**Teaching and Learning Program for the Elements**

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| **T:\Office\Graham Moore\jpeg sentral logo.jpg** | **Teaching and Learning Program** | | | | | | | | | | | | | | | | | |
| **Title/Type of Unit: Mathematics- Number and Operation**  **Program Risk Level: Low** | | | | | | | | | | | | **Duration: 10 Weeks**  **By** | | | | | |
| **Syllabus Outcomes**  **Stage 4** | *A student:*  MA4‑1WM communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols  MA4‑2WM applies appropriate mathematical techniques to solve problems  MA4‑3WM recognises and explains mathematical relationships using reasoning  MA4‑4NA compares, orders and calculates with integers, applying a range of strategies to aid computation | | | | | | | | | | | | | | | | | |
| **Connectedness**  **Why does this learning matter?** | **Students learn to:**   * Add and subtract 5 digits numbers * Multiply numbers 2 and 3 numbers * Basic division * Long division using a 2 digit divisor * Addition and subtraction word problems * Multiplication and division word problems | | | | | | | | **Students learn about:**   * Basic mathematical operation and its application in the world | | | | | | | | | |
| **Background and Key Ideas** | The unit is designed to develop mathematical understanding and skills in basic operations (addition, subtraction, multiplication and division). | | | | | | | | | | | | | | | | | |
| **Literacy Continuum** | Reading Texts | Comprehension | | | Vocabulary Knowledge | | Aspects of Writing | | | Aspects of Speaking | | | | Phonics | Phonemic Awareness | | | Concepts About Print |
| Literacy is addressed in this unit through the writing of mathematical definitions and the solving of word problems, however, literacy is not the main focus of this unit of work. | | | | | | | | | | | | | | | | | |
| **Numeracy Continuum** | Counting Sequences | | Counting as Problem Solving | | | Pattern and Number Structure | | Place Value | | | | Multiplication and Division | | | | Fraction Units | | Length, Area and Volume |
| Elements: Aspect 5  Students learn about: forming equal groups, perceptual multiples, repeated abstract units, multiplication and division as operations | | | | | | | | | | | | | | | | | |
| **Quality Teaching** | | | | | | | | | | | | | | | | | | |
| **Intellectual Quality** | | | | **Quality Learning Environment** | | | | | | | **Significance** | | | | | | | |
| * IQ1 Deep Knowledge * IQ2 Deep Understanding * IQ3 Problematic Knowledge * IQ4 Higher-order Thinking * IQ5 Metalanguage * IQ6 Substantive Communication | | | | * QLE1 Explicit Quality Criteria * QE2 Engagement * QE3 High Expectations * QE4 Social Support * QE5 Students’ Self-regulation * QE6 Student Direction | | | | | | | * S1 Background Knowledge * S2 Cultural Knowledge * S3 Knowledge Integration * S4 Inclusively * S5 Connectedness * S6 Narrative | | | | | | | |
| **Teaching and Learning Lesson Overview** | | | | | | | | | | | | | | | | | | |
| **The Elements of Learning & Achievement**    F:\Mock ups\Square elements\Numeracy.jpg        E:\Final V1\Final sq NO border\Sq Technology no bdr.jpg | 1. **Vocabulary and place value revision**   Developmental Maths (pages 1-4)   * Vocabulary * Place Value * Ascending and Descending order  1. **Addition**   Developmental Maths (pages 5-12)   * Addition * Odd and even numbers * Number patterns  1. **Subtraction**   Developmental Maths (pages 6-26)   * Vocabulary * Basic subtraction * Subtraction with regrouping * Word problems * Place Value * Roman Numerals  1. **Multiplication**   Developmental Maths 27-42   * Vocabulary * Forming equal groups * Basic multiplication (1 to 12 times tables) * Estimation and multiplication * Multiplying larger numbers * Multiplication facts (special numbers) * Multiples  1. **Division**  * Vocabulary * Forming equal groups (division as the opposite of multiplication) * Basic division (without remainders) * Long division * Division with remainders * Remainders as fractions * Word problems and division | | | | | | | | | | | | | | | | **Aboriginal 8 Ways of Learning**  *The following ways of learning are incorporated throughout the program through pedagogical practices*  2_maps.jpg  Learning Maps  4_symbol.jpg  Symbols & Images  7_deconstruct.jpg  Deconstruct/ Reconstruct  6_non-linear.jpg  Non-Linear    Non-Verbal | |
| **Special Needs Adjustments** | | | | | | | **School to Work** | | | | | | | | | | | |
| Extra support given to students in need of it.  The work consist of a variety of activities aimed at different types of learning.  Age stage appropriate work.  Work designed to engage learners as it is altered for their interests.  Students’ work adjusted to meet their personal learning plans goals and outcomes. | | | | | | | This unit develops students’ mathematical skills in basic operations. These skills are used in most occupations. | | | | | | | | | | | |
| **Assessments** | | | | | | | | | | | | | | | | | | |
| Formative:  Student work samples, Student responses to discussion and questioning, student participation in whole class activities eg. whiteboard and group activities  Summative:  Mathletics online activities. | | | | | | | | | | | | | | | | | | |
| Roles and Responsibilities | | | | | | | | | | | | | | | | | | |
| Teacher | | | | SLSO | | | | | | | Student | | | | | | | |
| Lesson Planning  Student  Behaviour Support  Class Instruction  Resource Preparation  Excursion Planning & Supervision | | | | Teacher Support  Student Support, both individually and in small groups  Behaviour Support (under teacher supervision)  Resource Preparation  Excursion Supervision | | | | | | | Participation in all activities  To develop both academic and social skills | | | | | | | |

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| **Teacher Evaluation**  **Comments / Variations** | |
| Guiding Questions  What worked well?  The focus of basic operations in this unit of study engaged all students. It allowed students to experience success in adapting their prior understanding to new mathematical concepts in which it made more difficult algorithms easier to complete and understand. Furthermore, the integration of Mathletics as a technological tool allowed students to be further engaged as it allowed self-paced activities with immediate results and visible progression.  What needed to be changed?  There was a visible difference with the knowledge and understanding of students within each class. This required each student learning plan to be differed according to their learning gaps. At times individuals were on all different work and it require supporting and delegating support to the appropriate student.  What do I think the students gained from this lesson?  Students should have gained a further their understanding of simple operations within Mathematics. Engaging in this unit a student should understand the relationships between addition and subtraction and multiplication and division. They should now begin to implement concepts such as trading, doubling, the split strategy etc.  How well did this unit match the Elements of Learning and Achievement?  This unit build the understanding of Practical Mathematics which is an essential element with students transitioning. The fundamental elements of understanding basic operations are essential to many real world environments whether it be in the workplace or vocational educational opportunities.  What did I learn?  Teaching this subject I learnt the necessity of being flexible in my teachings. This means that, at times, it can be more positive to take a backwards step and provide students with easier content which allows them to experience success before introducing more complex tasks. It is also essential that communication with your SLSO is essential as they must be informed of what is being taught and which students require support.  How will I use this experience to extend my practice in the future?  Implementing basic operations within the scope and sequence of mathematics I think is essential in bridging the learning gaps of students. Implementing this as a weekly task (eg. Timestables) will be beneficial for students to experience success within other topic areas and also to be more confident in Mathematics. | |
| **Date Commenced**: 27/1/16 | **Date Finished**: 8/4/16 |
| **Teachers Signature**: | **Assistant Principals Signature**: |