Spring 2 Year 4

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| **Links to prior learning/ objectives** | **Resources** | **Vocabulary:** |
|---|---|---|
| ~ Place value of ones, tens, hundreds and thousands.<br>~ focused on multiplication facts for 2,5,10,3,4 and 8.<br>~ Strategies for multiplication and division.<br>~ Knowledge of what a fraction is, ordering them, finding equivalents and comparing them.<br>~ Knowledge of unit and non-unit fractions.<br>~ Understanding of symmetry and how to identify it (especially vertically). | Counting sticks, bar models, fraction walls, physical fractions (games),<br><br>**Mastery:**<br>(where to find some resources)<br>• Teaching for Mastery<br>• White Rose **New and old documents**<br>• Mastery maths stickers<br>• Nrich (curriculum mapping) | Hundredths, ascending, descending, increasing, decreasing, divide, Fractions, equivalent, multiplication, division, families, diagrams, tenths, decimals, quarter, half. |

## Objectives and Teaching

| **Barriers to ARE (misconceptions)**<br>**Week 1** | Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. |
|---|---|
| Children may struggle with the place value understanding.<br>Children may not understand how amounts are affected when they are divided by 10. | • To know how to count in hundredths.<br>• To understand how to count in hundredths.<br>• To understand the link between division and tenths.<br>• To understand the link between division and hundredths. |

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## Fluency

Sally uses counters to make a 1-digit number.


To divide the number by 10, we move the counters one column to the right.
What is the value of the counters now?

Use this method to solve:

$3 \div 10 = \square$ $\quad 7 \div 10 = \square$ $\quad \square = 4 \div 10$

Here is a one-digit number on a place value chart.

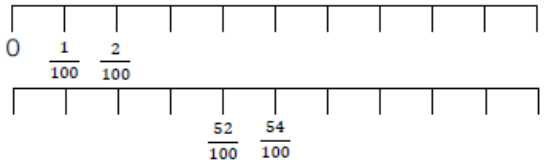

When dividing by 10, we move the digits 1 place to the $\square$

$5 \div 10 = \square$

Use this method to solve:

$8 \div 10 = \square$ $\quad \square = 9 \div 10$ $\quad 0.2 = \square \div 10$

Complete the number lines.

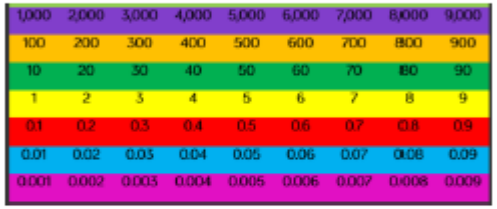



Complete the sequences.

- $\frac{27}{100}, \frac{28}{100}, \frac{29}{100}, \frac{30}{100}, \square, \square, \square$
- $\frac{52}{100}, \frac{51}{100}, \frac{5}{10}, \square, \square, \square$

## Reasoning

Choose a digit card from 1 – 9 and place a counter over the top of that number on the Gattegno chart.




When you divide your number by 10, which direction do you move on the chart?
How is this different to the place value chart?

## Problem Solving

Complete the number sentences.

$4 \div 10 = 8 \div \square \div 10$

$15 \div 3 \div 10 = \square \div 10$

$64 \div \square \div 10 = 32 \div 4 \div 10$

Complete the statements.

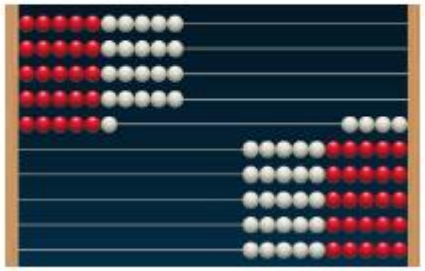
3 tenths and 2 hundredths = 2 tenths and $\square$ hundredths

14 hundredths and 3 tenths = 4 tenths and $\square$ hundredths

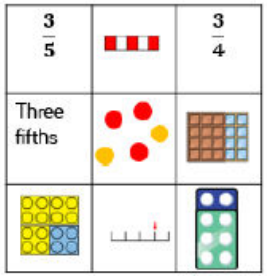
5 tenths and 1 hundredth < 5 tenths and $\square$ hundredths

5 tenths and 1 hundredth > $\square$ tenths and 5 hundredths

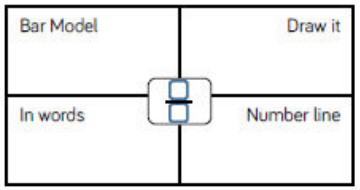
Use a place value grid or place value counters to prove your answers.

| | | |
|---|---|---|
| | Here is a Rekenrek made from 100 beads.<br>If the Rekenrek represents one whole, what fractions have been made on the left and on the right?<br>  <br>Can you partition both of the fractions? | |
| **Week 2**<br>Children may not understand what a fraction represents.<br>Children may struggle to apply their multiplication knowledge to identify equivalent fractions.<br>Children may struggle to use resources such as a fraction wall to recognise equivalent fractions.<br>Children may struggle to represent a fraction | Recognise and show, using diagrams, families of common equivalent fractions.<br><br>• To know what a fraction is.<br>• To know how to identify equivalent fractions.<br>• To develop the skill of identifying equivalent fractions.<br>• To understand how to identify equivalent fractions | |
| **Fluency** | **Reasoning** | **Problem Solving** |

Sort the cards into different groups.
Can you explain how you made your decision?
Can you sort the cards a different way?



