Term 1 2010/2011 (Rotation 2)

Teacher Outline – Mathematics 8/9

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| **Week** | **Unit** | **Essential**  **Learnings** | **Focus for the Week** | **Literacy demands of number concepts** | **Assessment Opportunities** |
| **Week 1**  **Beginning 19th September** | ***NUMBER*** | Rational numbers (integers, fractions and decimals) can be represented and described in different ways, including using scientific notation and index notation, for a variety of purposes  Rational numbers (integers, fractions and decimals) can be used to describe and solve problems involving rate, ratio, proportion and percentage  Rational numbers, and decimal approximations of irrational numbers including *π*, can be represented on the real number line.  Decimal approximations of irrational numbers can be used in geometric contexts  Estimates with upper and lower boundaries can be formed  Problems can be interpreted and solved using rational and irrational numbers, including integers, simple powers and square roots, and conventions of the four operations to generate solutions using mental, written and technology-assisted strategies | * Introductory activiites * Revision of basic number concepts | **Code breaker**   * Recognise and use context words: addition, sum, subtraction, difference, numerator, denominator, decimal fraction, common fraction, vulgar fraction, mixed number, improper fraction, rational (and irrational), 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. | NAPLAN Yr 7 Non-Calculator Diagnostic Pre-Unit Assessment |
| **Week 2**  **Beginning 26th September** | * rational numbers (integers, fractions & decimals) * Irrational numbers (cannot be expressed as a fraction) * Upper & lower estimates * Addition and subtraction of rational numbers |  |
| **Week 3**  **Beginning 3rd October** | * Index notation (whole number indices) * Square roots | Maths investigation 1 |
| **Week 4**  **Beginning 10th**  **October** | * Rates (exchange rates etc.) * Ratio * Proportion |  |
| **Week 5**  **Beginning 17th October** | * Percentages (whole and fractional percentage, greater than 100%) * Addition and subtraction of numbers with indices * Multiplication and division of positive and negative rational numbers | Test (40 mins) |
| **Week 6**  **Beginning 24th October** | ***ALGEBRA*** | Variables and constants are represented using words and symbols when writing expressions and equations  Algebraic relationships can be modelled, interpreted and evaluated using integer, decimal and fraction values of variables  Inverse, associative, commutative and distributive properties can be used to manipulate and rearrange algebraic expressions that involve the four operations, reciprocals, whole-number powers and square roots | * Order of operations * Variables (discreet and continuous) and constants | **Code breaker**   * Recognise and use content words: expression, equation, function, unknown, variable, backtrack, balance, substitution, implied, linear, non-linear.   **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. | Pre-Unit Assessment |
| **Week 7**  **Beginning 31st October** | * Algebraic expressions involving the four operations |  |
| **Week 8**  **Beginning 7th November** | * Ordered pairs (four quadrants) |  |
| **Week 9 Beginning 14th November**  **EID HOLIDAY** | * Equations | Test (40 mins) |
| **Week 10**  **Beginning 21st November** | ***CHANCE AND DATA - CHANCE*** | Data can be gathered from samples and surveys, experiments and simulations, published data and databases, and used to estimate probabilities of events and to respond to claims and questions  Sample spaces can be specified for single events and straightforward compound events using tables and tree diagrams, and probabilities can be determined using different methods, including counting, measuring and symmetry | * Estimation of probability with equally or unequally likely outcomes * Randomness (lack of predictable order and pattern in an event) * Law of large numbers (as the number of trials increases the experimental probability gets closer to the theoretical probability) | **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. * Recognise and use content words: chance, probability, likelihood, outcome, sample space, event, expectation, prediction, fair, unfair, bias, experiment, trial. Convention for probability of an event i.e. P(Event) =   **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. * Interpretation and appropriate written recordings (i.e. setting out) for calculating probabilities. Analyse reasonableness of result. Understanding the result in terms of likelihood and fairness. | Pre-Unit Assessment |
| **Week 11**  **Beginning 28th November** | * Ways to calculate probability:   + counting   + measuring   + symmetry * Sample space: tables, tree diagrams, organised lists * Single events: individual events measuring the likelihood of one thing occurring, e.g. rolling a 5 on a die * Effect of replacement and non‑replacement on probability | Maths Investigation 2 |
| **Week 12**  **Beginning 5th December** | * Theoretical probability * Experimental probability is the proportion of the number of times an event occurs in an experiment * Inferences and generalisations |  |
| **Week 13**  **Beginning 12th December** | * Data collection:   + samples, surveys, experiments, computer simulations, from published data and databases * Compound probability experiment: a chance procedure with more than one stage, e.g. in rolling two dice, the event of getting a four on one die and a six on the other | Test (50 mins) |