

Year 6

Key Mathematical Concepts and representations

Number and Place Value

Year 6

Powers of 10 (1)

Vocabulary:

Ones Tens Hundreds Thousands Ten-thousands Hundred-thousands
Millions Ten-Millions Tenths Hundredths Represents Digit Place Value
Counters Gattegno Tens Frame Equivalent Equation Multiply Divide

Ten/hundred times the size One-tenth/hundredth times the size

Millions			Thousands			Ones			-ths	
100s	10s	1s	100s	10s	1s	100s	10s	1s		
								0	0	1
								0	1	
								1		
							1	0		
						1	0	0		
				1	0	0	0	0		
			1	0	0	0	0	0		
		1	0	0	0	0	0	0		
1	0	0	0	0	0	0	0	0		

1,000,000	2,000,000	3,000,000	4,000,000	5,000,000	6,000,000	7,000,000	8,000,000	9,000,000
100,000	200,000	300,000	400,000	500,000	600,000	700,000	800,000	900,000
10,000	20,000	30,000	40,000	50,000	60,000	70,000	80,000	90,000
1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09

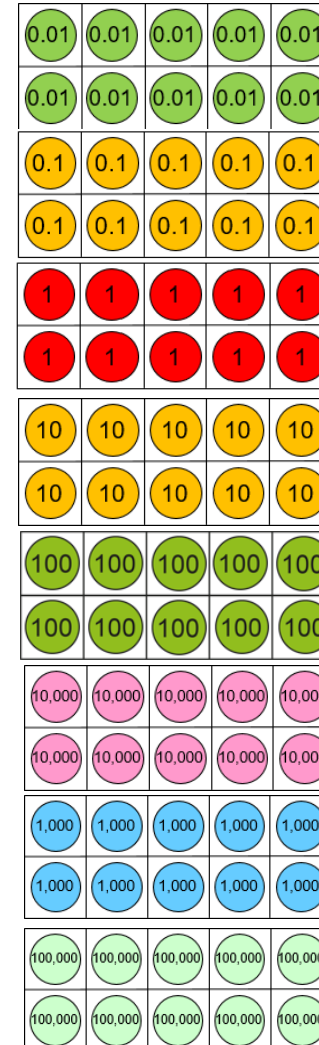
0 . 0 1 one hundredth
0 . 1 one tenth
1 one
1 0 ten
1 0 0 one hundred
1 , 0 0 0 one thousand
1 0 , 0 0 0 ten thousand
1 0 0 , 0 0 0 one hundred thousand
1 , 0 0 0 , 0 0 0 one million
1 0 , 0 0 0 , 0 0 0 ten million

Recognise that the 1 becomes ten times the size as it moves from right to left in a place value chart.

Recognise that 1 becomes one-tenth the size as it moves from left to right in a place value chart.

Recognise that the 1 becomes 10 times the size as it moves up in a Gattegno chart.

Recognise that 1 becomes one-tenth the size as it moves down in a Gattegno chart.



Recognise that:

10 hundredths are equivalent to 1 tenth.

10 tenths are equivalent to 1 one.

10 ones are equivalent to 1 ten.

10 tens are equivalent to 1 hundred.

10 hundreds are equivalent to 1 thousand.

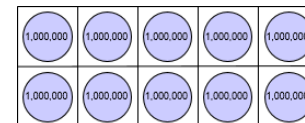
10 thousands are equivalent to 1 ten thousand.

10 ten thousands are equivalent to 1 hundred thousand.

10 hundred thousands are equivalent to 1 million.

10 millions are equivalent to 1 ten million.

Grouping and Exchanging Models



Number and Place Value

Year 6

Powers of 10 (2)

Vocabulary:

Ones Tens Hundreds Thousands Ten-thousands Hundred-thousands
Millions Ten-Millions Tenths Hundredths Represents Digit Place Value
Counters Gattegno Tens Frame Equivalent Equation Multiply Divide

Ten/hundred times the size One-tenth/hundredth times the size

10,000,000	20,000,000	30,000,000	40,000,000	50,000,000	60,000,000	70,000,000	80,000,000	90,000,000
1,000,000	2,000,000	3,000,000	4,000,000	5,000,000	6,000,000	7,000,000	8,000,000	9,000,000
100,000	200,000	300,000	400,000	500,000	600,000	700,000	800,000	900,000
10,000	20,000	30,000	40,000	50,000	60,000	70,000	80,000	90,000
1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09

× 100

÷ 100

Explore the Gattegno chart and recognise numbers that are one hundred times the size and one-hundredth times the size.

Ten is one hundred times the size of 0.1. 0.1 multiplied by 100 is equal to 10.

0.1 is one-hundredth of the size of 10. 10 divided by 100 is equal to 0.1.

1,000s	100s	10s	1s	0.1s	0.01s	0.001s
		2	5			
		0	0	2	5	

÷ 100 ↓

↓ × 0.01

0.25	×	100	=	25
25	÷	100	=	0.25

Use the Place Value chart and Gattegno chart to support children to visualise multiplying and dividing by 10, 100 or 1000.

25 is one hundred times the size of 0.25. 0.25 multiplied by 100 is equal to 25.

0.25 is one-hundredth of the size of 25. 25 divided by 100 is equal to 0.25.

1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009

Scaling Models

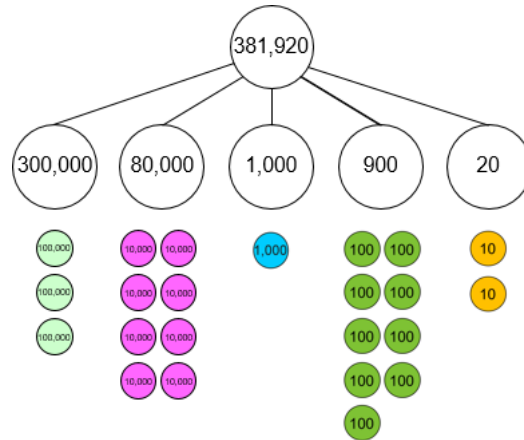
Number and Place Value

Year 6

Place Value in Numbers up to 10,000,000.

Vocabulary:

Ones Tens Hundreds Thousands Ten-thousands Hundred-thousands
Millions Ten-Millions Tenths Hundredths Represents Digit Place Value
Counters Gattegno Partition Combine Equation Addend Sum
Minuend Subtrahend Difference



Form numbers to 10,000,000 using place value counters and the part-part-whole model.

