Edexcel GCSE Maths Linear Exam Topic List - HIGHER

NUMBER	
Add, subtract, multiply, divide	☐ Write numbers in words ☐ Write numbers from words ☐ Add, subtract, multiply, divide whole numbers, integers, negatives, fractions, and decimals and numbers in index form ☐ Multiply and divide any number between 0 and 1. ☐ Divide decimals up to 2 decimal places ☐ Solve a problem involving division by a decimal (up to two decimal places) ☐ Know the fraction-to-decimal conversion of familiar fractions
Order numbers	☐ Put in order of size, integers, decimals and fractions ☐ Understand and use positive and negative numbers on a number line
Factors, multiples and primes	Understand the terms; ☐ Odd and even ☐ Factor ☐ Multiple ☐ Common factor ☐ Highest common factor ☐ Least (lowest) common multiple ☐ Prime number ☐ Be able to identify factors, multiples and primes from a list of numbers ☐ Express a number as a product of prime factors (factor tree) ☐ Find common multiples or common factors of two numbers ☐ Find the highest common factor (HCF) or the lowest common multiple (LCM) of two numbers.

Squares, square roots, cubes and cube roots	☐ Know all the square numbers from $2^2 = 4$ up to $15^2 = 225$ ☐ Know all the cube numbers from $2^3 = 8$ up to $5^3 = 125$ and also $10^3 = 1000$
Index notation	☐ Use index notation for squares and cubes, eg. 5^3 ☐ Use index notation for powers of 10, eg. 10^6 ☐ Understand indices in calculations
Index laws	☐ Multiply and divide by adding or subtracting indices ☐ Calculate using index laws when indices are fractions or negative ☐ Understand that for any number n, $n^0 = 1$ ☐ Understand that $n^{-1} = 1 / n$ ☐ Understand that $n^{½} = \sqrt{n}$ ☐ Understand that $n^{⅓} = \sqrt[3]{n}$
Standard form	☐ Understand numbers written in standard form ☐ Write large or small numbers in standard form ☐ Convert between standard form and normal form ☐ Understand and use standard form on a calculator
Equivalent fractions and adding and subtracting fractions	☐ Find equivalent fractions ☐ Simplify a fraction to its simplest form ☐ Convert between improper fractions and mixed numbers ☐ Add and subtract fractions
Decimals, including recurring decimals	☐ Know fraction to decimal conversions for simple fractions ☐ Convert between fractions and decimals ☐ Understand that all recurring decimals are exact fractions, and that some exact fractions are recurring decimals ☐ Convert between recurring decimals and fractions ☐ Know how to convert from recurring decimal to fraction using a proof
Percentages	☐ Understand percentages ☐ Convert between fractions, decimals and percentages

Using fractions, decimals and percentages	☐ Find a fraction of a quantity ☐ Find a percentage of a quantity ☐ Use decimals to find quantities ☐ Use a multiplier to increase of decrease a quantity (eg. use x 1.05 to increase by 5%, or 0.88 to decrease by 12%))
Percentages and proportional change	☐ Use percentages to calculate and use o VAT o Simple interest o Income tax o Compound interest o Depreciation o Prices after an increase or decrease o Percentage profit and loss ☐ Find the original amount, given the new amount and the percentage change ☐ Calculate repeated proportional change ☐ Use a multiplier raised to a power to calculate repeated proportional change ☐ Use a multiplier to increase or decrease by a percentage
Direct and indirect proportion	☐ Calculate an unknown quantity where quantities are in direct proportion ☐ Calculate an unknown quantity where quantities are in inverse proportion
Fractions, decimals and percentages	☐ Find one number as a fraction of another number ☐ Find one number as a percentage of another number ☐ Multiply using percentages as operators

