**Maths Learning Design**

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| **Topic:** | Fractions | **Class:** | Year 6 | **Duration:** | 6 periods |
| **Subtopic :** | Dividing Fraction by a Fraction | | | | |
| **Content Learning Objectives:** | Pupils should be able to divide fraction by a fraction. | | | | |

| Teaching & Learning Activities | | Resources | Summary |
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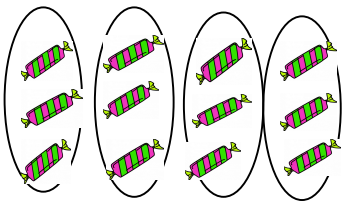
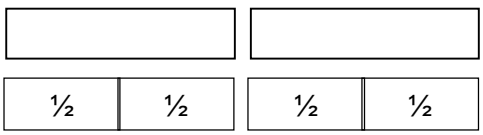
| **Tuning in (Introduction)** *Determine prior knowledge and prepare pupils* | 1. Scaffold pupils using whole number first.<br>2. Write a 12 ÷ 3 on the whiteboard.<br>3. Ask pupils to solve the problem by asking "*How many groups of 3 are there in 12?*" Emphasize the word "groups".<br>4. Put sweets on the table. Then teacher asks selected pupils to show how they get their answer.<br>  <br>"*How many groups of 3 are there in 12 sweets?*" "*How many threes are there in 12?*"<br><br>Emphasize "12 ÷ 3" means "How many "3's are there in 12"<br><br>5. Help pupils to interpret in a similar manner – "How many "1/2"s are there in 2 wholes"<br>6. Provides each group with 2 strips of paper with the same shape and size, scissors and colour markers. See how many ways the pupils can solve the problem. "How many halves can fit in two?"<br>7. Guide pupils to find the answer through practical approach:<br>  <br><br>8. "There are 4 halves in 2 wholes. So, 2 ÷ ½ = 4" | | |

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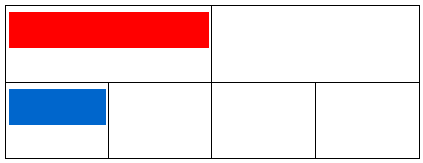
| **Finding out & Sorting out (Lesson Development)**<br>*Time to locate, gather information, organise and process ideas.* | 1. Get pupils to form 3 or 4 pupils in a group according to their abilities.<br>2. Provide each group with 2 strips of paper with the same shape and size, scissors and colour markers. See how many ways the pupils can solve the problem.<br>3. Pupils fold one strip of paper to form one-half.<br>4. Get pupils to shade only one-half of the whole.<br>5. Then, cut the shaded part out.<br>6. Now, get another strip of paper. Cut into quarters.<br>  <br>(The teacher may use transparency for overlapping activity)<br>7. *How many quarters will there be in one-half?*. Ans: 2<br>8. Write number sentences to show:<br>$\frac{1}{2} \div \frac{1}{4} = 2$<br>9. Ask pupils to solve the five problems:<br>a) 2/3 ÷ 1/3<br>b) 1/3 ÷ 1/6<br>c) 1/4 ÷ 1/8<br>d) 4/5 ÷ 1/5<br>e) 1/2 ÷ 1/8<br>10. Guide pupils to find the "short-cut" method in dividing "by fraction".<br>11. Refer pupils back to the earlier result.<br>$2 \div ½ = 4 \rightarrow 2 \times \frac{2}{1} = \frac{4}{1} = 4$<br>Try with the other results | • Strips of papers<br>• Colour markers<br>• Scissors | • Able to use manipulative to find the answers<br>• Able to explain why the answer is bigger than both the divisor and dividend<br>• Reason why "flip and invert" works:<br>$\frac{2}{\frac{1}{2}} = \frac{2 \times \frac{2}{1}}{\frac{1}{2} \times \frac{2}{1}} = 4$ |
| **Making Conclusions**<br>*Draw conclusion and consolidate understanding* | 1. Get pupils to do individual work in class to show their understanding of the topic.<br>2. Ask pupils to solve the five problems:<br>a) 1/2 ÷ 1/8<br>b) 1/3 ÷ 1/15<br>c) 1/4 ÷ 1/12<br>d) 3/5 ÷ 1/5<br>e) 3/4 ÷ 1/8 | | |
| **Go further (Enrichment)**<br>*Apply knowledge to develop further understanding* | | | |

| **Evaluation** *(with respect to the Content Learning Objectives)* | |
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| **What worked well?** | **What would make it even better next time?** |