Multiplication Prior Assessment Questions 9 and 10.

Objective: I can find factors and common factors of numbers.

NC: NMD1: identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers

Teacher Input Ideas:

- Children to find the definition of factor on the internet or in dictionaries and discuss what the definition means. They could then create quick posters with examples to display in the classroom.
- Place a number on the board such as 12 and ask the children how many different rectangles they can make with the area of 12 or if the children are unconfident with area then arrays could be made using 12 cubes /squared paper. Children to discuss what different numbers can be multiplied by each other to make 12. List all ways and record these down. Also look at the link with the inverse of division.
- Model ways to ensure that all possible factors have been found. Such as working systematically from 1 and finding factors in pairs. For example, for 12 the children could start from one in factor pairs so: 1 and 12, 2 and 6, 3 and 4.
- Introduce common factors and share ways together to find all common factors. Such as, finding the factors of one number first and then finding the factors of the other number. Then circle or highlight the ones that appear in both lists.
- Factor games – number cards on the table and a number displayed on the board. Children to sort the cards in to piles of a **factor** of that number and **not a factor** of that number.

Practice Activities:

Purple Practice: most suited for children who made errors in Question 9 of the prior assessment and will benefit from receiving support with finding factor pairs of lower numbers.

This activity has been designed to help the children find all factors of given numbers, by finding factor pairs and recording these in the blocks provided. There are the exact number of blocks for how many factors each number has so that the children can check they have listed all factors. Also, some blocks have factors written on them to encourage the child to find the other factor for each factor pair.

Green Practice: most suited for children who made errors in Question 9 of the prior assessment and will benefit from finding factor pairs of numbers to 40.

The blocks in this activity have been arranged so that the children are encouraged to find all factor pairs of the numbers and to work systematically. The children are also challenged to find the common factors of 24 and 40 at the end of the task sheet.

Yellow Practice: **Most suited for children who are ready to secure understanding of factors and will benefit from finding common factors.**

The children are presented with number pyramids. The children are to find all the factors for the number at the top of each pyramid. The pyramids have the correct number of spaces for how many factors there are so that the children can ensure that they have all of them. Additionally, the pyramids have been presented in pairs so that the children can circle any common factors of the two numbers.

Mastery

The children are presented with 2 questions. They are to find the factors of two given numbers. Using this information, they are then to find numbers that are not factors of both given numbers. Encourage the children to talk about how they have approached this problem and to use vocabulary such as factor, factor pairs, multiple and common factors in their explanations.

Answers:

Purple:

1) a) 1, 6, 2, 3
   b) 1, 9, 3
   c) 1, 12, 2, 6, 3, 4
   d) 1, 15, 3, 5
   e) 1, 24, 2, 12, 3, 8, 4, 6
   f) 1, 30, 2, 15, 3, 10, 5, 6

Green:

6: 1, 6, 2, 3

12: 1,12,2,6,3,4

18: 1,18, 2 ,9, 3, 6

24: 1, 24, 2, 12, 3, 8, 4 , 6

32: 1, 32 , 2, 16 , 4 , 8 ,

9: 1,9,3

40: 1,40,2,20,4,10,5,8

Yellow: (common factors are in purple)

1)	12: **1**, 12, **2**, **6**, **3**, 4	18: **1**,18, **2** ,9, **3**, **6**
2)	9: **1**, **3**, 9	12: **1**, 12, 2, 6, **3**, 4,
3)	25: **1**, 25, **5**	30: **1**, 30, 2, 15, 3, 10, **5**, 6
4)	40: **1**,40,**2**,20,**4**,10,5,**8**	24: **1**, 24, **2**, 12, 3, **8**, **4** , 6
5)	50; 1, 50, 2, 25, 5, 10	36: **1**, 36, **2**, 18, 3, 12, 4, 9 , 6
6)	45: **1**, 45, **3**, **15**, **5**, 9	30: **1**, 30, 2, **15**, **3** , 10, **5**, 6

Mastery:

1) 5, 7 or 10
2) 8 and 24

BRICKWORK
Mathematics

Purple Activity

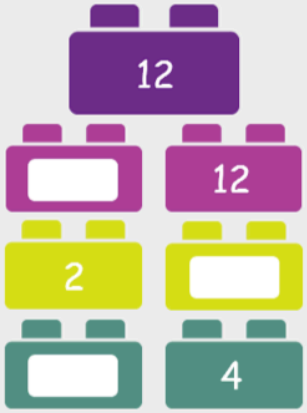
LO: I can find the factors of a number.

