of paper (8 ½ x 11) with a picture, diagram, or representation of the problem. Show your thinking or progress for how you have started to make sense of Question 3B and how that links to your picture, diagram, or representation.

Extension

Now suppose you have towers with Footprint C.

Footprint C

Can you use the same rule(s) you discovered in Tasks 1-3 to determine the total number of blocks in a Footprint C tower with any number of stories? What is different about this tower compared to towers A, B, and your own? Does this change your rule(s)?