Year 6 **Fractions**

Key Vocabulary
half
quarter
whole
equal parts
three quarters
third
fifth
tenth
equivalent fractions
unit fraction
non-unit fraction
numerator
denominator
proper fractions
improper fractions
mixed numbers
integer
complements
multiples
factors

Comparing Fractions Using Common Denominators

Find common denominators by using multiples.

$\frac{3}{8} < \frac{5}{12}$

Multiples of 8: 8, 16, 24

Multiples of 12: 12, 24

$\frac{3}{8} \times 3 = \frac{9}{24}$ and $\frac{5}{12} \times 2 = \frac{10}{24}$

$\frac{9}{24} < \frac{10}{24}$

$\frac{3}{8} < \frac{5}{12}$

$\frac{3}{4} < \frac{6}{7}$

$\frac{3}{4} \times 7 = \frac{21}{28}$ and $\frac{6}{7} \times 4 = \frac{24}{28}$

$\frac{21}{28} < \frac{24}{28}$

$\frac{3}{4} < \frac{6}{7}$

Find common denominators by multiplying the numerator and denominator of each fraction by the denominator of the other.

Comparing and Ordering Fractions

$\frac{1}{2}, \frac{3}{4}, \frac{5}{8}$

$\frac{4}{8}, \frac{6}{8}, \frac{5}{8}$

$\frac{1}{2}, \frac{5}{8}, \frac{3}{4}$

Remember to order the original fractions.

Simplifying Fractions

$\frac{8}{12}$

Factors of 8: 1, 2, **4**, 8

Factors of 12: 1, 2, 3, **4**, 6, 12

$\frac{8}{12} \div 4 = \frac{2}{3}$

To simplify fractions we find the **largest common factor** of the numerator and the denominator. Here it is 4.

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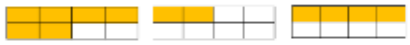
Adding and Subtracting Fractions

If the denominators are the same, you simply add or subtract the numerator.

$\frac{6}{8} - \frac{2}{8} = \frac{4}{8}$



If the denominators are different, you need to find **common multiples**.

$$\frac{3}{4} + \frac{4}{7}$$

Multiples of 4: 4, 8, 12, 16, 20, 24, **28**

Multiples of 7: 7, 14, 21, **28**

$$\frac{3}{4} + \frac{1}{7}$$

Numerator and denominator x 7

Numerator and denominator x 4

$$\frac{21}{28} + \frac{4}{28}$$

$$\frac{21}{28} + \frac{4}{28} = \frac{25}{28}$$

Adding Mixed Numbers

You can add the whole numbers separately.

$$1\frac{1}{6} + 1\frac{2}{3}$$

$1 + 1 = 2$ $\quad \frac{1}{6} + \frac{4}{6} = \frac{5}{6}$

$$2 + \frac{5}{6} = 2\frac{5}{6}$$

You can also convert to improper fractions.

$$2\frac{2}{6} + 1\frac{2}{3}$$

$$\frac{14}{6} + \frac{5}{3}$$

$$\frac{14}{6} + \frac{10}{6} = \frac{24}{6}$$

$$\frac{24}{6} = 4$$

Subtracting Mixed Numbers

You can subtract the whole numbers separately.

$$2\frac{5}{6} - 1\frac{2}{3}$$

$2 - 1 = 1$ $\quad \frac{5}{6} - \frac{4}{6} = \frac{1}{6}$

$$1 + \frac{1}{6} = 1\frac{1}{6}$$

You can also convert to improper fractions. This strategy is needed when you are subtracting and the fraction in the second mixed number is bigger than the first.

$$3\frac{2}{6} - 1\frac{2}{3}$$

$$\frac{20}{6} - \frac{5}{3}$$

$$\frac{20}{6} - \frac{10}{6} = \frac{10}{6}$$

$$\frac{10}{6} = 1\frac{4}{6}$$

Multiplying Fractions by Fractions

$\frac{1}{3} \times \frac{1}{4} = \frac{1}{12}$ $\qquad$ $\frac{2}{3} \times \frac{1}{5} = \frac{2}{15}$

To multiply two fractions, we simply multiply the numerators and the denominators.

Multiplying Unit Fractions by Whole Numbers

$\frac{1}{3} \times 4$ → This is 4 wholes so it becomes $\frac{4}{1}$

$\frac{1}{3} \times \frac{4}{1} = \frac{4}{3} = 1\frac{1}{3}$

Dividing Fractions by Whole Numbers

$\frac{1}{3} \div 4 = \frac{1}{12}$

$\frac{1}{3} \times \frac{1}{4} = \frac{1}{12}$

$\div 4$ is the same as $\times \frac{1}{4}$