

“[Enquiry question]

[Year 8, Unit , Number Skills]

What previous learning am I building on?	What am I learning that is new?
• Use written methods to add, subtract, multiply, and divide whole numbers. • Estimate answers and check calculations using rounding. • Order and compare positive and negative numbers. • Perform operations with negative numbers, including addition, subtraction, and basic multiplication. • Solve problems involving time and money using a	By the end of this unit, I will: Understand • Doubling and halving • Rounding and estimating • Positive and negative number rules • Prime factors, HCF, LCM and square roots Know • There are different mental strategies for multiplication and division, including doubling and halving, which can make calculations more efficient. • Approximate answers can be found in different ways, including rounding numbers to the nearest 10 or to a convenient ("nice") number. • Negative numbers follow specific rules when adding, subtracting, multiplying, and dividing. • Numbers can be expressed as a product of prime factors, and index notation can be used to represent repeated multiplication. • The Highest Common Factor (HCF), Lowest Common Multiple (LCM), square roots, and order of operations (BIDMAS) are important concepts in number calculations. Be able to • Use mental strategies, including doubling and halving, to multiply and divide numbers efficiently. • Add, subtract, multiply, and divide positive and negative integers, including calculations involving several operations. • Estimate answers to calculations involving two or more operations by rounding appropriately and applying BIDMAS. • Find the HCF, LCM, prime factor decomposition, and square roots of numbers using appropriate methods. • Use a calculator accurately to carry out multi-step calculations, including those involving negative numbers and money.
Learning Journey – lesson title and main activities	

- To multiply and divide by powers of 10 - To use place value to answer similar calculations - To use Bidmas to calculate in the correct order			
- To round and estimate to the nearest whole number - To estimate and complete calculations involving money (EXT: Using decimals)			
To Add, subtract, multiply and divide positive and negative numbers.			
- Use index notation. - Write a number as a product of its prime factors. - Use prime factor decomposition to find the HCF and LCM.			
How will I be assessed at the end of this unit?			
Unit 1 test early so interventions can be set up.			
How will my literacy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
- Use think-pair-share to encourage discussion of problem-solving strategies. - Use vocabulary walls or glossaries for students to refer to. - Students encouraged to read out loud in class - Teacher models reading aloud and extracting information from a worded problem to translate into diagrams and solve.	Sparx HW every week due on Monday 8PM. Will think about other HW options, will only be using sparks until December.	Junior Maths Challenge.	- Sparx Club - Maths Club Wednesdays 3:05-4:05 in room 3

"[Enquiry question]"

[Maths, Year 8, Unit 2, Area and Volume]

What previous learning am I building on?	What am I learning that is new?
• Properties of 2D and 3D shapes • Area of rectangles and squares • Multiplication and use of units • Faces, edges and vertices of solids	By the end of this unit, I will: Understand • Volume can be found by counting cubes or using a formula. • Surface area is found by combining the areas of all faces. • Different 2D representations can show the same 3D shape. • Nets must have faces arranged correctly to form a solid. Know: • Volume measures the space inside a 3D shape. • Surface area is the total area of all the faces of a 3D shape. • Cubes and cuboids have formulae that can be used to calculate volume. • Nets are 2D representations that fold to form 3D shapes Be able to: • Calculate the volume of cubes, cuboids, and shapes made from cuboids. • Solve problems involving volume and surface area. • Sketch and construct simple nets of 3D shapes. • Analyse and interpret 3D shapes from 2D representations.
Learning Journey – lesson title and main activities	
• Calculate the volume and surface area of cubes and cuboids.	
• Sketch nets of 3D solids	
How will I be assessed at the end of this unit?	

Low stake quiz tested later on.

How will my literacy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
• Use think-pair-share to encourage discussion of problem-solving strategies. • Use vocabulary walls or glossaries for students to refer to. • Students encouraged to read out loud in class • Teacher models reading aloud and extracting information from a worded problem to translate into diagrams and solve. •	Sparx HW every week due on Monday 8PM Will think about other HW options, will only be using sparks until December	Junior Maths Challenge.	• Sparx Club Maths Club Wednesdays 3:05- 4:05 in room 3

"[Enquiry question]"

[Maths, Year 8, Unit 3, Expressions and Equations]

