THIRD SPACE LEARNING

Maths Intervention Pack

Fractions
Simplifying fractions

Year 4

How to use the resources

1. Cover Slide
   Use this slide to activate prior knowledge needed for lesson. Pupils should be encouraged to initially attempt the question presented independently.

2. Let's Learn
   Use this slide to introduce the concept. Tutors should work with the pupil to explore the concept together, usually using diagrams to support understanding.

3. Follow Me/ Your Turn
   The tutor should work through the follow me slide, modelling the process and explaining their thinking out loud.
   Pupils should use the your turn slide as an opportunity to solve a very similar question to the follow me question. They should apply the method modelled by the tutor in the follow me slide. Pupils should be encouraged to explain their thinking out loud.

4. You Do
   Pupils should work through a range of questions that build in complexity. Tutors can offer support but pupils should initially be encouraged to attempt these questions independently.

5. Go Further
   Use this slide to allow pupils to apply their understanding to a more challenging question in an unfamiliar context.

6. Support
   The support slide is used to support pupils during the lesson. In the tutor notes, there will be guidance as to when to use the support slide.

© Third Space Learning 2023. You may photocopy this page.

Tutor / Teacher / TA notes

Key mathematical ideas:

- Recognise fractions that are equivalent to $\frac{1}{2}$
- To know that when comparing fractions, the whole needs to be the same size.
- To use the term 'in every' to describe fractions.
- To use diagrams to simplify fractions and find equivalent fractions.
- To begin to see that you can divide the numerator and denominator by the same number to find equivalent fractions and simplify fractions.
- To give what fraction of a diagram is shaded in its simplest form.

Terminology:

- Simplify: To simplify (or reduce) a fraction means to make it as simple as possible.
- Numerator: The top number in a fraction. Shows how many parts we have.
- Denominator: The bottom number in a fraction. Shows how many equal parts the item is divided into.
- Equivalent fractions: Fractions with the same value as another.
- Whole: All of something. Complete.
- Unit fraction: A fraction where the top number (the "numerator") is 1.

Common misconceptions:

- Pupils not giving their final answer as a fraction in its simplest form.

© Third Space Learning 2023. You may photocopy this page.

Slide 1: Cover Slide

If stuck

Ask pupils what they 'notice' about the whole rectangle and the amount shaded.

Answers

They both have half shaded.

The whole is the same. The amount shaded is the same.

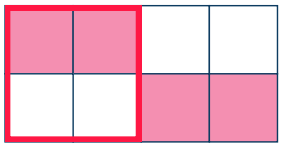
The size of the parts are different and the number of parts are different.

One shows $\frac{1}{2}$ and the other shows $\frac{5}{10}$.

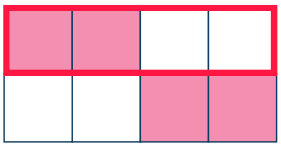
Slide 2: Let's Learn

Questions

a) Can you show the 2 squares in every 4 on the diagram?

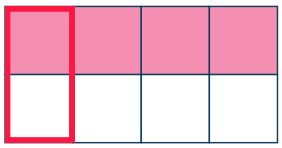


or



What do you notice about $\frac{4}{8}$ and $\frac{2}{4}$ if you compare the numerators and denominators? (both the numerator and denominator has been halved.)

b) Can you show the 1 square in every 2 that is shaded in the diagram?



What do you notice about $\frac{4}{8}$ and $\frac{1}{4}$ if you compare the numerators and denominators? (Both the numerator and denominator have been divided by 4)

Answers

a) $\frac{4}{8} = \frac{2}{4}$

b) $\frac{4}{8} = \frac{1}{2}$

© Third Space Learning 2023. You may photocopy this page.

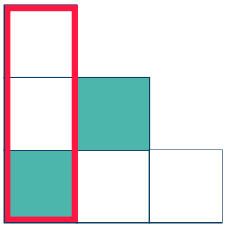
Slide 3: Follow Me

Modelling Prompts

Explain that the numerator shows how many squares are shaded and the denominator shows how many parts there are altogether.

$\frac{2}{6}$ is therefore shaded.

Annotate the diagram to show that 1 in every 3 is another way of describing the fraction shaded.



$\frac{2}{6}$ is therefore equivalent to $\frac{1}{3}$. 2 in every 6 is the same as 1 in every 3.