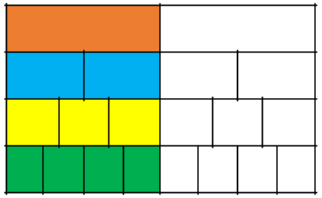

Represent the fraction you have been given in as many different ways as possible.



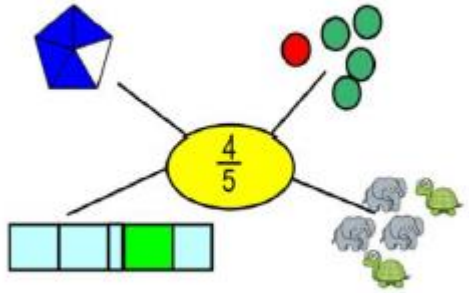

Use two strips of equal sized paper. Fold one strip into quarters and the other into eighths. Place the quarters on top of the eighths and lift up one quarter, how many eighths can you see? How many eighths are equivalent to one quarter? Which other equivalent fractions can you find?

Using squared paper, investigate equivalent fractions using equal parts. e.g. $\frac{2}{4} = \frac{\square}{8}$. Start by drawing a bar 8 boxes along. Underneath compare the same length bar split into four equal parts.

How many fractions that are equivalent to one half can you see on the fraction wall?
Can you draw any extra rows to show other equivalent fractions?

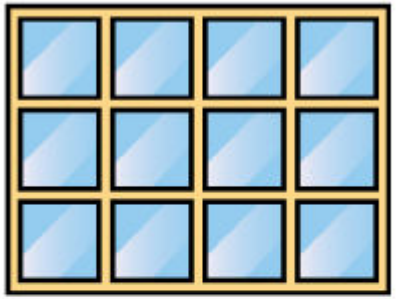


Which representations of $\frac{4}{5}$ are incorrect?




Explain how you know.

How many equivalent fractions can you see in this picture?

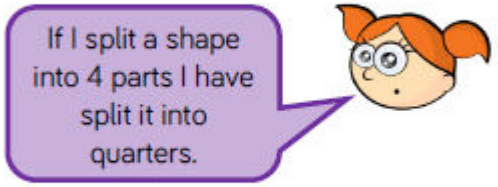


Laura says:

I know that $\frac{3}{4}$ is equivalent to $\frac{3}{8}$ because the numerators are the same.

Is Laura correct? Explain why.

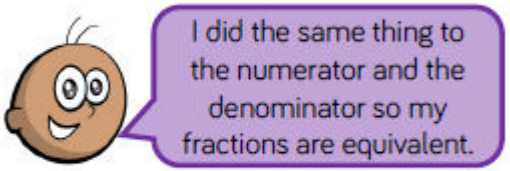
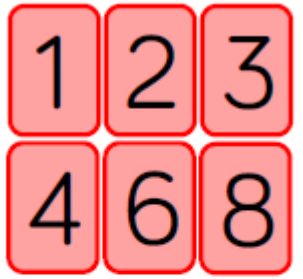
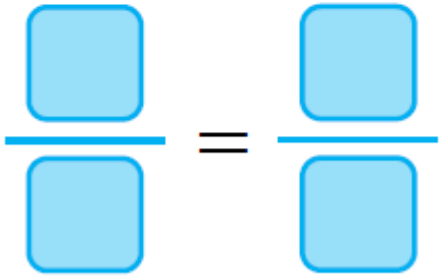
## Always, Sometimes, Never




Explain your answer.

Liam has two strips of the same sized paper.
He folds the strips into different sized fractions.
He shades in three equal parts on one strip and six equal parts on the other strip.

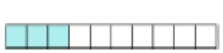
What fractions could he have folded his strips into?

