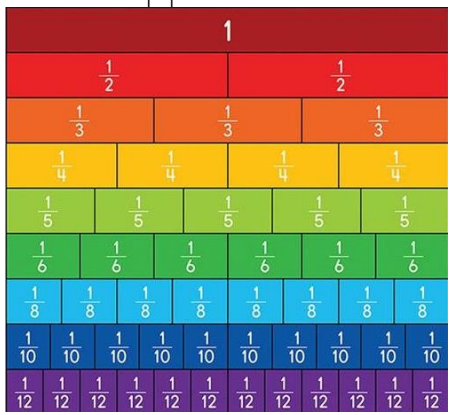
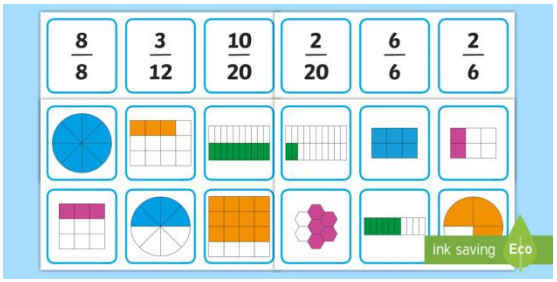
Curriculum Area: Maths	Year Group: 6	Term: Spring 1

Key Areas of Learning:	Oak Academy Links	Around the home activities	Your Challenge
Equivalent Fractions Fraction and Decimal Equivalents Fractions and Division **Key Questions** What is an equivalent fraction? How do we convert between fractions, decimals and percentages? What is the relationship between fractions and division.	https://classroom.thenational.academy/lessons/equivalent-fractions-cgt66c https://classroom.thenational.academy/lessons/fractions-and-decimals-70tp4c https://classroom.thenational.academy/lessons/comparing-fractions-and-decimals-c5jp8r https://classroom.thenational.academy/lessons/fractions-and-division-part-1-64u32d https://classroom.thenational.academy/lessons/fractions-and-division-part-2-6dgk4e	- Practise all your times tables up to 12x12. - Make your own fraction wall	https://nrich.maths.org/1249 Nrich Fractions, Decimals and Percentages matching cards.

Suggested Learning Activities	Resources	Desired Outcome
Each activity is either activity A or activity B. Activity A will include a online lesson video for the children to follow along to. Activty B is planned to work alongside these videos. These sessions do not have supporting videos but are explained below.		
Activity A – Equivalent Fractions Begin by completing this lesson: https://classroom.thenational.academy/lessons/equivalent-fractions-cgt66c	- Internet access - Pencil and paper	Children will be able to convert fractions and create equivalents – drawing them on fraction walls.
Activity B – Lets check: Ron thinks you can only simplify even numbered fractions because you keep on halving the numerator and denominator until you get an odd number. Do you agree? Explain your answer. **Main input** Today we are learning how we make equivalent fractions. We make equivalent fractions by multiplying or dividing the numerator and denominator by the same number. For example, if I have 1/2 I can find an equivalent fraction by multiplying it by 2 = 2/4, or by 3 = 3/6, or by 4 = 4/8. Consider how many equivalent	- Internet access - Pencil and paper  	Children will be able to convert fractions and create equivalents – drawing them on fraction walls.

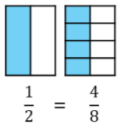
fractions you can make for 1/4 , 1/5, 1/10. Write down as many as you can: there are an infinite number of equivalent fractions that you can make. Fractions are part of a whole. A fraction denominator shows how many parts and the numerator shows how many parts you have. Take a piece of paper and fold it: what fractions can you make? Remember, the amount of folds will be your denominator and however many you shade in would be the numerator. Once you have your fraction, can it be simplified? Can you find a common factor to divide by?

Thinking about what you have learnt, have a go at the following:



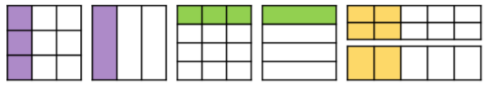
Fluency:

Take two pieces of paper the same size.
Fold one piece into two equal pieces.
Fold the other into eight equal pieces.
What equivalent fractions can you find?

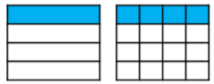


$\frac{1}{2} = \frac{4}{8}$

Use the models to write equivalent fractions.



Eva uses the models and her multiplication and division skills to find equivalent fractions.



Use this method to find equivalent fractions to $\frac{2}{4}, \frac{3}{4}$ and $\frac{4}{4}$ where the denominator is 16

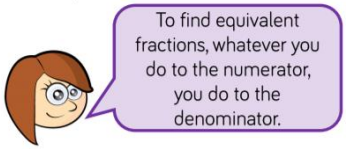
Eva uses the same approach to find equivalent fractions for these fractions. How will her method change?