Point out that to get from $\frac{2}{6}$ to $\frac{1}{3}$ we can divide the numerator and denominator by the same number (in this case 2)

Answers

a) $\frac{2}{6}$

b) $\frac{2}{6} = \frac{1}{3}$

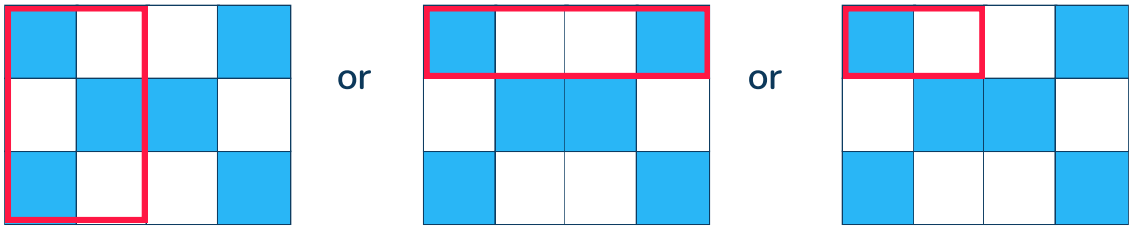
© Third Space Learning 2023. You may photocopy this page.

Slide 3: Your Turn

Questions

How many parts are there altogether? (12) and how many are shaded? (6)

How else could you describe the fraction using 'in every'? (3 in every 6, 2 in every 4, or 1 in every 2)



What has happened to the numerator and denominator to get from $\frac{6}{12}$ to $\frac{3}{6}$? (They have both been divided by 2) so how will you get a 1 as the numerator from $\frac{6}{12}$? (divide both the numerator and denominator by 6)

Answers

a) $\frac{6}{12}$ b) $\frac{6}{12} = \frac{3}{6}$ c) $\frac{6}{12} = \frac{1}{2}$

Slide 4: You Do

If stuck

Use the diagrams to help.

Refer to the support slide, shows each fraction represented using fraction bars.

Questions

a) Two quarters is the same as what? (one half)

b) 2 in every 8 is the same as what? (1 in every 4)

c) What do you notice you are doing to the numerator and denominator when finding equivalent fractions? (dividing both numbers by the same amount.)

Answers

a) $\frac{2}{4} = \frac{1}{2}$ b) $\frac{2}{8} = \frac{1}{4}$ c) $\frac{8}{10} = \frac{4}{5}$

© Third Space Learning 2023. You may photocopy this page.

Slide 5: Go Further

If stuck

Encourage pupils to use the language of 'in every' - what can they see shaded in the diagram? (1 in every 4 or 2 in every 8.)

Questions

Can you see by using the diagram what 'unit' fraction this shows when simplified. (1 in every 4 so $\frac{1}{4}$)

Answers

$\frac{1}{4}$

Slide 6: Support

Support for you do, showing the fractions using fraction bars.

Questions

Two quarters are equivalent to what? (half)

Can you use the diagram to see what $\frac{2}{8}$ is equivalent to? ($\frac{1}{4}$)

Answers

a) $\frac{2}{4} = \frac{1}{2}$ b) $\frac{2}{8} = \frac{1}{4}$ c) $\frac{8}{10} = \frac{4}{5}$

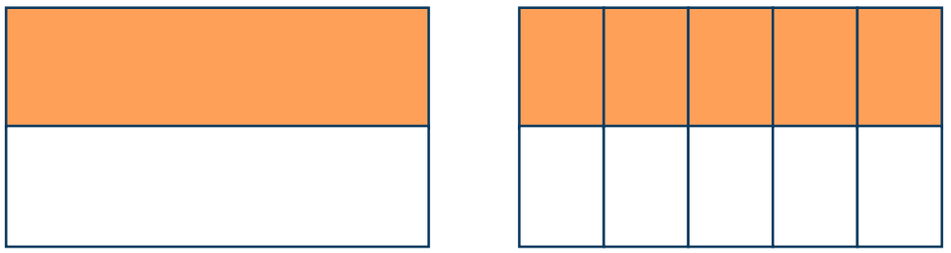
© Third Space Learning 2023. You may photocopy this page.

Today you will learn about

Simplifying fractions

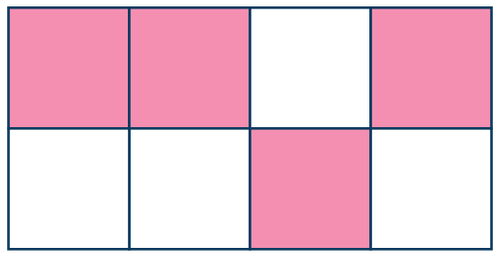
Warm up question

What is the same and different about the fractions shown?



Let's learn

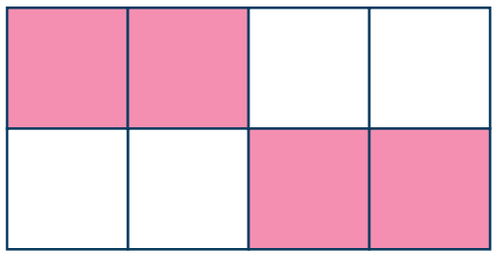
We can **simplify** fractions by finding **equivalent** fractions.



