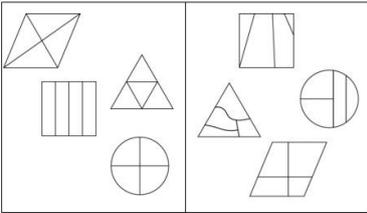
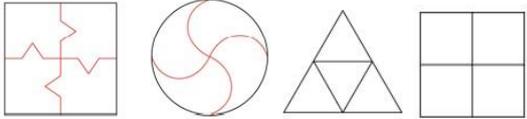
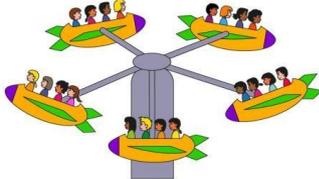
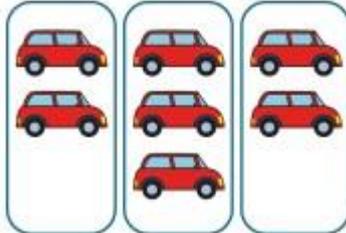


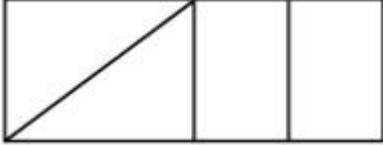
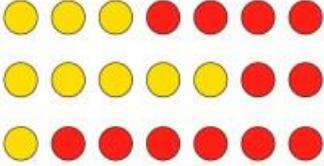
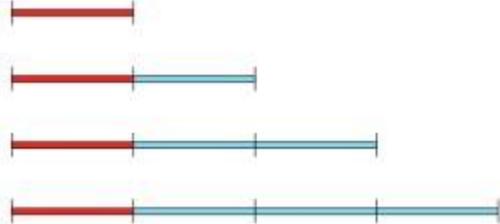
# Stem Sentences

## Fractions

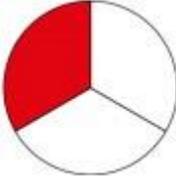
Part-Whole relationships		
Example of stem sentence	Type of stem sentence	
If _____ is the whole then _____ is part of the whole.	Structure	 <p>If Europe is the whole , then the United Kingdom is part of the whole.</p>  <p>If the week is the whole then Tuesday is part of the whole</p>
<b>A part is always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

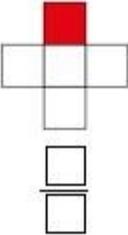
# Stem Sentences

## Fractions

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

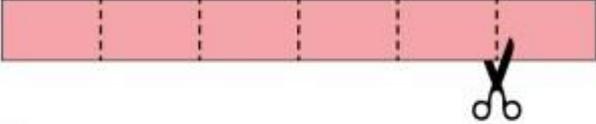
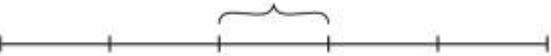
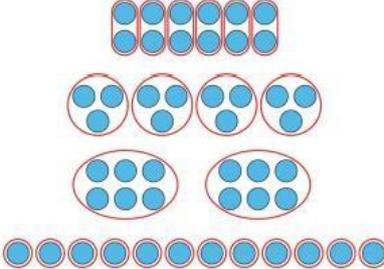
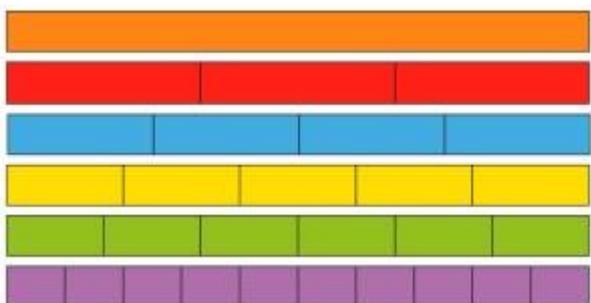
### Unit Fractions