What previous learning am I building on?	What am I learning that is new?
• Simplify simple linear algebraic expressions by collecting like terms • Use arithmetic operations with algebra • Use arithmetic operations with algebra, including decimals • Simplify more complex linear algebraic expressions by collecting like terms • Begin to multiply a positive integer over a bracket containing linear terms • Construct expressions from worded description, using addition and subtraction • Construct expressions from worded description, using addition, subtraction and multiplication • Substitute positive integers into simple formulae expressed in words • Substitute integers into simple formulae expressed in letter symbols • Substitute positive integers into simple formulae expressed in letter symbols • Substitute integers into more complex formulae expressed in letter symbols • Derive simple formulae expressed in letter symbols	By the end of this unit, I will: Understand: • How index notation represents repeated multiplication. • The difference between multiplying a variable and raising it to a power. • Why inverse operations are used to solve equations and reverse functions. • How algebraic expressions can be expanded, simplified, and factorised. • How equations model and solve real-life problems. Know: • Repeated multiplication can be written using index notation • $2n$ and n^2 different meanings. • Like terms can be collected and simplified. • Equations can be used to represent real-life situations. • Functions and equations can be solved using inverse operations. Being able to: • Simplify expressions involving multiplication and indices. • Substitute positive values into algebraic expressions. • Apply index laws for positive integer powers. • Expand brackets and factorise simple expressions. • Solve one-step and two-step equations, including using function machines and real-life contexts.
Learning Journey – lesson title and main activities	
• Understand and simplify algebraic powers.	

Substitute values into formulas involving powers.			
- Expand brackets. - Make and simplify algebraic expressions. - Factorise expressions			
- Find the inverse of a function. - Solve simple equations using function machines. - Solve real life problems using equations. - Solve two-step equations using function machines. - Solve real life problems using equations.			
How will I be assessed at the end of this unit?			
Unit test for unit 2 and 3 at the same time.			
How will my literacy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
- Use think-pair-share to encourage discussion of problem-solving strategies. - Use vocabulary walls or glossaries for students to refer to. - Students encouraged to read out loud in class - Teacher models reading aloud and extracting information from a worded problem to translate into diagrams and solve.	Sparx HW every week due on Monday 8PM Will think about other HW options, will only be using sparks until December	Junior Maths Challenge.	

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“[Enquiry question]”

[Maths, Year 8, unit 4,Decimals and Ratio]

What previous learning am I building on?	What am I learning that is new?
• Place value of whole numbers and decimals • Ordering and comparing positive numbers • The four operations with whole numbers • Understanding fractions and simple ratios	By the end of this unit, I will: Understand • How place value determines the size of positive and negative decimals. • Why column methods work for addition and subtraction. • How multiplying and dividing by decimals affects the size of a number. • Why dividing by a decimal can be transformed into dividing by an integer. • How a ratio represents a proportional relationship between quantities. Know • Negative numbers can be ordered and compared on a number line. • Numbers can be rounded to different degrees of accuracy. • Multiplying and dividing by 10, 100, 0.1 and 0.01 changes place value. • Dividing by 0.1 or 0.01 is equivalent to multiplying by 10 or 100. • Ratios can be simplified and used to share quantities. Be able to: • Order positive and negative numbers, including decimals. • Use < and > correctly when comparing decimals and negative numbers. • Add, subtract, multiply and divide integers and decimals using appropriate methods. • Multiply and divide by decimals, including 0.1 and 0.01. • Simplify ratios and divide quantities into given ratios, including decimal ratios.
Learning Journey – lesson title and main activities	
• Rounding whole numbers and decimals. • Writing large numbers as a decimal number of millions. • Ordering positive and negative decimals. • Using the symbols > and < between two negative decimals.	
• Adding and subtracting decimals of any size.	
• Multiplying and dividing by decimals. • Multiplying and Dividing by 0.1 and 0.01.	

- Using ratios involving decimals.
- Solving proportion problems involving decimals and proportion.

How will I be assessed at the end of this unit?

Unit test

How will my literacy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
• Use think-pair-share to encourage discussion of problem-solving strategies. • Use vocabulary walls or glossaries for students to refer to. • Students encouraged to read out loud in class • Teacher models reading aloud and extracting information from a worded problem to translate into diagrams and solve.	Sparx HW every week due on Sunday 8PM Will think about other HW options, will only be using sparks until December	Junior Maths Challenge.	• Sparx Club • Maths Club Wednesdays 3:05-4:05 in room 3

"[Enquiry question]"

[Maths, Year 8, Unit 5, Calculating with Fractions, Percentages Decimals and Fractions]

