# Mathematical Super Powers

# Year 5 – Autumn 1



## I know the multiplication and division facts for all times tables up to 12 × 12.

The Year 5 children should already know **ALL** the times tables up to 12x12. The aim is for them to recall these facts **instantly**. This half term is a chance for Year 5 children to consolidate their knowledge of multiplication and division facts and to increase their speed of recall.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| 1 x 1 = 1 | 2 x 2 = 4 | 3 x 3 = 9 | 4 x 4 = 16 | 5 x 5 = 25 | 6 x 6 = 36 |
| 1 x 2 = 2 | 2 x 3 = 6 | 3 x 4 = 12 | 4 x 5 = 20 | 5 x 6 = 30 | 6 x 7 = 42 |
| 1 x 3 = 3 | 2 x 4 = 8 | 3 x 5 = 15 | 4 x 6 = 24 | 5 x 7 = 35 | 6 x 8 = 48 |
| 1 x 4 = 4 | 2 x 5 = 10 | 3 x 6 = 18 | 4 x 7 = 28 | 5 x 8 = 40 | 6 x 9 = 54 |
| 1 x 5 = 5 | 2 x 6 = 12 | 3 x 7 = 21 | 4 x 8 = 32 | 5 x 9 = 45 | 6 x 10 = 60 |
| 1 x 6 = 6 | 2 x 7 = 14 | 3 x 8 = 24 | 4 x 9 = 36 | 5 x 10 = 50 | 6 x 11 = 66 |
| 1 x 7 = 7 | 2 x 8 = 16 | 3 x 9 = 27 | 4 x 10 = 40 | 5 x 11 = 55 | 6 x 12 = 72 |
| 1 x 8 = 8 | 2 x 9 = 18 | 3 x 10 = 30 | 4 x 11 = 44 | 5 x 12 = 60 | |
| 1 x 9 = 9 | 2 x 10 = 20 | 3 x 11 = 33 | 4 x 12 = 48 | | |
| 1 x 10 = 10 | 2 x 11 = 22 | 3 x 12 = 36 | | | |
| 1 x 11 = 11 | 2 x 12 = 24 | | | | |
| 1 x 12 = 12 | | | | | |

| 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|
| 7 x 7 = 49 | 8 x 8 = 64 | 9 x 9 = 81 | 10 x 10 = 100 | 11 x 11 = 121 | 12 x 12 = 144 |
| 7 x 8 = 56 | 8 x 9 = 72 | 9 x 10 = 90 | 10 x 11 = 110 | 11 x 12 = 132 | |
| 7 x 9 = 63 | 8 x 10 = 80 | 9 x 11 = 99 | 10 x 12 = 120 | | |
| 7 x 10 = 70 | 8 x 11 = 88 | 9 x 12 = 108 | | | |
| 7 x 11 = 77 | 8 x 12 = 96 | | | | |
| 7 x 12 = 84 | | | | | |

**Key Vocabulary**

What is 12 **multiplied by** 6?

What is 7 **times** 8?

What is 84 **divided by** 7?

What is the **product** of 3 and 4?

9 **lots of** 6 is ...?

They should be able to answer these questions in any order, including missing number questions e.g. 7 × ◯ = 28 or ◯ ÷ 6 = 7. Children who have already mastered their times tables should apply this knowledge to answer questions including decimals e.g. 0.7 × ◯ = 4.2 or ◯ ÷ 60 = 0.7

**Advice**

The secret to success is practising little and often. Can you practise these Super Powers while walking to school or during a car journey? You don't need to practise them all at once. You don't need to practise them all at once: perhaps you could start with one particular times tables and ensure they know all of them before moving onto another times table.

**Speed Challenge** – Take two packs of playing cards and remove the kings. Turn over two cards and ask your child to multiply the numbers together (Ace = 1, Jack = 11, Queen = 12). How many questions can they answer correctly in 2 minutes? Practise regularly and see if they can beat their high score.

# Mathematical Super Powers

## Year 5 – Autumn 2



# I can find factor pairs of a number.

By the end of this half term, children should know the factor pairs of numbers in the times tables. The aim is for them to recall these facts fairly **instantly**.

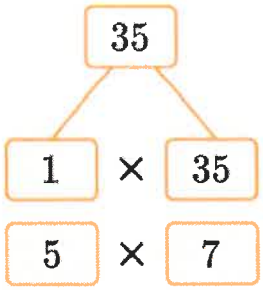
Children should now know all multiplication and division facts up to 12 × 12. When given a number in one of these times tables, they should be able to state a factor pair, which multiply to make this number. Below are some examples:

24 = 4 × 6  42 = 6 × 7

24 = 8 × 3  25 = 5 × 5

56 = 7 × 8  84 = 7 × 12

54 = 9 × 6  15 = 5 × 3




**Key vocabulary**

Can you find a **factor** of 28?

