

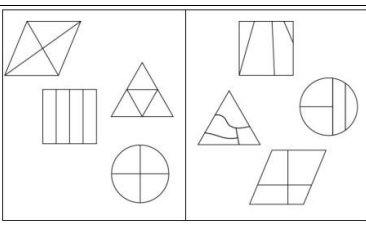
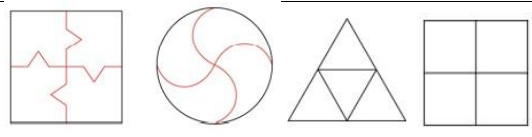
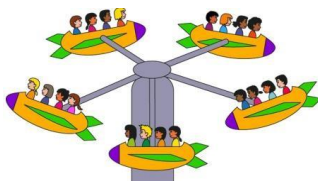
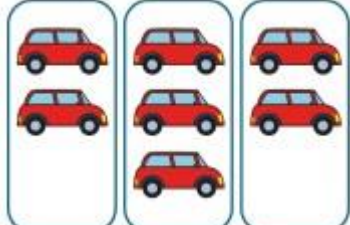



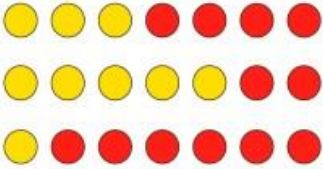
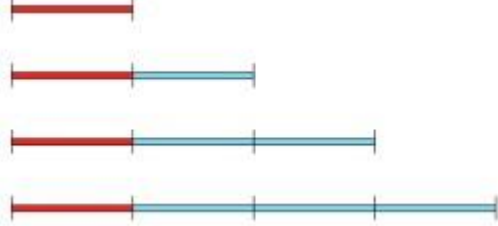
Stem Sentences

Fractions


Part-Whole relationships		
Example of stem sentence	Type of stem sentence	
If _____ is the whole then _____ is part of the whole.	Structure	 <p>If Europe is the whole , then the United Kingdom is part of the whole.</p>  <p>If the week is the whole then Tuesday is part of the whole</p>
A part is always smaller than the whole.	Generalisation	
If _____ is the whole then _____ is not part of the whole.	Structure	If my face is the whole then my foot is not part of the whole.
The whole has been divided into ____ equal / unequal parts.	Structure / language	
The whole has been divided into ____ equal parts.	Structure	 <p>The whole has been divided into 4 equal parts.</p>
The parts are equal , I know this because the number of _____ in each part is the same .	Structure	
The parts are unequal , I know this because the number of _____ in each part is not the same .	Structure / language	

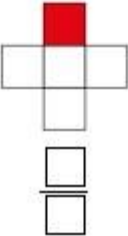
Stem Sentences

Fractions

	Equal-sized parts do not have to look the same.	Generalisation	
	Different parts of the same-sized whole can be directly compared based on their size.	Generalisation	 <p>In the first set of counters, the yellow counters make up a smaller part of the whole than in the second set.</p>
	As the whole increases in size and the size of the selected part remains the same, each part becomes smaller in relation to the whole.	Generalisation	

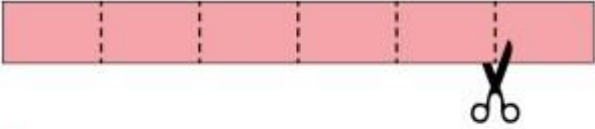

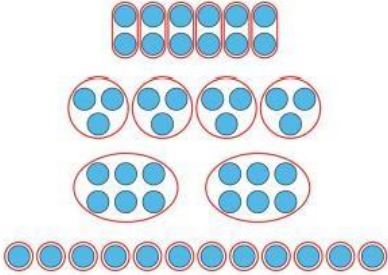
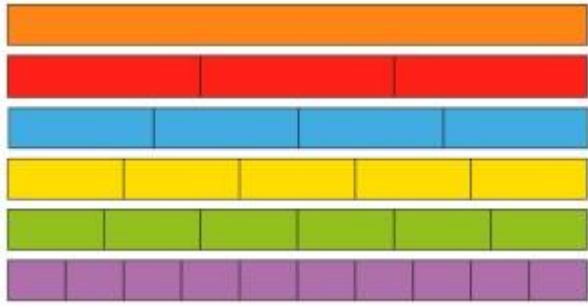

Unit Fractions

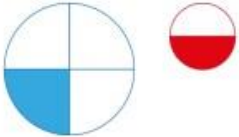
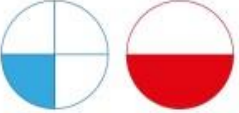
	A unit fraction is any fraction where the numerator is one.	Generalisation	<p>$\frac{1}{2}$ ← Numerator (1 for a unit fraction) One of the parts of the whole</p> <p>$\frac{1}{2}$ ← Denominator The number of equal parts in the whole</p>								
	The whole has been divided into ___ equal parts ___ of the parts has been shaded.	Structure / language	 <p>The whole has been divided into three equal parts. One of the parts has been shaded.</p>								
		Language / structure	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #d1e7e1;">Say</th> <th style="background-color: #d1e7e1;">Write</th> </tr> </thead> <tbody> <tr> <td>'The whole has been divided...'</td> <td>The division bar: -</td> </tr> <tr> <td>'...into 3 equal parts.'</td> <td>The denominator: 3</td> </tr> <tr> <td>'One of the parts has been shaded.'</td> <td>The numerator: 1</td> </tr> </tbody> </table>	Say	Write	'The whole has been divided...'	The division bar: -	'...into 3 equal parts.'	The denominator: 3	'One of the parts has been shaded.'	The numerator: 1
Say	Write										
'The whole has been divided...'	The division bar: -										
'...into 3 equal parts.'	The denominator: 3										
'One of the parts has been shaded.'	The numerator: 1										