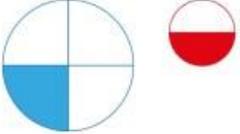
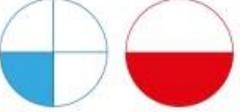
	<b>A unit fraction is any fraction where the numerator is one.</b>	<b>Generalisation</b>	<p><math>\frac{1}{2}</math> ← Numerator (1 for a unit fraction)          One of the parts of the whole</p> <p><math>\frac{1}{2}</math> ← Denominator          The number of equal parts in the whole</p>								
	The 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: #d1ecf1;">Say</th> <th style="background-color: #d1ecf1;">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: <b>3</b></td> </tr> <tr> <td>'One of the parts has been shaded.'</td> <td>The numerator: <b>1</b></td> </tr> </tbody> </table>	Say	Write	'The whole has been divided...'	The division bar: -	'...into 3 equal parts.'	The denominator: <b>3</b>	'One of the parts has been shaded.'	The numerator: <b>1</b>
Say	Write										
'The whole has been divided...'	The division bar: -										
'...into 3 equal parts.'	The denominator: <b>3</b>										
'One of the parts has been shaded.'	The numerator: <b>1</b>										

	<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

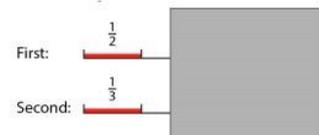
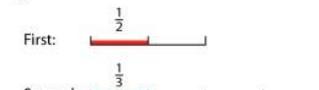
## Fractions

	<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"> <li>• 'The whole has been divided into six equal parts.'</li> <li>• 'Each equal part is one-sixth of the whole.'</li> <li>• 'One-sixth of the whole ribbon has been cut off.'</li> </ul>
	<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 in one ___ of the whole.</p>	Structure	<p>Dividing 12 counters into equal groups:</p> 
	<p><b>When the whole is the same, the greater the number of equal parts, the smaller each equal part is.</b></p> <p><b>When the whole is the same, the smaller the number of equal parts, the bigger each equal part is.</b></p>	Generalisation	
	<p><b>When comparing unit fractions, the greater the denominator, the smaller the fraction.</b></p>	Generalisation	<p>Ordering the fractions:</p>  <p style="text-align: center;"><math>\frac{1}{3} &gt; \frac{1}{4} &gt; \frac{1}{5} &gt; \frac{1}{6} &gt; \frac{1}{10}</math></p>

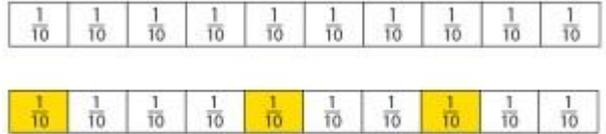
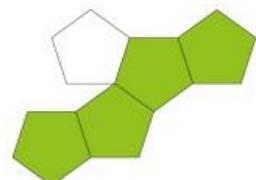
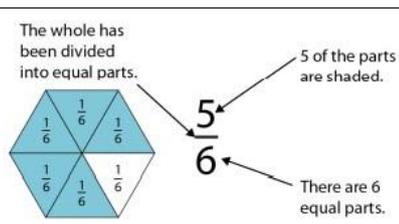
	<p><b>When we compare fractions, the whole has to be the same.</b></p>	Generalisation	<p>'Emma looks at these two diagrams. She says that they prove that <math>\frac{1}{4} &gt; \frac{1}{2}</math>. Do you agree or disagree?'</p>  <ul style="list-style-type: none"> <li>• 'Disagree: to compare fractions,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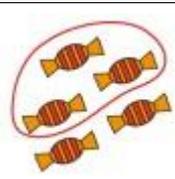
# Stem Sentences

## 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> <p style="font-size: small; color: blue;">• 'I have three one-tenths. I have three-tenths.'</p>
<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> <p style="font-size: small;">• 'There are five equal parts in the whole.'</p> <ul style="list-style-type: none"> <li>• 'There are four parts shaded.'</li> <li>• 'Four-fifths is shaded.'</li> </ul>
<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"> <li>• 'The whole has been divided into six equal parts.'</li> <li>• 'Five of the parts are shaded.'</li> <li>• 'That is five-sixths of the whole.'</li> </ul>
<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>

