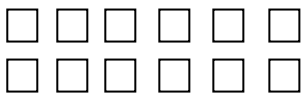
HOW DO WE DEVELOP LEARNERS' STRATEGIES FOR SOLVING MULTIPLICATION PROBLEMS?

1. **Counting.** Do daily and you record or let learners record. Start looking for patterns.
2. **Visualising**



2 groups of 6 or 6 groups of 2

How else can we draw 12 and then write it? 3 x 4 and 4 x 3, for example.

3. **Using number grids** like the 100 grid, 99 grid and 144 grid and identify patterns – count in 5's. What do you notice?

4. **Using multiplication facts**

x 1	x 10	x 100
3		
4		
5		
10		
15		
50		
75		

5. Using doubling and halving
1 × 45 = 45 so double 45
2 × 45 =
4 × 45 =
8 × 45 =
16 × 45 =
What will be next in the pattern?

SOME WAYS OF DOING MENTAL MATHS THAT GOES BEYOND DRILL AND PRACTICE

1. **Tables**

   Bingo
   Digit cards
   Dice
   Dominoes

2. **Open ended problems**

   ☐ **×** ☐ **=** ☐

   Choose from these numbers 2, 3, 4, 5, 6, 7, 8, 9, 10. The same number may be used twice or you could make up statements, e.g. the answer must be less than 25 or between 25 and 45, more than 45 or about 15, etc.

3. **Exploring the relationship between numbers**

   ☐ **×** ☐ **= 120**

Ask: What numbers could I use to make the number sentence true? How did you think of those numbers? Is it true? Why? Are there other numbers to get 120?

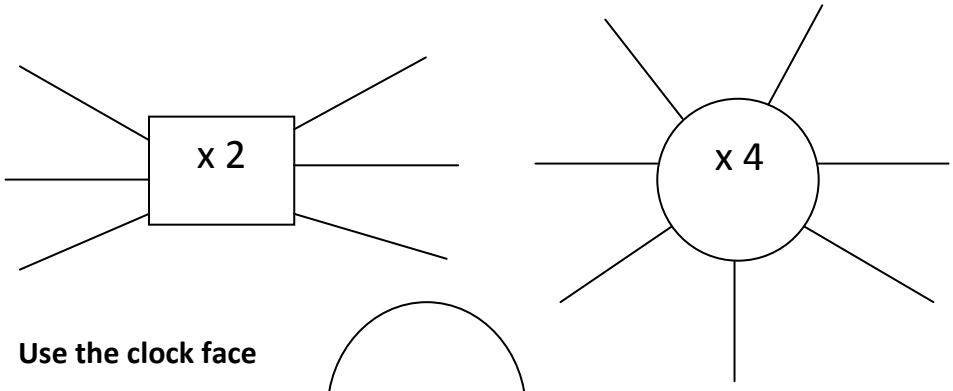
4. **Exploring the relationship between × and ÷ numbers**

☐ **x** ☐ **=** ☐ **and** ☐ **and** ☐ **÷** ☐ **=**

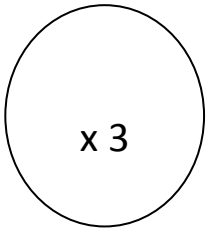
2	2	5	6	8	10
	16	20	25	30	40

Choose 3 numbers from the above grid to make a multiplication sentence true. The same number can be used twice. Now, can you use the numbers to make a division number sentence.

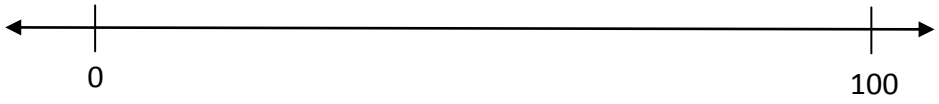
5. **Closed ended problems like the function machine/spider diagrams**



6. **Use the clock face**



7. **Number line – supports the child's thought process**



COMPUTATIONAL FLUENCY (INVOLVES BEING EFFICIENT IN THE STRATEGY THAT YOU USE, FLEXIBLE AND ACCURATE) AND NUMBER SENSE GO HAND IN HAND

MENTAL MATHEMATICS
LINKED TO SENSE MAKING AND REQUIRES PRACTICE, PRACTICE AND PRACTICE

- A life skill we all aspire to.
- Focus is on the process (THINKING, which implies UNDERSTANDING) of how to reach an answer.

TWO ASPECTS WHICH MUST BE DONE WITH YOUR LEARNERS ON A DAILY BASIS IS:

1. The need for a rapid recall with understanding of known number facts like multiplication tables, bonds, doubling, halving, multiples, rounding off, place value
2. Be able to derive number facts from what they know. what is 6 x 8? i know what 3 x 8 is so i can derive what 6 x 8 is?