Number operations and the relationships between them, including order of operations and inverse operations	☐ Understand multiplying and dividing, and that one is the inverse of the other ☐ Use inverse operations ☐ Understand the use of brackets in calculations ☐ Understand the hierarchy of operations (BIDMAS) ☐ Solve word problems ☐ Understand and find reciprocals ☐ Understand that the inverse of raising to the power of n is the same as raising to the power of 1 over n ☐ Understand and use 1 over a number is the inverse of multiplying by that number ☐ Use reverse percentage calculations
Ratio	☐ Write a ratio in its simplest form ☐ Divide a quantity in a given ratio ☐ Solve problems using ratios ☐ Relate ratios to linear functions
Use surds and π in exact calculations	☐ Use surds (roots) and π in calculations without a calculator, leaving the surd or π in the answer, eg. give an answer of 25π ☐ Give an answer to a Pythagoras question as $\sqrt{17}$ ☐ Manipulate surds in calculations, eg. $(3 - \sqrt{3})^2$ ☐ Rationalise a denominator, ie. manipulate so that there is no longer a surd on the bottom of the fraction
Rounding and approximation	☐ Round to the nearest integer (whole number) ☐ Round numbers to any given power of 10 ☐ Round to a number of decimal places ☐ Round to a number of significant figures ☐ Estimate the answer to a calculation by using rounding

Upper and lower bounds	Find the upper and lower bound of a calculation, especially in the calculation of: ☐ measurements ☐ perimeter ☐ area ☐ volume ☐ Give a final answer to a calculation to an appropriate degree of accuracy using upper and lower bounds
Use a calculator effectively	☐ Simple and complex calculations, including involving time or money ☐ Use the following functions ☐ +, -, x, ÷ ☐ x^2 and $\sqrt{x}$ ☐ memory functions ☐ brackets ☐ x to the power of y ☐ x to the power of 1 over y ☐ brackets ☐ trigonometrical functions ☐ Understand that rounding too early can causes inaccuracy ☐ Understand numbers shown in standard form, and be able to enter numbers in standard form ☐ Calculate in standard form ☐ Use for dividing to do reverse percentage calculations ☐ Use a multiplier and the power key to calculate exponential growth or decay

ALGEBRA	
Algebraic notation	☐ Understand notation and symbols used in algebra ☐ Understand the difference between "expression", "formula", "equation" and "identity" ☐ Be able to select an expression, formula, equation or identity from a list ☐ Be able to write an expression to solve a problem
Manipulate algebraic expressions	☐ Simplify by collecting like terms ☐ Multiply out a single bracket ☐ Factorise a single bracket by taking out a common factor ☐ Expand two brackets ☐ Expand three brackets ☐ Factorise quadratics into two brackets ☐ Factorise quadratics using the difference of two squares, eg. $4y^2 - 25 = (2y + 5)(2y - 5)$ ☐ Simplify algebraic expressions by cancelling, adding, subtracting and multiplying ☐ Use index laws, including fractional, zero and negative powers, and powers raised to another power ☐ Write a quadratic in completed square form and identify the turning point
Solve linear equations	☐ Set up simple equations for a problem ☐ Rearrange simple equations ☐ Solve simple equations ☐ Solve equations with the unknown on either side ☐ Solve equations with the unknown on both sides ☐ Solve equations that include brackets ☐ Solve equations with negatives, including negative answers ☐ Solve equations involving fractions
Solve simultaneous equations with two unknowns	☐ Use elimination to solve simultaneous equations ☐ Use substitution to solve simultaneous equations ☐ Draw straight line graphs and find the solution from the intersection of the two graphs ☐ Write simultaneous equations for a problem

Solve quadratic equations	☐ Solve quadratic equations by factorisation ☐ Solve quadratic equations by completing the square ☐ Solve quadratic equations using the quadratic formula
Using formulae	☐ Derive formulae ☐ Substitute numbers (positive or negative) into a formula, including formulae with x^2 or x^3 terms ☐ Change the subject of a simple formula ☐ Change the subject of a formula where the subject appears on both sides of the formula ☐ Change the subject of a formula that includes a power of the subject
Solve linear inequalities	☐ Solve a simple linear inequality with one variable ☐ Show the solution to a linear inequality with one variable on a number line ☐ Show the solution to several inequalities with two variables on a graph
Error intervals	☐ Use inequality notation to represent error intervals
Sequences	☐ Understand odd and even numbers ☐ Generate number sequences from diagrams ☐ Describe the rule for a number sequence ☐ Find a particular term in a sequence, or explain why a particular number is not in a sequence ☐ Understand and continue a geometric sequence including surds ☐ Identify and continue Fibonacci, geometric and quadratic sequences
Nth term of a sequence	☐ Find the nth term expression for a sequence ☐ Use the nth term expression to find a number in the sequence ☐ Find the nth term of a quadratic sequence

