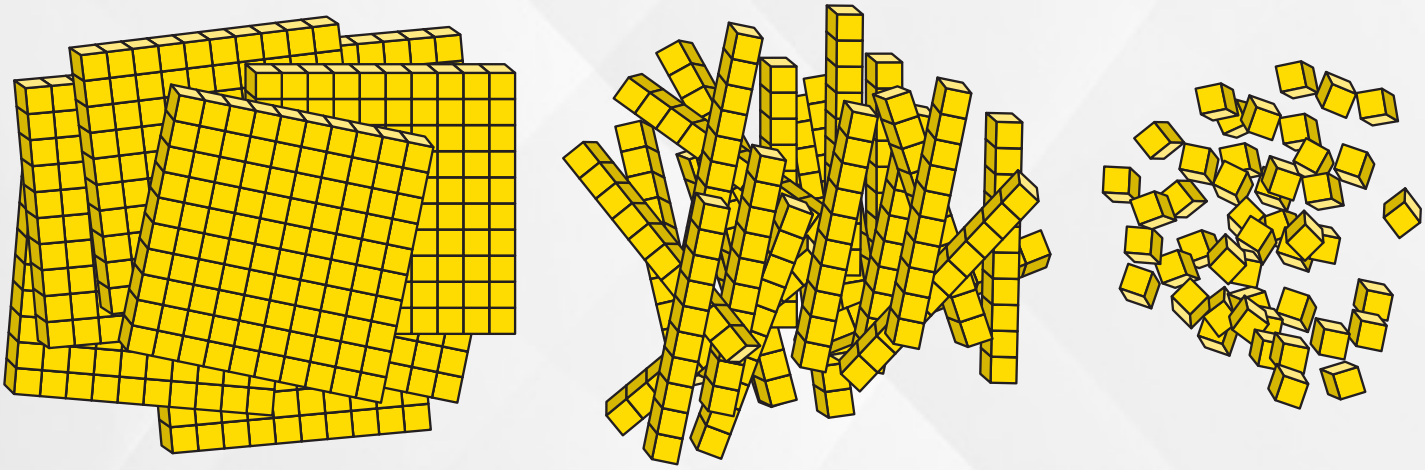
One Two

Series D

BUILD A NUMBER



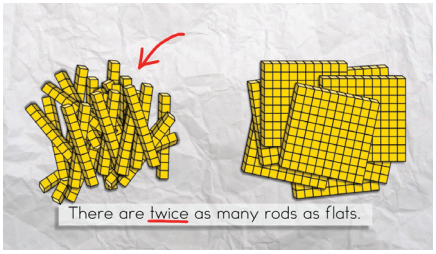
Rich Learning Task | Number

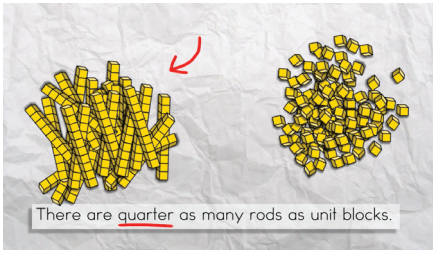
Build a Number

What's the point of this task?

It is important for students to become comfortable thinking about numerical comparisons multiplicatively. For example, they need to learn to think of 24 as two twelves rather than solely as twenty + four. The specifics of this task requires thinking of one number as twice another and a second number as $\frac{1}{4}$ of a third number. It is important that students recognise the reciprocal relationship between twice/half and one quarter/four. If A is twice B, then B is half of A. If A is one quarter of B, then B is four times A.

This task provides the opportunity to develop proportional thinking while, at the same time, practicing the representation of numbers and renaming numbers using place value concepts, for example, recognising that 4 flats + 8 rods + 32 units is the same as 4 flats + 11 rods + 2 units or 5 flats + 1 rod + 2 units, i.e. 512. It might be wise to first clarify what the flat represents, normally 100, but perhaps some other value like 10 or 1 if decimals have been introduced.





Questions to facilitate the learning

Other questions that might be asked include:

- Were you free to choose the number of flats? How about the number of rods?
- Why did the number of rods have to be even?
- What did you notice about the number of unit blocks?
- Look at all of the numbers you created. What do they have in common? [They are all multiples of 128 (if the flat represents 100).] Why does that make sense?

Curriculum connections

This activity relates to number comparisons, multiplication and division, taking fractions of a set, and representing a number in different ways using place value concepts.

Scaffolding the learning

- Will you use more flats or more rods? Why?
- Suppose you chose one flat. How many rods would you use? Why?
- Is the number of unit blocks more or less than the number of rods? Why?
- Why will you usually need to use more than ten unit blocks?

Extending the learning

Students might choose to make a flat worth 1 instead of 100 and use decimal numbers instead.

Students might also change the conditions given, e.g. there could be three times as many rods as flats and one-fifth as many flats as unit blocks. Any variation of multipliers is possible.

Build a Number

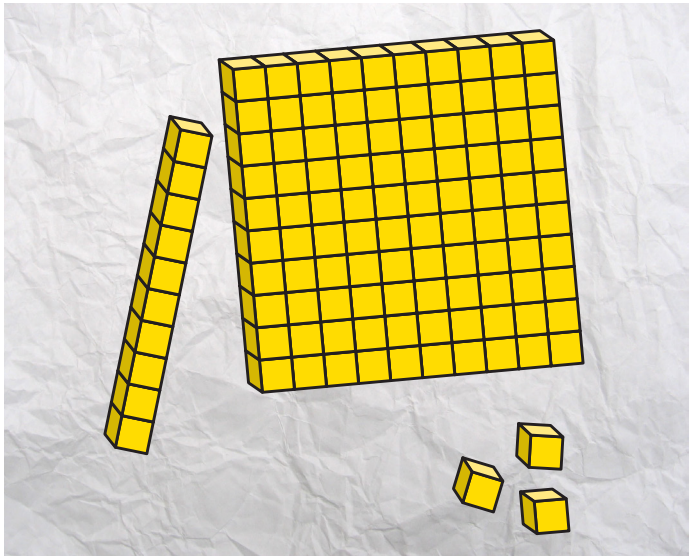
You build a number using flats, rods and unit blocks.

In this number, there are twice as many rods as flats.

There are $\frac{1}{4}$ as many rods as unit blocks.

What could the number be?

Come up with lots of answers.



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