



Math Virtual Learning

HS/Essential Math II

May 22, 2020



High School/Essential Math 2
Lesson: May 19, 2020
(U1 Exploration)

Objective/Learning Target

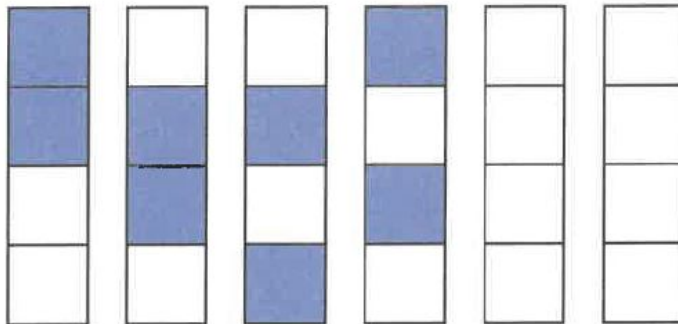
Discover mathematical relationship by manipulating given parameters

Exploration: Color Towers

You have six blocks. Two are blue and four are white. How many different ways can you arrange the six blocks?

Organize your solutions and describe how your organization method helps to show that you have found all possible solutions.

For example, if you have **four** blocks, there are exactly **six** different towers you can build with two blue blocks and two white blocks.



Fill in the last two towers.

This space is for **experimenting**. Keep track of solutions you find, and look for similarities or patterns that will help you organize your solutions. You may not need all the towers. How can you be sure you're done?

FURTHER EXPLORATION

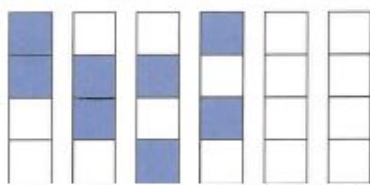
- ① How many different ways can you arrange *seven* blocks with two blue blocks and five white blocks?
- ② What if you had *eight* blocks with two blue blocks and six white blocks?
- ③ If you have 100 blocks with 2 blue blocks and 98 white blocks, there are 4950 different color towers you can build. Describe one possible way of organizing the arrangements of these blocks so that you can count the ways.

Exploration: Color Towers

You have six blocks. Two are blue and four are white. How many different ways can you arrange the six blocks?

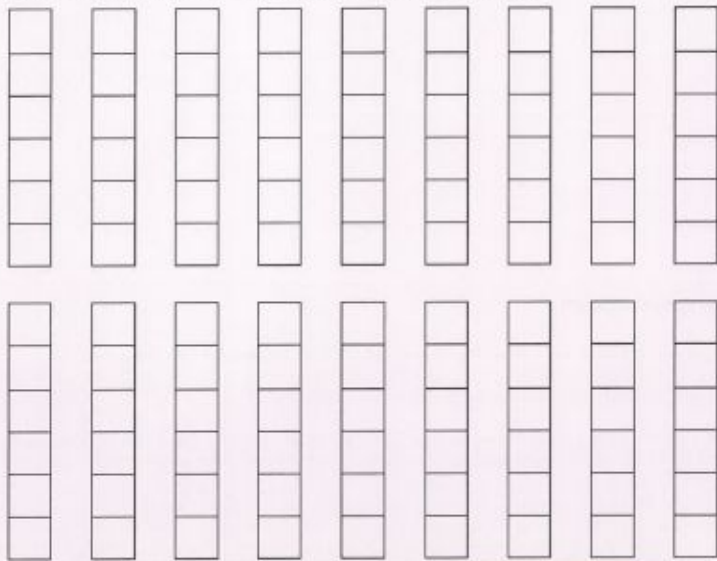
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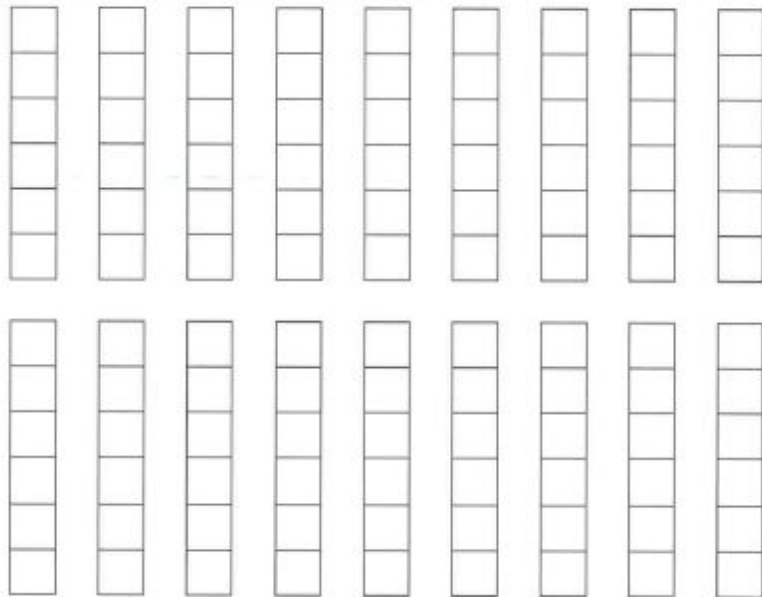
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Algebraic Habits of Mind: Communicating with Precision

Describing your process out loud to a friend can help you make sense of your own work.

Organizing your solutions can help you see if you've missed any. Look at your experiments and use this space to order them neatly. There is more than one good way to organize these solutions.



FURTHER EXPLORATION

- 1 How many different ways can you arrange seven blocks with two blue blocks and five white blocks?
- 2 What if you had eight blocks with two blue blocks and six white blocks?
- 3 If you have 100 blocks with 2 blue blocks and 98 white blocks, there are 4950 different color towers you can build. Describe one possible way of organizing the arrangements of these blocks so that you can count the ways.

