Term 1 2010/2011 (Rotation 2)

Outline – Mathematics 6/7

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| **Week** | **Unit** | **Knowledge and Understanding**  **Ways of Working** | **Focus for the Week** | **Literacy demands of number concepts** | **Assessment Opportunities** |
| **Week 1**  **Beginning 19th September** | ***NUMBER*** | Whole numbers, including positive and negative numbers, and common and decimal fractions can be ordered and compared using a number line.  Common fractions can be represented as equivalent fractions, decimals and percentages for different purposes.  Estimation strategies including rounding, and estimates based on powers of 10, assist in checking for reasonableness of calculations involving whole numbers and common and decimal fractions.  **Ways of working in this topic**. Students are able to:   * analyse situations to identify mathematical concepts and the relationships between key features and conditions necessary to generate solutions * plan activities and investigations to explore concepts through selected pathways, and plan strategies to solve mathematical questions, problems and issues * select and use suitable mental and written computations, estimations, representations and technologies to generate solutions and to check for reasonableness * develop arguments to justify predictions, inferences, decisions and generalisations from solutions * evaluate thinking and reasoning, to determine whether mathematical ideas, strategies and procedures have been applied well * communicate thinking and justify reasoning and generalisations, using mathematical language, representations and technologies * reflect on and identify the contribution of mathematics to their life. * Reflect on learning, apply new understandings and identify future application. | * Introductory activities * Revision of basic number concepts | **Code breaker**   * Recognise and use context words: addition, sum, subtraction, difference, numerator, denominator, decimal fraction, common fraction, integer, positive, negative.   **Text participant**   * Correct use of mathematical terms and symbols.   **Text user**   * Correct spelling of mathematical terms. Matching symbolic and word forms.   **Text analyser**   * Interpretation and appropriate written recordings (i.e. setting out) for traditional methods of calculation. Analyse reasonableness of answers. | Diagnostic Pre-Unit Assessment |
| **Week 2**  **Beginning 26th September** | * Whole numbers, square numbers, triangular numbers * Equivalent fractions:   + common fractions, decimal fractions and percentages * vinculum as a divisor |  |
| **Week 3**  **Beginning 3rd October** | * Addition and subtraction of whole numbers, common fractions and decimal fractions to hundredths * Multiplication and simple division of whole numbers, common fractions and decimal fractions to hundredths | Test (40 mins) |
| **Week 4**  **Beginning 10th**  **October** | ***ALGEBRA*** | Expressions and relationships, including formulas and simple equations, can be demonstrated using words, diagrams, materials and symbols to represent variables  e.g. relate the expression “the perimeter of a rectangle is equal to twice its length plus twice its width” to the corresponding diagram and the formulas perimeter = 2 × length + 2 × width or p = 2 × l + 2 × w; find the perimeter of a rectangle with length 8 cm and width 5 cm.  • Equations and expressions involving addition, subtraction and multiplication can be solved to establish equivalence  e.g. use materials, diagrams and number examples to explain why (2 × 6) + (3 × 6) = 5 × 6 and generalises to  (2 × n) + (3 × n) = 5 × n.  • The order of operations identifies the appropriate sequence of operations used in calculations to obtain solutions  e.g. the order of operations is applied to solve 5 + 4 × 6 = 29.  • Tables of values for functions using input–output rules can be constructed and the resulting ordered pairs graphed  e.g. use a rule that explains the relationship between pairs of terms in a sequence to calculate the value of the 12th term of the sequence.  **Ways of working in this topic**. Students are able to:   * analyse situations to identify mathematical concepts and the relationships between key features and conditions necessary to generate solutions * pose questions that draw on familiar examples to clarify thinking and support predictions * select and use suitable mental and written computations, estimations, representations and technologies to generate solutions and to check for reasonableness * evaluate thinking and reasoning, to determine whether mathematical ideas, strategies and procedures have been applied effectively * communicate thinking and justify reasoning and generalisations, using mathematical language, representations and technologies * reflect on and identify the contribution of mathematics to their life * reflect on learning, apply new understandings and identify future applications. | Order of operations: the appropriate  sequence of operations used in  calculations | **Code breaker**   * Recognise and use content words: expression, equation, formula, unknown, variable, backtrack, balance, substitution, implied, linear, equivalence, operations   **Text participant**   * Correct use of mathematical terms and symbols.   **Text user**   * Correct spelling of mathematical terms. Matching symbolic and word forms   **Text analyser**  Interpretation and appropriate written recordings for traditional methods of representation. Correct use of conventions associated with graphing. | Diagnostic Pre-Unit Assessment |
| **Week 5**  **Beginning 17th October** | Equations using addition,  Subtraction |  |
| **Week 6**  **Beginning 24th October** | Input–output rules |  |
| **Week 7**  **Beginning 31st October** | Ordered pairs (discrete data) | ***Maths Investigation 1*** |
| **Week 8**  **Beginning 7th November** | Ordered pairs (continuous data)  Graphing ordered pairs |  |
| **Week 9 Beginning 14th November**  **EID HOLIDAY** | Relationships:  – variables  – simple equations | Test (40 mins) |
| **Week 10**  **Beginning 21st November** | ***CHANCE AND DATA - DATA*** | • Data may be discrete and can be allocated to categories or numbered  e.g. gender is a discrete variable; the numbers of male and female students in a class.  • Data may be continuous and described as distributions of quantities  e.g. growth of a plant; time elapsed.  • Sample data drawn from a given population can be summarised, compared and represented in a variety of ways  e.g. two-way tables; pie charts; bar or line graphs.  • Measures of location such as mean, median and mode, and frequency and relative frequency, can be used to explore distributions of sample data  e.g. the mean is the averaged daily water consumption for the school across a period of days; the median is the middle value of the ordered daily water consumption; the mode is the most common daily water consumption level; relative frequency is the chance of landing on red when using a spinner with four equal sectors that are coloured differently.  • Variation and possible causes of bias can be identified in data collections  e.g. the method of collection may exclude possible participants; the personal opinions of participants may obscure data collection.  **Ways of working in this topic**. Students are able to:   * analyse situations to identify mathematical concepts and the relationships between key features and conditions necessary to generate solutions * pose questions that draw on familiar examples to clarify thinking and support predictions * plan activities and investigations to explore concepts through selected pathways, and plan strategies to solve mathematical questions, problems and issues * select and use suitable mental and written computations, estimations, representations and technologies to generate solutions and to check for reasonableness * develop arguments to justify predictions, inferences, decisions and generalisations from solutions * evaluate thinking and reasoning, to determine whether mathematical ideas, strategies and procedures have been applied effectively * communicate thinking and justify reasoning and generalisations, using mathematical language, representations and technologies * reflect on and identify the contribution of mathematics to their life * reflect on learning, apply new understandings and identify future applications. | * Frequency: the count of occurrences of an event occurring, e.g. rolling an even number on a die | **Code breaker**   * Recognise and use content words and phrases: data, observation, discrete, continuous, graph, histogram, spread, range, measure of location, mean, mode, median, compound, two-way table.   **Text participant**   * Correct use of mathematical terms and symbols.   **Text user**   * Correct spelling of mathematical terms. Correct format for graphical displays including title, labelled axes, regular scale, units of measurement shown. Prepare a written report on comparison of data sets.   **Text analyser**   * Interpret information presented in tables and graphs. Recognise misleading or erroneous information presented in graphs and diagrams. | Pre-Unit Assessment |
| **Week 11**  **Beginning 28th November** | * Predictions based on experimental data * Discrete data:   + numerical   + categorical | Maths Investigation 2 |
| **Week 12**  **Beginning 5th December** | * count * Continuous data * Sample data drawn from given populations |  |
| **Week 13**  **Beginning 12th December** | * Measures of location: mean, median, mode (for discrete data) * Variation * Bias | Test (50 mins) |