4 Module 4

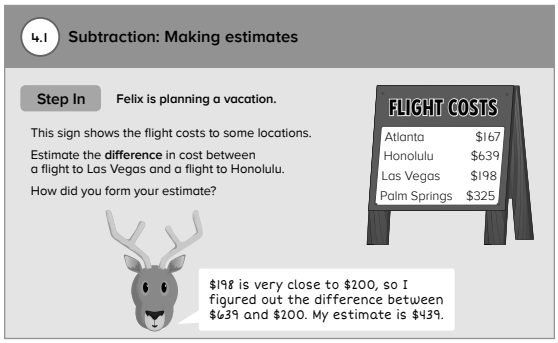
ORIGO STEPPING STONES 2.0

Core Focus

- Subtraction: Making estimates and reviewing the standard algorithm
- Common fractions: Relating whole numbers and exploring equivalence with mixed numbers

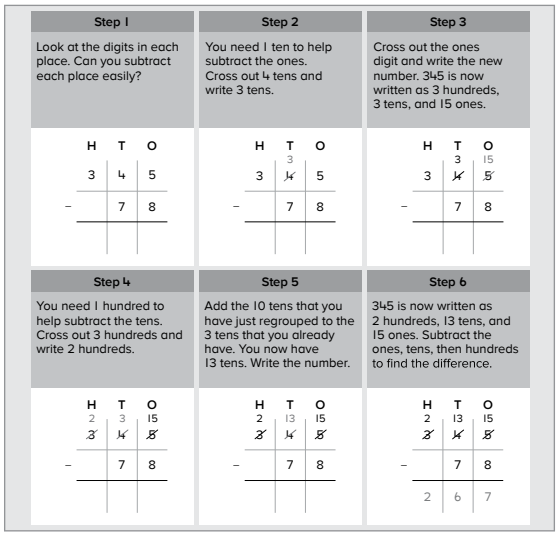
Subtraction

- Students estimate differences in costs, then calculate exact solutions using decomposing strategies. Decomposition and other subtraction skills learned in earlier grades are the basis for understanding why the **standard algorithm** works.



In this lesson, students use estimation strategies to solve subtraction situations.

- Decomposition is another approach to what was once called *borrowing*.



In this lesson, the above problem is solved using the standard subtraction algorithm.

- Subtraction that requires decomposing in multiple places and subtraction where the decomposition involves zero can be more challenging for students.

Ideas for Home

- While shopping, ask your child to estimate the difference in price between two items. Make sure the prices are whole-dollar amounts.

Glossary

- The **standard algorithm** is the familiar paper-and-pencil procedure for subtracting multi-digit numbers that most adults were taught in school.

Helpful videos

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

www.bit.ly/O1_29
www.bit.ly/O1_19

4 Module 4

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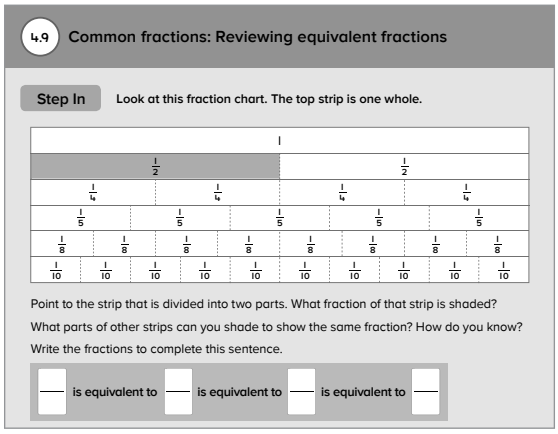
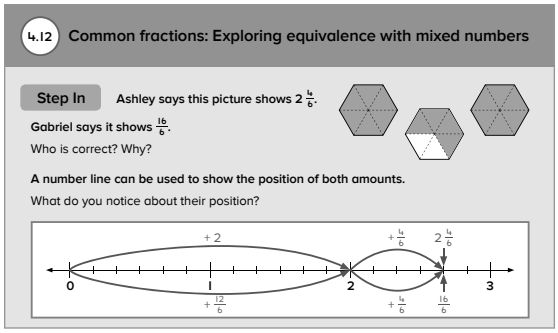
Common fractions

- In this module, improper fractions are explored using the number line and area models while the length model is used to compare fractions.
- Length models are used to compare common fractions by first considering the size of the unit fractions and how many unit fractions it takes to make one whole.



- Fractions with numerators greater than their denominators ($\frac{10}{3}$) are called **improper fractions**. They can be rewritten as **mixed numbers** ($\frac{4}{3} = 1\frac{1}{3}$). Understanding how to write fractions in each form helps students use them in different operations, like addition or multiplication.
- Students represent specific improper fractions, first with the number-line model and then explore how these new fractions can be represented with an area model.



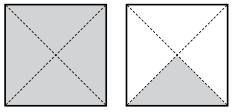
In this lesson, students use area models and number lines to think about fractions that are greater than 1.

Ideas for Home

- When cooking, use measuring cups and spoons to review equivalency: $\frac{1}{2}$ cup is equivalent to $\frac{2}{4}$ cup, etc.
- Use a tape measure to compare lengths. E.g. "Is $\frac{1}{3}$ of a yard longer or shorter than $\frac{1}{4}$ of a yard?"

Glossary

- Fractions that are greater than 1 are called **improper fractions**, which can be rewritten as mixed numbers.



This area model shows $\frac{5}{4}$ (or $1\frac{1}{4}$ in mixed number form). Despite the name, improper fractions are perfectly acceptable to write and use in mathematics.

- A **mixed number** is a whole number and a common fraction added together and written as a single number without the addition symbol.