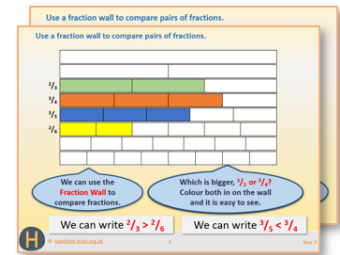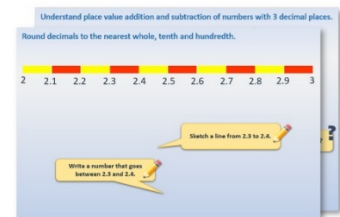# Year 6: Week 4, Day 1
Use equivalence to compare fractions

Each day covers one maths topic. It should take you about 1 hour or just a little more.
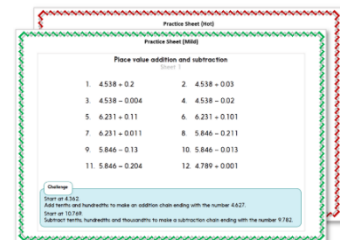
1. If possible, watch the **PowerPoint presentation** with a teacher or another grown-up.

    OR start by carefully reading through the **Learning Reminders**.
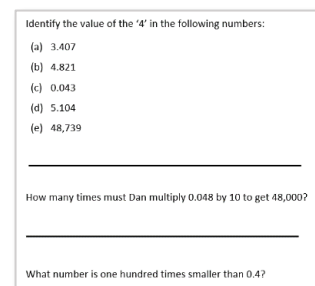
2. Tackle the questions on the **Practice Sheet**.
    There might be a choice of either Mild (easier) or Hot (harder)!
    Check the answers.

3. Finding it tricky? That's OK… have a go with a grown-up at **A Bit Stuck?**

4. Have I mastered the topic? A few questions to **Check your understanding**.
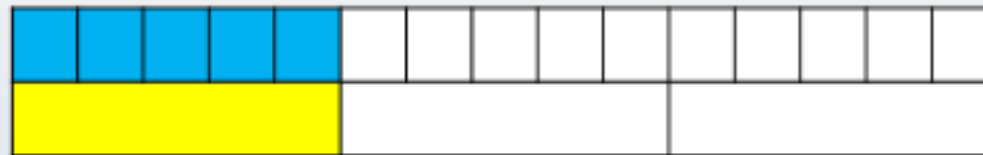   Fold the page to hide the answers!

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Learning Reminders

Learning Reminders

Compare fractions with different denominators using equivalence.

List which fractions with denominators less than 20 can be written as $1/20$s.

$1/2$s
$1/4$s
$1/5$s
$1/10$s

Now use equivalence with $1/10$s to compare $1/2$ and $3/5$, and equivalence with $1/20$s to compare $7/10$ and $3/4$.

$5/10 < 6/10$, so $1/2 < 3/5$

$14/20 < 15/20$, so $7/10 < 3/4$

How can we compare $7/5$ and $5/4$?

Write the fractions as mixed numbers first, and then the fractional parts of each as $1/20$s.

Practice Sheet Mild
Equivalent fractions

Use the fraction wall to help you join each fraction on the left to the equivalent fraction in its simplest form.

$\frac{2}{8}$

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

$\frac{3}{9}$

$\frac{3}{12}$ $\frac{1}{3}$

$\frac{4}{12}$

$\frac{5}{10}$ $\frac{2}{3}$

$\frac{4}{8}$

$\frac{6}{8}$

$\frac{2}{6}$ $\frac{1}{4}$

$\frac{4}{6}$

$\frac{8}{12}$ $\frac{3}{4}$

$\frac{9}{12}$

Challenge

Write some fractions which are equivalent to $\frac{1}{4}$ but not on the fraction wall.

Practice Sheet Mild
Comparing fractions

Write these fractions as $\frac{1}{6}$s. Then write them in order, starting with the smallest first.

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

Write these fractions as $\frac{1}{10}$s. Then write them in order, starting with the smallest first.

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

Write these fractions as $\frac{1}{12}$s. Then write them in order, starting with the smallest first.

