Topic: 1 Integers

Learning Outcomes and Scaffolding	Sparxmaths Code	Edexcel Ref
7.1.1 Understand and use integers and place value	M704	1.1, A(F)
π Should be known from KS2		
7.1.2 Use directed numbers in practical situations		1.1, B(F)
π Contexts such as temperature, finance, altitude and time (BC to AD)		
7.1.3 Order integers	M527	1.1, C(F)
π Should be known from KS2		
7.1.4 Use the four rules of addition, subtraction, multiplication and division	M106	1.1, D(F)
π $-1+5, 2-8, 1+(-3), -3-(-4)$	M288	
π $5\times(-2), -9\div(-3)$		
7.1.5 Use brackets and the hierarchy of operations (2 operations and three operations)	M521	1.1, E(F)
π $-3+(-4)\times(-2)$		
π $-2\times3-4\times(-2)$		

Topic: 2 Introduction to Algebra

Learning Outcomes and Scaffolding	Sparxmaths Code	Edexcel Ref
7.2.1 Understand that symbols may be used to represent numbers in equations or variables in expressions and formulae	M813	2.1, A(F)
π Form simple formulae/expressions from contexts		
7.2.2 Understand that algebraic expressions follow the generalised rules of arithmetic	M813	2.1, B(F)
π Pupils should be able to reason why $'x+x=2x'$, seeing multiplication as repeated addition		
7.2.3 Evaluate expressions by substituting numerical values for letters	M417	2.2, A(F)
π Solve linear problems with no changing of the subject $'A=3x-2y, x=3, y=1'$	M327	
.2.4 Collect like terms	M795	2.2, B(F)
π $3x+2y-x$	M531	
π $3ab-bc+2ab$	M949	
π $3y^2-2y+5y-8y^2$		

Topic: 3 Symmetry and Coordinates

Learning Outcomes and Scaffolding	Sparxmaths Code	Edexcel Ref
7.3.1 Identify any lines of symmetry and the order of rotational symmetry of a given two-dimensional figure	M523	4.3, A(F)

- Complete drawings given half a polygon and a vertical, horizontal or $45°$ line of symmetry
- Identify lines of symmetry in polygons, in nature and in architecture
- State the order of rotational symmetry for any polygon

7.3.2 Understand and use conventions for rectangular cartesian coordinates — 3.3, A(F)
- Read coordinates from graphs
- Be able to construct a graph with an appropriate scale

7.3.3 Plot points (x, y) in any of the four quadrants or locate points with given coordinates — 3.3, B(F)
- Plot points on a graph in all four quadrants
- Reinforce ideas behind integers when dealing with negative numbers

7.3.4 Determine the coordinates of points identified by geometrical information — 3.3, C(F)
- Use symmetry in the axes to identify coordinates
- Complete common polygons to reason about coordinates

Topic: 4 Fractions

Learning Outcomes and Scaffolding	Sparxmaths Code	Edexcel Ref
7.4.1 Understand and use equivalent fractions, simplifying a fraction by cancelling common factors		1.2, A(F)
• Understand the concept of equivalency and why it's important		
• Simplify a fraction by identifying common factors		
7.4.2 Understand and use mixed numbers and vulgar fractions		1.2, B(F)
• Convert between mixed numbers and improper (vulgar) fractions		
• Know the difference between proper and improper fractions		
7.4.3 Find a fraction of an amount		
• $\frac{3}{8}$ of 24		1.2, C(F)
7.4.4 Use common denominators to add and subtract simple fractions.		1.2, D(F)
• $\frac{3}{7}+\frac{5}{7}$		
• $\frac{3}{4}+\frac{5}{8}$		
• $\frac{3}{5}+\frac{5}{7}$		

