



Maths

Calculation Policy

Fractions

2024

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EYFS

0 ➡ I can say numbers in words in a sequence

Year One

0 ➡ I understand that fractions are equal parts of a whole

0 ➡ I know one half is one part of two equal parts of a whole

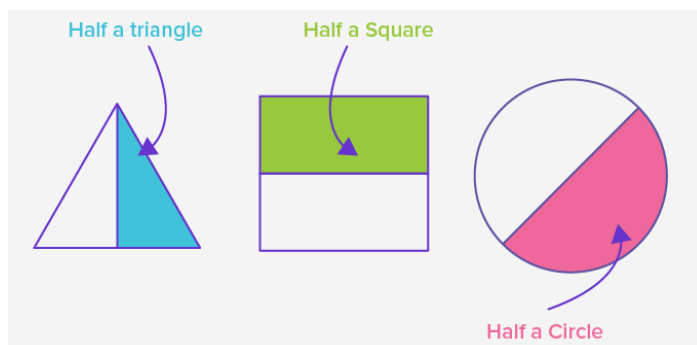
0 ➡ I know if the parts aren't equal, then it isn't a half

0 ➡ I can write the symbol for one half

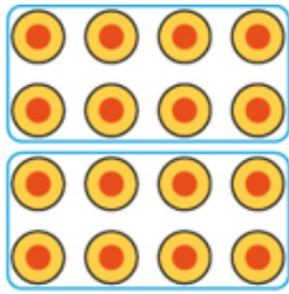
Add in Image 1

0 ➡ I can find one half of an object
(pizza, cake, box, table etc)

0 ➡ I can find one half of a shape



0 ➡ I can find one half of a quantity using concrete resources



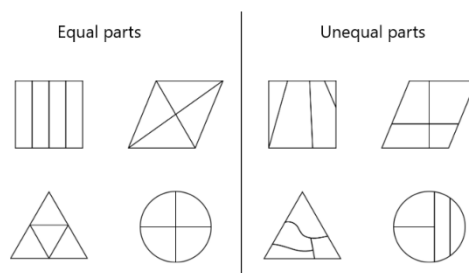
Any concrete resources can be used.

0 → I can write simple fractions (one half)

$$\frac{1}{2} \text{ of } 6 = 3$$

0 → I know one quarter is one part of four equal parts of a whole

0 → I know if the parts aren't equal, then it isn't a quarter



0 → I can write the symbol for one quarter

0 → I can find one quarter of an object
(pizza, cake, box, table etc)

0 → I can find one quarter of a shape

0 → I can find one quarter of a quantity using concrete resources

0 → I can write simple fractions (one quarter)

$$\frac{1}{4} \text{ of } 6 = 1.5$$

Year Two

0 → I know one third is one part of three equal parts of a whole

0 → I know if the parts aren't equal, then it isn't a third

0 ➡ I can write the symbol for one third

0 ➡ I can find one third of an object
(pizza, cake, box, table etc)

0 ➡ I can find one third of a shape

0 ➡ I can find one third of a quantity using concrete resources

0 ➡ I can write simple fractions (one third)

$$\frac{1}{2} \text{ of } 6 = 3$$

0 ➡ I know the unit fraction one quarter is one part of four equal groups

0 ➡ I know two quarters is two parts of four equal groups

0 ➡ I can write the symbol for two quarters

0 ➡ I can find two quarters of an object, shape and quantity using concrete resources

0 ➡ I can recognise the equivalence of one half and one quarter

0 ➡ I know three quarters is three parts of four equal groups

0 ➡ I can write the symbol for three quarters

0 ➡ I can find three quarters of an object, shape and quantity using concrete resources

Year Three

Recap of tenths from place value unit

0 ➡ I understand the meaning of the numerator and denominator

0 ➡ I know that the line in a fraction means divide

0 ➡ I understand that unit fractions are one part of the whole

0 ➡ I can order and compare unit fractions

0 ➡ I can place unit fractions on a numberline

0→ I can find a unit fraction of an amount using division facts

$\frac{1}{3}$ of 12 = 4

$12 \div 3 = 4$
 $4 \times 3 = 12$

1) Divide by the denominator
2) Multiply by the numerator

0→ I understand that non-unit fractions are more than one part of the whole

0→ I can order and compare non-unit fractions with the same denominator

0→ I can place non-unit fractions with the same denominator on a numberline

0→ I can find non-unit fractions of an amount using division facts
(small denominators → 2,5,10,3,4)