The 2 represents 2 tens

The 9 represents 9 hundreds

The 3 represents 3 hundred thousands.

Write as an additive equation.

$$200,000 + 10,000 + 100 + 20 = 210,120$$

Millions			Thousands			Ones		
100s	10s	1s	100s	10s	1s	100s	10s	1s
					1	9	3	7
				5	1	9	3	7
			4	5	1	9	3	7
		5	4	5	1	9	3	7

3,870,291.46

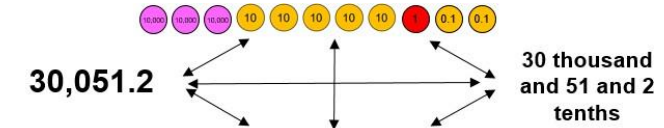
Millions			Thousands			Ones				
100s	10s	1s	100s	10s	1s	100s	10s	1s	0.1s	0.01s
		3	8	7	0	2	9	1	4	6

Read numbers to 10,000,000. Focus on the structure of millions, thousands and ones.

5 million, four hundred and fifty one thousand, nine hundred and thirty one (ones).

Recognise the value of each digit.

The 3 represent 3 million.



1,000,000	2,000,000	3,000,000	4,000,000	5,000,000	6,000,000	7,000,000	8,000,000	9,000,000
100,000	200,000	300,000	400,000	500,000	600,000	700,000	800,000	900,000
10,000	20,000	30,000	40,000	50,000	60,000	70,000	80,000	90,000
1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09

Make connections between different representations of numbers to 10,000,000 with the Gattegno Chart.

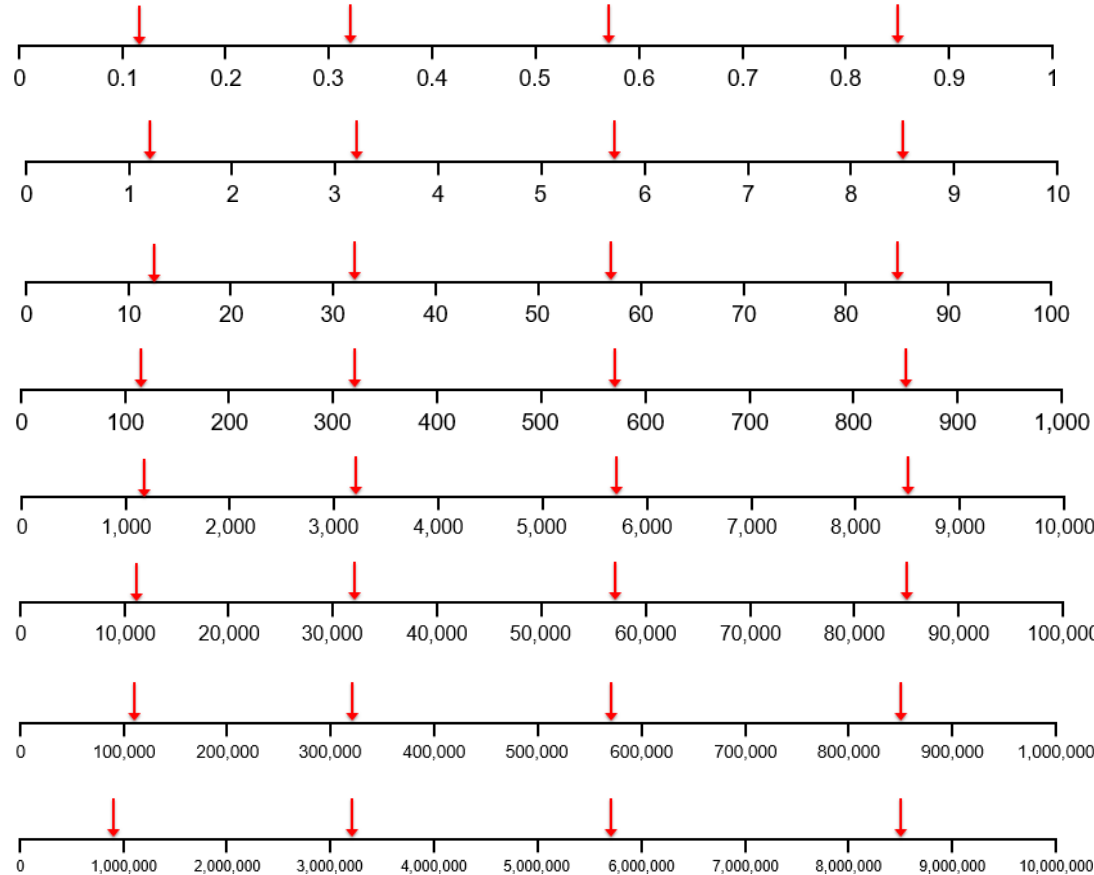
Number and Place Value

Year 6

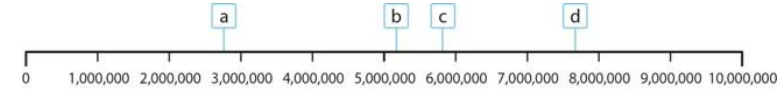
Numbers to 10,000,000 in the Linear Number System

Vocabulary:

Ones Tens Hundreds Thousands Ten-thousands Hundred-thousands
Millions Ten-Millions Tenths Hundredths Represents Digit Place Value
Number line Halfway Previous Next Multiple of... Between Round
Greater than



Recognise the value of a position on a number line split into ten intervals. Discuss what information children used to help identify the value.



previous
multiple of
1,000,000

2,000,000

< a <

next
multiple of
1,000,000

3,000,000

Identify the previous and next multiple of 1,000,000 that a value sits between.

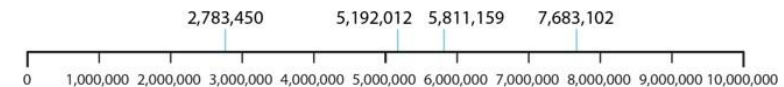
Round to the nearest million/hundred thousand/ten thousand.

The previous multiple of 1,000,000 is ____.