Find two numbers whose **product** is 20.

I know that 6 is a factor of 72 because 6 multiplied by 12 equals 72.

Children should be able to explain how they know that a number is a common factor.
E.g. 8 is a common factor of 24 and 56 because 24 = 8 × 3 and 56 = 8 × 7.

**Advice**

The secret to success is practising little and often. Can you practise these Super Powers while walking to school or during a car journey? You don't need to practise them all at once.

If your child is not yet confident with their times tables, you may want to practise this first.

**Play games**

**Think of the question** – One player thinks of a times table question (e.g. 4 × 12) and states the answer. The other player has to guess the original question.

https://www.topmarks.co.uk/maths-games/7-11-years/multiplication-and-division - lots of games here

Choose two numbers between 1 and 144. Take it in turns to name factor pairs. Who can find the most?

# Mathematical Super Powers

## Year 5 – Spring 1



## I can recall square numbers up to 144.
## I can identify prime numbers up to 20.

By the end of this half term, children should know the following facts. The aim is for them to recall these **facts instantly.**

| A square number is a number multiplied by itself: | A prime number is a number with no factors other than itself and one. | **Key vocabulary** |
|---|---|---|
| $1 \times 1 = 1$ | | Prime number |
| This is also written as $1^2$ (one squared). | **The following numbers are prime numbers:** | Composite number |
| $4 = 2 \times 2$ or $2^2$ | **2, 3, 5, 7, 11, 13, 17, 19** | Factor |
| $9 = 3 \times 3$ or $3^2$ | | Multiple |
| $16 = 4 \times 4$ or $4^2$ | | |
| $25 = 5 \times 5$ or $5^2$ | A composite number is divisible by a number other than 1 or itself. | |
| $36 = 6 \times 6$ or $6^2$ | | |
| $49 = 7 \times 7$ or $7^2$ | | |
| $64 = 8 \times 8$ or $8^2$ | | |
| $81 = 9 \times 9$ or $9^2$ | **The following numbers are composite numbers:** | |
| $100 = 10 \times 10$ or $10^2$ | **4, 6, 8, 9, 10, 12, 14, 15, 16, 18, 20** | |
| $121 = 11 \times 11$ or $11^2$ | | |
| $144 = 12 \times 12$ or $12^2$ | | |

Children should be able to explain how they know that a number is composite. E.g. 15 is composite because it is a multiple of 3 and 5.

**Advice**

The secret to success is practising little and often. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact of the day.

It's really important that your child uses mathematical vocabulary accurately. Choose a number between 2 and 20. How many correct statements can your child make about this number using the vocabulary above? Make a set of cards for the numbers from 2 to 20. How quickly can your child sort these into prime and composite numbers? How many even prime numbers can they find? How many odd composite numbers?