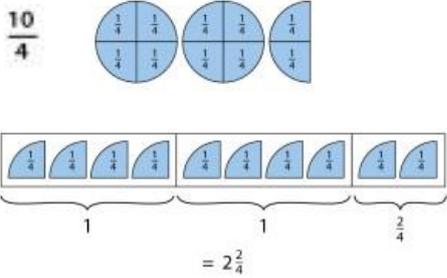
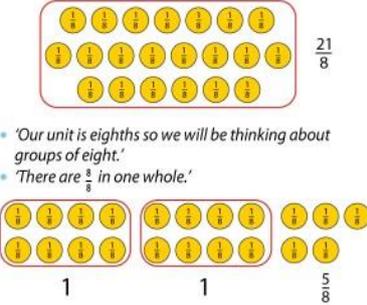
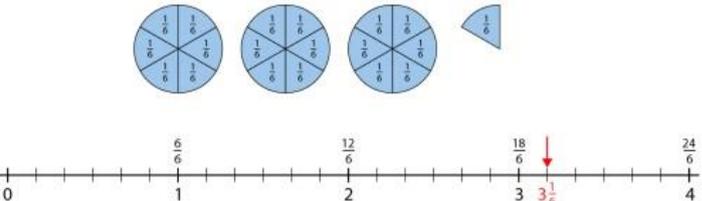
<p>The denominator is ____ because the whole has been divided into ____ equal parts. The numerator is ____ because ____ of the parts have been identified.</p>	<p>Structure / language</p>	<div style="text-align: center;">  </div> <p>The denominator is 5 because the whole has been divided into 5 equal parts. The numerator is 3 because 3 of the parts have been identified.</p>
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### Making a whole

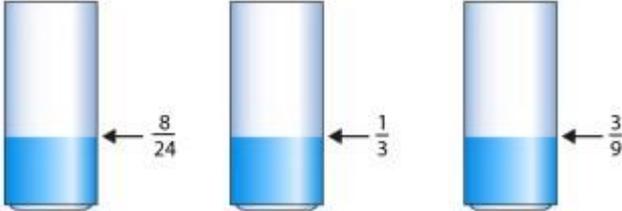


# Stem Sentences

## Fractions

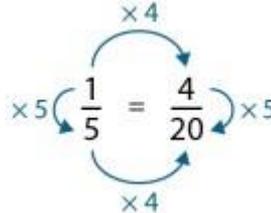
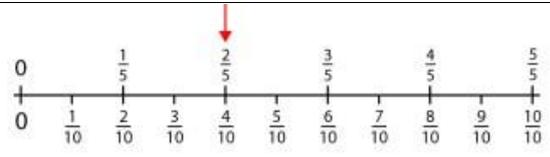
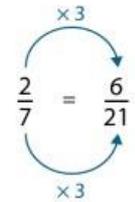
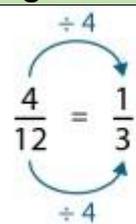
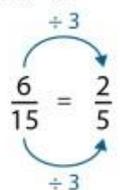
	<p>Each whole is divided into four equal parts. We have ___ of these equal parts.   This represents ___ quarter(s)</p>	<p>Structure/ language</p>	 <p>Each whole is divided into four equal parts. We have 11 of these equal parts. This represents 11 quarter(s)</p>						
	<p>The denominator is ____. This 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>	 <ul style="list-style-type: none"> <li>• 'Our unit is eighths so we will be thinking about groups of eight.'</li> <li>• 'There are <math>\frac{5}{8}</math> in one whole.'</li> </ul>						
	<p>How many groups of <math>\frac{1}{10}</math> in <math>\frac{21}{10}</math> ____ groups and ____ more ____</p>	<p>Structure / language</p>	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th style="background-color: #e0f2f1;">Improper fraction</th> <th style="background-color: #e0f2f1;">Prompt question</th> <th style="background-color: #e0f2f1;">Mixed number</th> </tr> </thead> <tbody> <tr> <td><math>\frac{21}{10}</math></td> <td>How many groups of <math>\frac{1}{10}</math> in <math>\frac{21}{10}</math>? (2 groups and 1 more tenth.)</td> <td><math>2\frac{1}{10}</math></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><math>3\frac{1}{6} = \frac{\square}{6}</math> There are three groups of <math>\frac{6}{6}</math> which is <math>\frac{18}{6}</math>, and one more sixth; that's <math>\frac{19}{6}</math></p> 						