Coordinates	☐ Use axes and coordinates, both positive and negative in 2D ☐ Understand and plot points in four quadrants ☐ Find the coordinates of a point ☐ Plot a point given the coordinates, in 2D ☐ Find the mid-point of a line ☐ Calculate the length of a line using coordinates
Graphs	☐ Draw, label and add a scale to axes ☐ Understand that an equation of the form y = mx + c corresponds to a straight line graph ☐ Plot straight line graphs from their equations ☐ Plot and draw a graph of an equation in the form y = mx + c ☐ Find the gradient of a straight line graph ☐ Find the gradient of a straight line graph from its equation ☐ Understand that a graph of an equation in the form y = mx + c has gradient of m and a y intercept of c (ie. crosses the y axis at c) ☐ Understand how the gradient of a real life graph relates to the relationship between the two variables ☐ Estimate the gradient of a graph by drawing a tangent to a point ☐ Relate the gradient of the graph to rate of change and interpret the gradient
Gradients of parallel and perpendicular lines	☐ Understand how the gradients of parallel lines are related ☐ Understand how the gradients of perpendicular lines are related ☐ Understand that if the gradient of a graph in the form y = mx + c is m, then the gradient of a line perpendicular to it will be $-\frac{1}{m}$ ☐ Generate equations of a line parallel or perpendicular to a straight line graph

Simultaneous equations (one linear and one quadratic)	☐ Find the intersection of a linear and a quadratic graph to find (approximate) solutions to simultaneous equations ☐ Solve simultaneous equations (one linear, one quadratic in one variable) by elimination ☐ Solve simultaneous equations where one equation is of the form $x^2 + y^2 = r^2$
Other graphs	☐ Plot, sketch or recognise graphs of cubic functions ☐ Plot, sketch or recognise graphs of $y = 1/x$ ☐ Plot, sketch or recognise graphs of $y = k^x$ for integer values of x ☐ Plot, sketch or recognise graphs of $y = \sin x$ and $y = \cos x$ from -360° to +360° ☐ Draw or plot other mathematical functions ☐ Recognise or analyse other mathematical functions
Graphs of loci	☐ Construct the graphs of simple loci including the circle, $x^2 + y^2 = r^2$ ☐ Find the points of intersection of a circle and a straight line ☐ Apply understanding of loci to construct graphs based on circles and perpendicular lines
Graphs from quadratic and other functions	☐ Generate points for quadratic functions ☐ Plot graphs of quadratic functions ☐ Find (approximate) solutions to a quadratic equation from the graph of its function ☐ Find (approximate) solutions to simultaneous equations, one quadratic and one linear from the intersections of their graphs ☐ Identify roots, turning points and lines of symmetry of quadratic functions ☐ Solve quadratic equations algebraically to find the roots
Real life graphs	☐ Plot a linear graph ☐ Interpret information on linear and non-linear graphs ☐ Find the distance travelled on a velocity time graph by finding/estimating the area under the graph ☐ Find the acceleration from a velocity time graph by estimating the gradient

Direct and inverse proportion	☐ Set up equations to solve word problems involving direct proportion ☐ Set up equations to solve word problems involving indirect proportion ☐ Understand and use graphs of equations involving direct and indirect proportion
Functions	☐ Understand function notation ☐ Substitute into a function (numbers and algebra) ☐ Find an inverse function ☐ Find/form composite functions (numbers and algebra)
Transformation of functions	Apply to the graph of y = f(x) the following transformations: ☐ y = f(x) + a ☐ y = f(ax) ☐ y = f(x + a) ☐ y = a f(x) for linear, quadratic and sine and cosine functions, f(x) ☐ Apply the following transformations to functions: ☐ reflection ☐ translation ☐ Analyse transformations of functions and write them algebraically