$\frac{4}{12} = \frac{\square}{3}$ $\frac{6}{12} = \frac{\square}{4}$ $\frac{6}{12} = \frac{\square}{2}$

Now try these reasoning task:

Reasoning

Rosie says,



Using her method, here are the equivalent fractions Rosie has found for $\frac{4}{8}$

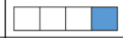
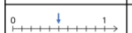
$\frac{4}{8} = \frac{8}{16}$ $\frac{4}{8} = \frac{6}{10}$

$\frac{4}{8} = \frac{2}{4}$ $\frac{4}{8} = \frac{1}{5}$

Are all Rosie's fractions equivalent?
Does Rosie's method work?
Explain your reasons.

Challenge Here are some fraction cards. All of the fractions are equivalent. $\frac{4}{A}$ $\frac{B}{C}$ $\frac{20}{50}$ A + B = 16 Calculate the value of C.		
Activity A – Fractions and Decimals Begin with the following lesson: https://classroom.thenational.academy/lessons/fractions-and-decimals-70tp4c	- Internet access - Pencil and paper	Children know the key conversions of fractions to decimals and can convert through decimal division.
Activity B – **Let's Check** Last month Kira saved $\frac{3}{5}$ of her £10 pocket money. She also saved 15% of her £20 birthday money. How much did she save altogether? **Main input** Today we are learning how to convert a fraction into a decimal. Fractions and decimals are the same thing – they are both parts of a whole, they are just written differently. A decimal is an equivalent of a fraction, to find it you divide the numerator by denominator. This involves you dividing into decimals using the short division method. To complete this method you carry out regular short division but rather than writing a remainder, you put a decimal point above and below the line, draw a place holder in your bus stop after the point and put the remainder on there to make a 2/3 digit number ending in zero. You then continue with the short division but each remainder goes onto another placeholder until it works or is recurring (same decimal number forever). In this case, put a small dot above the number that is recurring. Practice this method to calculate decimal equivalents for 1/2 , 1/4 , 1/5 , 1/10, 1/8. Once you have done this, have a go at the following activities: Fluency What decimal is shaded? Can you write this as a fraction? 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	- Internet access - Pencil and paper **Remainders as Decimals** 0 7 . 1 2 5 8 ⟌ 5 7 . 1 0 2 0 4 0	Children know the key conversions of fractions to decimals and can convert through decimal division.

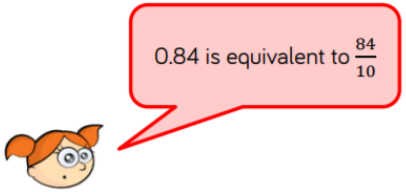
Complete the table.

Decimal	Fraction in tenths or hundredths	Simplified fraction
0.6	$\frac{6}{10}$	$\frac{3}{5}$
		
		
		
0.95		

Now try the reasoning:

Reasoning

Alex says,



Do you agree?
Explain why.

Challenge

Jakob says to Peter, 'Last month I saved 0·5 of my pocket money and this month I saved $\frac{1}{3}$ of my pocket money, so altogether I've saved 40% of my pocket money'.

Do you think Peter should agree with Jakob?

Explain your decision.

Activity A – Comparing fractions and decimals

Begin by completing this lesson:
https://classroom.thenational.academy/lessons/comparing-fractions-and-decimals-c5jp8r

- Internet access
- Pencil and paper

Children know the key conversions of fractions to decimals and can convert through decimal division. They can use this knowledge to order fractions and decimals.

Activity B –

Let's Check

What is 4/100 as a decimal? Is it 0.4, 0.04 or 0.004? Explain how you know.

Today we are continuing to practice converting fractions to decimals. Remember that to do this we divide the numerator by the denominator using short division into decimals. You need to try to commit the key fraction

- Internet access
- Pencil and paper

Children know the key conversions of fractions to decimals and can convert through decimal division. They can use this knowledge to order fractions and decimals.

conversions to memory – write out the key fraction to decimal equivalents on individual bits of paper, mix them up and try to match them. Can you do 1/2 1/4 3/4 1/3 1/5 1/8 1/10 1/100?

Now have a go at the following activities:

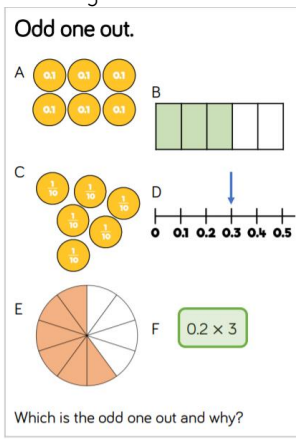
Fluency

Three friends share a pizza. Sam ate 0.25 of the pizza, Mark ate 0.3 of the pizza and Jill ate 0.35 of the pizza.

