"Success is not final, failure is not fatal: it is the courage to continue that counts." – Winston Churchill

Year 8 WSAW 3 Revision Topics

Revising for a maths exam is not about simply reading through notes. To improve and make progress with maths you need to 'do maths' – do lots of questions on topics that you need to become more confident with.

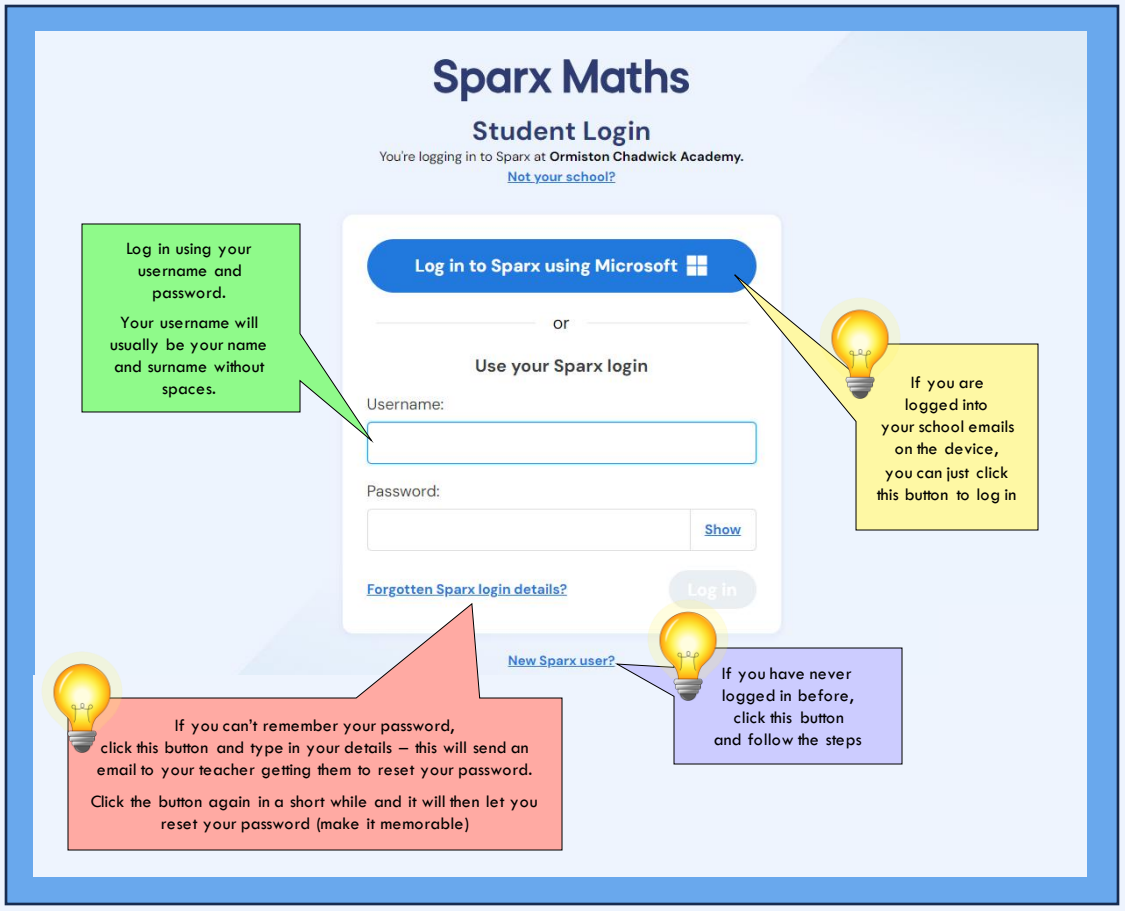
Use these codes in the Sparx Maths Independent Practice section of the website to enable you to effectively revise for your assessment and showcase your true mathematical ability.

