3 Module 7

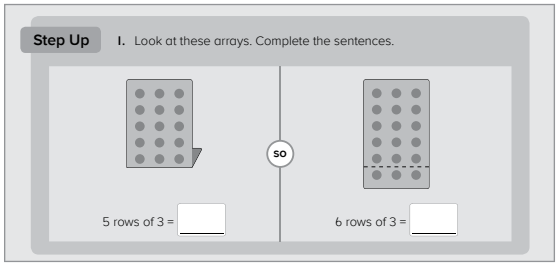
ORIGO STEPPING STONES 2.0

Core Focus

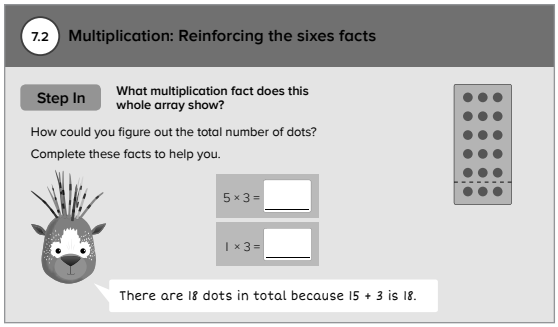
- Multiplication: Sixes and last facts
- Multiplication: Solving word problems
- Addition: Standard algorithm and compensation strategy
- Addition: Solving word problems

Multiplication

- By this stage, students should be able to recall many multiplication facts automatically. If not, these facts can often be figured out from known facts using number sense and reasoning practiced within the strategies.
- In this module, students work with the multiplication facts involving 6, which uses the **build-up strategy** with the more familiar ×5 facts. E.g. they can figure out 6 × 7 = ? by *thinking* 5 × 7 is 35, so 6 × 7 is 35 + 7, which is 42.
- In this example of an array, there are 5 rows with 3 columns in each row, which equals 15. When one row is uncovered or unfolded (as shown) it creates 6 rows of 3. The unfolded array shows 15 + 3 = 18, so 6 × 3 = 18. Making these connections builds students' number sense and reasoning.



- Another way to think about ×6 facts is to break an **array** apart into a familiar ×5 array and a ×1 array, mulitply the parts, and then add them together.



In this lesson, students reinforce the x6 multiplication facts by continuing to build on the x5 multiplication facts.

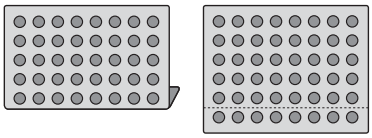
- The last facts learned involve 3 and 7: 3 × 3, 7 × 7, 3 × 7, and 7 × 3. To figure out facts involving 3, students might think about the twos facts, then build up. E.g. to figure out 3 × 7 =?, *think* 2 × 7 = 14, plus one more 7 = 21.

Ideas for Home

- Encourage your child to explain how knowing the ×5 facts makes the ×6 facts easier to solve. E.g. "I know that 5 × 7 is 35, and 35 + 7 is 42, so 6 × 7 is 42."
- Create arrays with pennies to illustrate 5 × ___, then add one row to illustrate 6 × ___.

Glossary

- This **array** models the **build-up strategy** for ×6 facts: E.g. 5 × 8 + 8 = 48



On the left, 5 rows of 8 are 40. When one row is unfolded, the array shows that 6 rows of 8 are 48.

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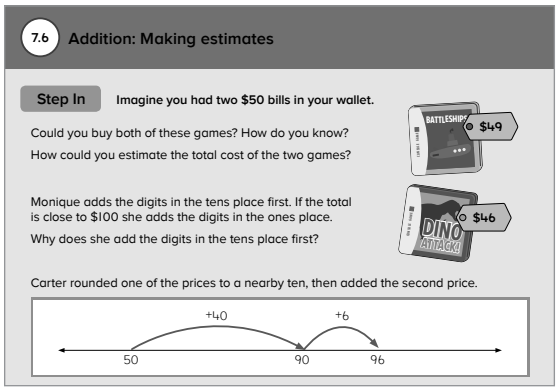
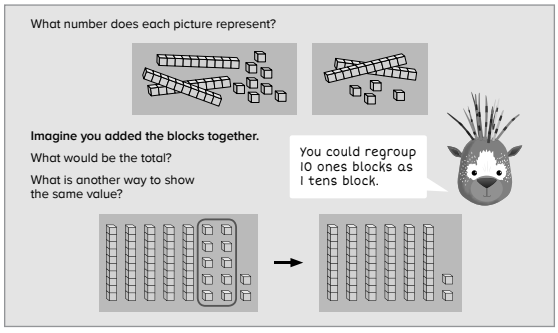
Addition

- Previously learned **estimation** skills and number patterns associated with addition help students solve word problems based on real-life situations.

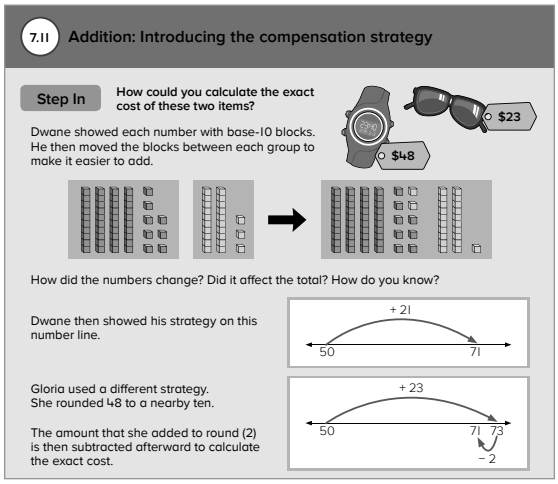


In this lesson, students explore efficient strategies to estimate how much an item will cost.

- Experience with composing and decomposing numbers has prepared students to learn the standard algorithm, the paper-and-pencil procedure most adults learned to add multi-digit numbers. What was once called carrying is now **regrouping**.



- Students connect place-value strategies with the standard algorithm.
- Students find answers by working with convenient estimates, such as multiples of ten, and calculate exact answers using strategies such as **compensation**.



In this lesson, students use compensation to make quantities easier to compute mentally.

Ideas for Home

- Ask your child to add two- and three-digit quantities by first estimating the total, adding mentally, then using the standard algorithm.
- Talk about which methods are appropriate for different situations. When shopping, estimation and mental calculation are usually sufficient. Explain why the accuracy of the standard algorithm is better when paying bills.

Glossary

- **Estimation** is a rough calculation of a quantity when the exact amount is not needed. E.g. 46 + 32 is about 80.
- **Regrouping** is when numbers are regrouped into new place values to combine the quantities.