$\frac{2}{5}$ of 15 = 6

$15 \div 5 = 3$
 $3 \times 2 = 6$

1) Divide by the denominator
2) Multiply by the numerator

0→ I can recognise that one whole is equivalent to two halves, three thirds and four quarters

0→ I can use my multiples to identify how many parts are in a given whole
 $3 \times 5 = 15$ so there are 15 fifths in 3 wholes.

0→ I can find equivalent fractions using a bar model

0→ I can find equivalent fractions using my knowledge of multiplication
e.g → $\frac{2}{5} = \frac{4}{10}$

Handwritten notes on grid paper illustrating equivalent fractions. At the top, $\frac{2}{5} = \frac{4}{10}$ is written with arrows indicating multiplication by 2 for both numerator and denominator. Below this, a sequence of equivalent fractions is shown: $\frac{2}{5} = \frac{4}{10} = \frac{6}{15} = \frac{8}{20}$. Colored arrows (purple, green, blue) connect the fractions, labeled with multipliers (x2, x3, x4). To the right, a rule is written: "Rule: * Multiply the numerator and denominator by the same number."

0→ I add fractions with the same denominator within a whole

Use concrete resources and images to support.

Handwritten notes on grid paper showing the addition of fractions: $\frac{2}{5} + \frac{1}{5} = \frac{3}{5}$. A pink arrow points from the text "Add the numerators" to the 3 in the numerator. A green arrow points from the text "The denominator stays the same" to the 5 in the denominator.

0→ I subtract fractions with the same denominator within a whole

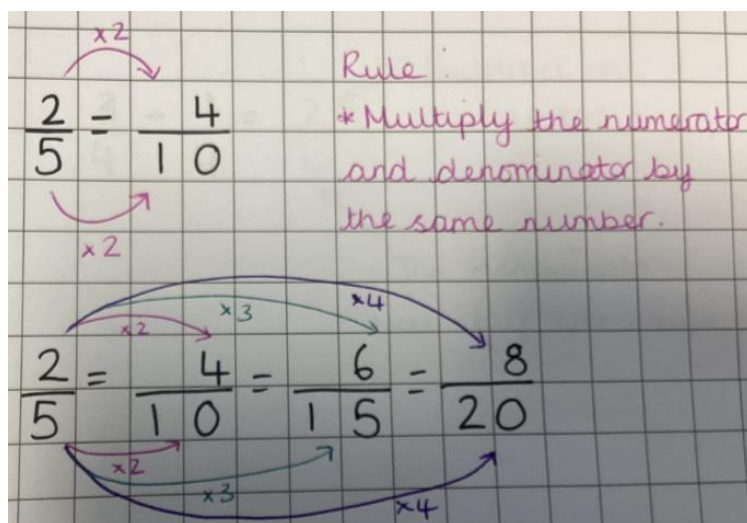
Use concrete resources and images to support.

Handwritten notes on grid paper showing the subtraction of fractions: $\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$. A pink arrow points from the text "Subtract the numerators" to the 2 in the numerator. A green arrow points from the text "The denominator will stay the same" to the 4 in the denominator.

0→ I can solve problems that involve all of the above

Year Four:

- 0→ I understand the meaning of the numerator and denominator
- 0→ I know that the line in a fraction means divide
- 0→ I understand that unit fractions are one part of the whole
- 0→ I can find equivalent fractions using a bar model
- 0→ I can find equivalent fractions using my knowledge of multiplication
- 0→ I know that equivalent fractions are equal to one another
- 0→ I know common equivalent fractions
e.g → one half is equivalent to two quarters
- 0→ I can find families of equivalent fractions



- 0→ I know that the line in a fraction means divide
- 0→ I can find a unit fraction of an amount using division facts
- 0→ I understand that non-unit fractions are more than one part of the whole
- 0→ I can find non-unit fractions of an amount using division facts
(For all timetables)
- 0→ I add fractions with the same denominator within a whole