The next multiple of 1,000,000 is ____.

a is greater than ____ and less than ____.

a is nearest to ____.



previous
multiple of
1,000,000

2,000,000

< 2,783,450 <

next
multiple of
1,000,000

3,000,000

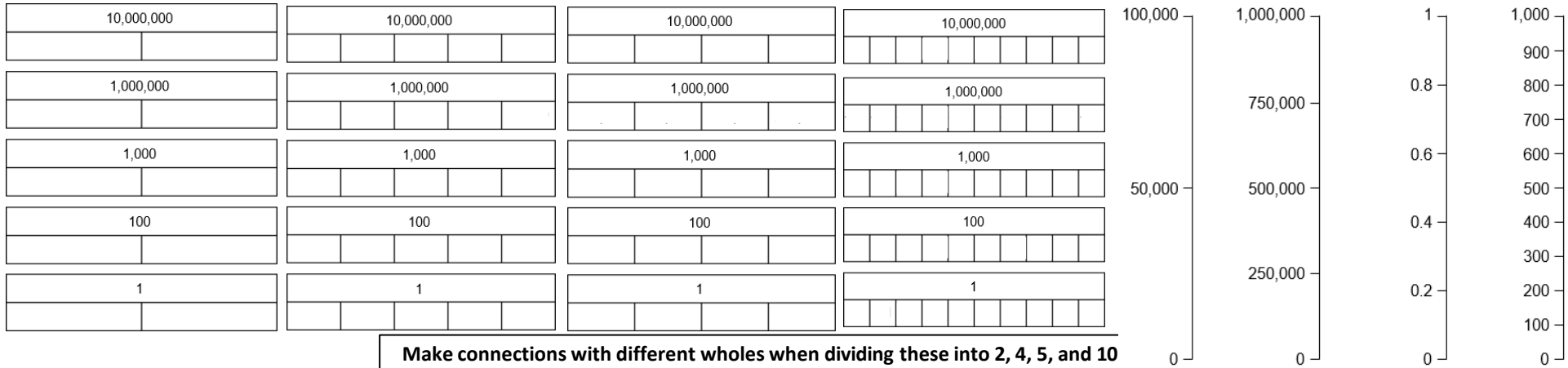
Number and Place Value

Year 6

Reading Scales with 2, 4, 5, or 10 intervals

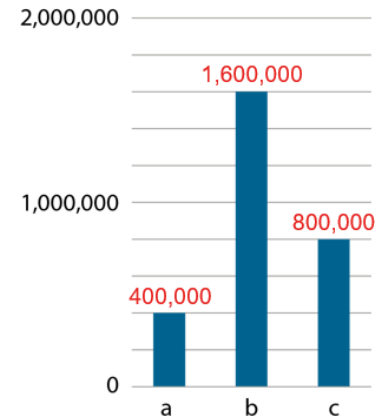
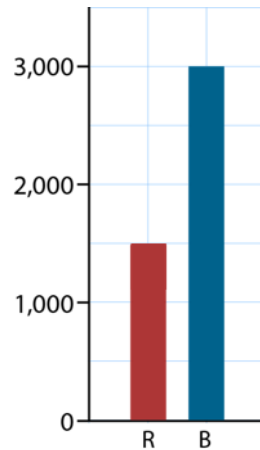
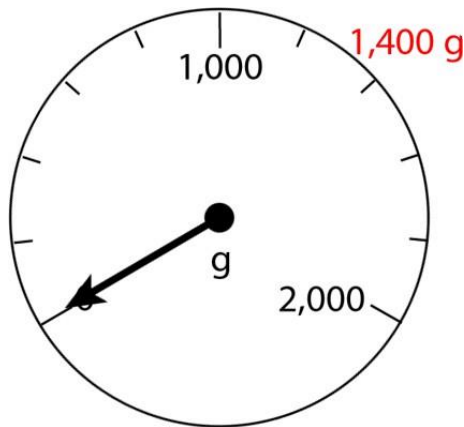
Vocabulary:

Ones Tens Hundreds Thousands Ten-thousands Hundred-thousands Millions Ten-Millions
 Tenths Hundredths Represents Digit Place Value Intervals Scales Divisions
 Equal Parts Whole Value Bar model Plus Minus Multiply Divide Grams
 Millilitres Litres Grams Kilograms Metres Centimetres Estimate



Make connections with different wholes when dividing these into 2, 4, 5, and 10 equal parts.

Identify intervals and count forwards/backwards using these intervals with both bar models and vertical number lines.



Use the number of intervals given to find values in other contexts (e.g. weighing scales/bar graphs)

Addition and Subtraction

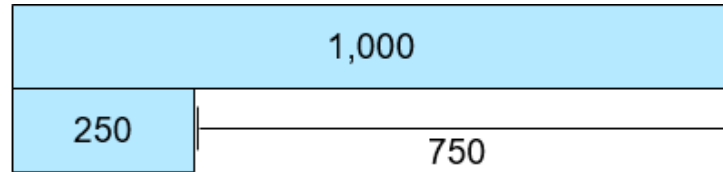
Year 6

Quantify additive and multiplicative relationships

Vocabulary:

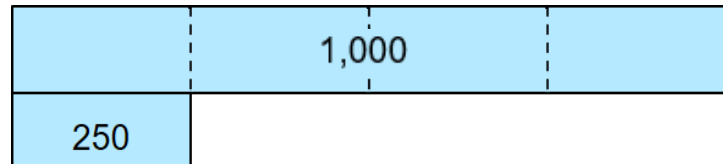
Additive Multiplicative Relationship Represents Compose Combine Total
More than Less than Plus + Minus - Equal to = Addition Subtraction Divide ÷
Multiply x One-____of Equation Expression Bar Model Whole Part
Difference Multiplier Unknown Sequence

Addend + Addend = Sum

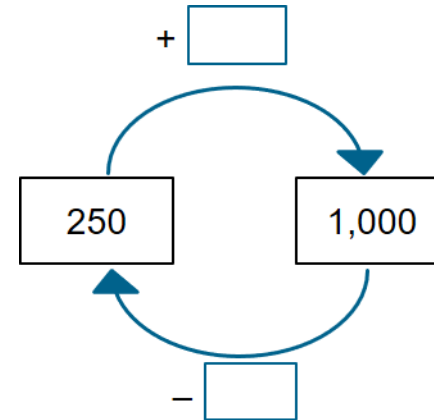


$$250 + 750 = 1,000$$

$$1,000 - 750 = 250$$

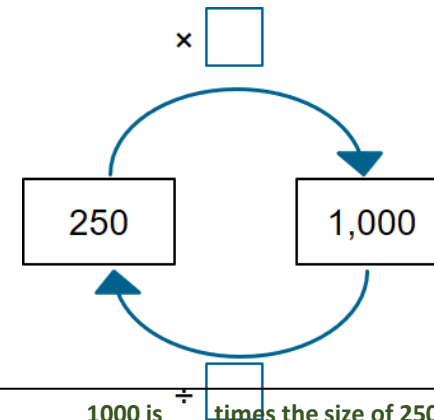


The relationship between two numbers can be expressed both additively and multiplicatively.