	<p>The denominator is ___ because the whole is divided into ___ equal parts.</p> <p>The numerator is one because one part is shaded.</p>	Structure	 <p>The denominator is 4 because the whole is divided into 4 equal parts. The numerator is 1 because one part is shaded.</p>
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Stem Sentences

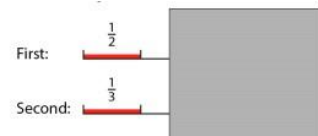
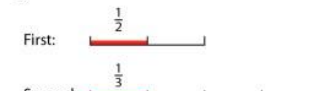
Fractions

	<p>The whole has been divided into ___ equal parts. Each part is one ___ of the whole. ___ of the whole ribbon has been cut off.</p>	Structure	 <ul style="list-style-type: none"> • 'The whole has been divided into six equal parts.' • 'Each equal part is one-sixth of the whole.' • 'One-sixth of the whole ribbon has been cut off.'
	<p>The whole has been divided into ___ equal parts. One of these parts is highlighted. This part is one ___ of the whole line.</p>	Structure	 <p>The whole has been divided into 5 equal parts. One of these parts is highlighted. This part is one fifth of the whole line.</p>
	<p>The whole has been divided into ___ equal parts. One of these parts is in one ___ of the whole.</p>	Structure	<p>Dividing 12 counters into equal groups:</p> 
	<p>When the whole is the same, the greater the number of equal parts, the smaller each equal part is.</p> <p>When the whole is the same, the smaller the number of equal parts, the bigger each equal part is.</p>	Generalisation	
	<p>When comparing unit fractions, the greater the denominator, the smaller the fraction.</p>	Generalisation	<p>Ordering the fractions:</p>  <p style="text-align: center;">$\frac{1}{3} > \frac{1}{4} > \frac{1}{5} > \frac{1}{6} > \frac{1}{10}$</p>

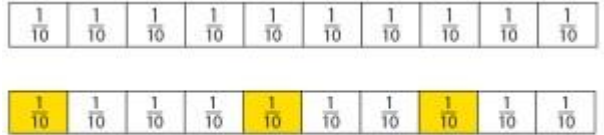
	<p>When we compare fractions, the whole has to be the same.</p>	Generalisation	<p>'Emma looks at these two diagrams. She says that they prove that $\frac{1}{4} > \frac{1}{2}$. Do you agree or disagree?'</p>  <ul style="list-style-type: none"> • 'Disagree: to compare fractions, the wholes must be the same.' 
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Stem Sentences

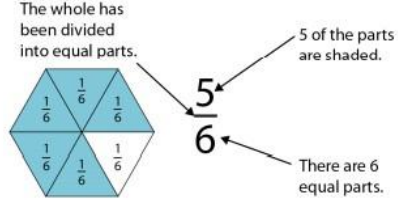
Fractions


<p>If one ____ is a part, then the whole is ____ times as much. Take ____ parts and put them together to make a whole.</p>	<p>Structure</p>	<div style="text-align: center;">  </div> <p style="font-size: small;">First: 'If one-half is a part, then the whole is two times as much. Take two parts and put them together to make one whole.'</p> <p style="font-size: small;">Second: 'If one-third is a part, then the whole is three times as much. Take three parts and put them together to make one whole.'</p> <div style="text-align: center;">  </div>
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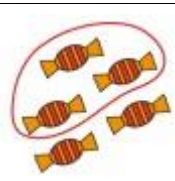
Non- Unit Fractions

<p>I have ____ one tenths. I have ____ tenths.</p>	<p>Structure / language</p>	<div style="text-align: center;">  </div> <ul style="list-style-type: none"> • 'I have three one-tenths. I have three-tenths.'
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<p>There are ____ equal parts in the whole. There are ____ parts shaded. ____ is shaded.</p>	<p>Structure / language</p>	<div style="text-align: center;">  </div> <ul style="list-style-type: none"> • 'There are five equal parts in the whole.' • 'There are four parts shaded.' • 'Four-fifths is shaded.'
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<p>The whole has been divided into ____ equal parts. ____ of the parts are shaded. That is ____ of the whole.</p>	<p>Structure / language</p>	<div style="text-align: center;">  </div> <ul style="list-style-type: none"> • 'The whole has been divided into six equal parts.' • 'Five of the parts are shaded.' • 'That is five-sixths of the whole.'
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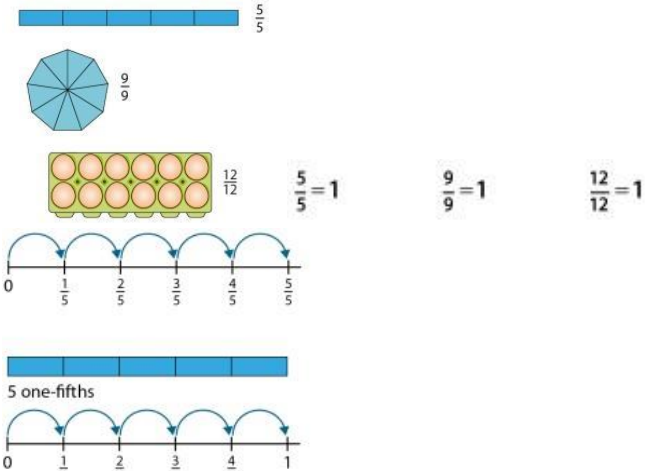
<p>The whole has been divided into ____ equal parts. ____ of the parts have been shaded; that is ____ of the whole.</p>	<p>Structure / language</p>	<div style="text-align: center;">  </div> <p>The whole has been divided into 7 equal parts. 5 of the parts have been shaded; that is 5/7 of the whole.</p>
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<p>The denominator is ____ because the whole has been divided into ____ equal parts. The numerator is ____ because ____ of the parts have been identified.</p>	<p>Structure / language</p>	<div style="text-align: center;">  </div> <p>The denominator is 5 because the whole has been divided into 5 equal parts. The numerator is 3 because 3 of the parts have been identified.</p>
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Making a whole

