King Henry VIII School 2015
Ysgol Brenin Harri'r VIII 2015

Year 8 Numeracy

Learners are able to:

Develop numerical reasoning

Identify Processes and Connections

- transfer mathematical skills across the curriculum in a variety of contexts and everyday situations
- select, trial and evaluate a variety of possible approaches and break complex problems into a series of tasks
- prioritise and organise the relevant steps needed to complete the task or reach a solution
- choose an appropriate mental or written strategy and know when it is appropriate to use a calculator
- use a scientific calculator to carry out calculations effectively and efficiently using the available range of function keys
- identify, measure or obtain required information to complete the task
- identify what further information might be required and select what information is most appropriate
- select appropriate mathematics and techniques to use
- estimate and visualise size when measuring and use the correct units
- Represent and Communicate
- explain results and procedures precisely using appropriate mathematical language
- refine methods of recording calculations
- use appropriate notation, symbols and units of measurement, including compound measures
- select and construct appropriate charts, diagrams and graphs with suitable scales
- interpret graphs that describe real-life situations
- interpret graphical representations used in the media, recognising that some graphs may be misleading

Review

- select and apply appropriate checking strategies
- interpret answers within the context of the problem and consider whether answers, including calculator displays, are sensible
- verify and justify results or solutions, including discussion on risk and chance where relevant
- interpret mathematical information; draw inferences from graphs, diagrams and data, including discussion on limitations of data
- draw conclusions from data and recognise that some conclusions may be misleading or uncertain

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Number Skills

Use Number Facts and Relationships

- recognise and apply key mental facts and strategies
- use known facts to derive others, e.g. use 0.7 x 6 to derive 0.7 x 6
- use the terms cube, cube root and reciprocal
- Fractions, decimals, percentages and ratio
- use equivalence of fractions, decimals and percentages to select the most appropriate for a calculation
- simplify a calculation by using fractions in their simplest terms
- calculate a percentage, fraction, decimal of any quantity with a calculator where appropriate
- calculate the outcome of a given percentage increase or decrease
- use ratio and proportion to calculate quantities
- Calculate using mental and written methods
- use efficient written methods to add and subtract numbers and decimals with up to 2 decimal places
- use efficient methods for multiplication and division of whole numbers and decimals, including decimals such as 0.6 or 0.06
- use the order of operations including brackets

Estimate and Check

- use rounding to estimate answers to problems to a given number of significant figures
- present answers to a given number of significant figures

Manage Money

- carry out calculations relating to VAT, saving and borrowing
- appreciate the basic principles of budgeting, saving (including understanding compound interest) and borrowing

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Use Measuring Skills

Length, Weight (mass) and Capacity

- use the common units of measure, convert between related units of the metric system and carry out calculations
- use rough metric equivalents of imperial units in daily use
- Time
- interpret fractions of a second appropriately
- use timetables and time zones to calculate travel time

Temperature

- convert temperatures between appropriate temperature scales
- Area Volume and Angles
- calculate areas of compound shapes (e.g. rectangles and triangles) and volumes of simple solids (e.g. cubes and cuboids)
- use bearing and grid references to specify locations

Use data skills

Collect and Record Data, Present and Analyse Data and Interpret Results

- plan how to collect data to test hypotheses
- construct a wide range of graphs and diagrams to represent discrete and continuous data
- construct frequency tables for sets of data in equal class intervals, selecting groups
- as appropriate
- construct graphs to represent data including scatter diagrams to investigate correlation
- interpret diagrams and graphs to compare sets of data
- use mode, mean, median and range to compare two distributions (continuous data)