1000 is ____ more than 250.

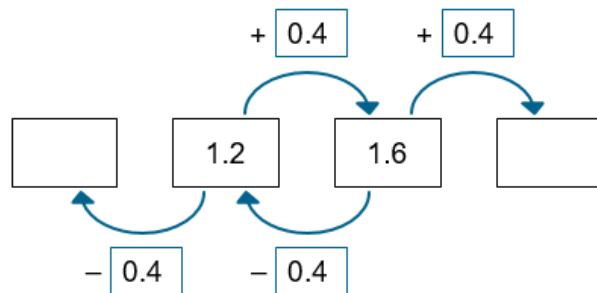
250 is ____ less than 1000.



1000 is ____ times the size of 250.

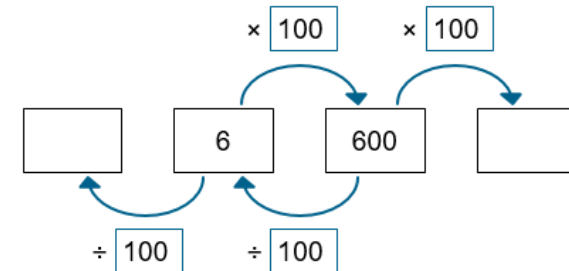
250 is one-____ of 1000.

To find one-quarter of a number, we divide by 4.



Finding the known multiplier can help calculate the unknown terms in a sequence.

Finding the difference can help calculate the unknown terms in a sequence.



Addition and Subtraction

Year 6

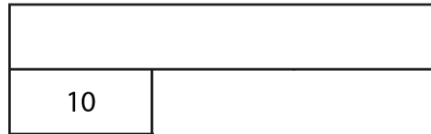
Quantify additive and multiplicative relationships

Vocabulary:

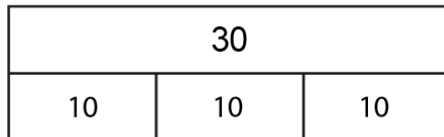
Additive Multiplicative Relationship Represents Compose Combine Total
More than Less than Plus + Minus - Equal to = Addition Subtraction Divide ÷
Multiply x One-_____of Equation Expression Bar Model Whole Part
Difference Multiplier Unknown Sequence

Addend + Addend = Sum

$$\frac{1}{3} \text{ of } ? = 10$$



$$\frac{1}{3} \text{ of } ? = 10$$



$$\frac{1}{3} \text{ of } 30 = 10$$

Calculate the unknown whole by recognising how many parts the whole has been divided into.

Addition and Subtraction

Year 6

Derive Related Calculations

Vocabulary:

Additive Multiplicative Relationship Represents Equation Unknown Re-
arrange Inverse Place Value Properties Commutative Associative
Distributive Compensation

Addend + Addend = Sum Factor x Factor = Product (Multiplicand x Multiplier = Product)

Minuend - Subtrahend = Difference

Dividend ÷ Divisor = Quotient

$$252 = 3 \times 84$$

$$2,520 = 30 \times \boxed{}$$

$$252 = 3 \times 84$$

$$\boxed{} = 3 \times 85$$

$$252 = 3 \times 84$$

$$252 = 3 \times 60 + 3 \times \boxed{}$$

Manipulate an equation to solve another. Pupils could:

- rearrange the terms;
- rewrite using inverse operations;
- apply place value;
- use the properties of division that correspond to the commutative, associative or distributive property of multiplication;
- use the compensation property.

Additive examples

Multiplicative examples

$$625 - 148 = 477$$

$$6,250 - 1,480 = \boxed{}$$

$$625 - 148 = 477$$

$$625 - 70 - \boxed{} = 477$$

$$625 - 148 = 477$$

$$625 - 248 = \boxed{}$$

$$14.8 + 7.6 = 22.4$$

$$1,480 + \boxed{} = 2,240$$

$$14.8 + 7.6 = 22.4$$

$$\boxed{} - 7.6 = 14.8$$

$$14.8 + 7.6 = 22.4$$

$$12.8 + \boxed{} = 22.4$$

$$4,800 \div 25 = 192$$

$$25 \times 192 = \boxed{}$$

$$4,800 \div 25 = 192$$

$$4,800 \div 250 = \boxed{}$$

$$4,800 \div 25 = 192$$

$$4,800 \div 5 \div 5 = \boxed{}$$

Addition and Subtraction

Year 6

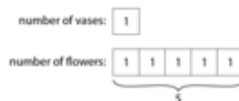
Solve Problems involving Ratio Relationship

Vocabulary:

Additive Multiplicative Relationship Represents Equation Unknown Scale-factor Ratio Ratio Table ___ times the size one-___ the size of Vertical Horizontal

Factor x Factor = Product (Multiplicand x Multiplier = Product)

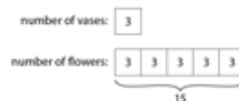
Dividend ÷ Divisor = Quotient



$$1 \times 5 = 5$$

$$5 \div 5 = 1$$

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



$$3 \times 5 = 15$$

$$15 \div 5 = 3$$

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

Ratio table to compare sets of information.

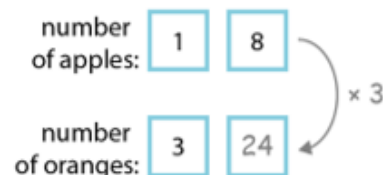
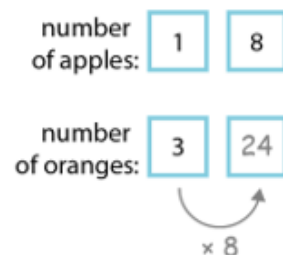
For every ___, there are ___.

For every 1 litre of petrol, you can drive 7 miles.

For every 7 miles you will drive, you need 1 litre of petrol.

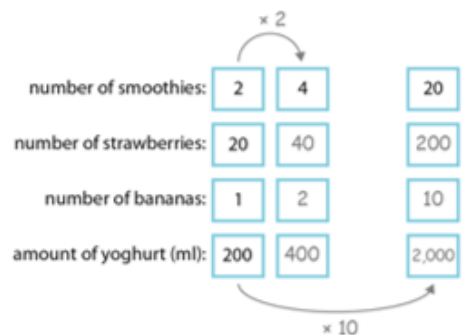
Extend sequences using knowledge of patterns based on ratio table.