Stem Sentences

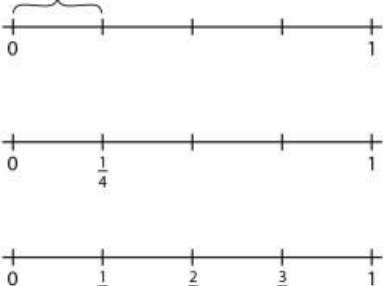
Fractions


<p>When the numerator and the denominator are the same the fraction is equivalent to one whole.</p>	<p>Generalisation</p>	 <p style="text-align: right;">$\frac{5}{5} = 1$ $\frac{9}{9} = 1$ $\frac{12}{12} = 1$</p>
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<p>If we know the size of a unit fraction, we can work out the size of the whole.</p>	<p>Generalisation</p>	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th style="width: 15%;">Part</th> <th style="width: 25%;">Part as a fraction of the whole</th> <th style="width: 25%;">Number of equal parts in the whole</th> <th style="width: 35%;">Whole</th> </tr> </thead> <tbody> <tr> <td></td> <td>$\frac{1}{5}$</td> <td>5</td> <td></td> </tr> </tbody> </table>	Part	Part as a fraction of the whole	Number of equal parts in the whole	Whole		$\frac{1}{5}$	5	
Part	Part as a fraction of the whole	Number of equal parts in the whole	Whole							
	$\frac{1}{5}$	5								

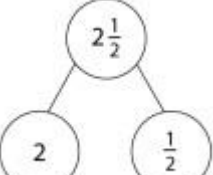
<p>Divide by the numerator to find one part. Multiply the denominator to find the whole.</p>	<p>Generalisation</p>	<p>$\frac{2}{3}$ of the number is 8.' $8 \div 2 = 4$</p> <p>$\frac{1}{3}$ of the number is 4.' $4 \times 3 = 12$</p> <p>$\frac{3}{3}$ of the number is 12.'</p>
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Counting in fractional steps

<p>The line is divided into ___ equal parts. This allows us to count in ___.</p>	<p>Structure</p>	
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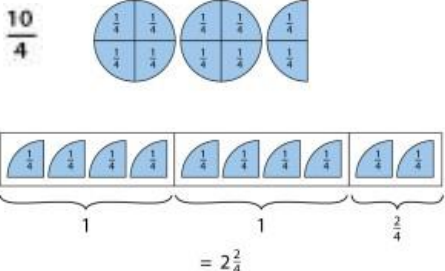
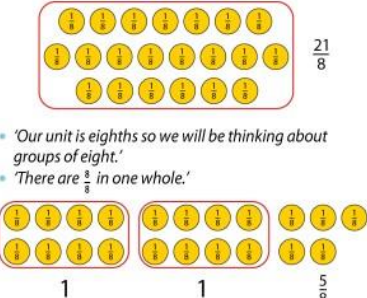
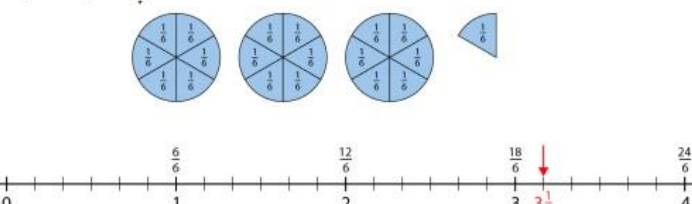
<p>The interval is divided into ___ equal parts. This allows us to count in ___.</p>	<p>Structure</p>	<p><i>'Each interval on the line is divided into <u>four</u> equal parts. This allows us to count in <u>quarters</u>.'</i></p> 
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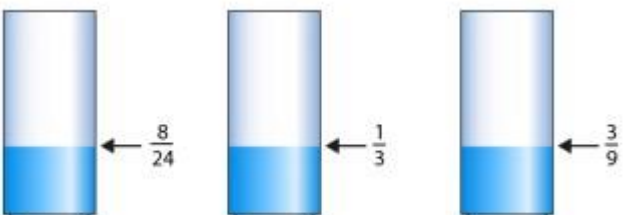
Improper fractions and mixed numbers

<p>Quantities made up of both whole numbers and a fractional part can be expressed as mixed numbers.</p>	<p>Generalisation</p>	
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Stem Sentences

