Numerator and denominator

What do the top and bottom numbers of a fraction tell you?

WORDS TO KNOW

Denominator: the bottom number. It names the size of the pieces.

Numerator: the top number. It counts the pieces.

KEY IDEAS

1. The bottom names the piece, the top counts

Aatu cuts a loaf into 8 equal slices. So each slice is one eighth. He gives away 6 slices. He gave away six eighths, $\frac{6}{8}$.

> Denominator: how many equal pieces make the whole.
>
> Numerator: how many of those pieces you have.

2. A fraction is copies of one piece

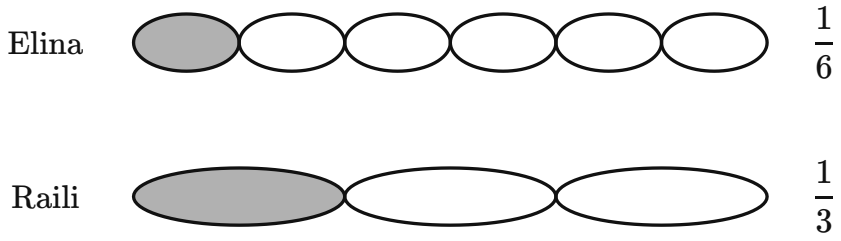
One slice is $\frac{1}{8}$ of the loaf. It is a unit fraction: one piece. Six slices are 6 copies of that one slice.

> $\frac{6}{8}$ is 6 copies of $\frac{1}{8}$.
>
> Say the count first, then the piece name: six eighths.

3. A bigger denominator means smaller pieces

These two paper chains are the same length. Elina's chain has 6 equal links. Raili's chain has 3 equal links. Fewer links means longer links.

> For the same whole, $\frac{1}{6}$ is smaller than $\frac{1}{3}$.



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WATCH OUT

- **Swapping the numbers.** The count goes on top. The piece name goes on the bottom.
- **Counting pieces that are not equal.** If the pieces are different sizes, their count is not the denominator.
- **Comparing pieces of different wholes.** A bigger denominator means a smaller piece only for the same whole.

WORKED EXAMPLES

Example 1. A pan of cornbread is cut into 6 equal pieces. You eat 3 pieces. What fraction did you eat?

1. The pan has 6 equal pieces. So the denominator is 6.
2. You ate 3 pieces. So the numerator is 3.
3. The 6 tells the size of a piece, one sixth. The 3 counts the pieces.

Answer: $\frac{3}{6}$ of the cornbread, three sixths.

Example 2. Two sandwiches are the same size. Ana cuts hers into 4 equal pieces. Ben cuts his into 8. Each eats 2 pieces. Who eats more?

1. Ana eats $\frac{2}{4}$. Ben eats $\frac{2}{8}$.
2. The top numbers are the same. Each eats 2 pieces.
3. The sandwiches are the same size. Fewer pieces means bigger pieces.
4. So a fourth is bigger than an eighth.

Answer: Ana eats more. Two big pieces are more than two small pieces.

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