Litres of petrol	1	2	3	4	5	6	7	8	9	10
Miles driven	7	14	21	28	35	42	49	56	63	70



Explore vertical and horizontal relationship between numbers.

For every ___, there are ___.

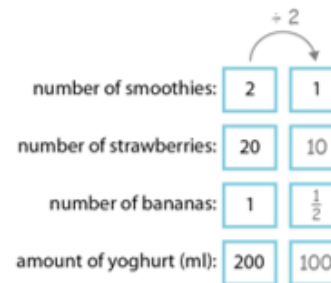


Identify the scale-factor in order to find unknown values.

___ is ___ times the size of ___.

Therefore I must multiply/divide by ___.

___ is one-___ the size of ___.



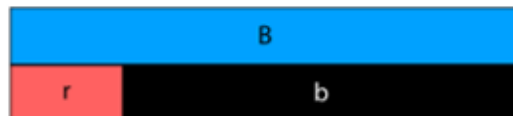
Addition and Subtraction

Year 6

Solve Problems with Two Unknowns

Vocabulary:

Additive Multiplicative Relationship Represents Equation Two Unknowns
Scale-factor Ratio ___ times the size one-___ the size of Total Bar Model
Structure



$$B = r + b$$



$$B = p + y$$

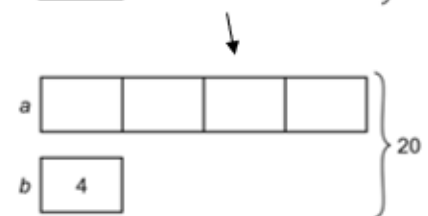
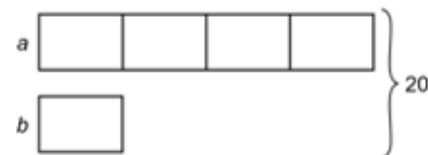
Use Cuisenaire to find 2 bars of total length that are equal to another.

There is more than one solution to the problem.

There can be infinite solutions to a problem.

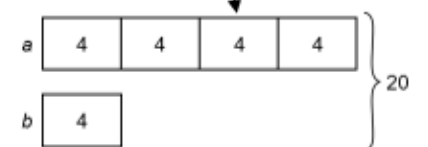
$$5 \times \square = 10 \times \square$$

Solve multiplicative problems with two unknowns when the total is known.



$$\text{one part} = 20 \div 5 = 4$$

$$b = 4$$



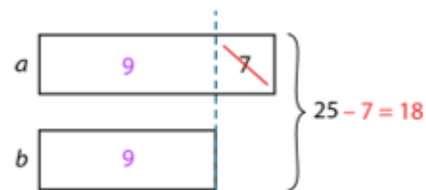
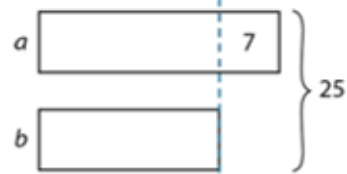
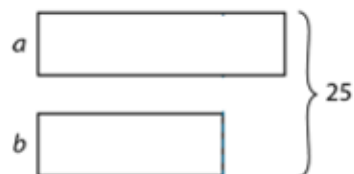
$$\text{one part} = 20 \div 5 = 4$$

$$b = 4$$

$$a = 4 \times 4 = 16$$

The two numbers are 16 and 4.

Solve additive problems with two unknowns when the total is known.



$$b = 18 \div 2 = 9$$

$$a = 9 + 7 = 16$$

The two numbers are 9 and 16.

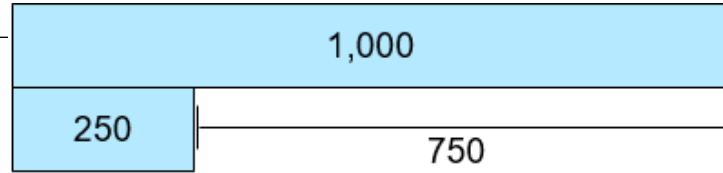
Addition, Subtraction, Multiplication and Division

Year 6

Quantify additive and multiplicative relationships

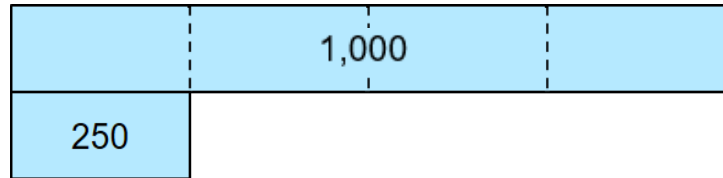
Vocabulary:

Additive	Multiplicative	Relationship	Represents	Compose	Combine
Total					
More than	Less than	Plus +	Minus -	Equal to =	Addition
÷ Multiply x	One-_____of	Equation	Expression	Bar Model	Subtraction
	Part Difference	Multiplier			Divide
	Unknown	Sequence			Whole
Addend + Addend = Sum Factor x Factor = Product (Multiplicand x Multiplier = Product)					



$$250 + 750 = 1,000$$

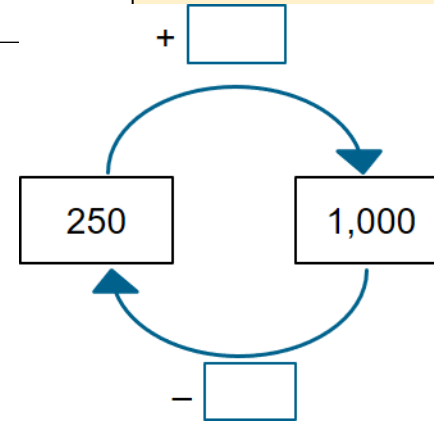
$$1,000 - 750 = 250$$



$$250 \times 4 = 1,000$$

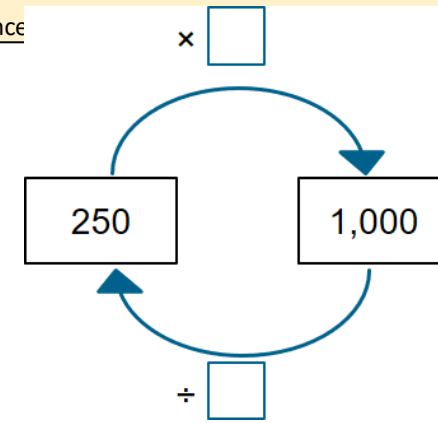
$$1,000 \div 4 = 250$$

The relationship between two numbers can be expressed both additively and multiplicatively.



