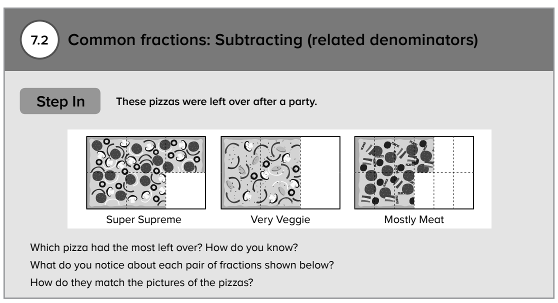
Core Focus

- Common fractions: Subtracting
- Common fractions: Solving word problems involving mixed numbers
- Number: Working with exponential notation and representing numbers with exponents
- Number: One billion and beyond, and exploring place-value patterns

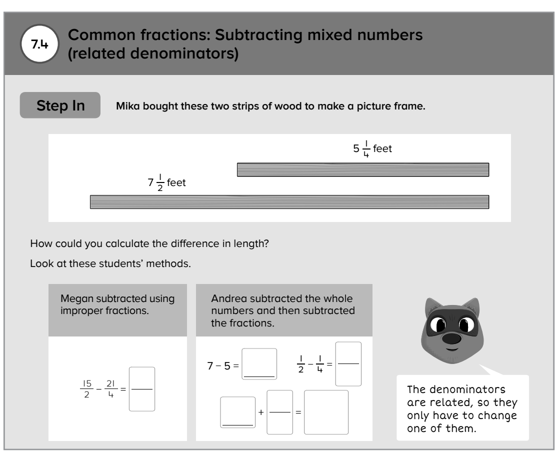
Common fractions

- Students build on what they already know about equivalent fractions and strategies for adding fractions to work with subtracting fractions and mixed numbers.
- Area models (e.g. rectangles) and length models (e.g. number lines) help students make sense of subtracting fractions.
- When fractions have different denominators, visual models help students identify which fraction needs to be rewritten so the denominators will be the same.



In this lesson, students use area models to subtract fractions with related denominators.

- As with addition, the denominators need to be made the same before students can subtract. E.g. students could rewrite $2\frac{3}{4} - 1\frac{1}{12}$ as $2\frac{9}{12} - 1\frac{1}{12}$.
- Students choose whether to subtract the whole numbers and the fractions separately, or to change the mixed numbers to improper fractions before subtracting.



In this lesson, students describe strategies for subtracting mixed numbers.

Ideas for Home

- Continue to work with your child on their basic multiplication facts. They use those multiplication skills when converting mixed numbers to improper fractions, and when rewriting fractions to have a common denominator. Have your child solve $4\frac{2}{5} - 1\frac{8}{10}$ using one of the strategies shown in the examples below. Ask them to describe each step as they work.

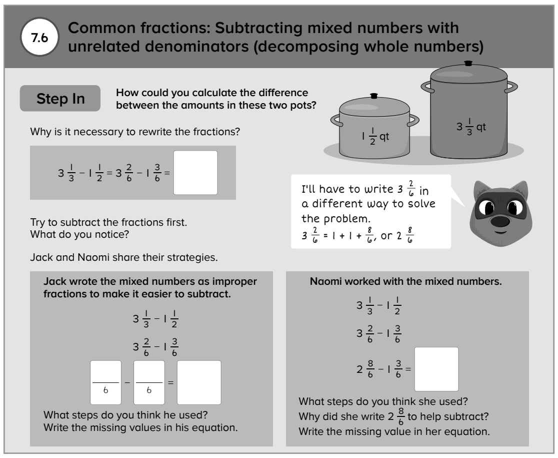
Subtract whole numbers and fractions

$$2\frac{3}{4} - 1\frac{1}{12}$$
$$2\frac{9}{12} - 1\frac{1}{12}$$
$$(2 - 1) + (\frac{9}{12} - \frac{1}{12})$$
$$= 1\frac{8}{12}$$

Subtract proper fractions

$$2\frac{3}{4} - 1\frac{1}{12}$$
$$2\frac{9}{12} - 1\frac{1}{12}$$
$$\frac{33}{12} - \frac{13}{12}$$
$$= \frac{20}{12}$$

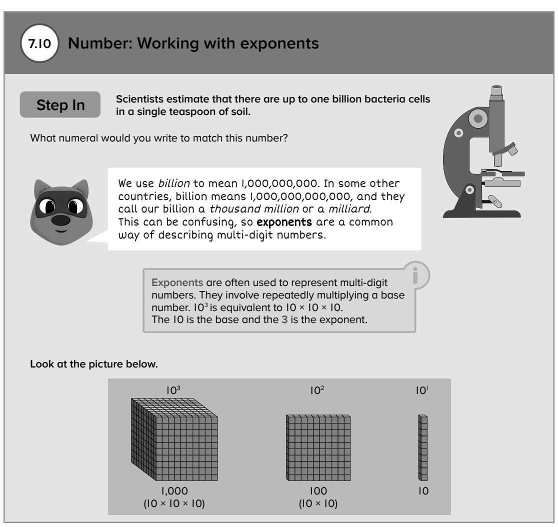
- Students encounter a new challenge in subtracting mixed numbers that they did not experience with addition. Sometimes, students cannot subtract the whole numbers and fractions separately because the fraction in the first mixed number is less than the second fraction.
- One strategy is to rewrite the first mixed number so its fraction part is greater (by taking 1 from the whole number and using it in fraction form).
- Another strategy is to convert both mixed numbers to improper fractions.



In this lesson, students solve subtraction problems involving mixed numbers.

Number

- Students develop a picture of the quantity of one million using everyday situations and classroom materials. In this module, the emphasis is on place value, with students expanding numbers that have been recorded using **exponential notation**.



In this lesson, students work with exponential notation.

Ideas for Home

- Find nine-digit numbers and have your child read them aloud.
- Think of a five-digit number and ask your child to write the number using exponents. E.g. $3{,}245 = (3 \times 10^3) + (2 \times 10^2) + (4 \times 10^1) + (5 \times 10^0)$

Glossary

- **Exponential notation** is used to represent multi-digit numbers. It involves repeatedly multiplying a base number. E.g. 10^3 is equivalent to 10 × 10 × 10. The 10 is the **base** and the 3 is the **exponent**.