### Equivalent Fractions

	<p><b>When two or more fractions have the same value. We call them equivalent fractions.</b></p>	<p>Generalisation</p>	
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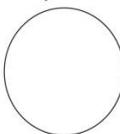
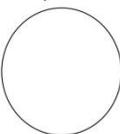
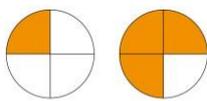
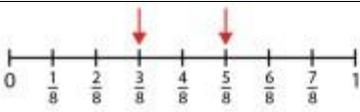
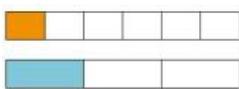
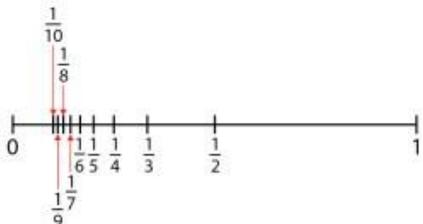
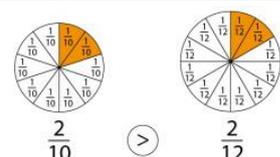
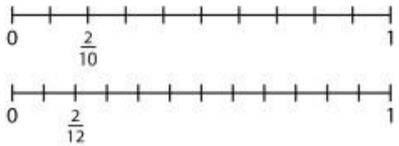
# Stem Sentences

## 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><math>\frac{2}{5}</math> is equivalent to <math>\frac{4}{10}</math>.</p>																																																																																					
<p>□ □ is equal □ because both the numerator and denominator have been scaled by a factor of _____</p>	Language / structure	<p><math>\frac{3}{8}</math> is equal <math>\frac{12}{32}</math> because both the numerator and denominator have been scaled by a factor of four.</p>																																																																																					
<p><b>When the numerator and denominator are multiplied or divided by the same number, the value of the fractions remains the same.</b></p>	<b>Generalisation</b>	<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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<b>Simplifying Fractions</b>																																																																																							
<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><b>A fraction can be simplified when the numerator and denominator have a common factor other than one.</b></p>	<b>Generalisation</b>																																																																																						
<p><b>To write a fraction in its simplest form, divide both the numerator and denominator by their highest common factor.</b></p>	<b>Generalisation</b>	<p>Highest common factor = 3</p> <div style="text-align: center;">  </div>																																																																																					

# Stem Sentences

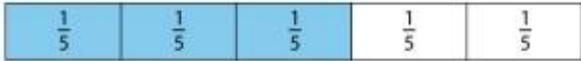
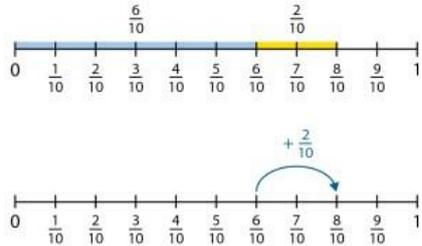
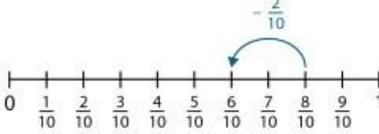
## Fractions