GEOMETRY	
Angles on intersecting lines, in triangles and quadrilaterals, and on parallel lines	☐ Angles round a point add up to 360° ☐ Angles on a straight line add up to 180° ☐ Perpendicular lines ☐ Know the properties of scalene, isosceles, equilateral and right-angled triangles ☐ Angles in a triangle add up to 180° ☐ Angle properties of intersecting lines, and vertically opposite angles are equal ☐ Be able to mark parallel lines on a diagram ☐ Corresponding angles in parallel lines ☐ Alternate angles in parallel lines ☐ Calculate angles and give reasons ☐ Explain why the angle sum of a quadrilateral is 360° ☐ Understand a proof that the angle sum of a triangle is 180° ☐ Understand the proof that the exterior angle of a triangle of a triangle is equal to the sum of the interior angles at the other two vertices ☐ Calculate angles in more complex problems

Interior and exterior angles of polygons	☐ Calculate the sum of interior angles in a polygon ☐ Understand the polygon names; hexagon, heptagon, octagon and decagon ☐ Use the angle sum of an irregular polygon in a problem ☐ Calculate and use the sum of the interior angles of a regular polygon ☐ Understand and use fact that the exterior angles of a polygon add up to 360° ☐ Understand and use the fact that the interior and exterior angles at one vertex of a polygon add up to 180° ☐ Be able to calculate the exterior angle of a regular polygon ☐ Be able to calculate the interior angle of a regular polygon ☐ Be able to deduce the number of sides of a regular polygon, given one of its angles ☐ Understand tessellations of regular and irregular polygons ☐ Tessellate combinations of polygons ☐ Explain why some shapes tessellate and some do not
Properties of quadrilaterals	Remember the definitions and properties (including symmetry) of special quadrilaterals, ie. ☐ Square ☐ Rectangle ☐ Parallelogram ☐ Trapezium ☐ Rhombus ☐ Kite ☐ List or classify quadrilaterals by their properties
Reflection and rotation symmetry in 2D shapes	☐ Recognise reflection symmetry and be able to draw lines of symmetry on a shape ☐ Recognise rotation symmetry of 2D shapes ☐ Identify the order of rotational symmetry of a shape ☐ Complete a diagram given the line or lines of symmetry ☐ State a line of symmetry on a grid as a simple algebraic equation, eg. $x = 2$ or $y = x$ ☐ Complete diagrams with a given order of rotational symmetry

Congruence and similarity	☐ Understand that angles in similar shapes are the same ☐ Prove the congruence of triangles using SSS, SAS, ASA and RHS and formal argument ☐ Understand SSS, SAS, ASA and RHS in ruler and compass constructions ☐ Understand similarity of triangles and other 2D shapes, ☐ Use understanding of similar figures in problems ☐ Prove formally that two triangles are similar
Pythagoras' theorem	☐ Understand and use Pythagoras' theorem in triangles ☐ Understand and use Pythagoras' theorem in 3D problems ☐ Understand the language associated with 3D shapes, including diagonals of a cuboid ☐ Use Pythagoras' theorem to calculate the length of a diagonal of a cuboid
Trigonometry	☐ Understand and remember trigonometric relationships in right angled triangles ☐ Use trigonometry in 2D problems ☐ Use trigonometry in 3D problems ☐ Use trigonometry to find the angle between a line and a plane ☐ Find angle of elevation and angle of depression ☐ Use the sine rule to solve 2D and 3D problems ☐ Use the cosine rule to solve 2D and 3D problems ☐ Know the exact trigonometric values for Sin, Cos, Tan (0, 30, 45, 60, 90)

