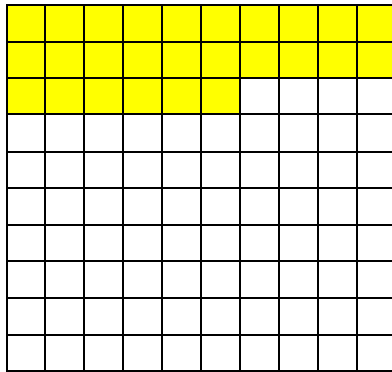


Maths Learning Design

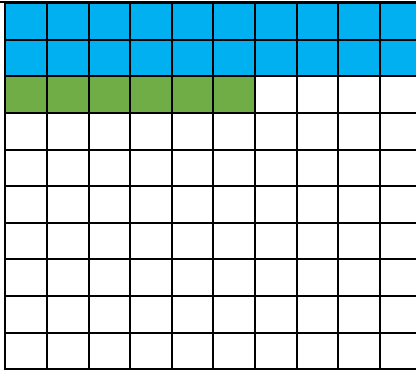
Topic:	Decimals	Class:	Year 4 Year 6 (I)	Duration:	4 to 6 periods
Subtopics:	Hundredths				
Content Learning Objectives:	Pupils should be able to: <ul style="list-style-type: none"> read and interpret place values of decimal numbers with two decimal places. 				

Teaching & Learning Activities	Resources	Summary																
<p>Tuning in (Introduction) <i>Determine prior knowledge and prepare pupils</i></p>	<ol style="list-style-type: none"> Teacher recalls place value of whole number and decimal number. Distribute Template 1 and 2 to groups of pupils. Instruct pupils to shade $\frac{1}{10}$ on Template 1 and $\frac{1}{100}$ on Template 2. Ask the pupils, “Which is bigger? One-tenth or One-hundredth by referring to the size. Write on the whiteboard $\frac{1}{10}$ and $\frac{1}{100}$ Highlight to pupils that $\frac{1}{10}$ is written as 0.1 in decimal form. Inform to pupils that the decimal point is to separate the whole numbers to the numbers which are smaller than 1. Ask “What will be the decimal form for $\frac{1}{100}$?” Get pupils to read out loud “zero point zero one” 	<ul style="list-style-type: none"> Template 1 Template 2 																
<p>Finding out & Sorting out (Lesson Development) <i>Time to locate, gather information, organise and process ideas.</i></p>	<ol style="list-style-type: none"> Teacher draws pupils’ attention on the differences between 0.1 and 0.01 using Place-Value Chart: <table border="1" style="margin: 10px auto; text-align: center;"> <tr> <th style="padding: 2px;">Ones</th> <th style="padding: 2px;">•</th> <th style="padding: 2px;">Tenths</th> <th style="padding: 2px;">Hundredths</th> </tr> <tr> <td style="padding: 2px;">0</td> <td style="padding: 2px;">•</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;"></td> </tr> </table> <table border="1" style="margin: 10px auto; text-align: center;"> <tr> <th style="padding: 2px;">Ones</th> <th style="padding: 2px;">•</th> <th style="padding: 2px;">Tenths</th> <th style="padding: 2px;">Hundredths</th> </tr> <tr> <td style="padding: 2px;">0</td> <td style="padding: 2px;">•</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">1</td> </tr> </table> Teacher asks pupils to shade one more square on Template 2. Get pupils to tell that they have 2 hundredths and it will be written as 0.02. Let pupils to read aloud the decimals. Teacher instructs pupils to continue shading until they have 10 shaded squares on Template 2. Ask “There are 10 hundredths now. Is this the same as to that of one-tenth you had shaded earlier on?” 	Ones	•	Tenths	Hundredths	0	•	1		Ones	•	Tenths	Hundredths	0	•	0	1	<ul style="list-style-type: none"> Template 1 Template 2 Place Value chart. Colour pencils Worksheets Based 10 blocks
Ones	•	Tenths	Hundredths															
0	•	1																
Ones	•	Tenths	Hundredths															
0	•	0	1															

6. Guide the pupils to answer the question by asking them to compare the size by overlapping the two templates to allow pupils to see that 10 hundredths is equivalent to 1 tenth.
7. Write on the whiteboard one-tenth is written as $\frac{1}{10}$
 $= 0.1$ and that 10 hundredths as $\frac{10}{100} = 0.10$.
 So $\frac{10}{100} = \frac{1}{10}$
 $= 0.10$
 $= 0.1$
8. Get pupils to recall their lesson on fraction on simplifying that when both numerator and denominator are divided by 10, $\frac{10}{100}$ simplified to become $\frac{1}{10}$.
9. Highlight to pupils that dividing by 10 suggests regrouping 10 smaller units into 1 bigger unit. Teacher can use based 10 blocks to show regrouping of 10.
10. On another set of Template 2, get pupils to shade 26 small squares.



11. Ask “How will you interpret this diagram into fraction and decimal form?”
12. Guide pupils to discuss among their group members by using regrouping concept and that pupils can use different colours for shading to define the grouping.