$\frac{2}{3}$ $\frac{3}{4}$ $\frac{1}{4}$ $\frac{1}{3}$ $\frac{1}{6}$ $\frac{5}{6}$ $\frac{1}{2}$

Resource
Fraction wall

1

1/2	1/2

1/3	1/3	1/3

1/4	1/4	1/4	1/4

1/5	1/5	1/5	1/5	1/5

1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/10

1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15	1/15

1/20	1/20	1/20	1/20	1/20	1/20	1/20	1/20	1/20	1/20	1/20	1/20	1/20	1/20	1/20	1/20	1/20	1/20	1/20	1/20
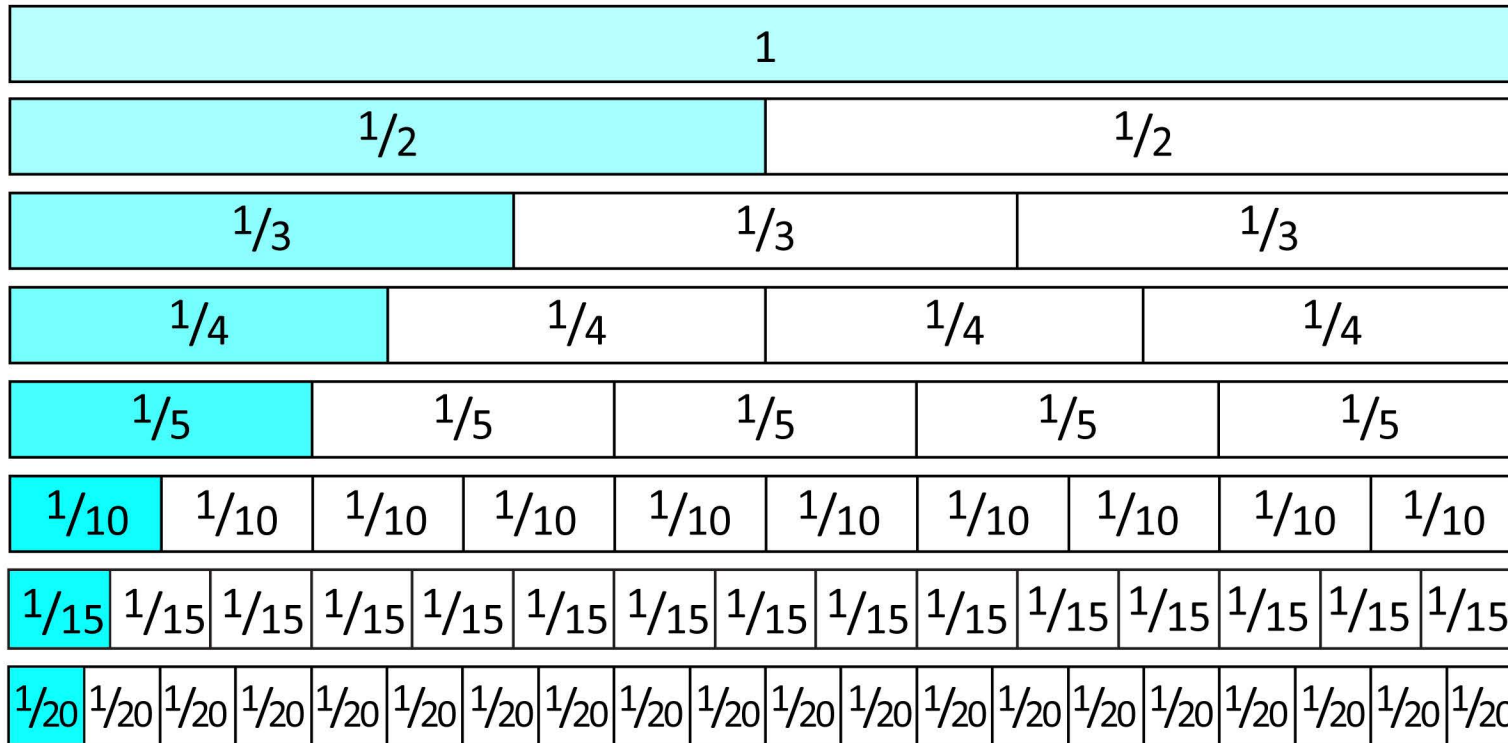
Practice Sheet Hot
Equivalent fractions