Parts of a circle	☐ Draw a circle with compasses, given either the diameter or radius Understand and remember parts of a circle: ☐ Centre ☐ Radius ☐ Diameter ☐ Chord ☐ Circumference ☐ Tangent ☐ Arc ☐ Sector ☐ Segment
Circle theorems and their proofs	☐ Prove and use each of the circle theorems: ☐ Tangent is perpendicular to the radius at the point the tangent meets the circle ☐ Two tangents from a point are equal in length ☐ Angle subtended from an arc at the centre is twice the angle at the circumference ☐ Angle in a semicircle is a right angle ☐ Angles in the same segment are equal ☐ Opposite angles of a cyclic quadrilateral add up to 180° ☐ Alternate segment theorem ☐ Perpendicular from the centre to a chord bisects the chord
Using 2D diagrams to represent 3D shapes	☐ Draw nets and show how they fold to make a 3D solid shape ☐ Understand and draw front and side elevations and plans of simple solids ☐ Draw a sketch of a 3D solid shape given the front and side elevations and plan of the solid

Transformations	<u>Rotations</u> ☐ Rotate a 2D shape around the origin or other point ☐ Understand that a rotation is defined by an angle, direction and a centre of rotation ☐ Find the centre of rotation ☐ Understand that a rotation produces a shape congruent to the original <u>Reflections</u> ☐ Understand and describe reflections ☐ Identify the mirror line for a reflection, and find its equation ☐ Understand that a reflection produces a shape congruent to the original <u>Translations</u> ☐ Understand and use translations ☐ Understand that translations are defined by a distance and a direction using vector notation ☐ Translate a shape by a given vector ☐ Understand that a translation produces a shape congruent to the original <u>Enlargements</u> ☐ Understand that an enlargement is defined by a centre of enlargement and a scale factor ☐ Understand that angles remain the same in an enlargement ☐ Enlarge a shape using (0, 0) or any other point as the centre ☐ Enlarge a shape by a positive scale factor ☐ Enlarge a shape by a fractional scale factor ☐ Enlarge a shape by a negative scale factor ☐ Find the centre of a given enlargement ☐ Identify the scale factor of a given enlargement <u>Combined transformations</u> ☐ Describe a transformation using a combination of rotation, reflection, translation or enlargements.

Straight edge and compass constructions	☐ Construct a given triangle ☐ Construct an equilateral triangle ☐ Understand that SSS, SAS, ASA and RHS triangles are unique but ASS ones are not ☐ Construct a perpendicular bisector of a line ☐ Construct a perpendicular from a point to a line ☐ Construct a perpendicular from a point on a line ☐ Bisect an angle ☐ Construct angles of 60°, 90°, 30° and 45° ☐ Construct parallel lines ☐ Draw circles and arcs of a given radius ☐ Construct a regular hexagon inside a circle ☐ Construct diagrams involving any of the above ☐ Construct diagrams from given information
Loci	☐ Construct a region bounded by a circle and an intersecting line ☐ Construct a loci of a given distance from a point and a given distance from a line ☐ Construct a loci of equal distances from two points ☐ Construct a loci of equal distances from two lines ☐ Identify regions defined by "nearer to" or "greater than" ☐ Find or describe regions satisfying a combination of loci
Perimeter and area	☐ Measure shapes to find perimeter or area ☐ Find the perimeter of a rectangle or triangle ☐ Use a formula to find the area of a rectangle ☐ Use a formula to find the area of a triangle ☐ Use a formula to find the area of a parallelogram ☐ Use a formula to find the area of a trapezium ☐ Calculate the perimeter and area of compound shapes made from triangles, rectangles and other shapes ☐ Find the surface area of shapes such as prisms or pyramids by using the formulae for triangles, rectangles and other shapes