Look at the number on the purple block. Find all the factors of this number. Some have been found to help you.

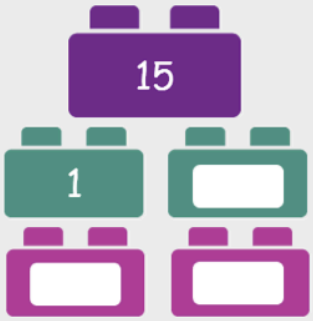
a)

b)

c)



d)



e)

f)

Challenge: Can you find all the factors of 36? How do you know that you have found all of them?

BRICKWORK Mathematics

Green Practice

Lo: I can find factor pairs of numbers to 40.

Find the factors for the number on each card. Working systematically and thinking about factor pairs will help to make sure you have all the factors.

1) 6

2) 12

3) 18

4) 24

5) 32

6) 9

7) 40

Challenge: Look at the factors of the numbers 24 and 40. Circle any numbers that are factors of both 40 and 24. These are called **common factors.**

BRICKWORK Mathematics

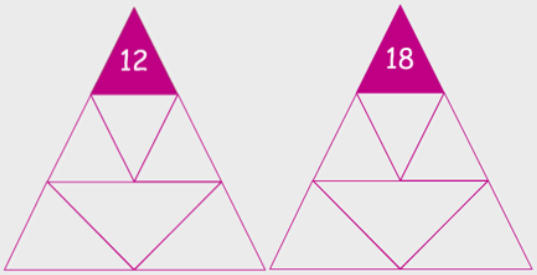
Yellow Activity

LO: I can find the factors of numbers and common factors of two numbers.

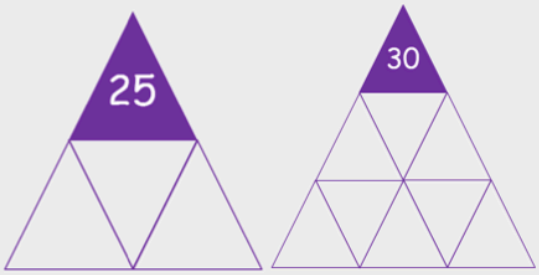
Find the factors of each number written at the top of each pyramid. Then circle all common factors in each question.

1)

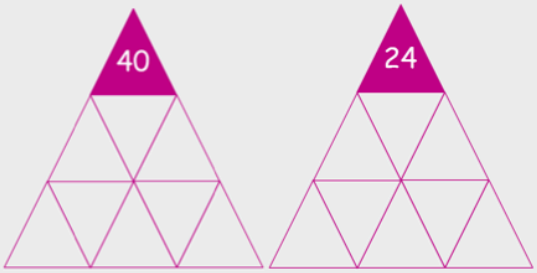
2)



3)

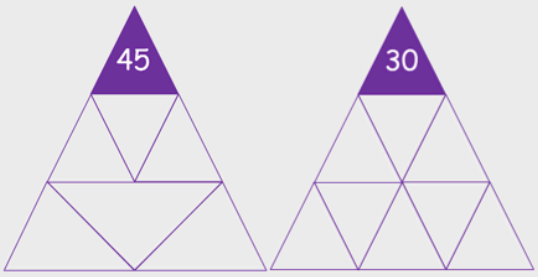


4)



5)

6)



Challenge: find all common factors for 36, 40 and 12.

BRICKWORK Mathematics

Mastery

Problem solving

1) Find 2 numbers less than 11 that are **not factors of both 24 and 18**.

and

2) Find 2 numbers that are **factors of 24 but not 12?**

and