Topic	Sparx Maths Independent Practice Codes
Rounding	M111, M131, M431, M994
4 Operations	M429, M152, M187, M928, M347, M803, M262, M354, M491
Directed Number Operations	M106, M288
Standard Form	M678, M719
Substitution	M208, M327, M417, M979
Collecting Like Terms	M531, M795, M949
Simplifying with Indices	M150, M608
Expanding	M237, M792, M960
Solving Equations	M387, M634, M647, M707
Perimeter	M635, M690
Area	M269, M291, M303, M390, M610, M705, M996
Area & Circumference of a Circle	M595, M169, M231
Volume	M765, M722
Prime Factorisation	M108, M365
Fractions Operations	M110, M835, M931
Fractions, Decimals and Percentages	M264, M958
Percentage Increase/Decrease	M476, M533
Ratios	M885, M543, M267
n^{th} term	M991, M166
Drawing Graphs	U593, U229
Graphical Simultaneous Equations	M658
Probability	M718, M332, M941, M938, M892, M419, M834
Averages from Tables	M127, M287

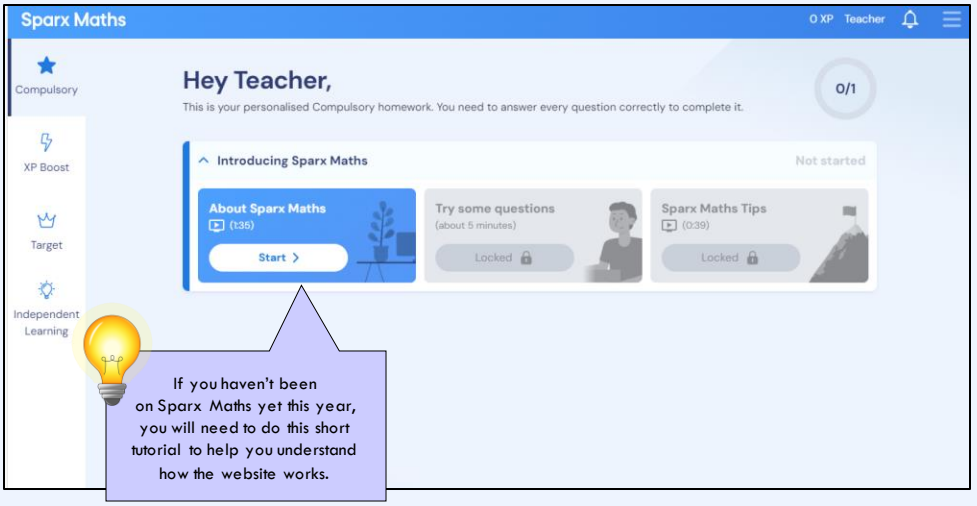
NOTE: These are all the topics we have covered this year, some aspects of each of the topics will be assessed in the assessment

"Success isn't overnight. It's when every day you get a little better than the day before. It all adds up." – Dwayne Johnson

