Developing a Working Knowledge of the NMP Report: Teacher Knowledge

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The Critical Foundations and Teachers' Knowledge of Mathematics

in the NMP Report

Critical Foundations for Success in Algebra

- Fluency with whole numbers
- Fluency with fractions
- Particular aspects of geometry and measurement

Teachers' Knowledge of Mathematics

- We don't know the *precise* body of knowledge that would effectively serve teachers
- common sense: teachers must know the math they teach

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Teacher Knowledge of the Critical Foundations

My thoughts:

- The mathematics of the Critical Foundations is deeper, more subtle, and more intricate than we might think
- there is no “royal road” to understanding this mathematics—it takes time and effort
- but this math *is* accessible, and wonderfully interesting and so cool!

Let’s look at a few ideas from the Critical Foundations to get some feel for what there is for teachers to know . . .

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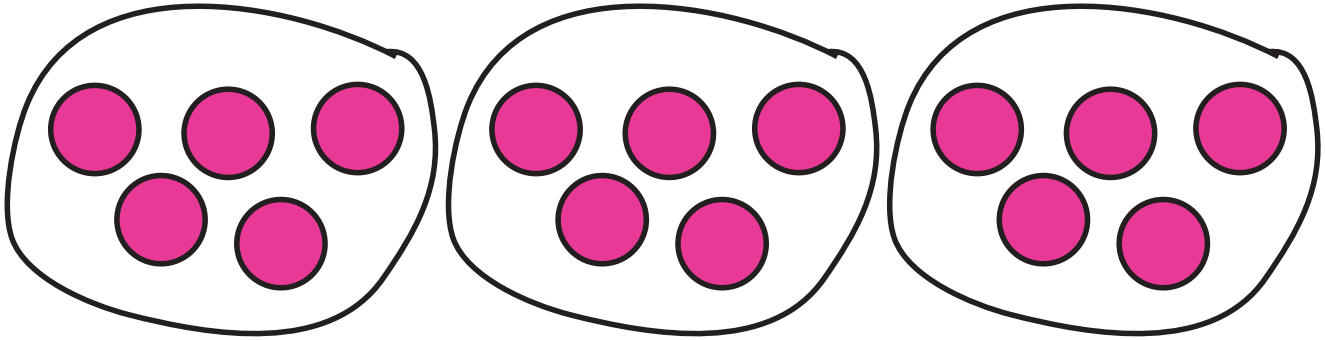
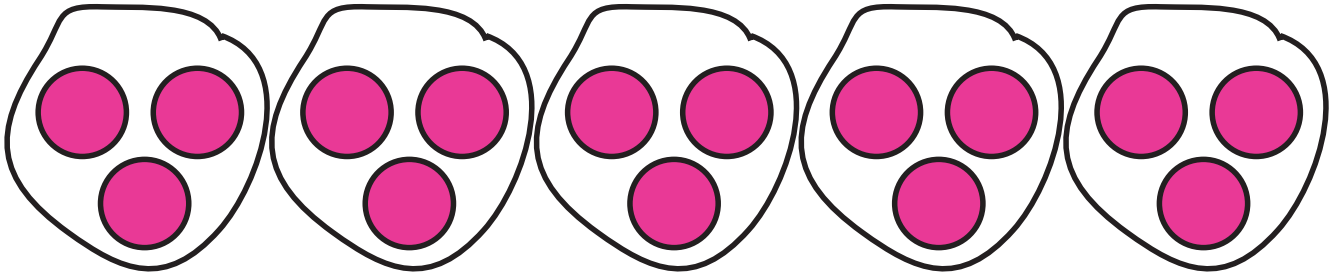
The commutative property of multiplication

It's not obvious that the commutative property is true!

3×5



5×3



So why *is* it the case that $A \times B$ is equal to $B \times A$?