7.4.5	Multiply and divide simple fractions π $\frac{3}{7} \times \frac{5}{9}$ π $\frac{2}{7} \div \frac{5}{9}$	1.2, E(F)

Topic: 5 Fractions Decimals & Percentages

Learning Outcomes and Scaffolding	Sparxmaths Code	Edexcel Ref

7.5.1	Convert between fractions and decimals	1.3, A(F)
	π Know by heart the fraction, decimal conversions for:	
	○ Half, Thirds, Quarters, Fifths, Eighths & Tenths	
	π Know the place value of the digits after the point and understand how they relate to fractions	
	π Be able to write and decimal as a fraction and simplify accordingly	
7.5.2	Convert between fractions and percentages	1.3, B(F)
	π Can write scores like $\frac{13}{20}$ as a percentage using fractional equivalency	
	π Knows the definition of a percentage and can express percentages as fractions out of 100	
	π Use simplification to write a percentage as a fraction in its simplest form.	
7.5.3	Convert between percentages and decimals	1.3, C(F)
	π Knows to multiply/ divide by 100 to convert between percentages and decimals	
7.5.4	Order fractions, decimals and percentages	1.3, D(F)
	π Order decimals to 4 decimal places	
	π Order fractions, decimals and percentages	

Topic: 6 Number Properties

Learning Outcomes and Scaffolding		Sparxmaths Code	Edexcel Ref
7.7.1	Use the terms odd, even and prime numbers, factors and multiples		1.1, F(F)
	π Know that a prime number has two factors		
	π Know the prime numbers from 1 to 100		
	π Be able to define multiples and factors clearly in written and spoken English		
7.7.2	Identify prime factors, common factors and common multiples		1.1, G(F)
	π Identify a prime factor		
	π Identify a common factor of two values		
	π Identify a common multiple of two values		
7.7.3	Identify square numbers and cube numbers		1.4, A(F)
	π Know the square numbers from 1 to 15		

	π Know the cube numbers from 1 to 5	
7.7.4	Calculate squares, square roots, cubes and cube roots	1.4, B(F)
	π Use knowledge of square numbers to find the roots for the first fifteen square numbers	
	π Use knowledge of cube numbers to find the cube roots for the first 5 cube numbers	

Topic: 7 Angles

Learning Outcomes and Scaffolding		Sparxmaths Code	Edexcel Ref
7.6.1	Measure and draw angles using a ruler and protractor		4.1, A(F)
	π Draw angles of 30,45,80 etc using a ruler and protractor		
	π Measure acute and obtuse angles using a protractor		
	π Estimate acute and obtuse angles		
7.6.2	Distinguish between acute, obtuse, reflex and right angles		4.1, B(F)
	π Can identify different types of angles by inspection		
	π Know the symbol for right angles and can identify on a diagram		
7.6.3	Use basic angle facts		4.1, C(F)
	π Solve problems involving finding missing angles on a straight line, around a point		
	π Know that vertically opposite angles are equal		
7.6.4	Understand the terms 'isosceles', 'equilateral' and 'right-angled triangles' and the angle properties of these triangles		4.1, D(F)
	π Can identify isosceles, equilateral and right-angle triangles by identifying the correct symbols on a diagram		
	π Know that all the angles in an equilateral triangle are 60°		
7.6.5	Understand the exterior angle of a triangle property and the angle sum of a triangle property		4.2, A(F)
	π Know the angles in a triangle sum to 180°		
	π find missing interior and exterior angles in a triangle		
7.6.6	Understand and use the term 'quadrilateral' and the angle sum property of quadrilaterals		4.2, B(F)
	π Know that all quadrilaterals angles total 360°		
	π find missing angles in quadrilaterals.		

Topic: 8 Degrees of Accuracy

Learning Outcomes and Scaffolding		Sparxmaths Code	Edexcel Ref
7.8.1	Round integers to a given power of 10		1.8, A(F)
	π Round values to the nearest 10, 100, 1000 etc…		
7.8.2	Round to a given number of significant figures or decimal places		1.8, B(F)
	π Round values to up to 3 decimal places		

- Round values to a required number of significant figures particularly the following cases
  - Round 9.0 to 2 significant figures
  - Round 4999 to 3 significant figures
  - Round 0.00987 to 2 significant figures

Topic: 9 Linear Equations

Learning Outcomes and Scaffolding	Sparxmaths Code	Edexcel Ref
7.9.1 Solve linear equations of the form 3x + 4 = 12. Include negative numbers		2.4, A(F)

- Solve: $x + 3 = 9$
- Solve: $3x = 12$
- Solve: $\frac{x}{4} = 5$
- Solve: $3x + 1 = 13$
- Solve: $\frac{x}{2} - 1 = 3$

Topic: 10 Geometric Properties

Learning Outcomes and Scaffolding	Sparxmaths Code	Edexcel Ref
7.10.1 Recognise and give the names of polygons		