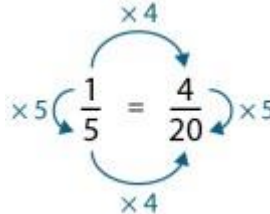
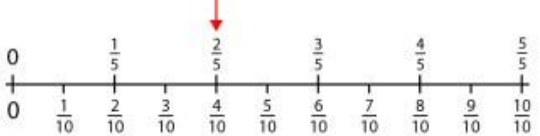
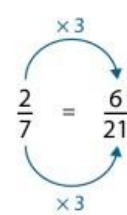
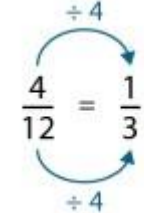
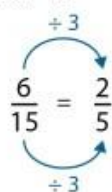
Fractions

	<p>Each whole is divided into four equal parts. We have ___ of these equal parts. This represents ___ quarter(s)</p>	<p>Structure/ language</p>	 <p>Each whole is divided into four equal parts. We have 11 of these equal parts. This represents 11 quarter(s)</p>						
	<p>The denominator is ____. This means that each whole has been split into ___ equal parts. ___ parts make each whole. The numerator is ____. This means there are ___ equal parts. It is possible to make ___ full groups of ___ quarters and there are ___ more quarters.</p>	<p>Structure/ language</p>	 <p>The denominator is 4. This means that each whole has been split into 4 equal parts. 4 parts make each whole. The numerator is 10. This means there are 10 equal parts. It is possible to make 2 full groups of 4 quarters and there are 2 more quarters</p>						
	<p>Our unit is ___ so we will be thinking about groups of ____. There are _____ in one whole.</p>	<p>Structure / language</p>	 <p>• 'Our unit is eighths so we will be thinking about groups of eight.' • 'There are $\frac{5}{8}$ in one whole.'</p>						
	<p>How many groups of $\frac{1}{10}$ in $\frac{21}{10}$ ___ groups and ___ more ___</p>	<p>Structure / language</p>	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th style="background-color: #d9ead3;">Improper fraction</th> <th style="background-color: #d9ead3;">Prompt question</th> <th style="background-color: #d9ead3;">Mixed number</th> </tr> </thead> <tbody> <tr> <td>$\frac{21}{10}$</td> <td>How many groups of $\frac{1}{10}$ in $\frac{21}{10}$? (2 groups and 1 more tenth.)</td> <td>$2\frac{1}{10}$</td> </tr> </tbody> </table>	Improper fraction	Prompt question	Mixed number	$\frac{21}{10}$	How many groups of $\frac{1}{10}$ in $\frac{21}{10}$? (2 groups and 1 more tenth.)	$2\frac{1}{10}$
Improper fraction	Prompt question	Mixed number							
$\frac{21}{10}$	How many groups of $\frac{1}{10}$ in $\frac{21}{10}$? (2 groups and 1 more tenth.)	$2\frac{1}{10}$							
	<p>There are ___ groups of ___ sixths which is ___ sixths and ___ more sixths, so that is ___ sixths</p>	<p>Structure / language</p>	<p>$3\frac{1}{6} = \frac{\square}{6}$ There are three groups of $\frac{6}{6}$ which is $\frac{18}{6}$, and one more sixth; that's $\frac{19}{6}$</p> 						

Equivalent Fractions		
<p>When two or more fractions have the same value. We call them equivalent fractions.</p>	<p>Generalisation</p>	

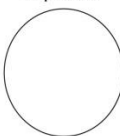
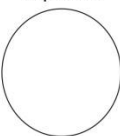
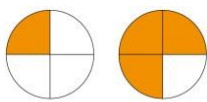
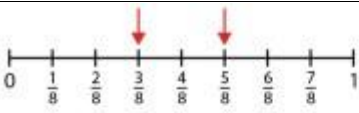
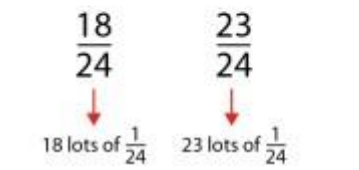
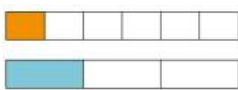
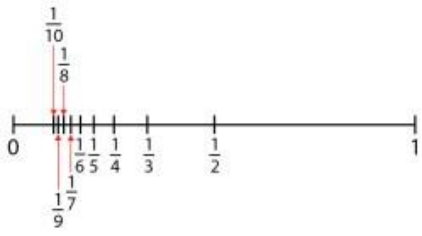
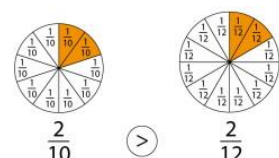
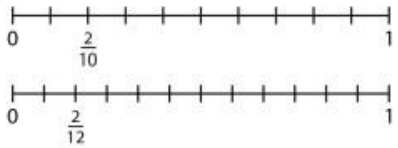
Stem Sentences