0 → I subtract fractions with the same denominator within a whole

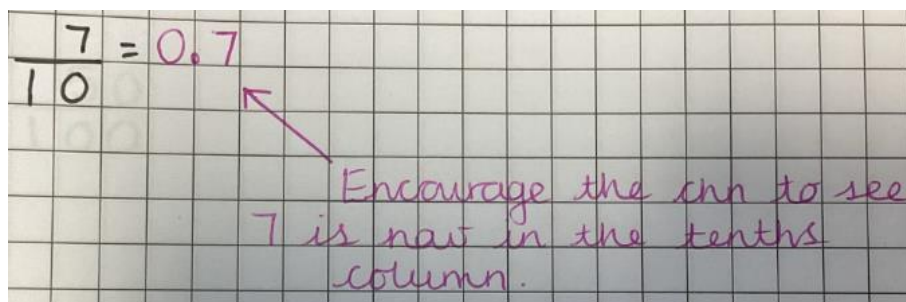
0 → I add fractions with the same denominator within a whole

0 → I subtract fractions with the same denominator within a whole

Recap of tenths and hundredths from place value unit

0 → I know the decimal equivalence to a fraction when the denominator is 10

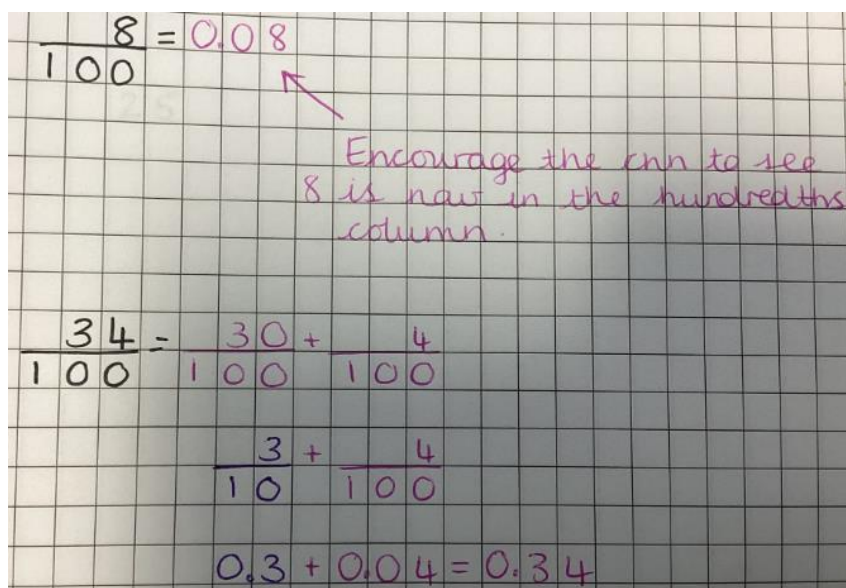
1. place value charts
2. tens frame



Link to division → the line in a fraction means divide so it represents 7 divided by 10.

0 → I know the decimal equivalence to a fraction when the denominator is 100

1. place value charts
2. hundreds square (a full row represents 1 tenth, a single square represent 1 hundredth)



Link to division → the line in a fraction means divide so it represents 8 divided by 100.

0→ I know half of 100 is 50 and can apply this to finding decimal equivalence of $\frac{1}{2}$

Use a hundred square

Link → money

0→ I know one quarter of 100 is 25 and can apply this to finding decimal equivalence of $\frac{1}{4}$

Use a hundred square

Link → money

0→ I know three quarters of 100 is 75 and can apply this to finding decimal equivalence of $\frac{3}{4}$

Use a hundred square

Link → money

0→ I can solve simple measure and money word problems using the above

Recap of comparing and ordering tenths and hundredths from place value unit

0→ I can identify the whole before and after a number with one decimal place

0→ I can find the midpoint between two whole numbers

1. Number line

Find the midpoint between 11 and 12.



