Multiplication Prior Assessment Question 11

Objective: I can find multiples and common multiples of numbers

NC NASDM5: identify common factors, common multiples and prime numbers

Teacher Input Ideas:

- Introduce key word multiple and look in dictionaries at what the definition is. Set challenge to children to find as many multiples of a given or given numbers and share.
- Share a x-table grid with the children and discuss how all the answers to the sums are multiples.
- Share 100 square and give children different numbers to find the multiples of. Share what they are and strategies the children used to work these out.
- Play number games such as Buzz. Pick a number and then count in ones from zero or any other given point. Then the children need to say buzz when a multiple is said. To make this harder you could repeat this with common multiples of 2 numbers, for example 4 and 6, so children would buzz on 12, 24 etc.
- Model ways and strategies to record down the x tables of numbers, especially to help find common multiples and to help find numbers over 50 or 100. Encourage the children to suggest obvious facts they know so that they do not write every multiple from 0 for suggestions over 100(explained more in the purple activity notes).

Practice Activities

Purple Practice: Most suited for children who made errors in Question 11 of the prior assessment due to lack of understanding of what multiples are.

For this activity, the children will also need a dice with numbers 1-6 and a dice with numbers 7-12 on. The children should be encouraged to pick a number and then find the next 5 multiples of that number. The children are then challenged to find a multiple of the rolled number that is over 50 or 100.

Encourage the children to consolidate their x table knowledge by working out the multiples mentally. If children are having difficulty with finding multiples over 50 or 100, encourage the children to pick an obvious multiple they know – for example 3 x 30 would be 90 and carry on from there to get to a multiple of 3 over 100. Also, children could be given x table charts to help to check their answers.

<u>Green Practice:</u> Most suited for children who made errors in Question 11 as they have difficulty with finding common multiples and understanding what they are.

For this activity, the children will also need a dice with numbers 1-6 and a dice with numbers 7-12 on. The children should be encouraged to roll two numbers (start by encouraging children to roll the 1-6 dice twice such as 4 and 6 so that they can progressively find more challenging common multiples such as 4 and 11). The children should record these and then find the next 4 common multiples of the numbers. The children are then challenged to find a common multiple of the rolled numbers that is between 100 and 200.

Encourage children in exploring strategies to help them to find multiples of both numbers and to check which ones are common (such as listing the multiples of both numbers and then comparing).

<u>Yellow Practice</u> Most suited for children who would benefit from applying knowledge of multiples and statistics.

The children are required to find examples of multiples for 6,9 and 4 and place these into the Venn diagram. The children may need some help with understanding how the Venn diagram works. The children may need support with finding a multiple of 9 and 4, that is not a multiple of 6. (see answers)

In the second part, encourage the children to find efficient methods of reaching multiples above 100 and 200 rather than listing all the multiples from zero. For example, the children may know that 10 x 9 is 90, so it is more efficient to start from here to find multiples above 100. Children may also notice that when they add the digits of the multiples for 9, they add to 9. For example, 72, 117, 135, but not always (for example 189 or 99)

<u>Mastery</u> The children are presented with 2 investigations. The first is not as challenging as the second. The children need to apply their knowledge of multiples and other skills such as recording information to help them to spot patterns. This will help them to solve the problem.

The children may want to record their work in a table to help them. Some children may work systematically through the days of the week and list all the multiples. For question 2, some children may use knowledge of multiples and their patterns to reduce how much they need to investigate. For example. They may know that multiples of 5 only end in 0 and 5, so this may help to reduce possibilities.

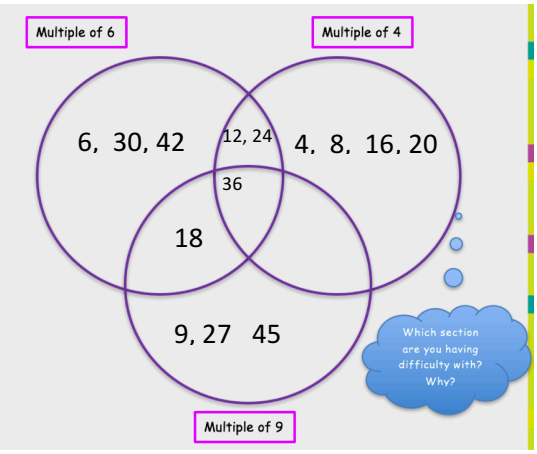
Answers:

Purple/Green: share as a group as many different possibilities.

Green Challenge:

12 and 48 or 36 and 24

Yellow: some suggested ones



	Greater than 100 but less than 200	Greater than 200 but less than 300
Multiple of 6	102, 108, 114, 120, 126, 132 etc	204, 210, 216, 222, 228, 234, etc
Multiple of 9	108, 117, 126, 135, 144, 153 etc	207, 216, 225, 234, 243, etc

Discuss with the children that any multiple of both 4 and 9 is also a multiple of 6, for example 36 or 72.

Mastery

1. **12** as 13 is only a multiple of 1 so buses will only come on a Monday.
   12 is a multiple of 1,2,3,4 and 6.
   buses will come on:
   Monday
   Tuesday
   Wednesday
   Thursday
   Saturday

2. **Bus stop 30**
   Monday multiples of 1 = 30
   Tuesday multiples of 2 = 30
   Wednesday multiples of 3 = 30
   Friday multiples of 5 = 30

BRICKWORK
Mathematics

Purple Practice

Lo: I can find multiples of a given number.

Roll a dice and record the number in the purple block. Find the next 5 multiples of that number and record these in the pink boxes.
Challenge: Find a multiple of the chosen number that is over 50 or over 100 and record it in the yellow blocks.

1) 3 | 6 | 9 | 12 | 15 | 18 | 51

2)

3)

4)

5)

6)

7)

8)

BRICKWORK Mathematics

Green Practice

Lo: I can find multiples and common multiples of numbers.