<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;"> <math>\frac{3}{15}</math>   <math>\frac{2}{5}</math>   <math>\frac{4}{20}</math>   <math>\frac{25}{36}</math>   <math>\frac{1}{6}</math>   <math>\frac{7}{21}</math>   <math>\frac{18}{30}</math>   <math>\frac{9}{17}</math>  <math>\frac{5}{15}</math>   <math>\frac{11}{20}</math>   <math>\frac{23}{30}</math> </p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>In its simplest form</p>  </div> <div style="text-align: center;"> <p>Not in its simplest form</p>  </div> </div> <p>4/20 is not in its simplest form because four is a common factor of 4 and 20</p> <p>23/50 is in its simplest form because one is the only common factor of 23 and 30.</p>
<b>Comparing Fractions</b>		
<p><math>\frac{\square}{\square}</math> is ___ lot of <math>\frac{1}{\square}</math></p> <p><math>\frac{\square}{\square}</math> is ___ lots of <math>\frac{1}{\square}</math></p> <p><i>'I know that ___ is less than ___...'</i></p> <p><i>'...so <math>\frac{\square}{\square}</math> is less than <math>\frac{\square}{\square}</math>'</i></p>	<p>Language / structure</p>	<div style="display: flex; align-items: center;">  </div> <p style="text-align: center;"><math>\frac{1}{4} &lt; \frac{3}{4}</math></p> <p><math>\frac{1}{4}</math> is 1 lots of <math>\frac{1}{4}</math></p> <p><math>\frac{3}{4}</math> is 3 lots of <math>\frac{1}{4}</math></p> <p>I know that 1 is less than 3 so <math>\frac{1}{4}</math> is less than <math>\frac{3}{4}</math>.</p>
<p><b>When we compare fractions with the same denominator, the greater the numerator, the greater the fraction.</b></p>	<p><b>Generalisation</b></p>	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p><math>\frac{3}{8} &lt; \frac{5}{8}</math></p> </div> </div> <div style="display: flex; align-items: center; margin-top: 20px;"> <div style="text-align: center;"> <p><math>\frac{18}{24}</math></p> <p>↓</p> <p>18 lots of <math>\frac{1}{24}</math></p> </div> <div style="margin-left: 20px; text-align: center;"> <p><math>\frac{23}{24}</math></p> <p>↓</p> <p>23 lots of <math>\frac{1}{24}</math></p> </div> <div style="margin-left: 20px;"> <p><math>\frac{18}{24} &lt; \frac{23}{24}</math></p> </div> </div>
<p><b>When comparing unit fractions, the greater the denominator, the smaller the fraction.</b></p>	<p><b>Generalisation</b></p>	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p><math>\frac{1}{6} &lt; \frac{1}{3}</math></p> </div> </div> <div style="display: flex; align-items: center; margin-top: 20px;">  </div>
<p><b>When we compare fractions with the same numerator, the greater the denominator, the smaller the fraction.</b></p>	<p><b>Generalisation</b></p>	<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p><math>\frac{2}{10} &gt; \frac{2}{12}</math></p> </div> </div> <div style="display: flex; align-items: center; margin-top: 20px;">  </div>
<p><b>To compare fractions with different numerators and denominator convert to common denominators.</b></p>	<p><b>Generalisation</b></p>	<div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 20px;"> <p><math>\frac{1}{3}</math></p> <p>↓</p> <p><math>\frac{4}{12}</math></p> </div> <div style="text-align: center; margin-right: 20px;"> <p><math>&lt;</math></p> </div> <div style="text-align: center; margin-right: 20px;"> <p><math>\frac{3}{4}</math></p> <p>↓</p> <p><math>\frac{9}{12}</math></p> </div> <div style="text-align: center;"> <p><math>&lt;</math></p> </div> </div>

## Adding and subtracting Fractions

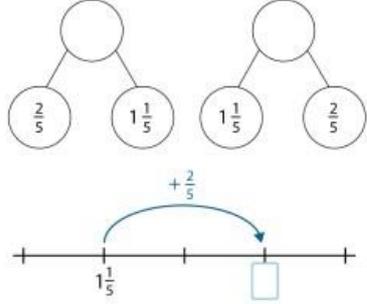
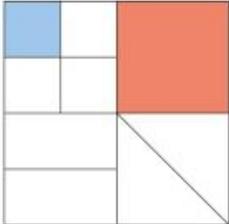
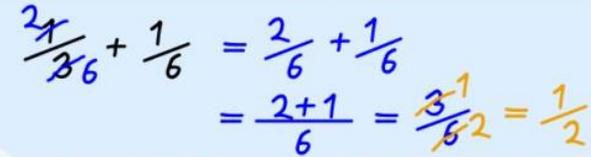
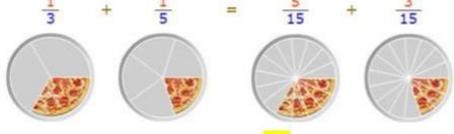
# Stem Sentences