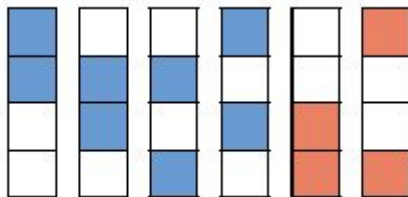
Exploration: Color Towers

You have six blocks. Two are blue and four are white. How many different ways can you arrange the six blocks?

15
ways

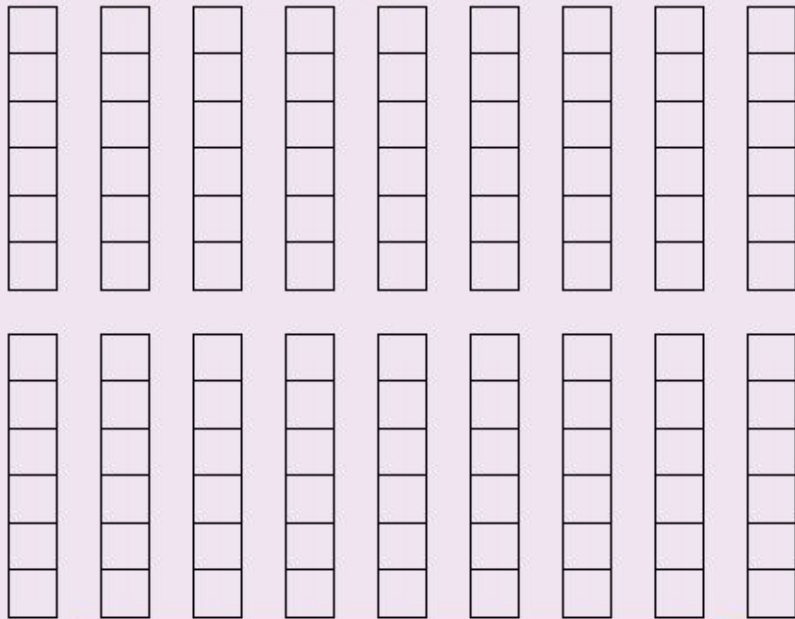
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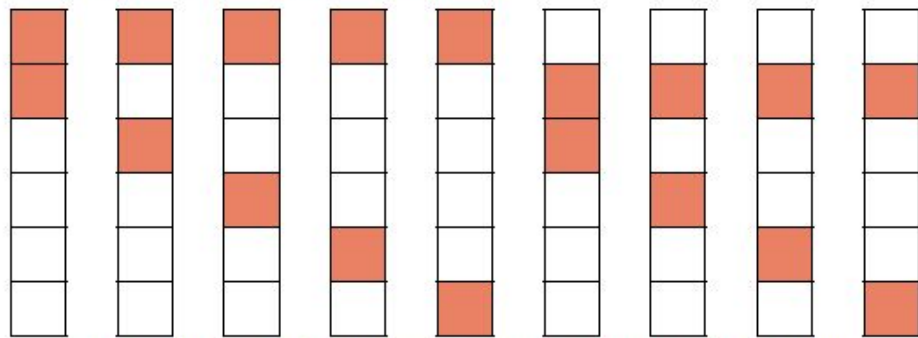


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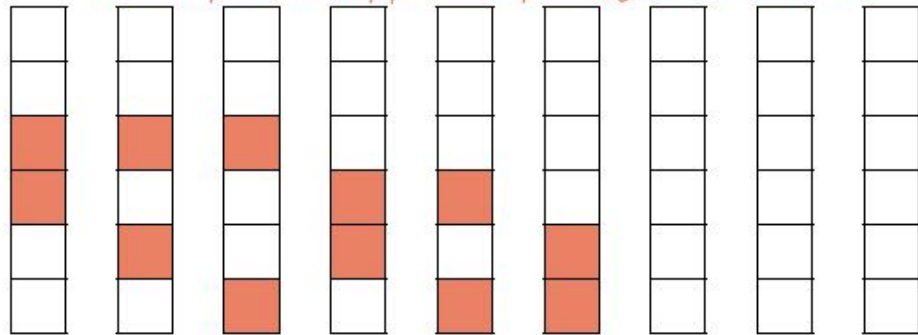
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Organizing your solutions can help you see if you've missed any. Look at your experiments and use this space to order them neatly. There is more than one good way to organize these solutions.



This is only one of many possible ways to organize the solutions.



FURTHER EXPLORATION

- How many different ways can you arrange *seven* blocks with two blue blocks and five white blocks? 21
- What if you had *eight* blocks with two blue blocks and six white blocks? 28

FURTHER EXPLORATION

- ① How many different ways can you arrange *seven* blocks with two blue blocks and five white blocks? 21
- ② What if you had *eight* blocks with two blue blocks and six white blocks? 28
- ③ If you have 100 blocks with 2 blue blocks and 98 white blocks, there are 4950 different color towers you can build. Describe one possible way of organizing the arrangements of these blocks so that you can count the ways.

(Responses will vary. Example shown.) If the top box is blue, then there are 99 possible positions for the other blue block (second, third, fourth, etc.). Then if the second box is blue, we've already counted the possibility where the first box is blue, so there are 98 other possible positions for the other blue block below (third, fourth, etc.). Then do all the ways where the third box is blue and so on.

Today you learned to multiply variables and combine like terms to consolidate their understanding of the structure of multiplication & sort out several common errors

For additional practice, click the link: [Solve Me Mystery Grids](#)