- Can you write the amount each child ate as a fraction?
- What fraction of the pizza is left?

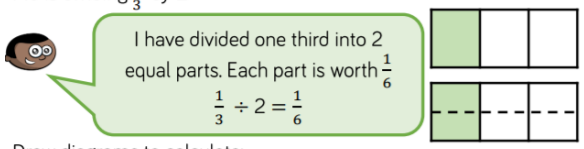
Now try the reasoning:

Reasoning



Challenge

Mo is dividing $\frac{1}{3}$ by 2



Draw diagrams to calculate:

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

Percentage	Fraction	Decimal
100%	1	1
75%	3/4	0.75
66.66%	2/3	0.66
50%	1/2	0.50
33.33%	1/3	0.33
25%	1/4	0.25
20%	1/5	0.20
12.5%	1/8	0.125
10%	1/10	0.10
5%	1/20	0.05
2.5%	1/40	0.025

Activity A – Fractions and division part 1

Begin by completing this lesson:

https://classroom.thenational.academy/lessons/fractions-and-division-part-1-64u32d

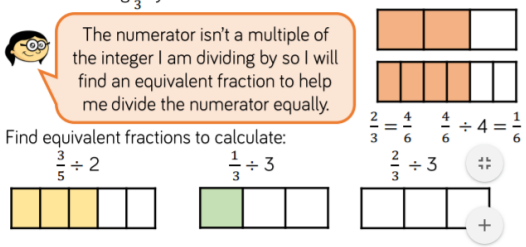
- Internet access
- Pencil and paper

Children know the key conversions of fractions to decimals and can convert through decimal division. They can multiply by 100 to convert to percentages and use division to transfer between the three.

Activity B –

Let's Check

Annie is dividing $\frac{2}{3}$ by 4



Main Input

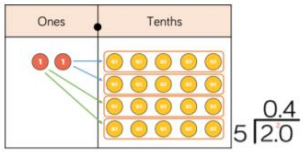
For the past two lessons, we have been looking at converting fractions into decimals. Now we are going to extend this to looking at converting fractions into decimals and percentages. To convert a decimal into a percentage, we multiply it by 100 as percentages are out of 100. Fractions, decimals and percentages are all equivalent: they are all parts of a whole. If we want to convert a fraction to a percentage we must convert to a decimal and then multiply by 100. If we have a percentage to convert to a decimal therefore, we divide it by 100. This is when it is important to remember the key conversions so that we look at a percentage and know what fraction it is. For the fractions that you converted to decimals yesterday, now convert them into percentages. You'll notice that the decimals and percentages have the same digits. Consider why this is.

Can you do 1/2 1/4 3/4 1/3 1/5 1/8 1/10 1/100?

Now try the following questions:

Fluency

Deena has used place value counters to write $\frac{2}{5}$ as a decimal. She has divided the numerator by the denominator.



$$5\overline{)2.0}\ 0.4$$

Use this method to convert the fractions to decimals. Give your answers to 2 decimal places.

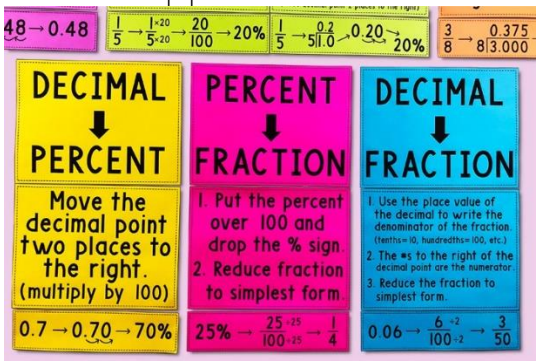
$\frac{1}{2}$ $\frac{3}{4}$

Use the short division method to convert the fractions to decimals. Write the decimals to three decimal places.

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

8 friends share 7 pizzas.
How much pizza does each person get?
Give your answer as a decimal and as a fraction.

- Internet access
- Pencil and paper

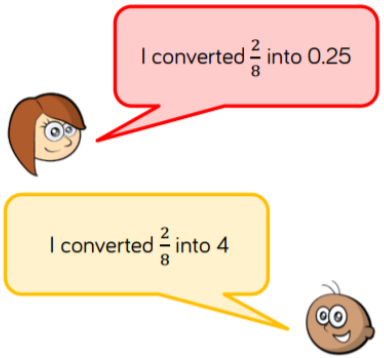


Children know the key conversions of fractions to decimals and can convert through decimal division. They can multiply by 100 to convert to percentages and use division to transfer between the three

Now try the reasoning:

Reasoning

Rosie and Tommy have both attempted to convert $\frac{2}{8}$ into a decimal.