Fractions

<p>The numerator has been scaled up/down by _____ The denominator has been scaled up/down by _____ These fractions are /are not equivalent.</p>	Language / structure		<p>The numerator has been scaled up by 4 The denominator has been scaled up by 4 These fractions are equivalent.</p>																																																																																				
<p>□ □ is equivalent to □ □</p>	Language / structure	 <p>$\frac{2}{5}$ is equivalent to $\frac{4}{10}$.</p>																																																																																					
<p>□ □ is equal □ because both the numerator and denominator have been scaled by a factor of _____</p>	Language / structure	<p>$\frac{3}{8}$ is equal $\frac{12}{32}$ because both the numerator and denominator have been scaled by a factor of four.</p>																																																																																					
<p>When the numerator and denominator are multiplied or divided by the same number, the value of the fractions remains the same.</p>	Generalisation	<table border="1" style="font-size: small; text-align: center; width: 100%;"> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr> <tr><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td><td>12</td><td>14</td><td>16</td><td>18</td><td>20</td><td>22</td><td>24</td></tr> <tr><td>3</td><td>6</td><td>9</td><td>12</td><td>15</td><td>18</td><td>21</td><td>24</td><td>27</td><td>30</td><td>33</td><td>36</td></tr> <tr><td>4</td><td>8</td><td>12</td><td>16</td><td>20</td><td>24</td><td>28</td><td>32</td><td>36</td><td>40</td><td>44</td><td>48</td></tr> <tr><td>5</td><td>10</td><td>15</td><td>20</td><td>25</td><td>30</td><td>35</td><td>40</td><td>45</td><td>50</td><td>55</td><td>60</td></tr> <tr><td>6</td><td>12</td><td>18</td><td>24</td><td>30</td><td>36</td><td>42</td><td>48</td><td>54</td><td>60</td><td>66</td><td>72</td></tr> <tr><td>7</td><td>14</td><td>21</td><td>28</td><td>35</td><td>42</td><td>49</td><td>56</td><td>63</td><td>70</td><td>77</td><td>84</td></tr> </table> <div style="text-align: right; margin-top: 10px;">  </div>	1	2	3	4	5	6	7	8	9	10	11	12	2	4	6	8	10	12	14	16	18	20	22	24	3	6	9	12	15	18	21	24	27	30	33	36	4	8	12	16	20	24	28	32	36	40	44	48	5	10	15	20	25	30	35	40	45	50	55	60	6	12	18	24	30	36	42	48	54	60	66	72	7	14	21	28	35	42	49	56	63	70	77	84	
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Simplifying Fractions																																																																																							
<p>The highest common factor is _____ so divide the numerator and denominator by _____</p>	Language / structure		<p>The highest common factor is 4 so divide the numerator and denominator by 4</p>																																																																																				
<p>A fraction can be simplified when the numerator and denominator have a common factor other than one.</p>	Generalisation																																																																																						
<p>To write a fraction in its simplest form, divide both the numerator and denominator by their highest common factor.</p>	Generalisation	<p>Highest common factor = 3</p> 																																																																																					

Stem Sentences

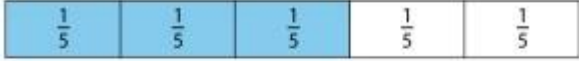
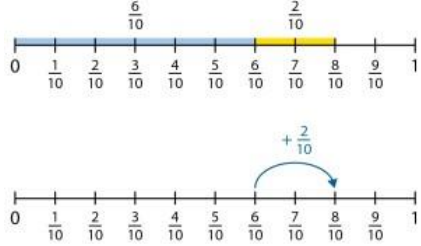
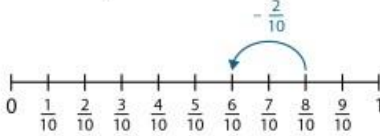

Fractions

<p><input type="checkbox"/> is not in its simplest form because ___ is a common factor of ___ and ___</p> <p><input type="checkbox"/> is in its simplest form because one is the only common factor of ___ and ___.</p>	<p>Language / structure.</p>	<p><i>'Sort the following numbers according to whether they are expressed in their simplest form or not.'</i></p> <p style="text-align: center;"> $\frac{3}{15}$ $\frac{2}{5}$ $\frac{4}{20}$ $\frac{25}{36}$ $\frac{1}{6}$ $\frac{7}{21}$ $\frac{18}{30}$ $\frac{9}{17}$ $\frac{5}{15}$ $\frac{11}{20}$ $\frac{23}{30}$ </p> <p style="text-align: center;"> In its simplest form Not in its simplest form </p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>$\frac{1}{6}$</p> </div> <div style="text-align: center;">  <p>$\frac{23}{30}$</p> </div> </div> <p>$\frac{4}{20}$ is not in its simplest form because four is a common factor of 4 and 20</p> <p>$\frac{23}{30}$ is in its simplest form because one is the only common factor of 23 and 30.</p>
Comparing Fractions		
<p>$\frac{\square}{\square}$ is ___ lot of $\frac{1}{\square}$</p> <p>$\frac{\square}{\square}$ is ___ lots of $\frac{1}{\square}$</p> <p><i>'I know that ___ is less than ___...'</i></p> <p><i>'...so $\frac{\square}{\square}$ is less than $\frac{\square}{\square}$'</i></p>	<p>Language / structure</p>	<div style="display: flex; align-items: center;">  </div> <p style="text-align: center;">$\frac{1}{4} < \frac{3}{4}$</p> <p>$\frac{1}{4}$ is 1 lots of $\frac{1}{4}$</p> <p>$\frac{3}{4}$ is 3 lots of $\frac{1}{4}$</p> <p>I know that 1 is less than 3 so $\frac{1}{4}$ is less than $\frac{3}{4}$.</p>
<p>When we compare fractions with the same denominator, the greater the numerator, the greater the fraction.</p>	<p>Generalisation</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>$\frac{3}{8} < \frac{5}{8}$</p> </div> <div style="text-align: center;">  <p>$\frac{18}{24} < \frac{23}{24}$</p> <p>18 lots of $\frac{1}{24}$ 23 lots of $\frac{1}{24}$</p> </div> </div>
<p>When comparing unit fractions, the greater the denominator, the smaller the fraction.</p>	<p>Generalisation</p>	<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;">  <p>$\frac{1}{6} < \frac{1}{3}$</p> </div> <div>  </div> </div>
<p>When we compare fractions with the same numerator, the greater the denominator, the smaller the fraction.</p>	<p>Generalisation</p>	<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;">  <p>$\frac{2}{10} > \frac{2}{12}$</p> </div> <div>  </div> </div>
<p>To compare fractions with different numerators and denominator convert to common denominators.</p>	<p>Generalisation</p>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="text-align: center;"> $\frac{1}{3}$ ↓ $\frac{4}{12}$ </div> <div style="text-align: center;"> $<$ </div> <div style="text-align: center;"> $\frac{3}{4}$ ↓ $\frac{9}{12}$ </div> </div> <div style="margin-top: 10px;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="text-align: center;"> $\frac{4}{12}$ ↓ $\frac{4}{12}$ </div> <div style="text-align: center;"> $<$ </div> <div style="text-align: center;"> $\frac{9}{12}$ ↓ $\frac{9}{12}$ </div> </div> </div> </div>