$\frac{4}{8}$ of this shape is shaded.

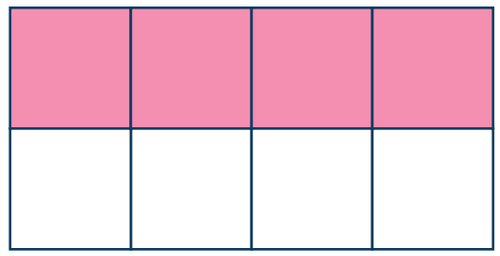
4 squares in every 8 are shaded.

We can rearrange the squares to show fractions that are equivalent to $\frac{4}{8}$



2 squares in every 4 are shaded.

a $\frac{4}{8} = \frac{2}{\square}$



1 square in every 2 is shaded.

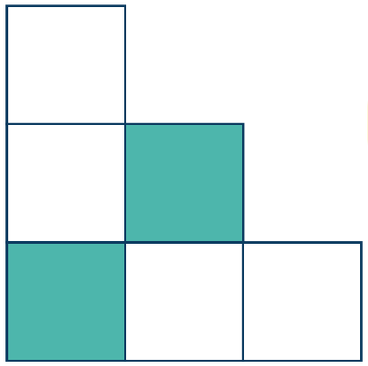
b $\frac{4}{8} = \frac{1}{\square}$

A **unit fraction** is where the top number (the **numerator**) is 1.

$\frac{4}{8}$ can be simplified to a **unit fraction.**

Follow me

Let's look at a different fraction and simplify it.



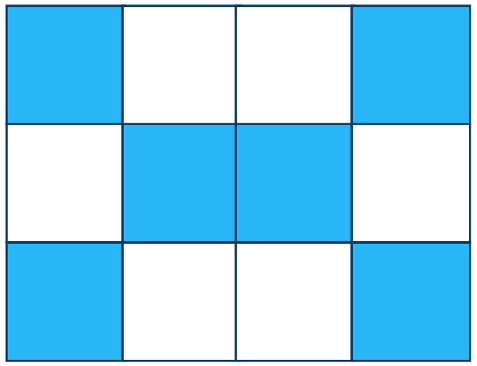
2 in every 6 squares are shaded or 1 in every 3.

a $\frac{\square}{\square}$ of this shape is shaded.

b Simplify to a **unit fraction.**

$\frac{\square}{\square} = \frac{1}{\square}$

Your turn



a $\frac{\square}{\square}$ of this shape is shaded.

b $\frac{\square}{\square} = \frac{\square}{6}$

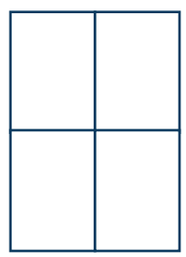
c Simplify to a **unit fraction.**

$\frac{\square}{\square} = \frac{1}{\square}$

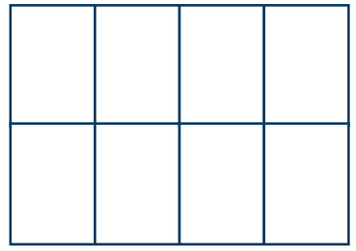
You do

Simplify the following fractions.

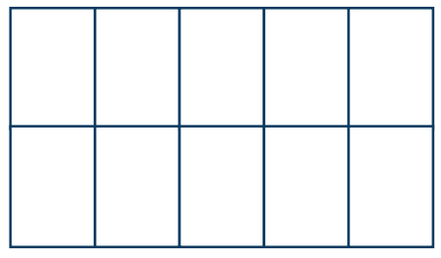
a $\frac{2}{4} = \frac{1}{\square}$



b $\frac{2}{8} = \frac{1}{\square}$



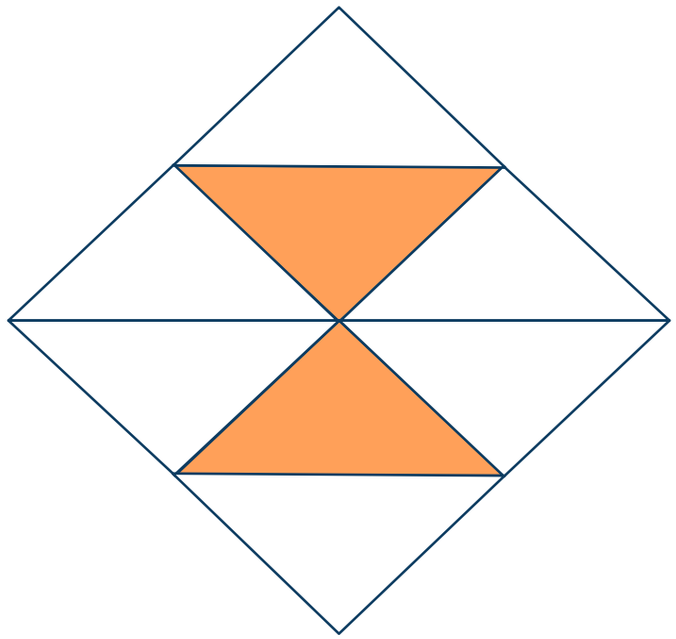
c $\frac{8}{10} = \frac{\square}{\square}$



