

## **Multiplication Prior Assessment Questions 9 and 10**

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

**NC: NASDM 5:** identify common factors, common multiples and prime 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 24 or 12 and ask the children how many different rectangles they can make with the area of 24 or if the children are unconfident with area then arrays could be made using 24 cubes /squared paper. Children to discuss what different numbers can be multiplied by each other to make 24. List all ways and record these down. Also look at 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 factors of that number and not factors of that number.

### **Practice Activities:**

**Purple Practice:** most suited for children who made errors in Q9 and 10 of the prior assessment and would benefit from finding factors of numbers up to 36.

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. For example, for 12 the children should start from 1 and work systematically in factor pairs so: 1 and 12, 2 and 6, 3 and 4. There is the exact number of blocks for how many factors each number has so that the children can check they have listed all factors. There are also some numbers where the factors are multiplied by themselves. For example, 25 ( $5 \times 5$ ). The children also have the opportunity to find common factors in the challenge.

**Green Practice:** most suited for children who made errors in Q9 and 10 of the prior assessment and would benefit from finding factors to numbers up to 100 and common factors.

The blocks in this activity can be cut up so that the children can select blocks as a group or as part of a game. The children are to select a block and find the factors for that number. Encourage the children to ensure they have all factors by working systematically from 1 and finding factors in pairs.

The children could then find common factors for 2 or 3 blocks.

**Yellow Practice:** Most suited for children who will benefit from securing understanding of multiples and common multiples by proving if statements are true or false.

This activity requires the children to find all the factors of 2 numbers to help to prove if statements about the numbers are true or false.

**Mastery** In the first question the children are required to find factors that are not common factors for 2 numbers. Encourage the children to apply strategies they have learnt in the lesson such as, listing all the factors for both numbers and working systematically to ensure that they have listed all the possibilities. From here, they can then look for factors that are not common factors.

The other questions are presented as word problems where the children are still required to use their knowledge of factors. Encourage the children to explain and prove how they have found the answers.

### **Answers:**

#### **Purple:**

- 1) 1, 8, 2, 4,
- 2) 1, 12, 2, 6, 3, 4,
- 3) 1, 18, 2, 9, 3, 6,
- 4) 1, 30, 2, 15, 3, 10, 5, 6
- 5) 1, 20, 2, 10, 4, 5,
- 6) 1, 25, 5,
- 7) 1, 36, 2, 18, 3, 12, 4, 9, 6

#### **Green:**

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

15: 1,15,3,5

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

9: 1,9,3

42: 1,42, 2,21, 3,14, 6,7

50: 1,50,2,25, 5,10

49: 1,49,7

31: 1, 31

33: 1,33,3, 11

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

64: 1, 64, 2, 32, 4, 16, 8

36: 1, 36, 2, 18, 3,12, 4, 9, 6

45: 1, 45, 3,15, 5, 9

72: 1, 72, 2, 36, 3, 24, 4, 18, 6, 12, 8, 9

81: 1, 81, 3, 27, 9








**Yellow:**

- 1) true
- 2) true
- 3) false
- 4) true
- 5) false
- 6) false
- 7) false
- 8) false

**Mastery:**

- 1) 4, 12, 8, 24,
- 2) 1,60,2,30,3,20,4,15, 5, 12, 6,10
- 3) factors of 60: 1,60,2,30,3,20,4,15, 5, 12, 6,10  
factors of 40: 1,40,2,20, 4,10, 5,8  
They could be grouped in 1, 2, 4, 5, 10, 20

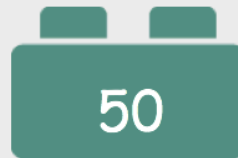
Find the factors for the number on each card. Working systematically and thinking about factor pairs will help to make sure you have all the factors.

- 1) 8

- 2) 12

- 3) 18

- 4) 30

- 5) 20

- 6) 25

- 7) 36


Challenge: pick 2 or 3 of the cards and find any common factors.

Choose a block at a time and find all the factors.

Challenge: pick 2 or 3 blocks and find common factors.



Work out if each statement is true or false.

1) All factors of 6 are factors of 12

2) All factors of 9 are factors of 18

3) All factors of 18 are factors of 9

4) All factors of 12 are factors of 24

5) All factors of 18 are factors of 30

6) All factors of 60 are factors of 30

7) All factors of 24 are factors of 12

8) All the factors of 36 are factors of 64

1) Find 3 factors of 24 that are not factors of 30.



2a) Darcy has a bag of sweets. She has 60 sweets in her bag. What different ways can she share them into equal groups? How can you prove you have found them all?



2b) Peter also has a bag of sweets, however he only has 40. How can they both share their sweets in to the same equal groups?