Roll 2 dice and record the numbers in the green blocks. Find the next 4 common multiples of the numbers and record these in the pink boxes.

Challenge: Find a common multiple of the chosen numbers that is over 100 and record it in the yellow blocks.

1) and

2) and

3) and

4) and

5) and

6) and

Challenge:

Two multiples of both 6 and 4 are added together. The total is 60.

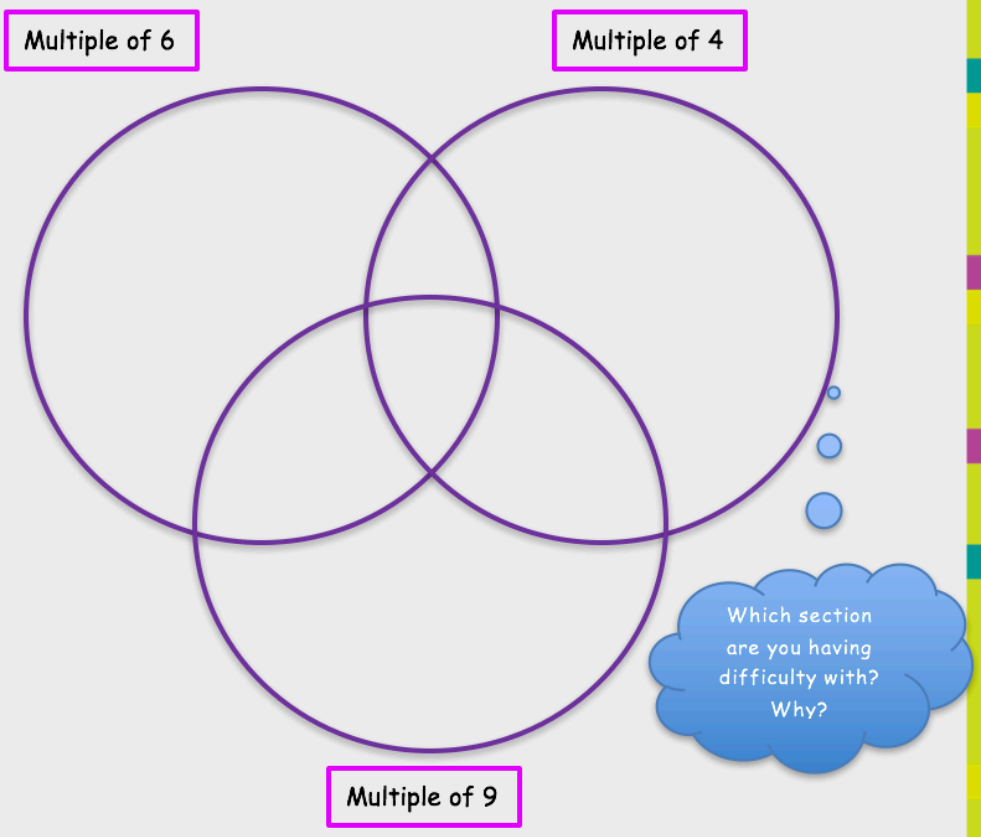
What are the 2 multiples?

BRICKWORK Mathematics

Yellow Practice

Lo: I can find multiples and common multiples

1) Place a number into each part of the Venn diagram.



2) Place two numbers into each part of the Carroll diagram.

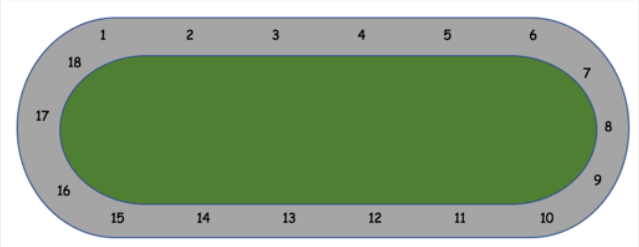
	Greater than 100 but less than 200	Greater than 200 but less than 300
Multiple of 6		
Multiple of 9		

BRICKWORK Mathematics

Mastery

Investigating

Here is a plan of the bus route that runs near Josie's house. Each bus stop is numbered.

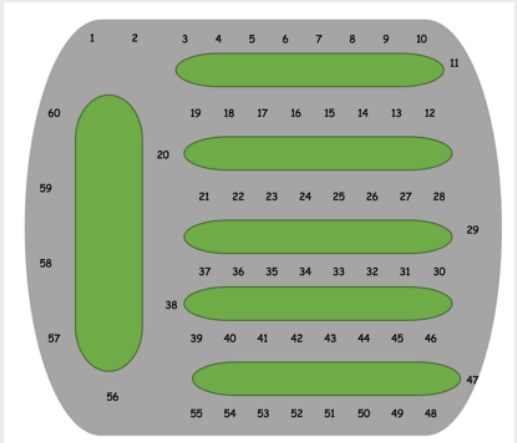


The bus **does not** stop at each numbered stop every day. The bus only stops at a multiple of that number day of the week. For example, Tuesday is day 2 of the week, so the bus will stop at bus stop numbers 2,4,6,8,10,12 etc.

1) Josie lives in between bus stop numbers 12 and 13. **Which bus stop is she best to use? Explain why to Josie.**

   If Josie uses bus stop number 12, on which days of the week can she use the bus?

2)This is a different plan of a bus route. Again, the bus will only stop at the multiples of which number day of the week it is.



Harry's parents want to buy a new house. Harry will need to get the bus to school every school day apart from Thursdays. They have this bus route plan to help them decide the best location to buy a house. Harry will need to get off the bus at stop number 60 for school.

Which number bus stop should the family look for a house near to so that Harry can catch a bus every day of the school week apart from Thursdays?