Ring all the fractions that are equivalent to $\frac{1}{4}$

$\frac{2}{8}$ $\frac{2}{7}$ $\frac{3}{12}$ $\frac{4}{20}$ $\frac{5}{20}$ $\frac{10}{30}$ $\frac{10}{40}$ $\frac{4}{16}$ $\frac{4}{100}$

Ring all the fractions that are equivalent to $\frac{1}{3}$

$\frac{3}{12}$ $\frac{3}{6}$ $\frac{2}{6}$ $\frac{4}{12}$ $\frac{4}{9}$ $\frac{10}{30}$ $\frac{3}{9}$ $\frac{5}{15}$ $\frac{6}{15}$

Ring all the fractions that are equivalent to $\frac{1}{5}$

$\frac{5}{15}$ $\frac{2}{10}$ $\frac{3}{15}$ $\frac{4}{20}$ $\frac{5}{20}$ $\frac{5}{100}$ $\frac{20}{100}$ $\frac{10}{50}$ $\frac{4}{25}$

Complete this list of fractions equivalent to $\frac{3}{4}$

$\frac{3}{4}$ $\frac{\square}{8}$ $\frac{\square}{12}$ $\frac{\square}{16}$ $\frac{\square}{20}$ $\frac{30}{\square}$ $\frac{\square}{60}$ $\frac{\square}{100}$ $\frac{21}{\square}$ $\frac{\square}{\square}$

Challenge 1

Ava says that she can write $\frac{1}{2}$, $\frac{3}{4}$, $\frac{2}{5}$ and $\frac{2}{3}$ as an equivalent number of fiftieths. Do you agree with her?

Challenge 2

Write at least 5 fractions which are equivalent to $\frac{2}{5}$.

Practice Sheet Hot
Comparing fractions

Write these pairs of fractions as the same type of fraction to help compare them.

1. $\frac{1}{2}$ and $\frac{2}{5}$

2. $\frac{1}{3}$ and $\frac{2}{5}$

3. $\frac{2}{3}$ and $\frac{4}{5}$

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

5. $\frac{3}{4}$ and $\frac{4}{5}$

6. $\frac{5}{6}$ and $\frac{7}{9}$

7. $\frac{5}{6}$ and $\frac{3}{4}$

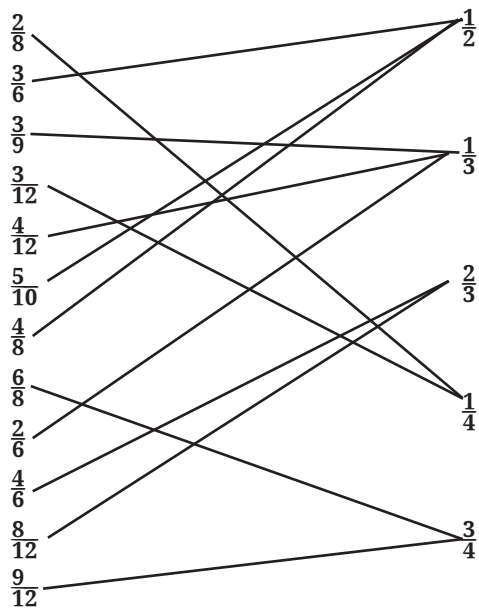8. $\frac{1}{3}$ and $\frac{2}{7}$

Write the groups of fractions as the same type of fraction, then write each group in order from least to greatest.