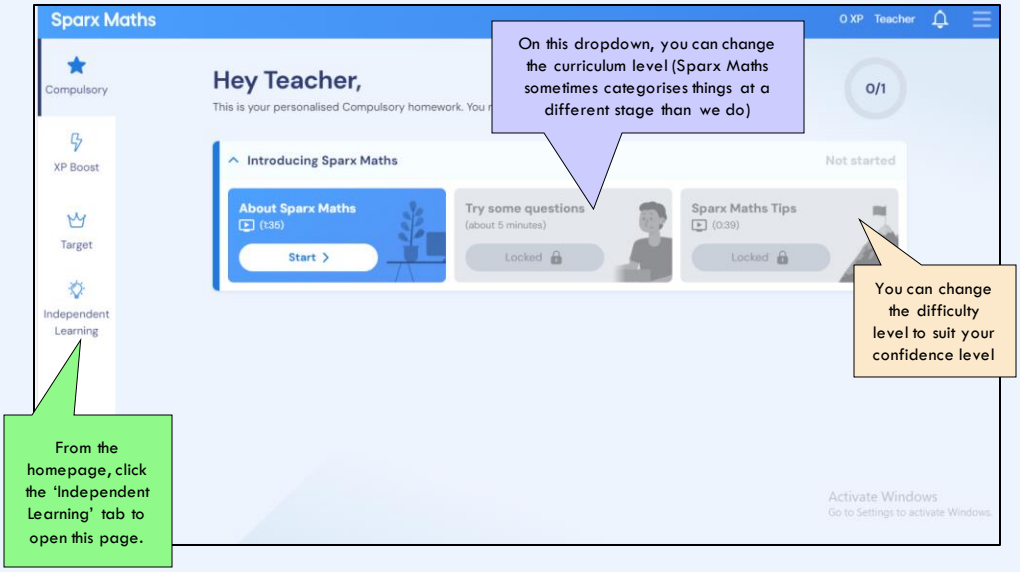
How to Log Into Sparx Maths

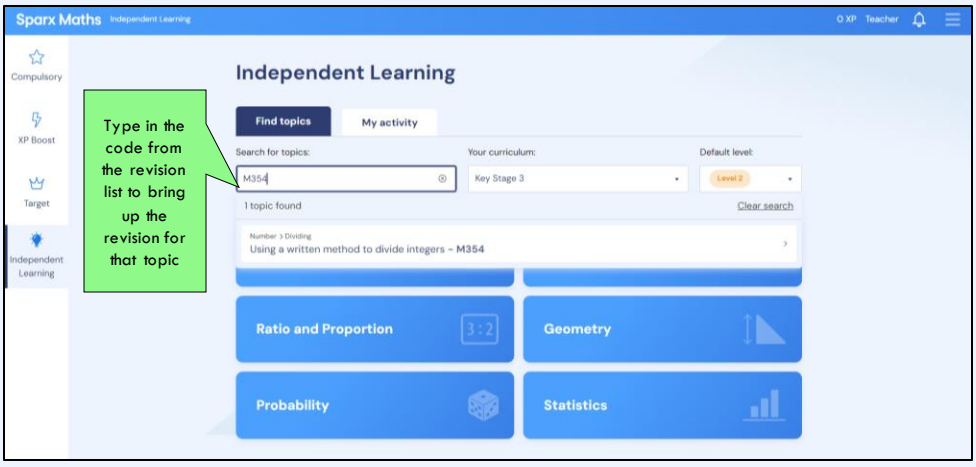


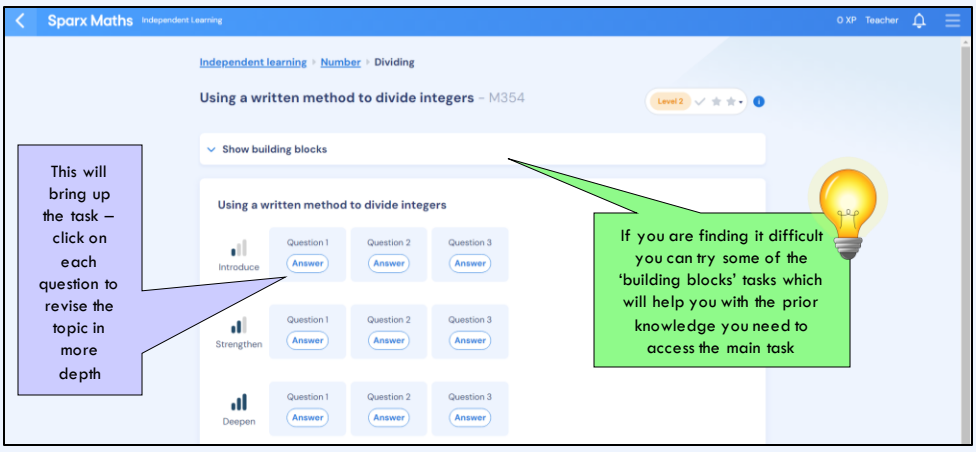
You will then be brought to the following page where you will find any compulsory homework set for you by your teacher – you need to be completing this weekly to ensure you are retrieving the knowledge that you have learnt throughout the year.