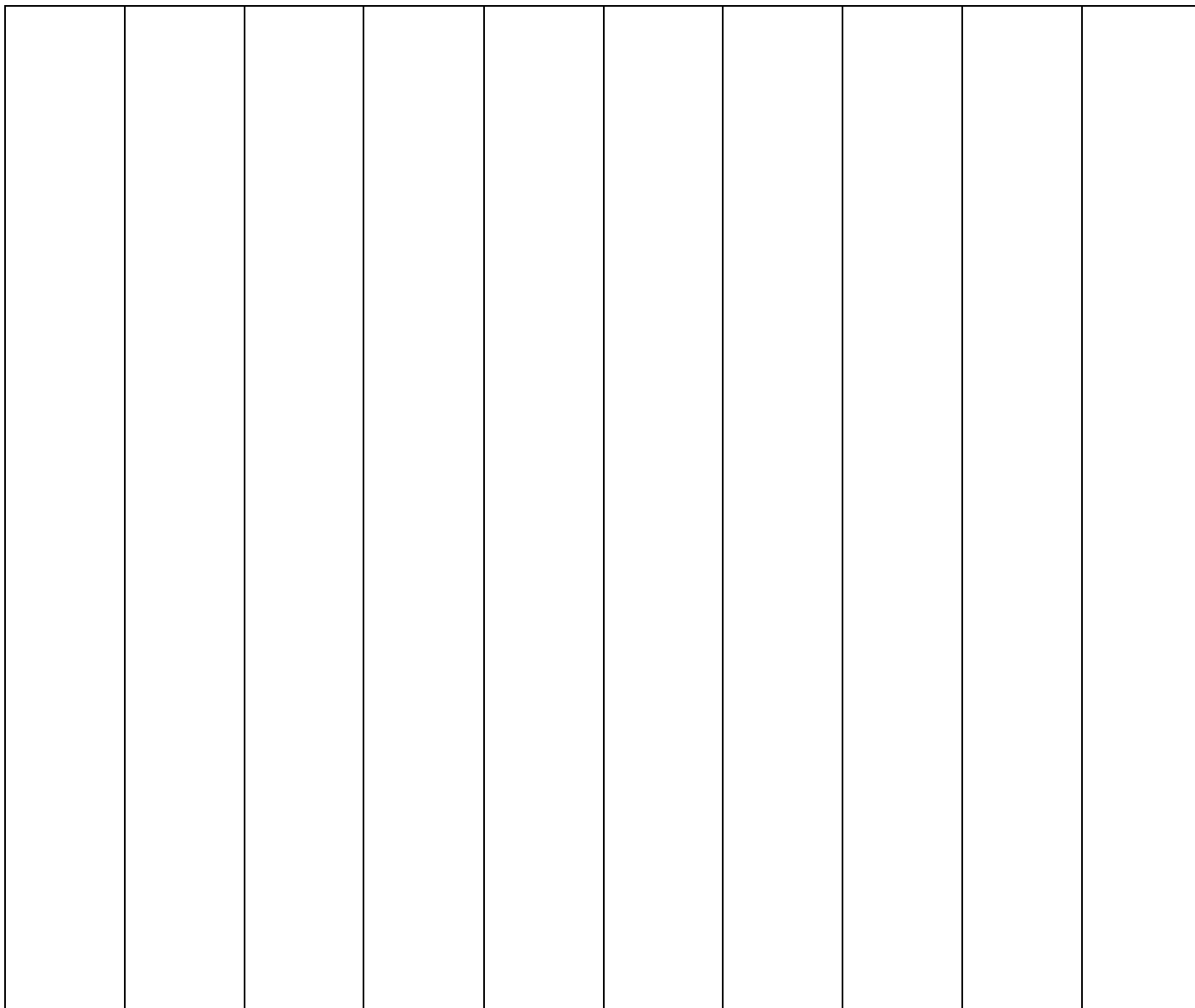
13. Call out a pupil from a group to interpret the diagram. (20 squares are blue, 6 squares are green). Guide pupils to explain through questioning:
 - “What fraction does the blue part shows?”
 - “What fraction is the blue part after regrouping?”
 - “How do you write the fraction into decimal?”
 - “What fraction does the green part shows?”
 - “What fraction is the green part after regrouping?”
 - “How do you write the fraction into decimal?”
14. Get the pupils to write on place value chart to illustrate and reinforce place value concept.
15. Challenge the pupils to show $2\frac{31}{100}$ on Template 2 by asking pupils what does the number 2 means (2 whole of Template 2 are shaded).

<p>Making Conclusions <i>Draw conclusion and consolidate understanding</i></p>	<ol style="list-style-type: none"> 1. Distribute worksheet to the pupils for practice. 		
<p>Go further (Enrichment) <i>Apply knowledge to develop further understanding</i></p>			

Evaluation (with respect to the Content Learning Objectives)

<p>What worked well?</p>	<p>What would make it even better next time?</p>
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TEMPLATE 1 (ON A TRANSPARENCY):10 EQUAL PARTS (TEMPLATE 1 & 2 ARE OF THE SAME SIZE)



TEMPLATE 2: 100 EQUAL PARTS (TEMPLATE 1 & 2 ARE OF THE SAME SIZE)

APPENDIX 1: WORKSHEET

Name: _____

Year: _____

Date: _____

Complete the following table.

	Fraction	Decimal
1		0.24
2	$\frac{35}{100}$	
3		
4		1.92
5	$8 \frac{2}{100}$	
6		
7	$23 \frac{9}{100}$	
8	$\frac{99}{100}$	
9		5.27
10		
11		11.89
12	$\frac{12}{100}$	
13		