S3 Preparing for National 4 Qualifications

June

Topic and content
Enlargement and Scale Drawing • Enlarge/ reduce a shape with given scale factor • Make and use a simple scale drawing • Make a scale drawing including an angle of elevation or bearing • (tan ratio for potential N5 pupils only)

August – October

Wages and Salaries • Calculate weekly, monthly and annual wage • Find a percentage of a quantity • Calculate new amount after a percentage change • Calculate commission • Calculate overtime pay (e.g. time and a half) • Calculate net pay • Complete a simplified pay slip
Simple Algebra • Collect like terms • Multiply out brackets with a numeric multiplier • Solve simple equations e.g. $2x - 4 = 12$ • Solve equations with unknowns on both sides • Factorise e.g. $4x + 8 = 4(x + 2)$ and $2xy - 3xw = x(2y - 3w)$
Money • Use 4 rules with decimals with/without a calculator • Round answers to the nearest penny • Calculate simple interest, including part years • Calculate VAT • Calculate hire purchase
Travel • Calculate a time interval including across midnight. • Use units for time and convert between them – months, weeks, days, hours, minutes, seconds. • Use the 12 hour and 24 hour clock. • Carryout Speed, Distance and Time calculations • Solve a basic problem in time management • Convert pounds sterling into another currency and back again.

October – Christmas

Fractions

- Simplifying fractions
- Fraction of a quantity
- Mental percentages
- Multiply/ divide a decimal (especially money) by 10 and 100

Graphs and Statistics

- Interpret bar graphs, line graphs and pie charts
- Draw graphs, including pie charts
- Understand a frequency (tally) table
- Calculate mean, median, mode and range
- Compare the average and spread (range) of two data sets

Circles

- Use $C = \pi D$ to calculate the circumference of a circle
- Use $A = \pi r^2$ to calculate the area of a circle
- Calculate the area or perimeter of simple composite shape e.g. rectangle + semicircle

Negative Numbers

- Place integers on a number line and use notation < and >
- Use four rules with integers
- Solve simple equations and inequations with integer solutions
- Plot points in four quadrants

January - Easter

Patterns

- Extend a linear pattern
- Find a formula for a linear sequence
- Use formula to solve problems

Pythagoras' Theorem

- Use Pythagoras' theorem to find the length of either the hypotenuse or a shorter side
- Solve problems requiring the application of Pythagoras' theorem

Area

- Revise formulae for area of a rectangle and area of a triangle
- Apply formula for area of a triangle to find the areas of parallelograms, kites and trapezia

Proportion and rate

- Calculate rate: e.g. miles per hour or number of texts per month
- Calculate a ratio
- Calculate quantities in direct proportion

Probability

- Compare likelihoods of different outcomes by comparing relative frequencies
- Calculate probability and express answer as a fraction, decimal or percentage
- Calculate expectation from given or calculated probabilities
- Compare the probabilities of two events

Numeracy Revision

- find simple percentages and fractions
- calculate percentage increase and decrease
- convert equivalences between common fractions, decimal fractions and percentages
- calculate distance given speed and time
- calculate time intervals using the 12- and 24-hour clock
- calculate volume (cube and cuboid), area (rectangle and square) and perimeter (shapes with straight lines)
- calculate ratio and direct proportion
- give reasons for decisions based on the results of measurements or calculations
- extract data from charts and graphs
- make decisions based on observations of patterns and trends in data
- make decisions based on calculations involving data
- make decisions based on reading scales in straightforward graphical forms
- offer reasons for the decisions made based on the interpretation of data
- calculate the probability of an event happening
- make predictions and use these predictions to make decisions