Adding and subtracting Fractions

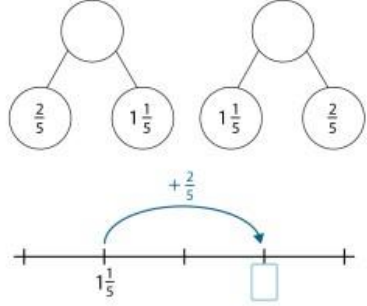
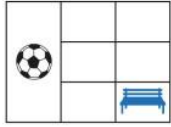

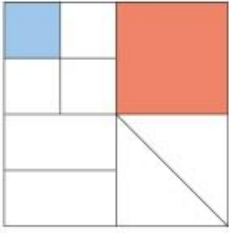

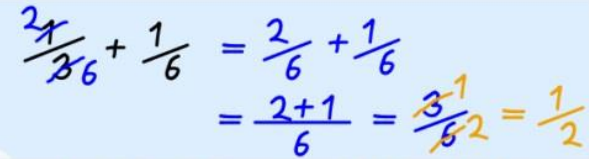
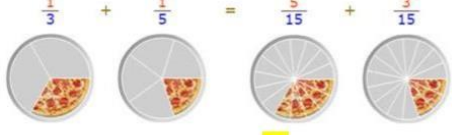

Stem Sentences

Fractions

$\frac{\square}{\square} \text{ is } \underline{\quad} \text{ lot of } \frac{1}{\square}$	Language / structure	 $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{3}{5}$ $\frac{3}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$ <p>3/5 is 3 lots of 1/5.</p>
<p>_____ tenths and _____ more tenths make _____ tenths.</p>	Structure	 <p>6 tenths and 2 more tenths make 8 tenths.</p>
$\frac{\square}{\square} \text{ is } \underline{\quad} \text{ lots of } \frac{\square}{\square}$ $\frac{\square}{\square} \text{ is } \underline{\quad} \text{ lots of } \frac{\square}{\square}$ <p>'I know that $\underline{\quad} + \underline{\quad} = \underline{\quad}$'</p> <p>'...so, I know that $\frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$'</p>	Structure	<p>'$\frac{6}{10}$ is six lots of $\frac{1}{10}$.'</p> <p>'$\frac{2}{10}$ is two lots of $\frac{1}{10}$.'</p> <p>'I know that $6 + 2 = 8$.'</p> <p>'...so, I know that $\frac{6}{10} + \frac{2}{10} = \frac{8}{10}$.'</p>
<p>When adding fractions with the same denominators, just add the numerators.</p>	Generalisation	
<p>_____/10 is _____ lots of 1/10 _____/10 is _____ lots of 1/10 I know that _____ = _____ = _____ So I know that ____/10 - ____/10 = ____/10</p>	Structure	 <p>Method 3 – verbal reasoning:</p> <ul style="list-style-type: none"> '$\frac{8}{10}$ is eight lots of $\frac{1}{10}$.' '$\frac{2}{10}$ is two lots of $\frac{1}{10}$.' 'I know that $8 - 2 = 6$.' <p>'...so, I know that $\frac{8}{10} - \frac{2}{10} = \frac{6}{10}$.'</p>
<p>When subtracting fractions with the same denominators, just subtract the numerators.</p>	Generalisation	$\frac{8}{9} - \frac{3}{9} = \frac{5}{9}$ $\frac{8}{10} - \frac{2}{10} = \frac{6}{10}$
<p>To subtract from one whole, first convert the whole to a fraction where the denominator and numerator are the same.</p>	Generalisation	<p>'A watermelon is cut into 8 equal pieces.'</p> <p>'$\frac{6}{8}$ of the watermelon is eaten'</p> <p>What fraction of the watermelon is left?</p> <p>Eaten: $\frac{6}{8}$ Left: $\frac{2}{8}$</p>  $1 - \frac{6}{8} = \frac{2}{8}$ $\frac{8}{8} - \frac{6}{8} = \frac{2}{8}$



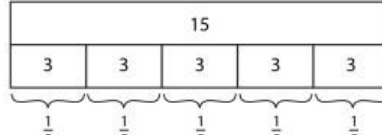
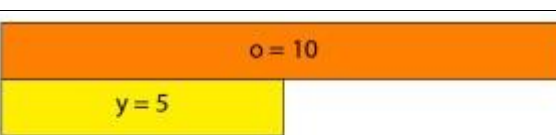
Stem Sentences