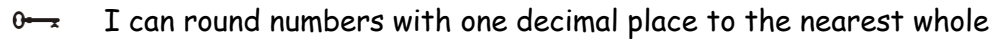
What's the difference between 11 and 12? 1

What would halfway be? $1 \div 2 = \frac{1}{2} = 0.5$

So, 0.5 more than 11 is 11.5

0→ I can place a number with one decimal place on a number line using the midpoint as a guide

- ## Place 5.7



- Round 3.4 to the nearest whole.



Key I can solve simple measure and money word problems using the above

Year Five:

- ➡ I understand the meaning of the numerator and denominator
- ➡ I know that the line in a fraction means divide
- ➡ I understand that unit fractions are one part of the whole
- ➡ I know that a proper fraction is less than 1
- ➡ I know that fractions can be greater than 1
- ➡ I know that an improper fraction has a larger numerator than denominator and represents where there are more parts than needed to make a whole
- ➡ I know that a mixed number represents a whole number and a fraction
- ➡ I can convert between an improper fraction and a mixed number using my knowledge of multiples of the denominator

Convert $2\frac{1}{5}$ into a mixed number.

Begin .

1	2	3	4	5
o	o	o	o	o
o	o	o	o	o
o	o	o	o	o
o	o	o	o	o
o	o	o	o	o

Use an array to show how many wholes you have

$4\frac{1}{5}$

- 1) Write the number of parts needed for a whole (denominator)
- 2) Share out how many parts you have (numerator)
Ensure you go $\rightarrow$ not $\downarrow$
- 3) How many wholes do you have? 4
- 4) How many remaining? 1 out of 5 so $\frac{1}{5}$

Move on to .

$21 \div 5 = 4r1$

$4 \times 5 = 20$ so there are 4 wholes and 1 remaining.

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

Convert $3\frac{2}{4}$ to an improper fraction.

Begin .

1	2	3
o	o	o
o	o	o
o	o	o
o	o	o

Use an array to show the wholes.

$1\frac{1}{3}$

Move on to .

$3\frac{2}{4} = \frac{14}{4}$

$3 \times 4 = 12$ (No of wholes x denominator)

$12 + 2 = 14$ (+ on numerator)

- ➡ I know that equivalent fractions are equal to one another
- ➡ I know common equivalent fractions
e.g $\rightarrow$ one half is equivalent to two quarters
- ➡ I can find families of equivalent fractions

0 → I can find equivalent fractions using my knowledge of multiplication

0 → I can compare and order fractions whose denominators are all multiples of the same number

Compare $\frac{2}{6}$ and $\frac{11}{18}$

$\frac{2}{6} = \frac{6}{18}$ (multiplying by 3)

1) Find the common multiple (denominator).
In this case, 18 is a multiple of 6 so only one fraction needs converting.

$\frac{6}{18} < \frac{11}{18}$

2) Use knowledge of equivalent fractions to convert the fraction.

$\frac{2}{6} < \frac{11}{18}$

3) Now they have the same denominators compare them.

4) Finally, change them back to the original.

0 → I can compare and order fractions whose denominators are all factors of the same number

Compare $\frac{7}{8}$ and $\frac{5}{12}$

1) Find the lowest common multiple (denominator).
 $\frac{7}{8} = \frac{21}{24}$ (multiplying by 3)
 $\frac{5}{12} = \frac{10}{24}$ (multiplying by 2)

2) Using knowledge of equivalent fractions, convert them.