1. $\frac{1}{5}$ $\frac{1}{3}$ $\frac{4}{15}$

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

3. $\frac{1}{2}$ $\frac{3}{4}$ $\frac{2}{3}$

4. $\frac{1}{2}$ $\frac{4}{5}$ $\frac{3}{4}$

5. $\frac{1}{2}$ $\frac{5}{6}$ $\frac{7}{9}$

Practice Sheet Answers

Equivalent fractions (mild)

$\dfrac{2}{8}$

$\dfrac{3}{6}$

$\dfrac{3}{9}$

$\dfrac{3}{12}$

$\dfrac{4}{12}$

$\dfrac{5}{10}$

$\dfrac{4}{8}$

$\dfrac{6}{8}$

$\dfrac{2}{6}$

$\dfrac{4}{6}$

$\dfrac{8}{12}$

$\dfrac{9}{12}$

$\dfrac{1}{2}$

$\dfrac{1}{3}$

$\dfrac{2}{3}$

$\dfrac{1}{4}$

$\dfrac{3}{4}$

Challenge

Write some fractions which are equivalent to $\dfrac{1}{4}$ that are not on the fraction wall.

e.g. $\dfrac{2}{8}$ $\dfrac{3}{12}$ $\dfrac{4}{16}$ $\dfrac{5}{20}$ $\dfrac{6}{24}$, etc.

Ordering fractions (mild)

$\dfrac{2}{3} = \dfrac{4}{6}$

$\dfrac{1}{2} = \dfrac{3}{6}$

$\dfrac{1}{3} = \dfrac{2}{6}$

Order smallest first: $\dfrac{1}{3}$ $\dfrac{1}{2}$ $\dfrac{2}{3}$

$\dfrac{1}{2} = \dfrac{5}{10}$

$\dfrac{2}{5} = \dfrac{4}{10}$

$\dfrac{3}{5} = \dfrac{6}{10}$

Order smallest first: $\dfrac{2}{5}$ $\dfrac{1}{2}$ $\dfrac{3}{5}$

$\dfrac{2}{3} = \dfrac{8}{12}$

$\dfrac{3}{4} = \dfrac{9}{12}$

$\dfrac{1}{4} = \dfrac{3}{12}$

$\dfrac{1}{3} = \dfrac{4}{12}$

$\dfrac{1}{6} = \dfrac{2}{12}$

$\dfrac{5}{6} = \dfrac{10}{12}$

$\dfrac{1}{2} = \dfrac{6}{12}$

Order smallest first: $\dfrac{1}{6}$ $\dfrac{1}{4}$ $\dfrac{1}{3}$ $\dfrac{1}{2}$ $\dfrac{2}{3}$ $\dfrac{9}{12}$

Practice Sheet Answers

Equivalent fractions (hot)

The fractions equivalent to $\frac{1}{4}$ are: $\frac{2}{8}$ $\frac{3}{12}$ $\frac{5}{20}$ $\frac{10}{40}$ $\frac{4}{16}$

The fractions equivalent to $\frac{1}{3}$ are: $\frac{2}{6}$ $\frac{4}{12}$ $\frac{10}{30}$ $\frac{3}{9}$ $\frac{5}{15}$

The fractions equivalent to $\frac{1}{5}$ are: $\frac{2}{10}$ $\frac{3}{15}$ $\frac{4}{20}$ $\frac{20}{100}$ $\frac{10}{50}$

$\frac{3}{4}$ $\frac{6}{8}$ $\frac{9}{12}$ $\frac{12}{16}$ $\frac{15}{20}$ $\frac{30}{40}$ $\frac{45}{60}$ $\frac{75}{100}$ $\frac{21}{28}$ The final fraction in this list can be any that is equivalent to $\frac{3}{4}$.

> **Challenge 1**
>
> Ava is partly correct: $\frac{1}{2} = \frac{25}{50}$ and $\frac{2}{5} = \frac{20}{50}$. but $\frac{2}{3}$ and $\frac{3}{4}$ cannot be writen as fiftieths, because the denominators are not factors of 50.

