Multiplication Prior Assessment Question 1 (a, c, d and e)
Objective: I use my relationship of numbers to multiply mentally
NC NASMD4: I can perform mental calculations.

Teacher Input Ideas:

Inputs may need to be completed with small groups or the inputs and activities may need to be split over 2 or 3 lessons, dependent on the children's abilities with selecting and using efficient mental methods.

Review question 1 of the prior assessment test. You may want to ask these questions or similar ones with a 10 second time limit on each one to promote using efficient mental methods. Allow the children time to review their answers and share how they worked them out.

Place 2 on the board and ask the children to explain how would they find 2 lots of something.
What if I now wanted to find four lots of something?
For example, 6 x 2 = 12. What is I wanted to find 4 lots of something? Model how four lots can be found by doubling and doubling again.
Inform the children that sometimes it is quicker to find 4 lots of something to double and double again. Place a few sums for the children to practise using this mentally.
52 x 4, 80 x 4, 350 x 4. Compare with using the four x table and discuss which is the most efficient method to use here, for example 80 x 4 may be quicker for some children to use 4 x table, whereas 350 x 4 would be more efficient to double and double again.

Once the children are confident, finding 8 lots could be introduced by doubling, doubling and doubling again. Also compare to using x8 facts, demonstrating which method is more efficient for different sums. Model jotting amounts down each time doubled to help keep the trail of calculations.

Using x by 10 and 100 input:

Children should be confident in multiplying by 10 and 100 mentally. Show using x by 10 to find 5 lots. This could be done alongside visual models.
You could have ten circles with same amount on, for example 32.
32 x 10 is 320. We can do that quickly. What is the relationship between 5 and 10?
Establish that 5 is half of 10. So if I half the number I have found 5 lots.
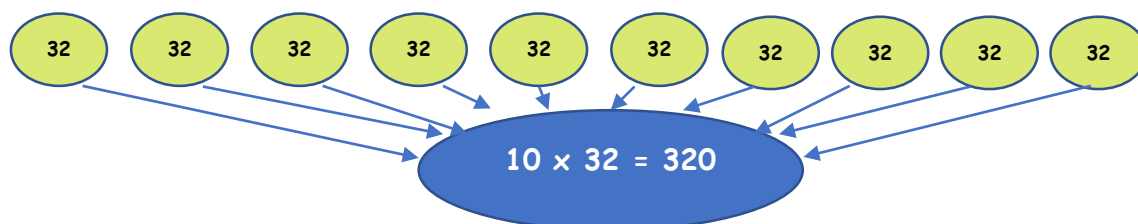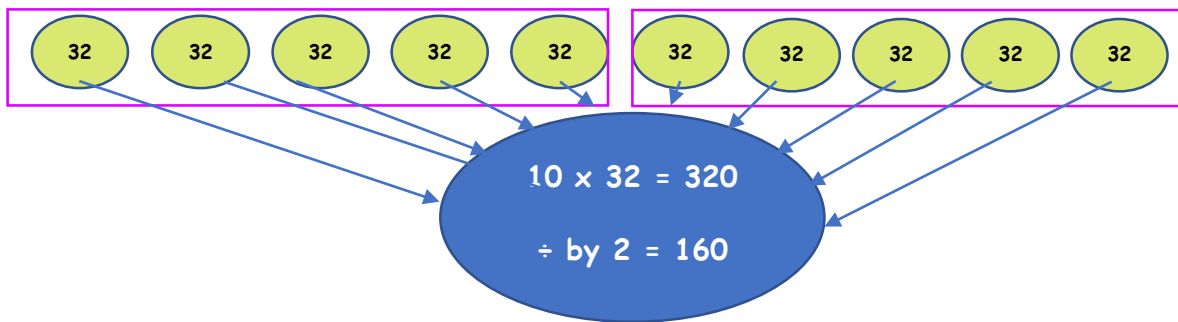
Similar diagrams could be used to show the children finding 20 lots quickly.

Find 10 lots. 20 is double ten so x by 2.

When children are confident with finding 5 lots. Link to x by 50 by finding 100 lots first. Establish that if we found 100 lots we could then half this amount to find 50 lots as 50 is half of 100.

32 x 100 = 3200
3200 ÷ 2 = 1600

When children are ready, model that 25 is ¼ of 100 and ½ of 50. Model finding 25 lots by finding 100, then halving and halving again. Models and visual drawings may help.

Practice Activities

Purple Practice: Most suited for children who made errors in **Question 1 as they need to secure using doubling to find 2 and 4 lots of an amount mentally.**

The questions encourage the children to use doubling to find 2 and 4 lots of a number. There are a variety of questions for the children to explore whether doubling is the most efficient and quickest method for the question or whether their knowledge of their 4 or 2 x tables is the most efficient method.