Fractions

	<p>The parts are ___ and ___. The total or whole is ___.</p>	<p>Language / structure.</p>	 <p><i>The parts are $\frac{2}{5}$ and $1\frac{1}{5}$. The total, or whole, is $1\frac{3}{5}$.</i></p>
	<p>Related fractions have denominators where one denominator is a multiple of the other.</p>	<p>Generalisation</p>	<p>$\frac{1}{3}$ and $\frac{1}{9}$</p>  <p><i>'We can change $\frac{1}{3}$ to $\frac{3}{9}$.'</i></p>
 <p>and are related fractions because the denominator ___ is a multiple of the other denominator ___.</p>		<p>Structure / language</p>	 <p><i>'$\frac{1}{16}$ and $\frac{1}{4}$ are related fractions because the denominator, "16", is a multiple of the other denominator, "4".'</i></p>
	<p>Fractions must have the same denominator before they can be added or subtracted.</p>	<p>Generalisation</p>	<p>$\frac{1}{4} + \frac{1}{4} = \frac{2}{4}$</p> 
	<p>When fractions have the same denominator, we call this a common denominator.</p>	<p>Generalisation</p>	
	<p>To add or subtract fractions with different denominators, first convert to fractions with a common denominator.</p>	<p>Generalisation</p>	 <p>To solve $\frac{1}{3} + \frac{1}{6}$, convert $\frac{1}{3}$ to $\frac{2}{6}$ by scaling 1 and 3 up by two then add $\frac{2}{6}$ and $\frac{1}{6}$ together.</p>
	<p>To find a common denominator, identify the lowest common multiple of the denominators then create an equivalent fraction.</p>	<p>Generalisation</p>	<p>$\frac{1}{3} + \frac{1}{5} = \frac{5}{15} + \frac{3}{15}$</p>  <p>Multiples of 3: 3, 6, 9, 12, 15 Multiples of 5: 5, 10, 15 The lowest common multiple of 3 and 5 is 15.</p>
	<p>We can find a common denominator for two nonrelated fractions by multiplying their denominators.</p>	<p>Generalisation</p>	<p>$\frac{1}{3} + \frac{1}{5} = \frac{5}{15} + \frac{3}{15}$</p>  <p>If you multiply the two denominators 3 and 5 you will get the common denominator product of 15.</p>

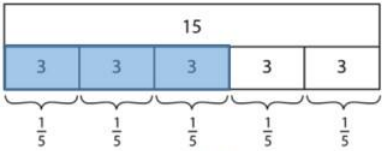
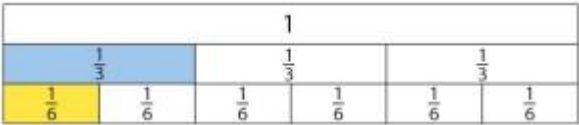
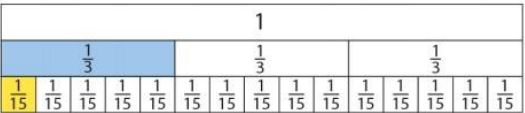
Stem Sentences

Fractions

Multiplying whole numbers and fractions			
	The whole has been divided into ___ equal parts, and one of these parts is _____.	Structure	 $\frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} = 9 \times \frac{1}{9}$ <ul style="list-style-type: none"> 'The whole has been divided into nine equal parts, and one of these parts is $\frac{1}{9}$.'
	___ lot(s) of ___ is equal to _____.	Structure / language	 <ul style="list-style-type: none"> $\frac{2}{9} + \frac{2}{9} + \frac{2}{9} + \frac{2}{9}$ $4 \times \frac{2}{9}$ $\frac{2}{9} \times 4$ 'Four lots of $\frac{2}{9}$ is equal to $\frac{8}{9}$.'
	To multiply a fraction and a whole number, we multiply the numerator by the whole number and keep the denominator the same.	Generalisation	
	___ lots of ___ is equal to ___ lots of _____.	Structure	Commutativity: $3 \times \frac{4}{5} = \frac{12}{5} = 2\frac{2}{5}$ $\frac{4}{5} \times 3 = \frac{12}{5} = 2\frac{2}{5}$ $3 \times \frac{4}{5} = \frac{4}{5} \times 3$
	'Each part is $\frac{1}{\square}$ of the whole; $\frac{1}{\square}$ of ___ is ____. '___ is divided into ___ equal parts;	Structure / language	 <p>'Each part is $\frac{1}{5}$ of the whole; $\frac{1}{5}$ of 15 is 3.'</p>
	___ of ___ = ____ ___ lots of ___ = _____	Structure / language	 <p>'$\frac{1}{2}$ of 10 = 5' '2 lots of 5 = 10.'</p>
	When a whole number is multiplied by a unit fraction, it makes the whole number smaller	Generalisation	

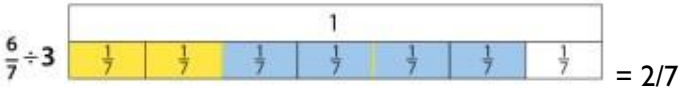
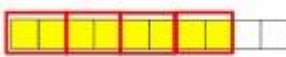
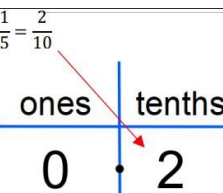
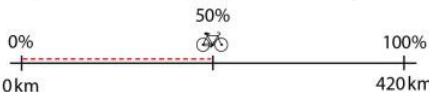
Stem Sentences