## Fractions

$\frac{\square}{\square}$ is ___ 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>
___ tenths and ___ more tenths make ___ tenths.	Structure	 <p>6 tenths and 2 more tenths make 8 tenths.</p>
$\frac{\square}{\square}$ is ___ lots of $\frac{\square}{\square}$ $\frac{\square}{\square}$ is ___ lots of $\frac{\square}{\square}$ 'I know that ___ + ___ = ___' '...so, I know that $\frac{\square}{\square} + \frac{\square}{\square} = \frac{\square}{\square}$ '	Structure	$\frac{6}{10}$ is six lots of $\frac{1}{10}$ . $\frac{2}{10}$ is two lots of $\frac{1}{10}$ . 'I know that 6 + 2 = 8.' '...so, I know that $\frac{6}{10} + \frac{2}{10} = \frac{8}{10}$ '
<b>When adding fractions with the same denominators, just add the numerators.</b>	<b>Generalisation</b>	
___/10 is ___ lots of 1/10 ___/10 is ___ lots of 1/10 I know that ___ = ___ = ___ So I know that ___/10 - ___/10 = ___/10	Structure	 <p>Method 3 – verbal reasoning:</p> <ul style="list-style-type: none"> <li>• '<math>\frac{8}{10}</math> is eight lots of <math>\frac{1}{10}</math>'.</li> <li>• '<math>\frac{2}{10}</math> is two lots of <math>\frac{1}{10}</math>'.</li> <li>• 'I know that 8 - 2 = 6.'</li> </ul> <p>'...so, I know that <math>\frac{8}{10} - \frac{2}{10} = \frac{6}{10}</math>'.</p>
<b>When subtracting fractions with the same denominators, just subtract the numerators.</b>	<b>Generalisation</b>	$\frac{8}{9} - \frac{3}{9} = \frac{5}{9}$ $\frac{8}{10} - \frac{2}{10} = \frac{6}{10}$
<b>To subtract from one whole, first convert the whole to a fraction where the denominator and numerator are the same.</b>	<b>Generalisation</b>	<p>'A watermelon is cut into 8 equal pieces.'</p> <p>'<math>\frac{6}{8}</math> of the watermelon is eaten'</p> <p>What fraction of the watermelon is left?</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 20px;"> <p>Eaten: <math>\frac{6}{8}</math></p>  </div> <div style="margin-right: 20px;"> <p>Left: <math>\frac{2}{8}</math></p>  </div> <div style="margin-right: 20px;">  </div> <div style="margin-right: 20px;"> <math display="block">1 - \frac{6}{8} = \frac{2}{8}</math> <math display="block">\frac{8}{8} - \frac{6}{8} = \frac{2}{8}</math> </div> </div>

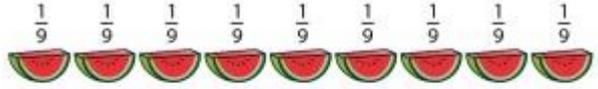
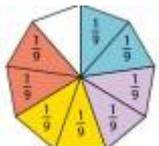
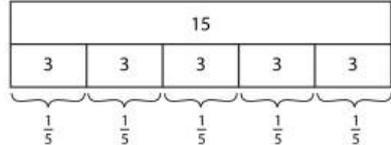
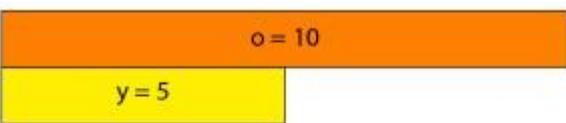
# Stem Sentences

## Fractions

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

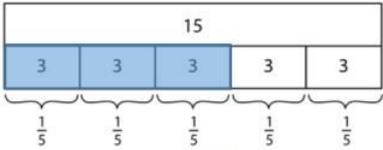
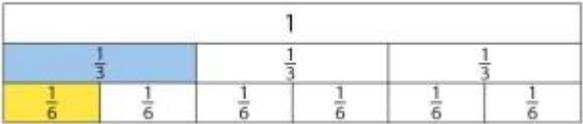
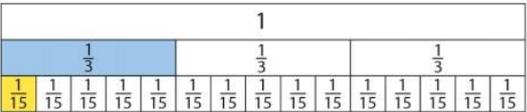
# Stem Sentences

## Fractions

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

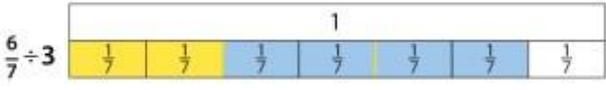
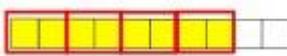
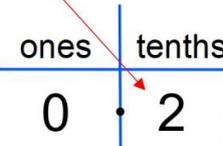
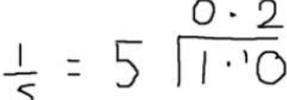
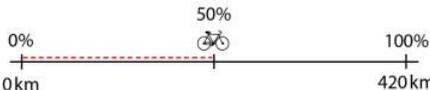
# Stem Sentences