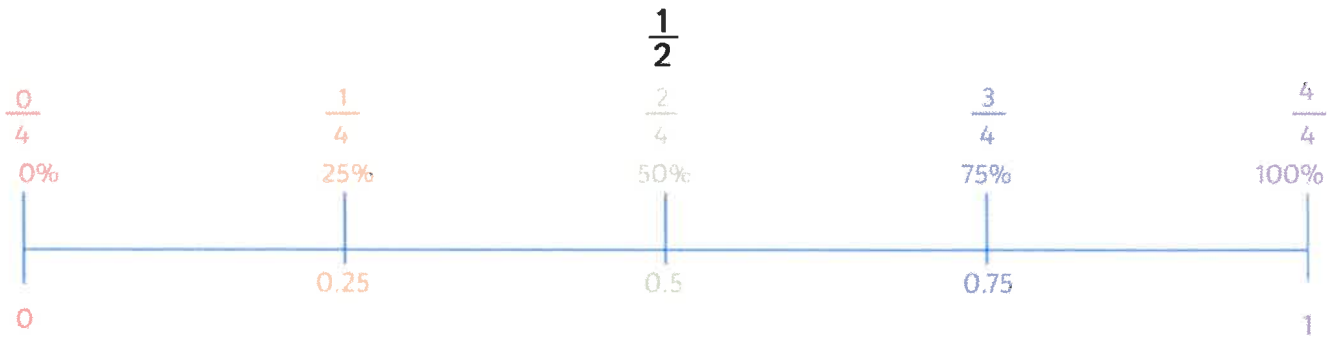
# Mathematical Super Powers

# Year 5 – Spring 2

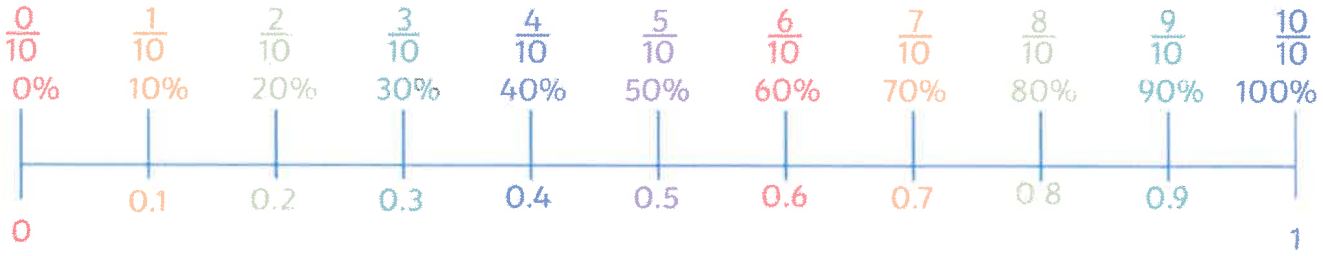


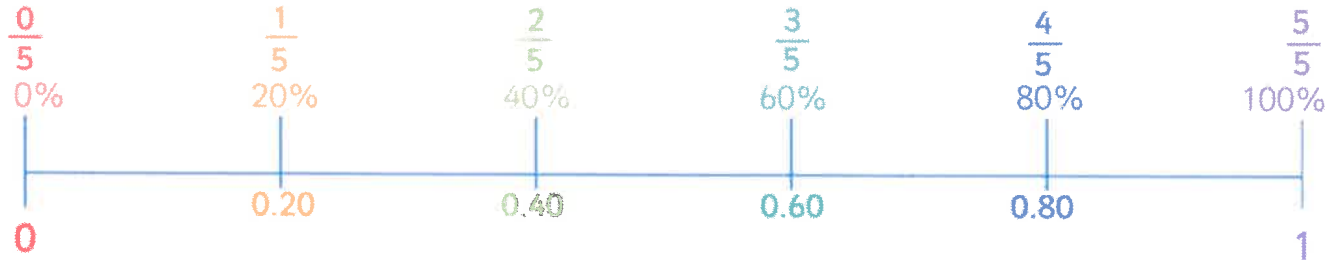
## I can convert between decimals, fractions and percentages.

By the end of this half term, children should know the following facts. The aim is for them to recall these **facts instantly.**




| fraction | decimal | percentage % | **Key Vocabulary** |
|---|---|---|---|
| 1/3 | 0.33 | 33% | How many **tenths** is 0.8? |
| 2/3 | 0.66 | 66% | Write 0.75 as a **fraction.** |
| | | | Write ¼ as a **decimal.** |




**Advice**

Play games - Make some cards with pairs of equivalent fractions and decimals. Use these to play the memory game or snap. Or make your own dominoes with fractions on one side and decimals on the other.

https://www.topmarks.co.uk/maths-games/daily10 - Level 6 Fractions – decimal equivalents

# Mathematical Super Powers

## Year 5 – Summer 1



## I know decimal number bonds to 1 and 10..

By the end of this half term, children should know the following facts. The aim is for them to recall these **facts instantly.**

| Decimal number bonds to 1 | Decimal number bonds to 10 |
|---|---|
| e.g. | e.g. |
| 0.1 + 0.9 = 1 | 1.1 + 8.9 = 10 2.1 + 7.9 = 10 |
| 0.2 + 0.8 = 1 | 1.2 + 8.8 = 10 2.2 + 7.8 = 10 |
| 0.3 + 0.7 = 1 | 1.3 + 8.7 = 10 2.3 + 7.7 = 10 |
| 0.4 + 0.6 = 1 | 1.4 + 8.6 = 10 2.4 + 7.6 = 10 |
| 0.5 + 0.5 = 1 | 1.5 + 8.5 = 10 2.5 + 7.5 = 10 |
| 0.7 + 0.3 = 1 | 1.6 + 8.4 = 10 2.6 + 7.4 = 10 |
| 0.8 + 0.2 = 1 | 1.7 + 8.3 = 10 2.7 + 7.3 = 10 |
| 0.9 + 0.1 = 1 | 1.8 + 8.2 = 10 2.8 + 7.2 = 10 |
| What other facts do you know that can help with these number bonds? | 1.9 + 8.1 = 10 2.9 + 7.1 = 10 etc. What strategies can you use to help with this? |

Children should be able to answer questions like these as well as missing number problems

e.g. 0.2 + ◯ = 1 or 3.6 + ◯ = 10

**Advice**

The secret to success is practising little and often. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact of the day.

Hit the button - https://www.topmarks.co.uk/maths-games/hit-the-button

Using this game will help your child practise decimal number bonds to 1 and also 10 in a fun and engaging way. Can they beat their previous score? Can they beat your score?