How to do Sparx Maths independent Practice

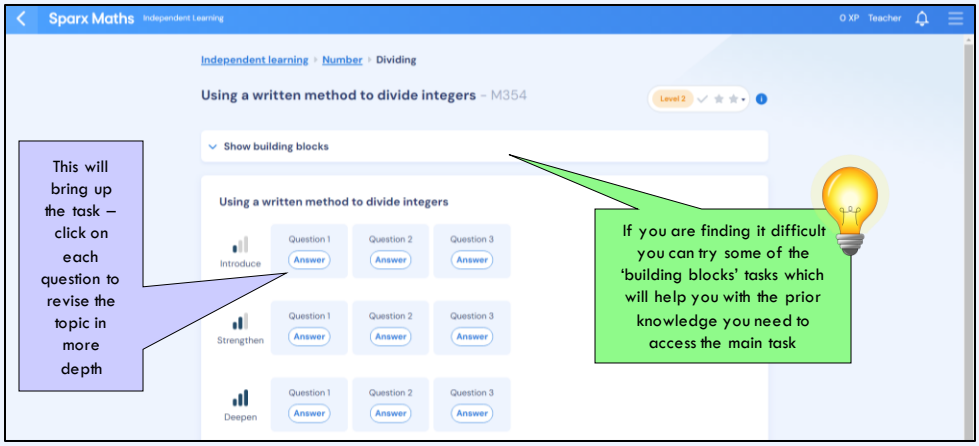


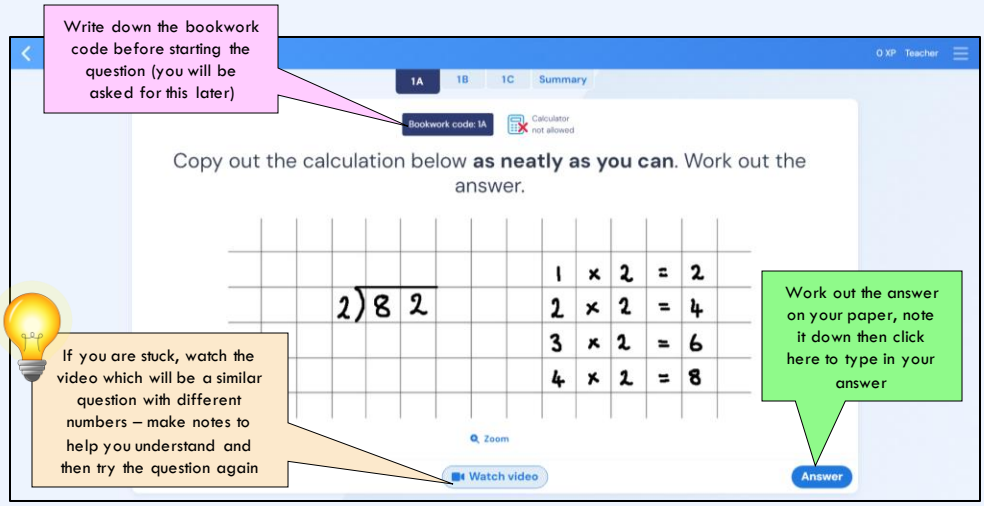




How to complete a Sparx Maths task

BEFORE beginning the task you need to have paper to do your working out and to write down the bookwork codes.





The most important thing to remember is not to give up – if you write nothing for a question, you will definitely get it wrong, so have a guess, you will get marks for working out.

"Mistakes are the stepping stones to wisdom." – Oprah Winfrey

Key Examples for Year 8 WSAW 3

1, 2, 3, 4 "Round down/off"
5, 6, 7, 8, 9 "Round up"

TIP: Decimal places are the digits after the decimal point

e.g.
Round 7.562 to 1 decimal place

7.562

= 7.6

e.g.
Round 0.02147 to 3 decimal places

0.02147

= 0.021

TIP: When rounding down, the digits on the left of the rounding line stay the same – don't add place holders if they are after the decimal place

1, 2, 3, 4 "Round down/off"
5, 6, 7, 8, 9 "Round up"

TIP: Significant figures start from the first non-zero digit in the number

e.g.
Round 0.0021527 to 3 significant figures

0.0021527

= 0.00215

TIP: When rounding down, the digits on the left of the rounding line stay the same

Every calculation must be done using the order of operations:

1st B rackets
2nd I ndices
3rd D ivision
3rd M ultiplication
4th A ddition
4th S ubtraction

TIP: Do addition and subtract in whichever appears first from left to right

e.g.