## Fractions

<p><b>To calculate a fraction of a quantity, find the unit fraction of the quantity. Then multiply the unit fraction by the numerator.</b></p>	<p><b>Generalisation</b></p>	<p>Calculate <math>\frac{3}{5}</math> of 15</p>  <p>Find the unit fraction (<math>\frac{1}{5}</math>) of 15 by dividing 15 into five equal parts. <math>\frac{1}{5}</math> of 15 is 3 so <math>\frac{3}{5}</math> of 15 is 9.</p>
<p><b>When a whole number is multiplied by a proper fraction, it makes the whole number smaller</b></p>	<p><b>Generalisation</b></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><b>When multiplying unit fractions, multiply the denominators.</b></p>	<p><b>Generalisation</b></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><b>When multiplying unto fractions, the product is smaller than the fractions being multiplied. .</b></p>	<p><b>Generalisation</b></p>	
<p><b>To multiply fractions, we can multiply the numerators and multiply the denominators.</b></p>	<p><b>Generalisation</b></p>	$\frac{4}{5} \times \frac{2}{3} = \frac{8}{15}$
<b>Dividing fractions</b>		
<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>	 $\frac{1}{3} \div 5 = \frac{1}{15} \rightarrow \frac{1}{3} \times \frac{1}{5} = \frac{1}{15}$ <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 <math>\frac{1}{5}</math>.'</p>
<p><b>To divide a fraction by a whole number, we can change it to an equivalent multiplication.</b></p>	<p><b>Generalisation</b></p>	

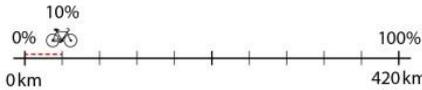
# Stem Sentences

## 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 style="text-align: center;">If we divide six <math>\frac{1}{7}</math> into 3 equal groups, then each of the groups is <math>\frac{2}{7}</math> because <math>6 \div 3 = 2</math></p>
	<b>If the divisor is a factor of the numerator, just divide the numerator by the denominator and keep the denominator the same.</b>	Generalisation	$\frac{8}{10} \div 4 = \frac{2}{10}$ 
<b>Linking fractions, decimals and percentages</b>			
	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	$\frac{1}{5} = \frac{2}{10}$ 
	<b>A fraction can be converted into a decimal by dividing the numerator by the denominator.</b>	Generalisation	$\frac{1}{5} = 0.2$ 
	<p>' ___ is equivalent to <math>\frac{\square}{\square}</math>.'</p> <p>'We know that <math>\frac{\square}{\square} &lt; \frac{\square}{\square}</math>, so ___ &lt; <math>\frac{\square}{\square}</math>.'</p> <p>or</p> <p>' <math>\frac{\square}{\square}</math> is equivalent to ___.'</p> <p>'We know that ___ &lt; ___,'</p> <p>so ___ &lt; <math>\frac{\square}{\square}</math>.'</p>	Structure	<p>'0.6 is equivalent to <math>\frac{3}{5}</math>.'</p> <p>'We know that <math>\frac{3}{5} &lt; \frac{4}{5}</math>, so <math>0.6 &lt; \frac{4}{5}</math>.'</p> $0.6 < \frac{4}{5}$ $0.6 = \frac{3}{5}$ $\frac{3}{5} < \frac{4}{5}$
	<b>In order to convert a percentages to a fraction, first convert it to a fraction with a denominator of 100 then simplify.</b>	Generalisation	$45\% = \frac{\square}{100} = \frac{\square}{20}$ $12\% = \frac{12}{100} = \frac{3}{25}$
	<b>To find 50% of a number, halve it.</b>	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"> <li>• '100% of 420 km is 420 km.'</li> <li>• '50% of 420 km is <math>\frac{1}{2}</math> of 420 km.'</li> <li>• 'Zara has cycled 210 km.'</li> </ul>

# Stem Sentences Fractions



	<p><b>To find 10% of a number, divide it by ten.</b></p>	<p><b>Generalisation</b></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"> <li>• <i>'100% of 420 km is 420 km.'</i></li> <li>• <i>'10% of 420 km is <math>\frac{1}{10}</math> of 420 km.'</i></li> <li>• <i>'Rishi has cycled 42 km.'</i></li> </ul>
	<p><b>To find 1% of a number, divide it by hundred.</b></p>	<p><b>Generalisation</b></p>	<p><i>'100% of 420 km is 420 km.'</i></p> <p><i>'1% of 420 km is <math>\frac{1}{100}</math> of 420 km.'</i></p> <p><i>'James has cycled 4.2 km.'</i></p>