> **Challenge 2**
>
> Fractions equivalent to $\frac{2}{5}$ could include: $\frac{4}{10}$ $\frac{6}{15}$ $\frac{8}{20}$ $\frac{10}{25}$ $\frac{12}{30}$ and so on

Comparing fractions (hot)

1. $\frac{1}{2} = \frac{5}{10} > \frac{2}{5} = \frac{4}{10}$
2. $\frac{1}{3} = \frac{5}{15} < \frac{2}{5} = \frac{6}{15}$
3. $\frac{2}{3} = \frac{10}{15} < \frac{4}{5} = \frac{12}{15}$
4. $\frac{1}{4} = \frac{5}{20} < \frac{2}{5} = \frac{8}{20}$
5. $\frac{3}{4} = \frac{15}{20} < \frac{4}{5} = \frac{16}{20}$
6. $\frac{5}{6} = \frac{45}{54} = \frac{15}{18} > \frac{7}{9} = \frac{42}{54} = \frac{14}{18}$
7. $\frac{5}{6} = \frac{20}{24} = \frac{10}{12} > \frac{3}{4} = \frac{18}{24} = \frac{9}{12}$
8. $\frac{1}{3} = \frac{7}{21} < \frac{2}{7} = \frac{14}{21}$

1. $\frac{1}{5} = \frac{3}{15}$ $\frac{4}{15}$ $\frac{1}{3} = \frac{5}{15}$
2. $\frac{1}{2} = \frac{3}{6}$ $\frac{2}{3} = \frac{4}{6}$ $\frac{5}{6}$
3. $\frac{1}{2} = \frac{6}{12}$ $\frac{2}{3} = \frac{8}{12}$ $\frac{3}{4} = \frac{9}{12}$
4. $\frac{1}{2} = \frac{10}{20}$ $\frac{3}{4} = \frac{15}{20}$ $\frac{4}{5} = \frac{16}{20}$
5. $\frac{1}{2} = \frac{9}{18}$ $\frac{7}{9} = \frac{14}{18}$ $\frac{5}{6} = \frac{15}{18}$

What to do:

1.   Label the quarters above this line. Label the eighths below it.

0   1

Now write as many pairs of equivalent fractions as you can.

¼ = ⅖
¾ =

2.   Label the fifths above this line. Label the tenths below it.

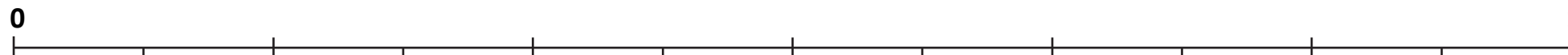0   1

Now write as many pairs of equivalent fractions as you can.

3.   Label the sixths above this line. Label the twelfths below it.

0   1

Now write as many pairs of equivalent fractions as you can.

S-t-r-e-t-c-h:
Write as many fractions as you can which are equivalent to ½, ¼ and ⅓.

Learning outcomes:
• I can identify pairs of equivalent fractions on a fraction line.
• I am beginning to identify fractions which are equivalent to ½, ¼ and ⅓, without the help of fraction line.

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Check your understanding
Questions

Write the missing numbers.

$\square/_6 = {}^4/\square$

$^6/\square = {}^\square/_{20}$

$\square/_{10} > {}^1/\square$

$\square/_{32} > {}^\square/_8$

Write three fractions which are equivalent to $^3/_4$.

Write three fractions which are equivalent to $^2/_5$.

Now add $^3/_4$ and $^2/_5$.

Check your understanding
Answers

Write the missing numbers.

$^2/_6 = {}^4/_{12}$

$^6/_{10} = {}^{12}/_{20}$

$\square/_{10} > {}^1/\square$ e.g. $^6/_{10} > {}^1/_2, {}^4/_{10} > {}^1/_3$

$\square/_{32} > {}^\square/_8$ e.g. $^{20}/_{32} > {}^1/_8, {}^5/_{32} > {}^1/_8$.

For the 3rd and 4th of these many different answers are possible, are children able to explain their choice?

Write three fractions which are equivalent to $^3/_4$.

E.g. $^6/_8, {}^9/_{12}, {}^{12}/_{16}, {}^{15}/_{20}, {}^{30}/_{40}$.

Write three fractions which are equivalent to $^2/_5$.

E.g. $^4/_{10}, {}^6/_{15}, {}^8/_{20}, {}^{10}/_{25}, {}^{20}/_{50}$.

Now add $^3/_4$ and $^2/_5$. $1^3/_{20}$.

The lowest common denominator is twentieths:

$^3/_4 + {}^2/_5 = {}^{15}/_{20} + {}^8/_{20} = {}^{23}/_{20} = 1^3/_{20}$.