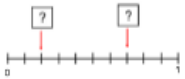
| | | |
|---|---|---|
| | $\frac{3}{4}=\frac{5}{6}=\frac{7}{9}=\frac{9}{11}$<br>  <br>Shabaz<br><br>Do you agree with Shabaz? Explain your answer. | Use the digits cards below to fill in the boxes.<br>  <br>  <br>How many different ways can you find? |
| **Week 3**<br>Same as above<br>Children may struggle to see the relationship between fractions and decimals.<br>Children may struggle to apply their understanding of division to support the conversion. | Recognise and write decimal equivalents of any number of tenths or hundredths.<br><br>• To know the relationship between fractions and decimals.<br>• To know the place value of thousandths and tenths.<br>• To know how to write a decimal as a fraction.<br>• To develop the skill of writing a decimal as a fraction.<br>• To understand how to write a decimal as a fraction. | |
| **Fluency** | **Reasoning** | **Problem Solving** |
| | | |

Complete the table.

| Image | Words | Fraction | Decimal |
|---|---|---|---|
|  | | | |
| | Five tenths | | |
| | | | 0.9 |

Write the numbers shown as fractions and decimals.





Draw or make representations of:

0.4 0.8 0.1

What's the same about all the decimals?

What's different?

Write the decimal represented in each place value grid.



There are ☐ ones and ☐ tenths.

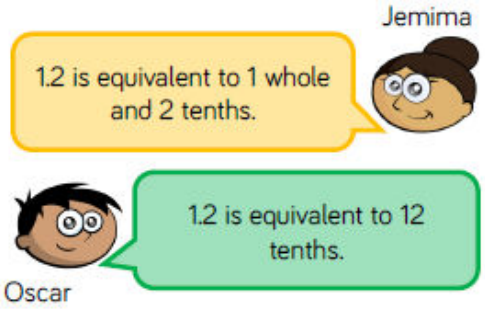
The decimal represented is ☐

Use counters or place value counters to make the decimals on a place value grid.

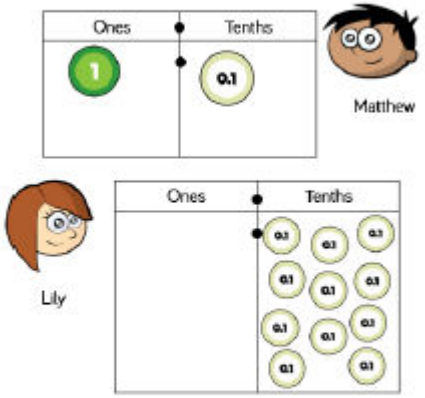
0.7 0.1 0.8

There are ☐ ones and ☐ tenths.

Who is correct? Explain why.




Two children built eleven tenths.




Who built it correctly?
Explain your answer.

What is the difference between six tens and six tenths?

Show me.

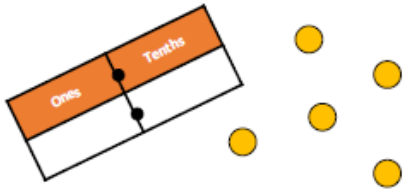
Use five counters and a place value grid. Place all five counters in either the ones or the tenths column.

How many different numbers can you make?

Describe the numbers you have made by completing the sentences.

There are ☐ ones and ☐ tenths.

☐ ones + ☐ tenths = ☐

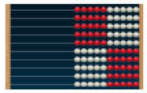
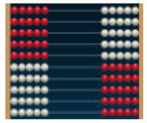



## Week 4

Same as week 3.

Recognise and write decimal equivalents to ¼, ½ and 2/4

- To know the relationship between fractions and decimals.
- To develop the skill of finding equivalent fractions and decimals.
- To understand how to find equivalent fractions and decimals.

| Fluency | Reasoning | Problem Solving |
|---|---|---|
| Here is a Rekenrek with 100 beads.<br>  <br>☐ out of 100 beads are red.<br>☐ out of 100 beads are white.<br>$\frac{☐}{100}$ are red, and $\frac{☐}{100}$ are white.<br><br>Half of the beads are red and half a white.<br>$\frac{1}{2} = \frac{50}{100} = \frac{5}{10} = 0.5$ so $\frac{1}{2}$ is ☐ as a decimal.<br><br>The beads are split equally on each side of the Rekenrek.<br>  <br>There are 4 equal groups.<br>1 out of 4 equal groups = ☐ beads.<br>1 out of 4 equal groups = $\frac{☐}{100}$<br>$\frac{1}{4} = \frac{☐}{100} = ☐$<br><br>What fraction is represented by 3 out of the 4 groups?<br>Can you write this as a decimal?<br>$\frac{3}{4} = \frac{☐}{100} = ☐$ | True or False?<br><br>$\frac{1}{2} = 1.2$ , $\frac{1}{4} = 1.4$ and $\frac{3}{4} = 3.4$<br><br>Explain your answer. | Louisa says:<br><br>If I know $\frac{1}{2}$ is 0.5 as a decimal, I also know $\frac{3}{6}$, $\frac{4}{8}$ and $\frac{6}{12}$ are equivalent to 0.5 as a decimal.<br><br>Explain Louisa's thinking. |
| **Week 5** | Consolidate | |
| **Fluency** | **Reasoning** | **Problem Solving** |