

## Factor hunt

### Activity 1

**Focus of activity:** Find factors of numbers within times tables.

#### Working together: conceptual understanding

- Give each pair of chn a multiplication grid. Write 15 and 24. Ask them to ring these numbers on the multiplication grid. *Which number appears more often on the grid?*
- Together write the multiplication facts for 24;  $2 \times 12 = 24$ ,  $3 \times 8 = 24$ ... Say that we don't need to write  $2 \times 12$  and  $12 \times 2$  as these are the same pair of numbers which multiply together to make 24, just in a different order. Remind chn that 2 and 12 are a pair of factors of 24.
- Can chn think of a pair of numbers which aren't on the grid to multiply together to make 24? 1 and 24.
- Together list all the factors of 24.
- Ask chn to work in pairs to write all the multiplications with 15 as an answer, including any which aren't on the grid. Take feedback. Did they list them all including  $1 \times 15$ ?
- Together make a list of all the factors of 15.
- *Which number has more factors, 15 or 24? Why? 24 is in more times tables than 15.*

#### Up for a challenge?

Work with a partner to write all the factors of 30. Together list these.

#### Now it's the children's turn:

- Chn work in pairs to choose a number on the inside of the multiplication grid and write all its factors. They try to include factors which are not on the grid, e.g. 1 and 36 for 36.
- Repeat for other numbers.
- They look for numbers which occur often so have lots of factors. They score a point for each factor.

#### S-t-r-e-t-c-h:

Which number on the multiplication grid has the greatest number of factors? (60, 72, 84, 90, and 96 each have 12 factors.)

#### Things to remember

Remember that we call a pair of numbers which multiply together to make a given number, factors of that number. We can use them in either order, because multiplication gives the same answer both ways round. Ask chn whether bigger numbers always have more factors.

You may want to add something that has emerged from the activity. This may refer to misconceptions or mistakes made.

| Resources  | Outcomes   |
|--|--|
| <ul style="list-style-type: none"><li>• Multiplication grid (see child instructions)</li></ul> | <ol style="list-style-type: none"><li>1. Chn can find factors of numbers within known times tables.</li><li>2. Chn begin to realise what sorts of numbers have many factors.</li></ol> |

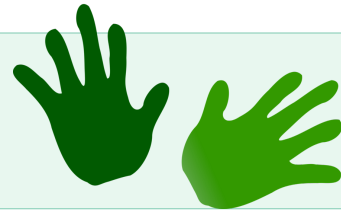
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## Activity 1

### Work in pairs

#### Things you will need:

- A multiplication grid
- Coloured pencils



#### What to do:

- Choose a number on the inside of the multiplication grid. Ring this number wherever it appears on the inside of the grid.
- Write as many factors as you can of this number. Try to include factors which are not on the grid, e.g. 1 and 36 for 36.
- Repeat for other numbers, choosing a different colour for each.
- Look for numbers which occur often, so have lots of factors. You score a point for each factor.

Factors of 36  
4, 9, 6, 3, 12, 1...

#### ***S-t-r-e-t-c-h:***

Which number on the multiplication grid has the greatest number of factors?

#### Learning outcomes:

- I can find factors of numbers within known times tables.
- I am beginning to realise what sorts of numbers have many factors.

# Factor hunt

## Activity 1

| ×  | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9   | 10  | 11  | 12  |
|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|
| 1  | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9   | 10  | 11  | 12  |
| 2  | 2  | 4  | 6  | 8  | 10 | 12 | 14 | 16 | 18  | 20  | 22  | 24  |
| 3  | 3  | 6  | 9  | 12 | 15 | 18 | 21 | 24 | 27  | 30  | 33  | 36  |
| 4  | 4  | 8  | 12 | 16 | 20 | 24 | 28 | 32 | 36  | 40  | 44  | 48  |
| 5  | 5  | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45  | 50  | 55  | 60  |
| 6  | 6  | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54  | 60  | 66  | 72  |
| 7  | 7  | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63  | 70  | 77  | 84  |
| 8  | 8  | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72  | 80  | 88  | 96  |
| 9  | 9  | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81  | 90  | 99  | 108 |
| 10 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90  | 100 | 110 | 120 |
| 11 | 11 | 22 | 33 | 44 | 55 | 66 | 77 | 88 | 99  | 110 | 121 | 132 |
| 12 | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 |