1000 is ___ more than 250.

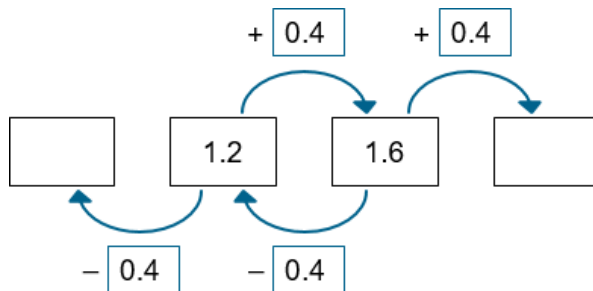
250 is ___ less than 1000.



1000 is ___ times the size of 250.

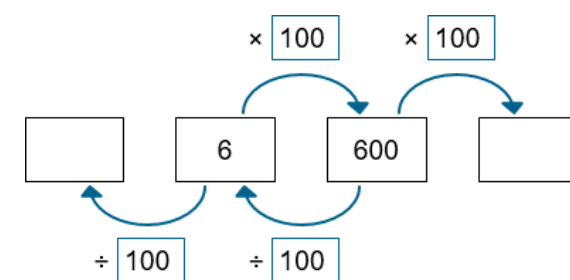
250 is one-_____ of 1000.

To find one-quarter of a number, we divide by 4.



Finding the difference can help calculate the unknown terms in a sequence.

Finding the known multiplier can help calculate the unknown terms in a sequence.



Addition, Subtraction, Multiplication and Division

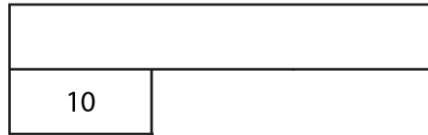
Year 6

Quantify additive and multiplicative relationships

Vocabulary:

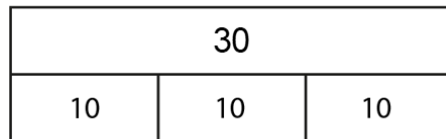
Additive Total	Multiplicative One-_____of Part Difference Unknown	Relationship Plus + Minus - Equation Multiplier Sequence	Represents Equal to = Expression Bar Model Whole	Compose Addition Subtraction Divide	Combine
Addend + Addend = Sum			Factor x Factor = Product (Multiplicand x Multiplier = Product)		
Minuend – Subtrahend = Difference			Dividend ÷ Divisor = Quotient		

$$\frac{1}{3} \text{ of } ? = 10$$



↓

$$\frac{1}{3} \text{ of } ? = 10$$



$$\frac{1}{3} \text{ of } 30 = 10$$

Calculate the unknown whole by recognising how many parts the whole has been divided into.

Addition and Subtraction

Year 6

Derive Related Calculations

Vocabulary:

Additive	Multiplicative	Relationship	Represents	Equation
Unknown	Re-arrange	Inverse	Place Value	Properties
	Commutative	Associative		
Distributive	Compensation			
Addend + Addend = Sum	Factor x Factor = Product	(Multiplicand x Multiplier = Product)		
Minuend – Subtrahend = Difference			Dividend ÷ Divisor = Quotient	

$$252 = 3 \times 84$$

$$2,520 = 30 \times \boxed{}$$

$$252 = 3 \times 84$$

$$\boxed{} = 3 \times 85$$

$$252 = 3 \times 84$$

$$252 = 3 \times 60 + 3 \times \boxed{}$$

Manipulate an equation to solve another. Pupils could:

- rearrange the terms;
- rewrite using inverse operations;
- apply place value;
- use the properties of division that correspond to the commutative, associative or distributive property of multiplication;
- use the compensation property.

Additive examples

Multiplicative examples

$$625 - 148 = 477$$

$$6,250 - 1,480 = \boxed{}$$

$$625 - 148 = 477$$

$$625 - 70 - \boxed{} = 477$$

$$625 - 148 = 477$$

$$625 - 248 = \boxed{}$$

$$14.8 + 7.6 = 22.4$$

$$1,480 + \boxed{} = 2,240$$

$$14.8 + 7.6 = 22.4$$

$$\boxed{} - 7.6 = 14.8$$

$$14.8 + 7.6 = 22.4$$

$$12.8 + \boxed{} = 22.4$$

$$4,800 \div 25 = 192$$

$$25 \times 192 = \boxed{}$$

$$4,800 \div 25 = 192$$

$$4,800 \div 250 = \boxed{}$$

$$4,800 \div 25 = 192$$

$$4,800 \div 5 \div 5 = \boxed{}$$

Addition and Subtraction

Year 6

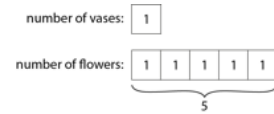
Solve Problems involving Ratio Relationship

Vocabulary:

Additive Multiplicative Relationship Represents Equation Unknown Scale-
factor Ratio Ratio Table ____times the size one-____the size of
Vertical Horizontal

Factor x Factor = Product (Multiplicand x Multiplier = Product)

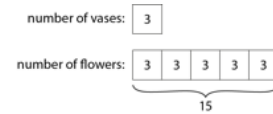
Dividend ÷ Divisor = Quotient



$$1 \times 5 = 5$$

$$5 \div 5 = 1$$

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



$$3 \times 5 = 15$$

$$15 \div 5 = 3$$

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

Ratio table to compare sets of information.

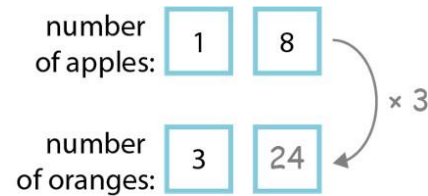
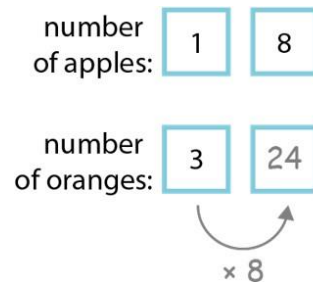
For every __, there are __.

For every 1 litre of petrol, you can drive 7 miles.

For every 7 miles you will drive, you need 1 litre of petrol.