Go further

Here is a square.

What fraction is shaded?

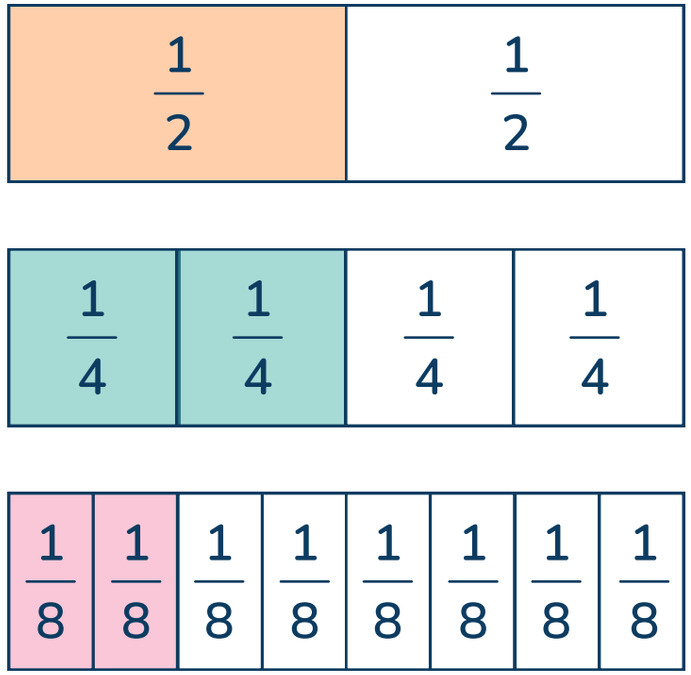


Give your answer in the simplest form.

$$\frac{\square}{\square}$$

Support

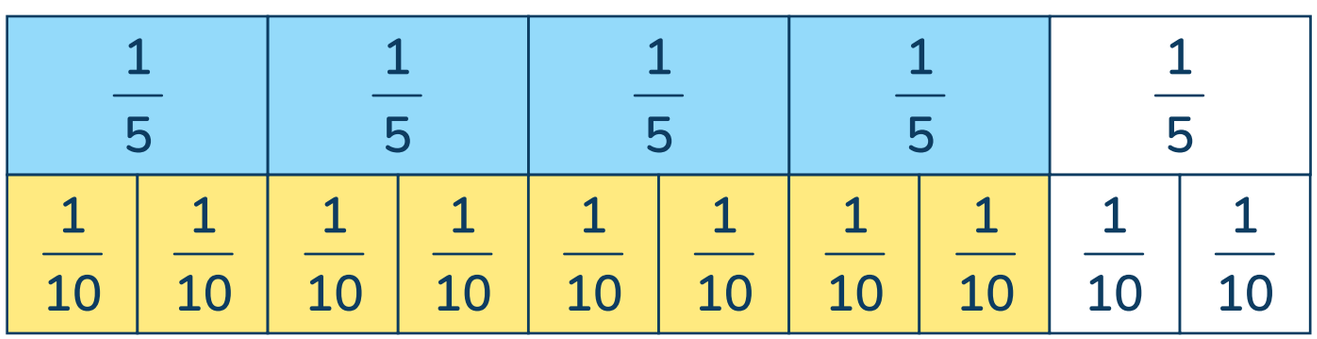
Let's look at using diagrams to help simplify fractions.



a $\frac{2}{4} = \frac{1}{\square}$

b $\frac{2}{8} = \frac{1}{\square}$

To simplify (or reduce) a fraction means to make the numerator as small as possible.



c $\frac{8}{10} = \frac{\square}{\square}$

Do you have a group of pupils who need a boost in maths this term?

Each pupil could receive a personalised lesson every week from our specialist 1-to-1 maths tutors.

- Raise attainment
- Plug any gaps or misconceptions
- Boost confidence

Speak to us

thirdspacelearning.com

0203 771 0095

hello@thirdspacelearning.com

THIRD SPACE LEARNING