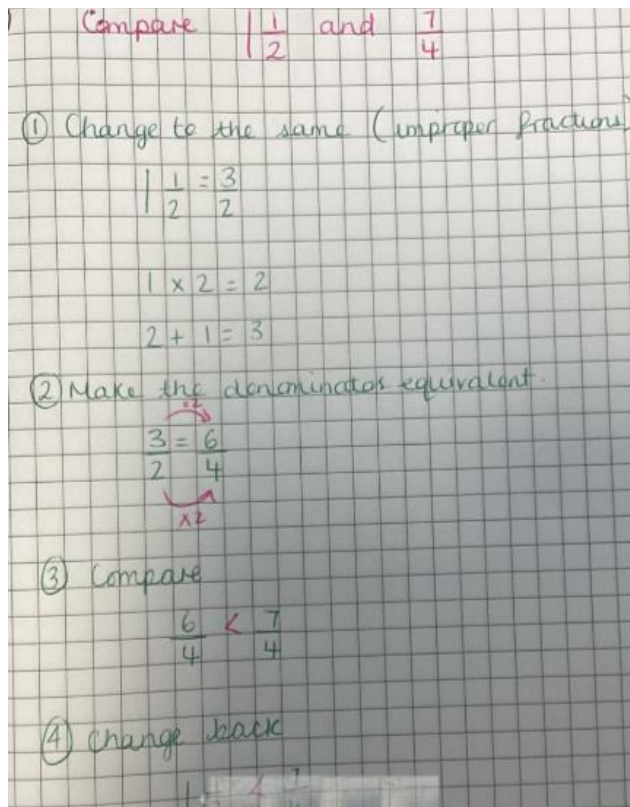
$\frac{21}{24} > \frac{10}{24}$

3) Now compare them.

4) Convert them back.

$\frac{7}{8} > \frac{5}{12}$

0→ I compare mixed numbers and improper fractions



0→ I can find non-unit fractions of an amount using division facts
(For all timetables)

0→ I can find a fraction of an amount

0→ I add fractions with the same denominator within a whole

0→ I can subtract fractions with the same denominator within a whole

0→ I can add and subtract fractions with the same denominator (including improper fractions and mixed numbers)

$\frac{9}{6} + \frac{2}{6} = \frac{11}{6} = 1\frac{5}{6}$

Add the ~~num~~ numerators
 ↑
 The denominator stays the same

Remember to convert your answer to a mixed number.

$\frac{11}{6} = 1\frac{5}{6}$

$\frac{11}{6} = 1\frac{5}{6}$

Same for subtraction.

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

1) Change to improper fractions

$\frac{7}{5} + \frac{11}{5} = \frac{18}{5}$

Remember to convert your answer to a mixed number.

$\frac{18}{5} = 3\frac{3}{5}$

$2\frac{4}{7} - \frac{8}{7} = 1\frac{3}{7}$

1) Convert any mixed numbers into improper fractions.

$\frac{18}{7} - \frac{8}{7} = \frac{10}{7}$

Remember to convert it back:

$\frac{10}{7} = 1\frac{3}{7}$

➔ I can add and subtract fractions whose denominators are multiples of the same number (including improper fractions and mixed numbers)

$2\frac{4}{6} + 1\frac{1}{3} = 4$

1) Convert to improper fractions

$\frac{16}{6} + \frac{4}{3} =$

2) Find the lowest common multiple (denominator)

6 3
 ⑥ ⑥

3) Convert them

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

4) Add them

$\frac{16}{6} + \frac{8}{6} = \frac{24}{6}$

5) Convert back to a mixed number

$\frac{24}{6} = 4$

0→ I can add and subtract fractions whose denominators are factors of the same number (including improper fractions and mixed numbers)

$3\frac{3}{5} - \frac{4}{3} = 2\frac{4}{15}$

1) Convert to improper fractions

$$\frac{18}{5} - \frac{4}{3} =$$

2) Find least common multiple (denominator)

5: 5, 10, 15
3: 3, 6, 9, 12, 15

3) Convert

$$\frac{18}{5} = \frac{54}{15} \quad \frac{4}{3} = \frac{20}{15}$$

4) Subtract

$$\frac{54}{15} - \frac{20}{15} = \frac{34}{15}$$

5) Convert back to a mixed number

$$\frac{34}{15} = 2\frac{4}{15}$$

Ensure you give numbers that don't just multiply together.

E.g. $\frac{4}{6} + \frac{1}{2}$ Make them $\frac{2}{3} + \frac{1}{2}$ Make them $\frac{4}{6} + \frac{3}{6} = \frac{7}{6} = 1\frac{1}{6}$

0→ I know to convert my answer from an improper fraction to a mixed number when adding and subtracting fractions

0→ I can multiply proper fractions by a whole number

$$\frac{4}{5} \times 2 = 1\frac{3}{5}$$

1) Convert the whole number into an improper fraction (over 1).