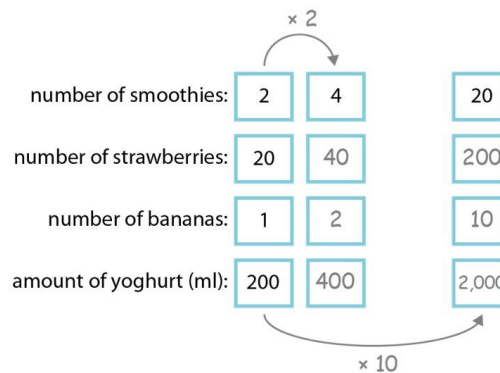
Extend sequences using knowledge of patterns based on ratio table.

Litres of petrol	1	2	3	4	5	6	7	8	9	10
Miles driven	7	14	21	28	35	42	49	56	63	70



Explore vertical and horizontal relationship between numbers.

For every __, there are __.

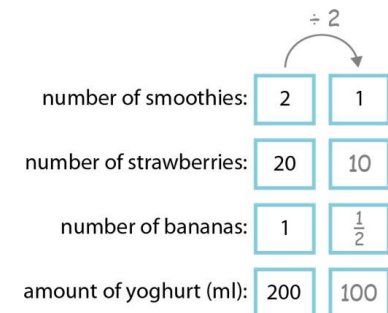


Identify the scale-factor in order to find unknown values.

____is ____times the size of ____.

Therefore I must multiply/divide by ____.

____is one-____the size of ____.



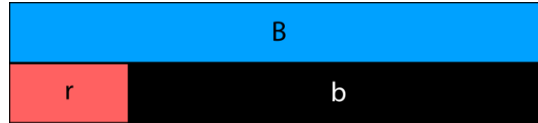
Addition and Subtraction

Year 6

Solve Problems with Two Unknowns

Vocabulary:

Additive Multiplicative Relationship Represents Equation Two Unknowns
Scale-factor Ratio ___times the size one-___the size of Total Bar Model
Structure



$$B = r + b$$



$$B = p + y$$

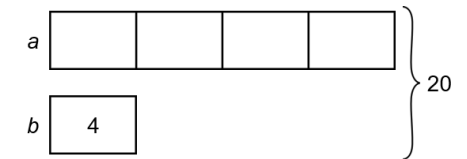
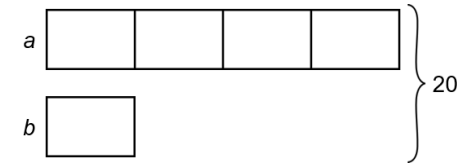
Use Cuisenaire to find 2 bars of total length that are equal to another.

There is more than one solution to the problem.

There can be infinite solutions to a problem.

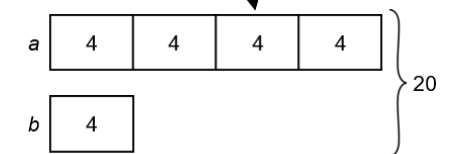
$$5 \times \square = 10 \times \square$$

Solve multiplicative problems with two unknowns when the total is known.



$$\text{one part} = 20 \div 5 = 4$$

$$b = 4$$



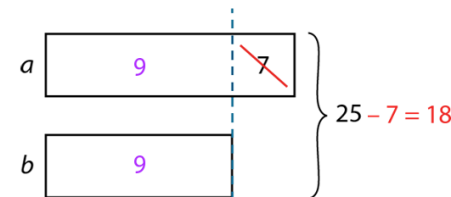
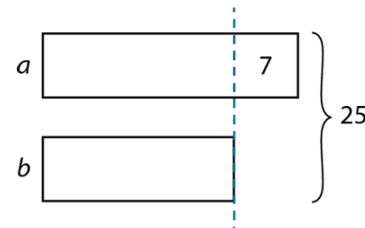
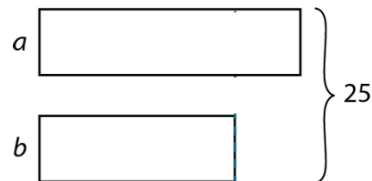
$$\text{one part} = 20 \div 5 = 4$$

$$b = 4$$

$$a = 4 \times 4 = 16$$

The two numbers are 16 and 4.

Solve additive problems with two unknowns when the total is known.



$$b = 18 \div 2 = 9$$

$$a = 9 + 7 = 16$$

The two numbers are 9 and 16.

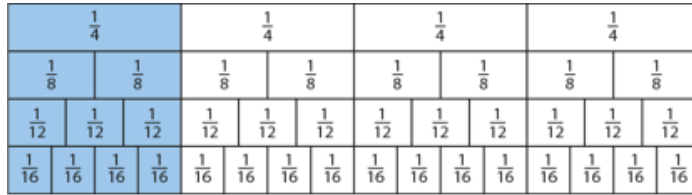
Fractions

Year 6

Simplify Fractions

Vocabulary:

Fraction Notation Divided Equal Numerator Denominator Whole Parts
 Fraction Bar (Vinculum) Half Third Quarter Fifth Sixth Seventh Eighth
 Ninth Tenth One-_____ Multiple Factor Common Simplify Simplest Form
 Mixed Number Improper Fraction Highest Common Factor



$$\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{4}{16}$$

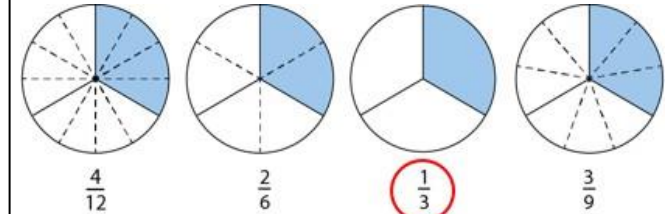


$$\frac{3}{4} = \frac{6}{8} = \frac{9}{12} = \frac{12}{16}$$

$$\frac{4}{12} = \frac{1}{3} \quad \frac{4}{12} = \frac{2}{6} \quad \frac{4}{12} = \frac{4}{12}$$

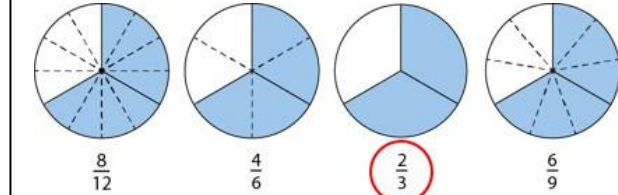
Recap equivalent fractions with multiple representations. Identify a fraction in its simplest form when the only common multiple of both the numerator and denominator is 1.

$\frac{1}{4}$ is in its simplest form. I know this because the only common factor of the numerator and the denominator is 1.



Extend to fractions where the numerator in the simplest form is greater than 1.