Fractions

<p>To calculate a fraction of a quantity, find the unit fraction of the quantity. Then multiply the unit fraction by the numerator.</p>	<p>Generalisation</p>	<p>Calculate $\frac{3}{5}$ of 15</p>  <p>Find the unit fraction ($\frac{1}{5}$) of 15 by dividing 15 into five equal parts. $\frac{1}{5}$ of 15 is 3 so $\frac{3}{5}$ of 15 is 9.</p>
<p>When a whole number is multiplied by a proper fraction, it makes the whole number smaller</p>	<p>Generalisation</p>	
<p>There were ___ equal parts in the whole. Each of the three parts was halved so we now have ___ equal parts in the whole.</p>	<p>Language / structure</p>	 <p>There were 3 equal parts in the whole. Each of the three parts was halved so we now have six equal parts in the whole.</p>
<p>When multiplying unit fractions, multiply the denominators.</p>	<p>Generalisation</p>	$\frac{1}{2} \times \frac{1}{6} = \frac{1}{12}$ $\frac{1}{6} \times \frac{1}{2} = \frac{1}{12}$ $\frac{1}{3} \times \frac{1}{5} = \frac{1}{15}$ $\frac{1}{5} \times \frac{1}{3} = \frac{1}{15}$
<p>When multiplying unto fractions, the product is smaller than the fractions being multiplied. .</p>	<p>Generalisation</p>	
<p>To multiply fractions, we can multiply the numerators and multiply the denominators.</p>	<p>Generalisation</p>	$\frac{4}{5} \times \frac{2}{3} = \frac{8}{15}$
<p>Dividing fractions</p>		
<p>To divide a fraction by a whole number, we can change it to an equivalent multiplication. To divide by ____, we can multiply by ____.</p>	<p>Structure</p>	 <p>$\frac{1}{3} \div 5 = \frac{1}{15} \rightarrow \frac{1}{3} \times \frac{1}{5} = \frac{1}{15}$</p> <p>'To divide a fraction by a whole number, we can change it to an equivalent multiplication. To divide by five, we can multiply by $\frac{1}{5}$.'</p>
<p>To divide a fraction by a whole number, we can change it to an equivalent multiplication.</p>	<p>Generalisation</p>	


Stem Sentences

Fractions

	To divide by ___ we can multiply by ___	Structure	$\frac{1}{3} \div 4 = \frac{1}{12}$ $\frac{1}{3} \times \frac{1}{4} = \frac{1}{12}$
	If we divide into ___ equal groups, then each of the groups is because ___ \div ___ = ___	Structure	 <p>If we divide six $\frac{1}{7}$ into 3 equal groups, then each of the groups is $\frac{2}{7}$ because $6 \div 3 = 2$</p>
	If the divisor is a factor of the numerator, just divide the numerator by the denominator and keep the denominator the same.	Generalisation	$\frac{8}{10} \div 4 = \frac{2}{10}$ 
Linking fractions, decimals and percentages			
	In order to use a place value chart to help convert a fraction to a decimal, the fraction must be expressed as a tenth, hundredth or thousandth.	Generalisation	$\frac{1}{5} = \frac{2}{10}$ 
	A fraction can be converted into a decimal by dividing the numerator by the denominator.	Generalisation	$\frac{1}{5} = 5 \overline{)0.2}$
	<p>' ___ is equivalent to $\frac{\square}{\square}$.'</p> <p>'We know that $\frac{\square}{\square} < \frac{\square}{\square}$, so ___ < $\frac{\square}{\square}$.'</p> <p>or</p> <p>' $\frac{\square}{\square}$ is equivalent to ___.'</p> <p>'We know that ___ < ___,'</p> <p>so ___ < $\frac{\square}{\square}$.'</p>	Structure	<p>'0.6 is equivalent to $\frac{3}{5}$.'</p> <p>'We know that $\frac{3}{5} < \frac{4}{5}$, so $0.6 < \frac{4}{5}$.'</p> $0.6 < \frac{4}{5}$ $0.6 = \frac{3}{5}$ $\frac{3}{5} < \frac{4}{5}$
	In order to convert a percentages to a fraction, first convert it to a fraction with a denominator of 100 then simplify.	Generalisation	$45\% = \frac{\square}{100} = \frac{\square}{20}$ $12\% = \frac{12}{100} = \frac{3}{25}$
	To find 50% of a number, halve it.	Generalisation	<p>'Zara is doing a 420 km charity bike ride. So far, she has completed 50% of the route. How far has she cycled?'</p>  <ul style="list-style-type: none"> • '100% of 420 km is 420 km.' • '50% of 420 km is $\frac{1}{2}$ of 420 km.' • 'Zara has cycled 210 km.'

Stem Sentences Fractions



	<p>To find 10% of a number, divide it by ten.</p>	<p>Generalisation</p>	<p><i>'Rishi has completed 10% of the same bike ride. How far has he cycled?'</i></p>  <ul style="list-style-type: none"> • <i>'100% of 420 km is 420 km.'</i> • <i>'10% of 420 km is $\frac{1}{10}$ of 420 km.'</i> • <i>'Rishi has cycled 42 km.'</i>
	<p>To find 1% of a number, divide it by hundred.</p>	<p>Generalisation</p>	<p><i>'100% of 420 km is 420 km.'</i></p> <p><i>'1% of 420 km is $\frac{1}{100}$ of 420 km.'</i></p> <p><i>'James has cycled 4.2 km.'</i></p>