

**Y4 Maths Home Learning**  
**Week beginning 29.06.20 (Week10)**  
**Factors**

- Start by carefully reading through the **Learning Reminders**.
  
- Then, in your Home Learning books, write today's date along with the title, 'Factors' and complete **Activity 1**. If you struggle, have a go at completing **A Bit Stuck?**
  
- If you need to refresh your memory, read through the **Learning Reminders**.
  
- Then, in your Home Learning books, write today's date along with the title, 'Seven times table facts' and complete **Activity 2**. If you struggle, have a go at completing **A Bit Stuck?**

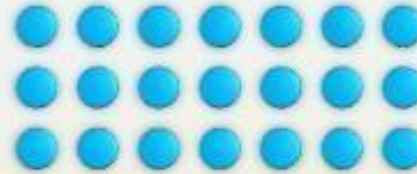
**Extra:**

If you think you've cracked it and whizzed through Activities 1 & 2, have a go at the **Investigation**.

## Learning Reminders

Find factors of numbers up to 40.

How many factors does **21** have?  
Draw the different possible arrays for 21 counters.



$3 \times 7$



$1 \times 21$

**21** has just **4 factors** in  
2 pairs, 1 and 21 and  
3 and 7.

## Learning Reminders

Find factors of numbers up to 40.

Now try **16**.



$1 \times 16$



$2 \times 8$



$4 \times 4$

**16** has **5 factors**, 1, 2, 4, 8 and 16.

4 is paired with itself so we don't have to count it twice.

## Activity 1

### Matching factors

Match each number to its factors.

Add the number itself to the list of factors,

e.g. 15 has 15 as a factor, so 15 must be added to 1, 3 and 5.

#### Section A

15	3, 7, 1
6	2, 3, 1
21	3, 1, 5
10	2, 4, 3, 6, 12, 8, 1
12	1, 5, 2
24	2, 3, 4, 1, 6

#### Section B

22	2, 1, 6, 9, 3
31	3, 1
9	2, 11, 1
36	5, 1, 2, 3, 15, 6, 10
18	1
30	1, 4, 2, 18, 9, 3, 6, 12

#### Challenge

Most of the numbers you investigated had an even number of factors, but some had an odd number of factors.

I wonder what makes these numbers special?

Can you find any other numbers with an odd number of factors?

## Activity 2

### Matching factors

Match each number to its factors.

Add the number itself to the list of factors,

e.g. 15 has 15 as a factor, so 15 must be added to 1, 3 and 5.

### Section C

34	1, 4, 2
4	2, 17, 1
16	3, 2, 4, 8, 12, 6, 16, 1, 24
39	4, 2, 1, 5, 10, 8, 20
48	3, 1, 13
40	8, 4, 1, 2
25	7, 1
49	4, 2, 16, 1, 8
32	1, 5

#### Challenge

Which has more factors: 99 or 100 or 101? Guess then test!

# Answers

## Activity 1

### Section A

15: 1, 3, 5, 15

6: 1, 2, 3, 6

21: 1, 3, 7, 21

10: 1, 2, 5, 10

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

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

### Section B

22: 1, 2, 11, 22

31: 1, 31

9: 1, 3, 9

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

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

30: 1, 2, 3, 5, 6, 10, 15, 30

### Challenge

9 and 36 should be ringed. These are both square numbers.

For another number with an odd number of factors, accept any square number, i.e. 1, 4, 16, 25, 49, 64, 81, 100 ...

## Activity 2

### Section C

34: 1, 2, 17, 34

4: 1, 2, 4

16: 1, 2, 4, 8, 16

39: 1, 3, 13, 39

48: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48

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

25: 1, 5, 25

49: 1, 7, 49

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

### Challenge

100 has more factors than 99 or 101.



## A Bit Stuck? Array or disarray?

Work in pairs

### Things you will need:

- 50 counters
- A pencil



What to do:

# 14, 16, 24, 27, 29, 32, 36

- Choose a number.  
Take this number of counters.  
Arrange the counters into an array (rectangle).  
Write the matching multiplication.
- Now rearrange them into as many different arrays as you can.  
Write the matching multiplication each time.
- Score one point for each multiplication you write.
- Choose another number and do the same.  
Try to score as many points as you can.
- Carry on choosing different numbers and making as many arrays as you can.  
Write the matching multiplication each time.
- Which numbers do you think will score lots of points?  
Which number do you think won't score many points?

14  
 $1 \times 14$   
 $2 \times 7$

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

Find the number between 40 and 50 with the greatest number of factors, i.e. the greatest number of possible arrays.

### Learning outcomes:

- I can make different arrays for a given number and write the matching multiplications.
- I understand that multiplication works both ways, e.g.  $4 \times 6 = 6 \times 4$ .
- I am beginning to identify pairs of factors.





## Investigation Factor facts



Explore the factors of numbers up to 40.

Find

- which number has most factors
- which numbers have an odd number of factors
- which numbers only have two factors, themselves and 1.

If you had to guess, which number between 40 and 100 do you think.....

- might have most factors?  
Why?
- could have an odd number of factors?  
Why?
- is the largest number less than 100 with just 2 factors?  
Why?

Now investigate to check.....