This activity consists of two sheets. The first sheet has the sums. For instant feedback and assessment, these could be cut out and stuck onto the bottom of strips of paper. Then the strip could be folded in half so that the sum is displayed on the outside of the card. On the inside or reverse of the card the answer (sheet two) could be cut out and stuck on so that the children could lift the flap or turn over the card to see instantly if they are correct. The children can then review if they have made progress towards the objective and they can be easily regrouped and given more support during the lesson if children are making errors.

Look out for children who are consistently making errors when doubling numbers that make a new ten (for example 65, 78.)

Green Practice: Most suited for children who made errors in **Question 1 as they need to secure using doubling to find 4 and 8 lots of an amount mentally and decide on the most efficient mental methods to use.**

There are a variety of questions for the children to explore whether doubling is the most efficient and quickest method for the question or whether their knowledge of their 4 and 8 x tables is the most efficient method.

This activity consists of two sheets. The first sheet has the sums. For instant feedback and assessment, these could be cut out and stuck onto the bottom of strips of paper. Then the strip could be folded in half so that the sum is displayed on the outside of the card. On the inside or reverse of the card the answer (sheet two) could be cut out and stuck on so that the children could lift the flap or turn over the card to see instantly if they are correct. The children can then review if they have made progress towards the objective and they can be easily regrouped and given more support during the lesson if children are making errors.

Look out for children who are consistently making errors when doubling numbers that make a new ten (for example 65, 78,)

Yellow Practice: **Most suited for children who would benefit from exploring mental multiplication methods using x by 10 and 100 to help find other facts.**

This activity provides the children with the opportunity to use their knowledge of finding 10 lots to x by 5 and 20 and to use their knowledge of finding 100 lots to x by 50 and 25. The children could also explore at the end of the task if they could have used other methods, such as using x table facts for 50 x 7 and compare which they feel is more efficient. Children may need visual representations to help them to see why we can find 100 lots and halve and halve again to find 25 lots (see input).

Mastery Allow the children time to explore this first and see how they approach this challenge.

Prompts:

What information have you go that helps? If you try 50 as the start number do you get the same answer? How can you use the information to work out what the number is and prove this? Where will you start?

If children require more support model that we need to work backwards to work out what it is:

(12 – 3)x 4 – 10 x 2 = number

Answers: encourage children to talk about their answers and share the different mental strategies they have used.

Purple and Green: the answers are on sheet 2 of each task.

<u>**Yellow :**</u>

1.

Number	X 10	X5	X20
62	620	310	1240
90	900	450	1800
350	3500	1750	7000
840	8400	4200	16800

2.

Number	X 100	X50	X25
48	4800	2400	1200
7	700	350	175
15	1500	750	375
120	12000	6000	3000

Mastery Children should be encouraged to prove that Sophie is wrong by working backwards through the steps that Jasmin took, performing the inverse instructions

12 – 3 = 9

9 x 4 = 36

36 – 10 = 26

26 doubled = 52

They should prove that the answer is **52** and explain this

BRICKWORK
Mathematics

Choose the most efficient method to answer these questions.

35 x 2	22 x 4	60 x 4
90 x 4	155 x 2	125 x 4
89 x 2	750 x 4	68 x 2
12 x 4	4 x 82	95 x 2
600 x 4	950 x 2	4 x 50

BRICKWORK Mathematics

Check your answers.

70	88	240
360	310	500
178	3000	136
48	328	190
2400	1900	200

Choose the most efficient method to answer these questions.

3.5 × 4	39 × 4	44.5 × 2
15 × 8	25 × 8	4.5 × 8
750 × 8	9.5 × 4	2.5 × 8
325 × 8	20 × 8	4 × 89
8 × 90	60 × 4	50 × 8

BRICKWORK
Mathematics

Check your answers below:

14	156	89
120	200	36
6000	38	20
2600	160	356
720	240	400

BRICKWORK
mathematics

Yellow activity

LO: I use my knowledge of x by 10 and 100 to help me workout other calculations.

Multiply each number by 10, 5 and 20.

1.

90

840

62

350

X 10

X 5

X 20

Explain the strategies you have used to work out 5 and 20 lots.

Multiply each number by 100, 50 and 25.

2.

7

120

48

15

X 100

X 50

X 25

Jasmin and Sophie play a game where Sophie must guess the number that Jasmin is thinking of.

Jasmin thinks of a number.

She halves the number.

Adds ten.

Divides by 4.

Adds 3.

The answer is 12.

Sophie guesses that Jasmin's secret number is 50. Prove that Sophie is incorrect.