Area of a triangle	☐ Calculate the area of a triangle using the formulae A = ½ ab sinC
Circumference and area of a circle	☐ Find circumference of a circle using C = πd or C = 2πr ☐ Find the area of a circle using A = πr² ☐ Use π = 3.142 or the π button on a calculator ☐ Find the perimeter and area of semcircles and quarter circles ☐ Calculate the length of an arc ☐ Calculate the area of a sector ☐ Give answers in terms of π if required ☐ Find the surface area of a cylinder
Volumes of prisms	☐ Use the formula to calculate the volume of a cuboid ☐ Calculate volume of a prism, such as a triangular prism ☐ Calculate the volume of a prism made from cuboids ☐ Find the volume of a cylinder
Complex shapes and solids	☐ Find the surface area of cubes, cuboids, cones, pyramids, spheres and hemispheres ☐ Find the volumes of cones, pyramids, spheres and hemispheres, frustrums ☐ Find the surface area or volume of a compound solid made up of other solid shapes, eg. a cuboid with pyramid on top, or cyclinder with cone on top. ☐ Use volumes in complex problems ☐ Find the area of a segment of a circle given the radius and length of the chord
Vectors	☐ Understand and use vector notation ☐ Add or subtract two vectors ☐ Multiply a vector by a number ☐ Calculate the result of two vectors ☐ Solve problems using vectors ☐ Use vectors in geometrical proofs

MEASURES	
Maps and scale drawings	☐ Use, interpret and construct maps and scale drawings ☐ Draw lines and shapes to scale ☐ Estimate lengths using a scale diagram
Enlargement of shapes, including solids	☐ Understand the effect of enlargement on perimeter, area and volume ☐ Understand and use the fact that area and volume are affected differently by an enlargement ☐ Know the relationship between linear, area and volume scale factors when one 2D or solid shape is an enlargement of another
Interpretation and accuracy	☐ Read and interpret scales on measuring equipment ☐ Know the relationships between seconds, minutes, hours, days, weeks, months and years ☐ Use 12 and 24 hour clock times ☐ Calculate time intervals ☐ Recognise inaccuracy of measurement, and choose appropriate units of measurement ☐ Understand that choice of unit affects accuracy ☐ Understand that measurements given to a whole unit may be up to half a unit inaccurate in either direction
Converting measurements	☐ Know conversion factors between different metric units ☐ Convert between metric units ☐ Convert between metric measurements of area ☐ Convert between metric measurements of volume ☐ Convert between different metric units of speed, eg. metres per second and km per hour ☐ Convert between metric units of volume and metric units of capacity, eg. 1 cm^3 = 1 ml
Estimation of measures	☐ Make estimates of measurements ☐ Choose appropriate units for estimates of measurements

Bearings	☐ Use 3 figure bearings to specify direction ☐ Mark a point on a diagram, given a bearing and distance from another point ☐ Measure or draw a bearing on a map or scale plan ☐ Given a bearing of one point from another, find the bearing of the first point from the second
Compound measures	☐ Understand and use compound measures, including speed and density
Measure and draw lines and angles	☐ Measure and draw straight lines to the nearest mm ☐ Measure and draw angles to the nearest degree
Drawing using a ruler and protractor	☐ Make accurate drawings of triangles and other 2D shapes using ruler and protractor ☐ Make an accurate scale drawing from a diagram ☐ Use accurate drawing to solve bearings problems

STATISTICS	
Data handling	☐ Decide on what data and analysis may be required for a problem ☐ Data collection ☐ Presenting data ☐ Discuss data
Bias	☐ Identify why data may be biased, and know how to minimise bias ☐ Understand the implications of different sizes of samples
Designing a survey	☐ Identify what data is needed ☐ Consider fairness of a survey ☐ Understand sample and population ☐ Design a question for a survey ☐ Criticise questions for a survey ☐ Understand random sampling ☐ Understand stratified sampling ☐ Calculate numbers needed for stratified sampling
Design data collection methods	☐ Design and use a data collection sheet, including one for continuous data ☐ Sort and classify data, and put data into a table ☐ Group data into class intervals with equal width
Tables and lists	☐ Extract data from tables and lists
Two-way tables	☐ Design two-way tables ☐ Complete a two-way table
Charts and diagrams	Draw the following charts or diagrams ☐ Bar chart ☐ Dual bar chart ☐ Pie chart ☐ Histogram with equal class intervals ☐ Frequency polygon ☐ Frequency diagram for grouped discrete data