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

2) Multiply the numerators

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

3) Multiply the denominators

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

4) Change to a mixed number

$$\frac{8}{5} = 1\frac{3}{5}$$

➔ I can multiply mixed numbers by a whole number (converting the mixed number to an improper fraction)

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

1) Convert them all to improper fractions.

$$\frac{13}{6} \times \frac{3}{1}$$

2) Multiply numerators and denominators

$$\frac{13}{6} \times \frac{3}{1} = \frac{39}{6}$$

3) Convert back to mixed number.

$$\frac{39}{6} = 6\frac{3}{6}$$

← Chn should notice $\frac{3}{6}$ is = to $\frac{1}{2}$

➔ I know the decimal equivalence to a fraction when the denominator is 10

0→ I know the decimal equivalence to a fraction when the denominator is 100

0→ I know the decimal equivalence to a fraction when the denominator is 1,000

Handwritten notes on grid paper showing the conversion of $\frac{4}{1000}$ to a decimal:

- $\frac{4}{1000} =$
- 1) $4 \div 1000 =$
- 2) Write the number 4
- 3) Add decimal points
- 4) Move it to the right 3 spaces
- 5) Add any place holders

The final result shown is 0.004.

Recap of comparing and ordering decimals up to 3 d.p. from place value unit

0→ I can solve simple measure and money word problems using the above

0→ I can find the midpoint between two tenths

1. Number line

Find the midpoint between 11 and 12.



What's the difference between 11 and 12? 1

What would halfway be? $1 \div 2 = \frac{1}{2} = 0.5$

So, 0.5 more than 11 is 11.5

0→ I can find the midpoint between two hundredths

Use same method as previous

0→ I can place a number with one decimal place on a number line between two wholes using the midpoint

See previous year group

0→ I can place a number with two and three decimal places on a number line between two wholes using the midpoint

1. Draw a number line
2. Find the whole before and after
3. Find the midpoint
4. Estimate where it would be

Place 5.7



0→ I can place a number with two and three decimal places on a number line between two tenths using the midpoint

Use same method as previous

0→ I can place a number with three decimal places on a number line between two hundredths using the midpoint

Use same method as previous

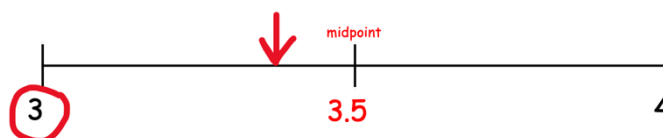
0→ I can round numbers with one decimal places to the nearest whole

See previous year group

0→ I can round numbers with two and three decimal places to the nearest whole

1. Number line method:
 - a. Draw number line
 - b. Add the whole before and after
 - c. Find the midpoint
 - d. Place your number
 - e. Which whole is it closest to?

Round 3.4 to the nearest whole.



2. Rule:
 - a. Underline the digit in the place value column you are rounding to (in this case, the ones because whole means no decimal places)

[illegible]

- b. Circle the digit in the place value column to the right (in this case, the tenths)
- c. If the circled digit is 0, 1, 2, 3 or 4, round down to the previous multiple of 10 → the underlined digit stays the same and everything to the right becomes a 0 **HOWEVER, WHEN ROUNDING TO THE NEAREST WHOLE, WE DON'T PUT 0S AFTER THE ONES AS THE NUMBER WOULD NO LONGER BE WHOLE.**
- d. If the circled digit is 5, 6, 7, 8 or 9, round up to the next multiple of 10 → the underlined digit goes up by one and everything to the right becomes 0 **HOWEVER, WHEN ROUNDING TO THE NEAREST WHOLE, WE DON'T PUT 0S AFTER THE ONES AS THE NUMBER WOULD NO LONGER BE WHOLE.**

Key I can round numbers with two and three decimal places to 1 decimal place

1. Number line method:
 - a. Draw number line
 - b. Add the tenth before and after
 - c. Find the midpoint
 - d. Place your number
 - e. Which tenth is it closest to?

Round 3.467 to the nearest 1dp.