What previous learning am I building on?	What am I learning that is new?
• Change an improper fraction to a mixed number • Simplify fractions by cancelling common factors • Calculate with fractions mentally • Use different strategies to calculate with fractions mentally • Begin to add and subtract simple fractions • Calculate simple fractions of quantities • Express one number as a fraction of another • Convert a percentage to a number of hundredths or tenths • Find simple percentages of whole number quantities • Calculate simple percentages • Interpret the display of a calculator in different contexts (percentages) • Calculate with percentages mentally • Use different strategies to calculate with percentages mentally • Express one number as a percentage of another	By the end of this unit, I will: Understand [vocabulary, concepts] • Why fractions need a common denominator for addition and subtraction. • The effect of multiplying a number by a fraction less than 1 How cancelling common factors makes fraction multiplication more efficient. • How equivalent fractions, decimals and percentages can be used to compare values. • How inverse operations can be used to check calculations and solve percentage problems. Know : • Fractions, decimals and percentages are different representations of the same proportion. • Adding two positive fractions gives an answer greater than either fraction. • Subtracting a positive fraction gives an answer smaller than the starting fraction. • Fractions can be written as equivalent fractions with different denominators. • Percentages can be calculated using multipliers, unitary methods and inverse operations. Be able to: • Add and subtract fractions using common denominators and check answers using inverse operations. • Multiply integers and fractions, including multiplying two fractions with and without cancelling. • Order and compare fractions by converting them to decimals or equivalent forms. • Find equivalent fractions, decimals and percentages, including decimal percentages and percentages ending in 0.5. • Calculate percentages using multipliers, unitary methods and inverse operations.
Learning Journey – lesson title and main activities	
• Adding and subtracting fractions with any size denominator. • Multiply integers and fractions by a fraction	

• Use appropriate methods for multiplying fractions.
• Convert fractions to decimals. • Write one amount as a fraction of another. • Find the reciprocal of a number.
• Divide integers and fractions by a fraction. • Use strategies for dividing fractions. • Use the four operations with mixed numbers.
• Order fractions by converting them to decimals or equivalent fractions. • Use the equivalence of fractions, decimals and percentages to compare proportions
• Working out one number as a percentage of another. • Working out percentage increase and decrease. • Use a multiplier to calculate percentage increase and decrease. • Use the unitary method to solve percentage problems.

How will I be assessed at the end of this unit?

Unit Test

How will my literacy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
• Use think-pair-share to encourage discussion of problem-solving strategies. • Use vocabulary walls or glossaries for students to refer to. • Students encouraged to read out loud in class • Teacher models reading aloud and extracting information from a worded problem to translate into diagrams and solve.	Sparx HW every week due on Sunday 8PM Will think about other HW options, will only be using sparks until December	Junior Maths Challenge.	• Sparx Club • Maths Club Wednesdays 3:05-4:05 in room 3

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"[Enquiry question]"

[Subject, Year 8, unit 6,7 Lines and angles, Straight Line Graphs]

What previous learning am I building on?	What am I learning that is new?
• Solve simple geometrical problems using properties of triangles • Solve simple geometrical problems using properties of quadrilaterals • Calculate angles in a triangle • Calculate angles in a quadrilateral • Solve geometric problems using side and angle properties of equilateral triangles • Accurately use a ruler and compass to construct perpendicular bisectors, perpendicular lines, and angle bisectors • Use units of measurement to calculate and solve problems in everyday contexts involving angles (also fits under "know")	By the end of this unit, I will: Understand • Coordinates link to graphs e.g. a table of values becomes points like (0,1),(1,3 • Gradient changes the steepness of a line e.g. $y=x$ is less steep than $y=3x$ • Angle rules are always consistent e.g. alternate angles are equal in parallel lines • Reasoning explains why answers are correct e.g. "angles on a straight line add to 180° so missing angle is 110° • Accuracy matters in drawing and measuring e.g. a 60° angle drawn slightly wrong gives incorrect shapes Know • Coordinates are used to locate points on a grid e.g. point A is at (3,2) • Straight-line graphs can be written as $y=mx+c$ • Gradient shows how steep a line is e.g. a line going up 2 for every 1 across has gradient 2 • Angle rules work in shapes and parallel lines e.g. angles in a triangle always add to 180° • Polygons have fixed angle totals e.g. a pentagon interior angles add to 540° Be able • Plot and interpret graphs e.g. plot $y=2x+1$ or read a value like when $x=2$ $y=5$ • Find gradients, midpoints, equations e.g. midpoint of (2,4) and (6,8) is (4,6) • Estimate from graphs e.g. read that when $x=3$, $y \approx 7$ • Measure and draw angles accurately e.g. draw a 75° angle using a protractor • Solve angle problems in shapes e.g. find missing angle in a triangle when two angles are 50° and $60^\circ \rightarrow 70^\circ$
Learning Journey – lesson title and main activities	
• Plot a straight-line graph and work out its gradient • Plot the graphs of linear functions. • Find midpoints of line segments. • Write the equations of straight line graphs in the form $y=mx+c$	