	☐ Scatter graph ☐ Line graph ☐ Frequency polygon for grouped data ☐ Grouped frequency table for continuous data ☐ Stem and leaf diagram ☐ Two-sided stem and leaf diagram ☐ Cumulative frequency table ☐ Cumulative frequency graph ☐ Box plots (from raw data, or when given the median and quartiles) ☐ Histograms with unequal class intervals, using frequency density
Types of average and range	Calculate the following ☐ Mean ☐ Mode ☐ Modal class ☐ Median ☐ Interval containing the median ☐ Range ☐ Estimate the mean of grouped data using mid-points of intervals ☐ Find median, quartiles and interquartile range for grouped data ☐ Estimate the mean for grouped data ☐ Find median, quartiles and interquartile range from a cumulative frequency graph ☐ Find median, quartiles and interquartile range from a box plot
Interpreting graphs and diagrams	Understand and find information from ☐ pie charts ☐ stem and leaf diagrams ☐ scatter graphs ☐ frequency polygons ☐ box plots ☐ cumulative frequency diagrams

	☐ histograms ☐ Find the median or other information from a histogram, for example the number of people in a particular group ☐ Find information from line graphs, frequency polygons and frequency diagrams ☐ Find information from pie charts ☐ Find median, mode, range and interquartile range from stem and leaf diagrams ☐ Estimate values and find median, quartiles and interquartile range from a cumulative frequency graph ☐ Complete a frequency table from a histogram ☐ Understand and define frequency density
Patterns in data	☐ Find patterns in data ☐ Find exceptions in data ☐ Explain an isolated point on a scatter graph
Lines of best fit	☐ Draw a line of best fit ☐ Understand positve, negative and no correlation ☐ Understand that correlation does not always imply one thing causes the other ☐ Predict values using a line of best fit ☐ Understand that "no correlation" does not necessarily mean no relationship between the values, just no linear relationship
Comparing data	☐ Compare two sets of data using shapes of distributions ☐ Compare two sets of data using averages and spread, such as median, range and quartiles ☐ Compare spread using box plots or cumulative frequency graphs ☐ Compare two pie charts ☐ Compare data from dual bar charts ☐ Understand the advantages and disadvantages of different types of average
Using calculators	☐ Calculate mean using the correct key on a scientific calculator ☐ Σx and Σfx or calculation of the line of best fit

PROBABILITY	
Probability language and the probability scale	☐ Impossible, unlikely, even chance, likely and certain events ☐ Mark events or probabilities on a 0 to 1 probability scale ☐ Write probabilities as fractions, decimals or percentages
Estimates of probability and relative frequency	☐ Find probabilities of events using dice, spinners, coins ☐ Understand and use relative frequency as estimates of probability ☐ Calculate an estimate of how many times an event will occur, given its probability and the number of trials
Listing events	☐ List the outcomes for one or two events ☐ Use and draw diagrams to show all possibilities
Mutually exclusive outcomes	☐ Understand that the sum of all the mutually exclusive outcomes is 1 ☐ Know that if P is a probability of an outcome occurring, then 1 - P is the probability of the same outcome not occurring ☐ Fill in a missing probability in a table ☐ Know and use the fact that, for mutually exclusive events, P(A **OR** B) = P(A) + P(B)
Independent events	☐ Know that, for independent events, P(A **AND** B) = P(A) x P(B) ☐ Understand the difference in calculation for selection of an object with or without replacement
Tree diagrams	☐ Draw a probability tree diagram ☐ Calculate probability of compound events from a tree diagram
Venn diagrams	☐ Understand venn diagram notation ☐ Calculate conditional probabilities
Experimental data and theoretical probability	☐ Compare experimental data with theoretical probability ☐ Understand that the same experiment repeated can have different results, and that increasing sample size increases accuracy ☐ Compare results from different sample sizes