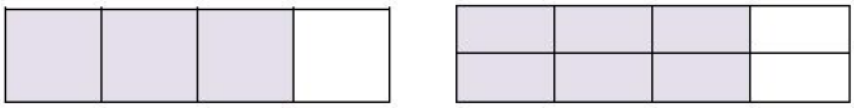
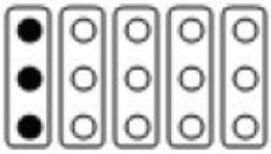
Multiplication is used to increase both the numerator and denominator by the same number in order to create an equivalent fraction with larger terms.



$\frac{3}{4} \rightarrow \frac{3 \times 2}{4 \times 2} \rightarrow \frac{6}{8}$ 2

EF

Division is used to reduce both the numerator and denominator to simplify a fraction written in larger terms to a smaller equivalent fraction.



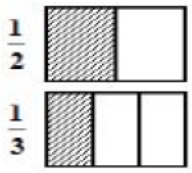
$\frac{1}{5}, \frac{2}{10}, \frac{3}{15}, \frac{4}{20}, \frac{5}{25}, \frac{6}{30}$

$\frac{3}{15} \longrightarrow \frac{3 \div 3}{15 \div 3} \longrightarrow \frac{1}{5}$

$\frac{3}{15} \overset{+2}{=} \frac{6}{30}$, $\frac{3}{15} \overset{\div 3}{=} \frac{1}{5}$

When comparing fractions, we can use both methods to compare fractions

If given $\frac{1}{2}$ and $\frac{1}{3}$ use concrete and pictorial representations.



They should conclude that $\frac{1}{2}$ is larger than $\frac{1}{3}$

compare two fractions, such as $\frac{2}{5}$ and $\frac{1}{4}$, by creating equivalent fractions having the same denominator.

$\frac{2}{5} \times \frac{4}{4} = \frac{8}{20}$ $\quad$ $\frac{1}{4} \times \frac{5}{5} = \frac{5}{20}$

They should conclude that $\frac{8}{20} > \frac{5}{20}$ and therefore, $\frac{2}{5} > \frac{1}{4}$

$\frac{2}{5}$ $\frac{1}{4}$

Timestables

Let's find out which fraction is larger by Comparing denominators and Using the pattern Method

* Create fractions until you have the same denominator!

$\frac{2}{5}$: $\frac{4}{10}$, $\frac{6}{15}$, $\frac{8}{20}$, $\frac{10}{25}$

$\frac{1}{4}$: $\frac{2}{8}$, $\frac{3}{12}$, $\frac{4}{16}$, $\frac{5}{20}$

Now we Compare

$\frac{8}{20}$ is larger than $\frac{5}{20}$

because 8 is bigger than 5

$\frac{2}{3}, \frac{4}{6}, \frac{6}{9}, \frac{8}{12}, \boxed{\frac{10}{15}}, \frac{12}{18}, \frac{14}{21}$

$\frac{3}{5}, \frac{6}{10}, \boxed{\frac{9}{15}}$

$\frac{10}{15}$ is larger than $\frac{9}{15}$

$\frac{10}{15} \downarrow \frac{2}{3}$

$\frac{9}{15} \downarrow \frac{3}{5}$

$\frac{1}{8}: \frac{2}{16}, \frac{3}{24}, \frac{4}{32}, \frac{5}{40}, \frac{6}{48}, \boxed{\frac{7}{56}}, \frac{8}{64}$

$\frac{3}{7}: \frac{6}{14}, \frac{9}{21}, \frac{12}{28}, \frac{15}{35}, \frac{18}{42}, \frac{21}{49}, \boxed{\frac{24}{56}}$

$\frac{24}{56}$ is larger than $\frac{7}{56}$

,

...

Solve the following word problems:

You are given 10 m of string to fly a kite. Would you prefer to use $\frac{4}{10}$ of the string or $\frac{3}{5}$ of the string to fly your kite? Explain your choice.

* we have 10 m of String

I want 10 as my denominator in both fractions.

$\frac{4}{10}$: $\frac{3}{5}$: $\frac{6}{10}$

* When I get the same denominator, I can compare both fractions.

$\frac{6}{10}$ is larger than $\frac{4}{10}$. I would prefer to use $\frac{6}{10}$ or $\frac{3}{5}$ of the string

Ellen has two birthday cakes that are the same size. One is chocolate and one is vanilla. The boys ate $\frac{2}{3}$ of the chocolate cake. The girls ate $\frac{3}{4}$ of the vanilla cake. Ask students: Which group ate more cake?

1.5/3

Boys $\frac{2}{3}$: $\frac{4}{6}$, $\frac{6}{9}$, $\boxed{\frac{8}{12}}$

Girls $\frac{3}{4}$: $\frac{6}{8}$, $\boxed{\frac{9}{12}}$, $\frac{12}{16}$ → $\frac{9}{12}$ is larger than $\frac{8}{12}$

* Once you have the same denominator you can compare the numerators.

→ The girls ate more cake!!

Use ~~Multiplication or Division~~ to compare the following fractions:

a) $\frac{3}{4}$ and $\frac{7}{8}$

$\frac{3}{4}$: $\frac{6}{8}$

$\frac{7}{8}$: 1

$\frac{7}{8}$ is larger than $\frac{1}{8}$

OR

$\frac{7}{8}$ is bigger than $\frac{3}{4}$

b) $\frac{4}{10}$ and $\frac{10}{14}$

$\frac{4}{10}$: $\frac{8}{20}$, $\frac{12}{30}$, $\frac{16}{40}$, $\frac{20}{50}$, $\frac{24}{60}$, $\boxed{\frac{28}{70}}$

$\frac{10}{14}$: $\frac{20}{28}$, $\frac{30}{42}$, $\frac{40}{56}$, $\boxed{\frac{50}{70}}$

$\frac{50}{70}$ is larger than $\frac{28}{70}$

OR

$\frac{10}{14}$ is larger than $\frac{4}{10}$

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