Multiplication Prior Assessment Questions 4,5 and 9

Objective: I can use a written method to multiply by a decimal.

NASDM 8: solve problems involving addition, subtraction, multiplication and division

NASDM9: use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. **(Mastery)**

NC NFDP 8: multiply one-digit numbers with up to two decimal places by whole numbers

Teacher Input Ideas:

Introduce a purpose for multiplying amounts with decimals such as money. For example: you could provide the children with images of attractions/days out or items of clothing/ shopping.

You could show images of different amounts of people in each family (Purple, green and yellow tasks have examples of these). How much would it cost a family of 3 to go to the farm?

Display 3 x £7.65. Ask the children if we could do that sum mentally?

Ask the children for suggestions as to how they would tackle this. Encourage the children to work this out using the short method. What difficulties are they having?

Discuss how the decimal point can cause errors in the answer and that we must ensure that the answer is realistic using our knowledge of place value. Model to the children estimating what the answer will be close to, for example 3 x 8 would be 24 and refer to this estimate once you have performed the calculation. Model to the children placing the decimal point in the correct place and the vocabulary you use for decimals such as tenths, hundredths or you may also model pence.

Another way to model is to multiply the number by 10 or 100 to make a whole amount to multiply by. For example, 3 X 7.65 could be 3 x 765. Perform the short method with the whole amounts and then divide by 10 or 100 to get ensure the correct place value. Let children explore which ways work best for them. If the children are using this method, ensure they can explain what they are doing and truly understand why they are x by 10/10 and then dividing by 10/100.

Practice Activities

Purple Practice: most suited for children who made errors in Question 4 and 5 due to lack of understanding when multiplying with decimals.

Set up a class context such as working out how much it costs to go on a trip for a family, or how much the shopping costs. Print off pictures, leaflets or use objects to engage the children. The price tags can be cut out and placed with the different items. Children to then pick a family card and multiply the amount by how many is in the family.

For children that are demonstrating difficulty, place value charts (including columns for the tenths and hundredths) can be used alongside coins to help the children to see what happens when they multiply by 3, 4 etc. The children could make the amounts with coins such as £3.46 and place these onto the chart 3 times and then work through repeatedly adding these amounts and seeing how a new tenth, one or ten is created.

Green Practice: **Most suited for children who made errors in Question 4 and 5 and would benefit from applying the short method to multiplying 1 digit amounts by decimals.**

As above introduce a scenario or purpose for multiplying decimals. Use the decimal cards and amounts for the children to select prices to x by a one digit amount. The decimal amounts are a little trickier than the purple activity.

Yellow Practice: **most suited for children who show understanding with multiplying decimal amounts by a 1 digit number and would benefit by multiplying decimal amounts by 2 digit numbers.**

As above introduce a scenario or purpose for multiplying decimals. Use the decimal cards and amounts for the children to select prices to x by a 1 digit or 2 digit amount. To further challenge the children, they could create their own groups by combining the cards provided such as using the 12 and 15 to make a new 2 digit number to multiply the decimal by.

Mastery: This activity is a set of word problems where the children need to decide whether they should approximate the answer to the question or calculate the answer and understand how accurate the answer should be. The problems also encourage the children to think about the calculations they need to perform and apply mental and written multiplication strategies.

Answers: encourage the children to mark their combinations in small groups or together. You may want children to complete 3 sums, then mark, then 3 more to help you to regroup any children who are having difficulty.

Mastery

1) 8 x 9 = £72   if children have worked it out and have got £68 pounds, discuss how the two different answers have been created. If the children have got £68 they have not approximated the answer by rounding first they have worked it out, most likely using the written method. Children may have also worked out 7 x 9 or 7 x £8.50 as they have not included Sabrina.

2) 6
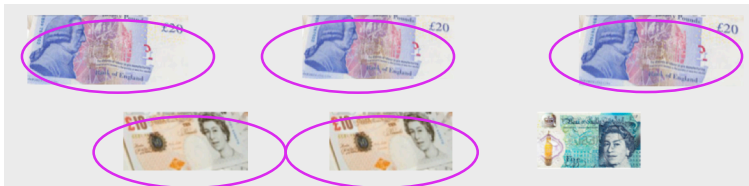
3)

The children should demonstrate understanding that they need to calculate the total of the bill before they can work out the notes to use. The total is £76.64 therefore they need to use the above notes. Some children may have rounded the items first, therefore they may have a different combination of notes.

4) No

5) 4

BRICKWORK
Mathematics

Choose a price tag and multiply it by a group of people.

£1.56   £3.45   £9.70

£6.12   £9.78   £8.50

X 3

X 4

X 5

X 6

X 7

BRICKWORK
Mathematics

Choose a price tag and multiply it by a group of people.

| £5.65 | £8.09 | £10.50 |

| £6.99 | £18.98 | £12.05 |

X 3

X 4

X 5

X 6

X 7

BRICKWORK
Mathematics

Choose a price tag and multiply it by a group of people.

| £4.76 | £20.10 | £8.09 |
| £2.59 | £9.90 | £0.78 |

X 8

X 9

X 12

X 15

X 17

Look at the word problems below. Read the question carefully and pick out the key information. Decide which operations you need to use and how you will record the answer.

1) Sabrina pays for herself and 7 friends to go to her birthday laser party. Each person costs £8.50. Approximately how much will it cost her to the nearest pound?

2) Jason has a £20 note in his wallet. Whilst shopping, he can see that some footballs have been reduced to £3.10 each. He wants to buy as many as he can so that he can give some to his friends and family. How many balls can he buy?

3) The Roberts family go out for dinner. They buy 4 large pizzas for £12.95 each, 6 drinks for £2.99 each and 2 sides for £3.45 each. Circle which notes Mrs Roberts should pay with.
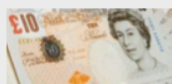
4) Daniel has 20 metres in length of wood. To make a planter for his vegetable patch he needs to cut 8 lengths at 2.7 metres each. Does he have enough wood?

5) Holy has £100 to spend on clothes. She sees lots of items in the shop,

| £22.99 | £21.01 | £24.90 | £21.87 | £20.67 |

She approximates that she can buy all 5 items with her £100 budget as she rounds each amount to £20. How many items can she buy?