- Use linear and quadratic graphs to estimate values of y for a given x and vice versa and to find approximate solutions of simultaneous equations - Find approximate piece-wise linear , exponential and reciprocal graphs.			
- Using alternate angles to find unknown angles. - Using reasoning to complete mathematical proofs. - Measuring and drawing angles with a protractor - Finding angles around a point and in a triangle			
- Solving geometrical problems using side and angle properties of triangles and quadrilaterals. - Identifying corresponding angles. - Solving problems using properties of angles in parallel and intersecting lines. - solving geometric problems involving missing angles (in triangles and on straight lines)			
- Calculating the sum of the interior and exterior angles of a polygon. - Calculating the interior and exterior angles of a polygon. - Making accurate drawings of shapes – drawing sides and angles			
How will I be assessed at the end of this unit?			
Unit test			
How will my literacy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
- Use think-pair-share to encourage discussion of problem-solving strategies. - Use vocabulary walls or glossaries for students to refer to. - Students encouraged to read out loud in class - Teacher models reading aloud and extracting information from a worded problem to translate into diagrams and solve.	Sparx HW every week due on Sunday 8PM	Junior Maths Challenge.	Sparx Club Tuesdays lunchtime in room 8 Maths Club Wednesdays 3:05- 4:05 in room 3

"[Enquiry question]"

[Year 7, Unit 8 , Statistics Graphs and Charts]

What previous learning am I building on?	What am I learning that is new?
• Understanding of mean, median, mode and range from simple data sets • Ability to read and interpret basic tables, charts and graphs • Knowledge of angles and how to measure/draw them using a protractor • Understanding of fractions, percentages and ratios as ways to represent data • Ability to plot coordinates on a graph and read values from axes • Basic understanding of scales on axes and how to interpret them • Experience organising data using tally charts and simple tables From year 7 • Answer simple questions about 'most likely' from simple tally charts • Answer simple questions about 'most likely' from simple bar charts or bar-line charts • Find the mode from any bar chart • Interpret frequency tables • Interpret data from simple compound and comparative bar charts • Construct and interpret dual bar charts Construct and interpret line graphs	Understand • How different representations (charts, tables, graphs) show the same data in different ways. • Why the total angle in a pie chart is always 360° and must represent the full data set. • How averages and range help compare two sets of data. • That correlation describes how two variables are related (positive, negative or none). • That graphs can be misleading if scales or labels are missing or unclear. Know: • Data can be shown in different ways such as pie charts, tables, graphs and diagrams. • A pie chart represents proportions of a whole using angles. • A two-way table shows relationships between two sets of data. • Mean, median, mode and range are different types of averages and measures of spread. • Scatter graphs show relationships (correlation) between two variables. Be able to • Calculate angles and draw accurate pie charts. • Interpret pie charts and extract information from them. • Complete and interpret two-way tables. • Calculate the mean from simple and grouped frequency tables. • Create and interpret grouped frequency tables • Draw and interpret stem-and-leaf diagrams and compare data sets using mode, median and range. • Compare data sets using mean and range and decide which average is most appropriate. • Draw and interpret line graphs and use them to compare data sets. • Draw scatter graphs, describe correlation, and draw a line of best fit by eye. • Identify misleading graphs caused by scale, missing labels or poor presentation.

Learning Journey – lesson title and main activities			
- Interpret simple pie charts. - Calculate angles and draw pie charts.			
- Drawing and interpreting two-way tables. - Calculating the mean from a simple frequency table. - Tallying data into a grouped frequency table, designing a grouped frequency table, using $aa \leq xx < bb$ notation, finding modal class and estimating range.			
- Drawing and interpreting stem and leaf diagrams with different stem values. - Finding mode, median and range from stem and leaf diagrams, and comparing them for different data sets.			
- Compare data using averages and range, including mean calculated from frequency table. - Compare data using the shape of a line graph or pie chart. - Draw line graphs to compare sets of data. - Decide on the most appropriate average to use.			
- Draw scatter graphs. - Describe types of correlation. - Draw a line of best fit by eye on a scatter graph			
EXTENSION IF FINISH EARLY: MISLEADING GRAPHS ACTIVITIES - Identify graphs and charts that are misleading because of the scales used and missing axis labels, mainly in financial contexts.			
How will I be assessed at the end of this unit?			
Unit test			
How will my literacy skills be developed?	What homework will I be set?	How can I learn more/stretch myself?	Where can I go for more help?
- Use think-pair-share to encourage discussion of problem-solving strategies. - Use vocabulary walls or glossaries for students to refer to. - Students encouraged to read out loud in class	Sparx HW every week due on Sunday 8PM. Will think about other HW options, will only be using sparks until December	Junior Maths Challenge.	- Sparx Club - Maths Club Wednesdays 3:05-4:05 in room 3

• Teacher models reading aloud and extracting information from a worded problem to translate into diagrams and solve.			
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