- Know that polygon means any 2D shapes and the names of polygons up to 10 sides

Understand the difference between a regular and irregular polygon

7.10.2 Recognise the terms 'centre', 'radius', 'chord', 'diameter', 'circumference', 'tangent', 'arc', 'sector' and 'segment' of a circle

7.10.3 Use angle properties of intersecting lines, parallel lines and angles on a straight line

- Use the terms corresponding, alternate, supplementary to describe angles
- Find missing angles involving parallel lines

Topic: 11 Mensuration of 2D Shapes

Learning Outcomes and Scaffolding	Sparxmaths Code	Edexcel Ref
7.11.1 Convert measurements within the metric system to include linear and area units		4.9, A(F)

	π Convert between metric units for length	
	π Convert from cm^2 to m^2 and vice versa	
7.11.2	Find the perimeter of shapes made from triangles and rectangles	4.9, B(F)
	π Calculate the perimeter of a 2D shape given all the relevant lengths	
	π Calculate the perimeter of a shape where some lengths need to be identified using others	
	π Calculate a length given the perimeter and some of the sides	
7.11.3	Find the area of simple shapes using the formulae for the areas of triangles and rectangles	4.9, C(F)
	π Identify areas of shapes using square paper	
	π Find the area of a rectangle using the formula $A = lw$	
	π Find the area of a triangle using the formula $A = \frac{1}{2}bh$	
	π Find the area of composite shapes made of triangles and rectangles	
7.11.4	Area and expressions	2.2, C(F)
	π Find an expression for perimeter of 2D shape	
	π Find an expression for the area of rectangles and triangles where one side is an integer	
	π Solve basic equations to find length of a square or rectangle given the perimeter	

Topic: 12 Graphical Representation of Data

Learning Outcomes and Scaffolding		Sparxmaths Code	Edexcel Ref
7.12.1	Use different methods of presenting data: Pictograms and Bar Charts		6.1, A(F)
	π Construct pictograms, bar charts and line graphs		
	π Identify which table is best to use in specific contexts		
7.12.2	Use appropriate methods of tabulation to enable the construction of statistical diagrams		6.1, B(F)
	π Record data in frequency table		
	π Sort data using Venn diagrams		
7.12.3	Interpret statistical diagrams		6.1, C(F)
	π Interpret bar charts, pictograms and line graphs in a range of different contexts		
	π Compare two different graphs or charts		
7.12.4	Plot Straight Line Graphs		2.2, D(F)
	π Use a table to plot straight line graphs in the first quadrant		
7.12.5	Extension Only		6.1, D(F)
	π Look at misleading graphs		

Topic: 13 Percentages

Learning Outcomes and Scaffolding	Sparxmaths Code	Edexcel Ref
7.13.1 Express a given number as a percentage of another number		1.6, A(F),
π Can write scores like $\frac{13}{20}$ as a percentage using fractional equivalency		
π Can write any amount as a percentage using a calculator		
7.13.2 Solve simple percentage problems, including percentage increase and decrease		1.6, B(F)
π Knows how to work out 50%, 10%,1% by dividing by 2,10,100 etc		
π Can find a percentage of an amount using non calculator written methods		
π Can find a percentage increase/decrease using non calculator written methods		

Topic: 14 Statistical Measures

Learning Outcomes and Scaffolding	Sparxmaths Code	Edexcel Ref
7.14.1 Interpret information presented in a range of linear and non-linear graphs		3.3, A(F)
π Interpret graphs in simple contexts such as weather, finance etc…		
7.14.2 Understand the concept of average and spread		6.2, A(F)
π Understand what an average is and how it is linked to a measure of spread		
7.14.3 Calculate the mean, median, mode and range from a list of values		6.2, B(F)
π Calculate the mean, median and mode and identify their advantages/disadvantages in the context		
π Find the range of a data set		
π Compare two data sets given the mean and range		

Topic: 15 3D Shape and Volume

Learning Outcomes and Scaffolding	Sparxmaths Code	Edexcel Ref
7.15.1 Recognise and give the names of solids		4.10, A(F)
π Identify shapes as cube, cuboid, cone and sphere		
π Know the difference between a prism and a pyramid		
7.15.2 Understand the terms face, edge and vertex in the context of 3-D solids		4.10, B(F)

- Be able to identify the number of vertices, edges and faces of a given solid
- Construct nets of common solids