3.4 midpoint 3.5

2. Rule:
 - a. Underline the digit in the place value column you are rounding to (in this case, the tenths because 1dp means 1 digit after the decimal point)

[illegible]

- c. If the circled digit is 0, 1, 2, 3 or 4, round down to the previous multiple of 10 → the underlined digit stays the same and everything to the right becomes a 0 **HOWEVER, WHEN ROUNDING TO THE DECIMAL PLACES, WE DON'T PUT 0S AFTER THE COLUMN WE ARE ROUNDING TO AS THE ANSWER WOULD NO LONGER BE 1 DECIMAL PLACE (1 DIGIT AFTER THE DECIMAL POINT)**
- d. If the circled digit is 5, 6, 7, 8 or 9, round up to the next multiple of 10 → the underlined digit goes up by one and everything to the right becomes 0 **HOWEVER, WHEN ROUNDING TO THE DECIMAL PLACES, WE DON'T PUT 0S AFTER THE COLUMN WE ARE ROUNDING TO AS THE ANSWER WOULD NO LONGER BE 1 DECIMAL PLACE (1 DIGIT AFTER THE DECIMAL POINT)**

0→ I can round numbers with three decimal places to 2 decimal places

Use same method as previous

0→ I can solve simple measure and money word problems using the above

Year Six:

0→ I can compare and order fractions whose denominators are all multiples of the same number

0→ I can compare and order fractions whose denominators are all factors of the same number

0→ I can compare and order mixed numbers and improper fractions

0→ I can find equivalent fractions using my knowledge of multiplication

0→ I can simplify fractions using common factors

Simplify $\frac{15}{20}$

1) Find the highest common factor

$\begin{array}{r} 15 \\ 1 \overline{) 15} \\ \underline{2} \\ 3 \\ \underline{4} \\ 5 \\ \underline{5} 3 \\ 3 \end{array}$	$\begin{array}{r} 20 \\ 1 \overline{) 20} \\ \underline{2} 0 \\ 3 0 \\ \underline{4} 0 \\ 5 0 \\ \underline{5} 4 \\ 4 \end{array}$
--	--

2) Divide numerator and denominator by 5.

$$\frac{15}{20} = \frac{3}{4}$$

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

1) Convert to a mixed number.

$$\frac{21}{6} = 3\frac{3}{6}$$

2) Simplify the fraction *see previous*

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

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

- 0 ➡ I can add and subtract fractions with the same denominator (including improper fractions and mixed numbers)
- 0 ➡ I can add and subtract fractions whose denominators are multiples of the same number (including improper fractions and mixed numbers)
- 0 ➡ I can add and subtract fractions whose denominators are factors of the same number (including improper fractions and mixed numbers)
- 0 ➡ I can add and subtract fractions with different denominators (including improper fractions and mixed numbers)
- 0 ➡ I know to convert my answer from an improper fraction to a mixed number when adding and subtracting fractions
- 0 ➡ I can multiply simple pairs of proper fractions

$$\frac{4}{5} \times \frac{3}{6} = \frac{2}{5} \quad \leftarrow \text{Omn should recognise the answer is smaller}$$

1) Multiply the numerators

$$\frac{4}{5} \times \frac{3}{6} = \frac{12}{30}$$

2) Multiply the denominators

$$\frac{4}{5} \times \frac{3}{6} = \frac{12}{30}$$

3) Simplify

$$\frac{12}{30} = \frac{2}{5}$$

(Handwritten notes show simplification by dividing numerator and denominator by 6)

➔ I know to simplify my answer when multiplying two proper fractions

$$\frac{4}{5} \div 3 = \frac{4}{15}$$

1) Make whole an improper fraction (over 1)

$$\frac{4}{5} \div \frac{3}{1} =$$

2) KCF → Keep the 1st fraction
Change the operation ($\div \rightarrow \times$)
Flip the second fraction

$$\frac{4}{5} \times \frac{1}{3} =$$

3) Multiply as normal

$$\frac{4}{5} \times \frac{1}{3} = \frac{4}{15}$$

4) Simplify if needed.

➔ I can divide proper fractions by whole numbers

Find the decimal equivalent of $\frac{3}{8}$

1) Understand that $\frac{3}{8} = 3 \div 8$

2) Record as short division

0.375	
8 3 7 5	

1) Add decimal points.
 2) Complete short division.
 3) Add 0 until you run out of remainders or it repeats.

Recap of decimals from place value unit

→ I can work out decimal fraction equivalents using short division