Who is correct?
Prove it.

Challenge

Calculate the missing fractions and integers.

$\square \div 4 = \frac{7}{36}$

$\frac{3}{20} \div \square = \frac{3}{80}$

$\square \div \square = \frac{2}{5}$

Is there more than one possibility?

Activity A – Fractions and division part 2

Begin by completing this lesson:
https://classroom.thenational.academy/lessons/fractions-and-division-part-2-6dgk4e

- Internet access
- Pencil and paper

Children know the key conversions of fractions to decimals and can convert through decimal division. They can multiply by 100 to convert to percentages and use division to transfer between the three

Activity B –

Let's Check:

Match the equivalent calculations.

$\frac{1}{4} \times \frac{12}{13}$	$\frac{12}{13} \div 2$
$\frac{1}{6} \times \frac{12}{13}$	$\frac{12}{13} \div 6$
$\frac{1}{2} \times \frac{12}{13}$	$\frac{12}{13} \div 4$
$\frac{1}{3} \times \frac{12}{13}$	$\frac{12}{13} \div 3$

Main input

Today we are continuing our learning on fraction, decimal and percentage equivalents. Remember that to convert a fraction into a decimal you divide the numerator by the denominator, to convert a decimal into a percentage you multiply it by 100. Sometimes we can be given a variety of fractions, decimals and percentages to compare and order. If these were all fractions, we would find a common denominator, however when they are in different forms, you should change them to either all decimals or all percentages (whichever you are more comfortable with). Once you have converted them all, you can order them in ascending order (smallest to biggest) or descending order (biggest to smallest). But **remember** – once you have them in the right order, you must put your answer back in its original form, **not** the equivalent conversion.

Convert and order 1/2 0.3, 6/10, 0.76, 45%, 88% 0.99

Remember – turn them all into decimals or percentages first, then order in ascending but right out the answer **in the original form.**

Now have a go at the following activities:

Fluency

' Match the fractions to the equivalent decimals.

$\frac{2}{5}$	0.04
$\frac{1}{25}$	0.4
$\frac{1}{4}$	0.25

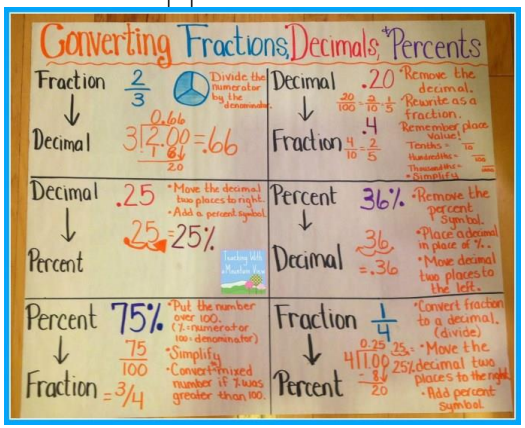
' Use your knowledge of known fractions to convert the fractions to decimals. Show your method for each one.

$\frac{7}{20}$ $\frac{3}{4}$ $\frac{2}{5}$ $\frac{6}{200}$

' Mo says that $\frac{63}{100}$ is less than 0.65

Do you agree with Mo?
Explain your answer.

- Internet access
- Pencil and paper



Fractions	Decimals	Percentages
$\frac{1}{2}$	0.5	50%
$\frac{1}{3}$	0.3	$33.\dot{3}\%$
$\frac{2}{3}$	0.6	$66.\dot{6}\%$
$\frac{1}{4}$	0.25	25%
$\frac{3}{4}$	0.75	75%
$\frac{1}{5}$	0.2	20%
$\frac{1}{10}$	0.1	10%
$\frac{1}{20}$	0.05	5%
$\frac{1}{100}$	0.01	1%

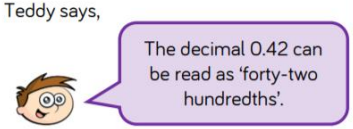
Children know the key conversions of fractions to decimals and can convert through decimal division. They can multiply by 100 to convert to percentages and use division to transfer between the three

Now try the reasoning:

Reasoning

Amir says,

Teddy says,



Who do you agree with?
Explain your answer.

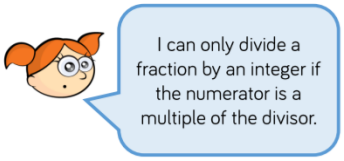
True or False?

0.3 is bigger than $\frac{1}{4}$

Explain your reasoning.

Challenge

Alex says,



Do you agree?
Explain why.