Calculate $25 - 3 \times 2 + 3^2$

$= 25 - 3 \times 2 + 9$

$= 25 - 6 + 9$

$= 19 + 9$

$= 28$

Standard form is a number written in the form:

$a \times 10^n$

a must be a number between 1 and 10 (can be 1 but not 10)

n must be a whole number (can be positive or negative)

TIP: For numbers between 0 and 1, the power is negative (the negative power means divide)

Express 43 000 000 in standard form

$43\,000\,000 = 4.3 \times 10\,000\,000$

$= 4.3 \times 10^7$

To add/subtract numbers in standard form:

STEP 1: Convert to ordinary numbers

STEP 2: Use the column method

STEP 3: Convert back to standard form

e.g.

$(3 \times 10^8) + (2 \times 10^6)$

300000000
+ 2000000
302000000

$= 3.02 \times 10^8$

TIP: When substituting, 'swap' the letter for the number (use brackets)

e.g.

$3a - 2b$ given that $a = -3$, $b = -4$

$3(-3) - 2(4) = 9 + 8 = 17$

TIP: Multiply the number outside the bracket by the number inside the bracket

TIP: If operations are directly next to each other (and no numbers in between):

− − → + + − → −
− + → − + + → +

TIP: When multiplying and dividing with directed numbers:

− × − → + − ÷ − → +
− × + → − − ÷ + → −
+ × − → − + ÷ − → −
+ × + → + + ÷ + → +

TIP: When collecting like terms, remember that a^2 is not the same as a, so you can't add these together.

$3a^2 + 7a + 4a^2 - 3a$

$= 7a^2 + 4a$

TIP: Don't change the indices when adding, so $a^2 + a^2 = 2a^2$

TIP: Use the grid method to expand the brackets

e.g.

Expand $5(3x + 4)$

×	3x	+ 4
5	15x	+ 20

$= 15x + 20$

TIP: To solve an equation we need to find the value of the letter

e.g.

Solve $8a - 5 = 11$

$+5 \quad +5$

$8a = 16$

$\div 8 \quad \div 8$

$a = 2$

TIP: To keep the equation balanced, do the same to both sides

e.g.

Solve $+10 + 6y = 32$

$-10 \quad -10$

$6y = 22$

$\div 6 \quad \div 6$

$a = \frac{22}{6}$

TIP: If there isn't a sign in front of the number/letter, it is a +

TIP: If the number doesn't divide evenly, write as a fraction

TIP: Get rid of the smallest letter first

e.g.

Solve $4a + 3 = 2a + 15$

$-2a \quad -2a$

$2a + 3 = 15$

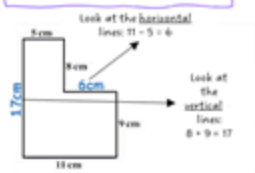
$-3 \quad -3$

$2a = 12$

$\div 2 \quad \div 2$

$a = 6$

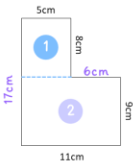
Perimeter means the distance around the shape. Remember to add ALL the sides.



Perimeter = 11 + 9 + 8 + 5 + 6 + 17
= 56cm

Area means the space inside the shape

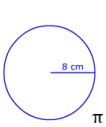
TIP: Split the shape up into shapes you know how to work out the area for.



1 $5 \times 8 = 40\text{cm}^2$
2 $11 \times 9 = 99\text{cm}^2$

Total Area:
$= 40 + 99$
$= 139\text{cm}^2$

Area = $\pi \times r^2$



TIP: Radius is halfway, diameter is all the way across

$\pi \times 8^2$
$= 64\pi\ \text{cm}^2$ (in terms of π)
$= 201.06\text{cm}^2$ (2d.p.)

TIP: If you are given the diameter, remember to halve to find the radius

Circumference = $\pi \times d$

TIP: Radius is halfway, diameter is all the way across

$\pi \times 16$
$= 16\pi$ cm (in terms of π)
$= 50.27$cm (2d.p.)

TIP: If you are given the radius, double to find the diameter

To find the volume of a prism:
Cross sectional area × length

TIP: The cross section is the front face that goes all the way through the shape

TIP: Remember to ÷ 2 for triangles