$\frac{3}{4}$ is in its simplest form. I know this because the only common factor of the numerator and the denominator is 1.



Finding the common factors of both the numerator and denominator allows us to simplify each fraction to its simplest form.

The common factors of 4 and 12 are 1, 2 and 4.

The highest common factor is 4.

Generalisation:

Dividing both the numerator and the denominator of a fraction by their highest common factor converts the fraction to its simplest form.

$$\frac{20}{12} = \frac{5}{3}$$

Improper fraction can be simplified before or after they are converted to a mixed number.

The highest common factor of 20 and 12 is 4.

The highest common factor of 8 and 12 is 4.

$$\frac{20}{12} = 1\frac{8}{12} = 1\frac{2}{3}$$

Fractions

Year 6

Express Fractions in Common Denomination

Vocabulary:

Fraction Notation Divided Equal Numerator Denominator Whole Parts
 Fraction Bar (Vinculum) Half Third Quarter Fifth Sixth Seventh Eighth
 Ninth Tenth One-_____ Multiple Common Denominator Convert Express
 Proportion

$$\frac{1}{5} \quad \frac{4}{15}$$

↓

$$\frac{1}{5} \xrightarrow{\times 3} \frac{3}{15}$$

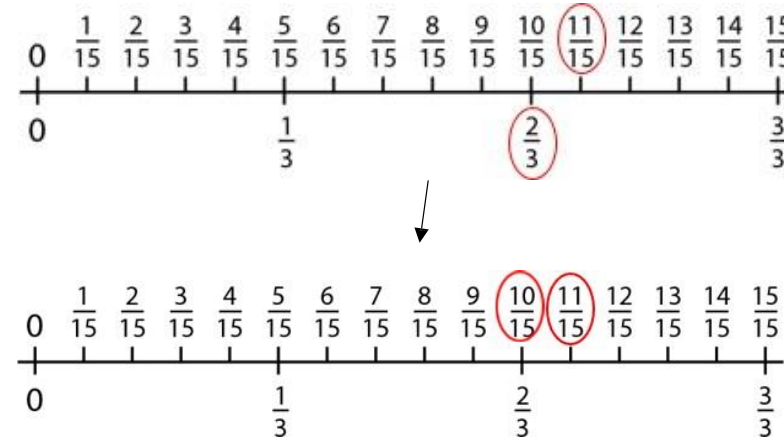
↓

$$\frac{3}{15} \quad \frac{4}{15}$$

We can convert fraction into the same denominator in order to make them easier to compare in size. We can also represent this on a number line.

15 is a multiple of 5.

We can use 15 as the common denominator.



$$\frac{1}{3} \quad \frac{3}{8}$$

↓

$$\frac{1}{3} \xrightarrow{\times 8} \frac{8}{24}$$

↓

$$\frac{8}{24} \quad \frac{9}{24}$$

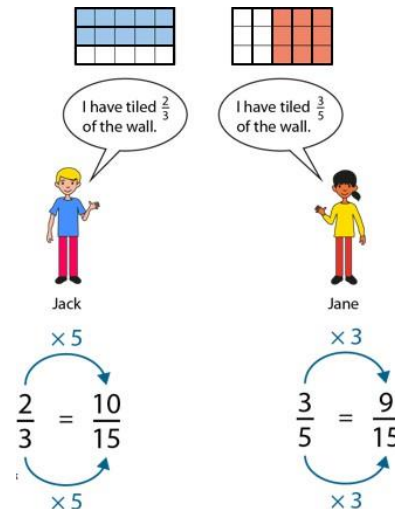
Where one denominator is not a multiple of another, we can multiply both denominators by different amounts in order to find a common denominator.

8 is not a multiple of 3.

24 is a multiple of both 3 and 8.

We can use 24 as the common denominator.

We need to express both fractions in twenty-fourths.



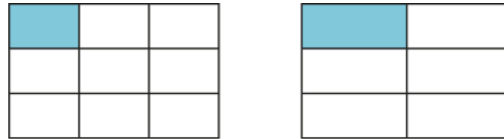
Fractions

Year 6

Compare Fractions with Different Denominators

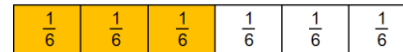
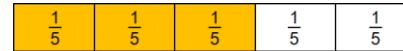
Vocabulary:

Fraction Notation Divided Equal Numerator Denominator Whole Parts
 Fraction Bar (Vinculum) Half Third Quarter Fifth Sixth Seventh Eighth
 Ninth Tenth One-_____ Multiple Common Denominator Convert Express
 Proportion Estimate Position Number Line Greater than Less than



$$\frac{1}{9} < \frac{1}{6}$$

We can compare fractions and mixed numbers with the same numerator in different ways

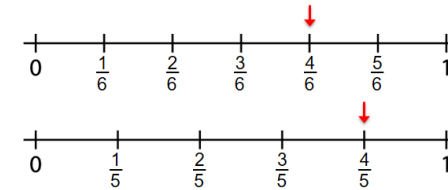


$$\frac{3}{5} > \frac{3}{6}$$

Verbal Reasoning

$\frac{2}{5}$ is 2 one-fifths $\frac{2}{6}$ is 2 one-sixths

I know that $\frac{1}{5} > \frac{1}{6}$ so $\frac{2}{5} > \frac{2}{6}$



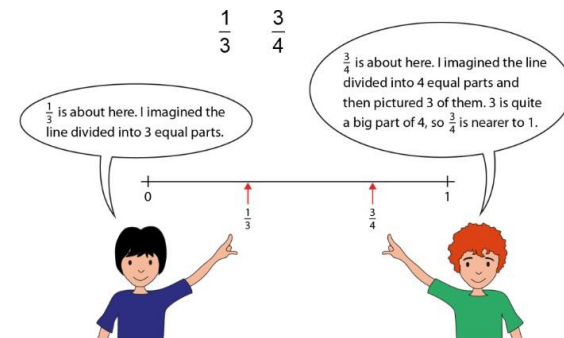
$$\frac{4}{5} > \frac{4}{6}$$

Comparing their position in relation to the nearest landmark.

How close is it to 1 whole?

How close is it to 0?

How close is it from $\frac{1}{2}$?



We can use our knowledge of fractions on a number line to help estimate and compare their relative size.

We can reason about the proportional size of the numerator in relation to the denominator to compare fractions.

5 is a larger part of 6 than 7 is of 11, which means $\frac{5}{6}$ is greater than $\frac{7}{11}$

$$\frac{7}{11} < \frac{5}{6}$$

