5 Module 1

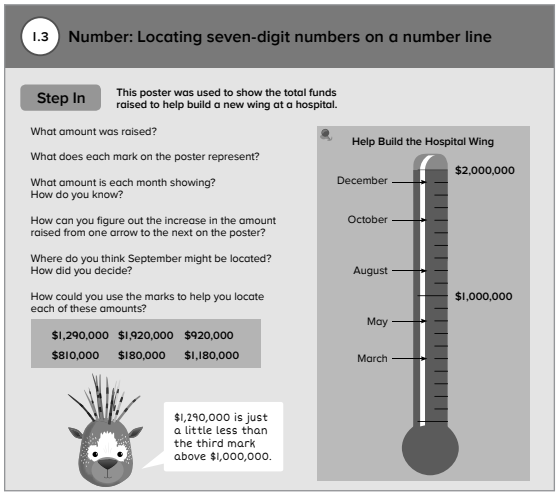
ORIGO STEPPING STONES 2.0

Core Focus

- Number: Working with seven-, eight- and nine-digit numbers
- Algebra: Investigating resolution order with one and two operations and working with expressions (with and without parentheses)

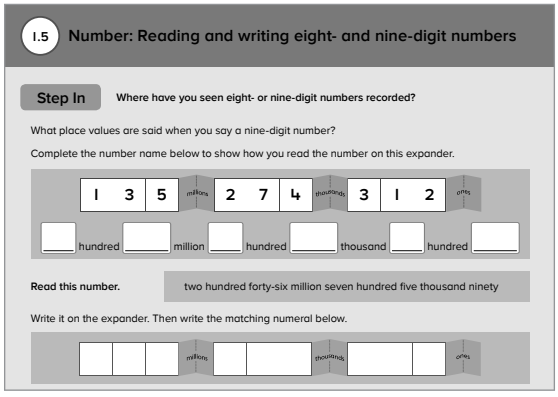
Number

- Students review reading, writing, and representing six-digit numbers with the use of an abacus and other tools and models.
- Later, students extend the skills and strategies they have used for six-digit numbers to read and write seven-digit numbers, and use relative position to locate seven-digit numbers on number lines.



In this lesson, students use relative position to locate seven-digit numbers on number lines.

- Students then progress to reading and writing eight- and nine-digit numbers with the help of **numeral expanders**.



In this lesson, students read and write eight- and nine-digit numbers.

Ideas for Home

- Look up nation populations or areas and find some that are seven, eight, or nine digits long. Ask your child which numbers are greater or less. For further practice, create a number line and place the populations or areas on it for comparison.

Glossary

- **Numeral expanders** are introduced in the earliest school years to help teach place value. By visually understanding place value, students recognize the patterns of multiples of ten in our base-ten number system. In turn, this may help students avoid feeling intimidated when solving problems involving numbers with seven or more digits.

Helpful video

View these short one-minute videos to see these ideas in action.

www.bit.ly/O1_33

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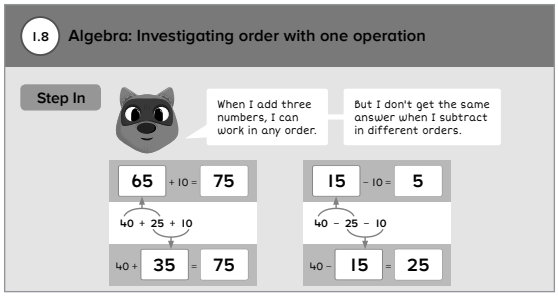
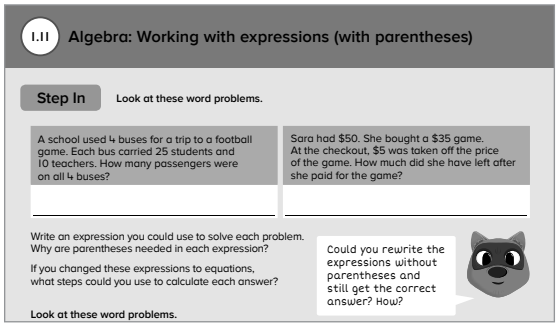
Algebra

- Students learn that the order of numbers will not affect the answer in addition or multiplication equations, but will affect the answer in subtraction and division.



- Because of these differences, there is an established **order of operations** to follow when solving problems that have more than one kind of operation, like 7 + 8 × 2 − 1. In some cases, parentheses are used to clarify the order in which operations should be completed. The previous example might be rendered like this: 7 + (8 × 2) − 1, or (7 + 8) × 2 − 1. These two **expressions** give different results, 22 and 29, respectively.



In this lesson, students learn about the need for parentheses to indicate the order in which the operation(s) is/are to be completed.

- Students practice the order of operations with real-world situations such as, "We bought five sandwiches for $3 each, and one bag of chips that cost $2. How much did we spend in all?"

Ideas for Home

- Remove the picture cards and aces from a deck of cards. Give your child three of the remaining number cards and ask them to write an expression with any combination of operations that is as close to 25 as possible (over or under). For example, the numbers 3, 5, and 7 might give 3 × 5 + 7 = 22.
- Create different stories with your child that can be represented with an expression. An expression to match the story, "I read for 25 minutes three times this week, then I read for 40 minutes one day" is 3 × 25 + 40.

Glossary

- If there are two or more types of operation in an expression, follow the **order of operations** from left to right:
  1. perform any operation inside parentheses
  2. multiply or divide pairs of numbers
  3. add or subtract pairs of numbers.
- An **expression** is a combination of numbers and operations (+, −, ×, ÷) that do not show a relationship (=, <, or >), e.g. 5 × 8, or 40 + 6 ÷ 2.