### Term Two: Week Seven

#### Monday

**Maths Program**

This program addresses Stage 3 Outcomes of the NSW K-10 Mathematics Syllabus.

**Working Mathematically**

- Investigate and calculate percentage discounts of 10%, 35% and 50% on item sales, and without the use of digital technologies.

**Maths Program**

- **Class:** 5/6
- **Stage 3:** 2017

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#### Short Sharp Focused Activity

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<tr>
<td>Maths Fluency</td>
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<tr>
<td>Five Minute Frenzy</td>
<td>Play Greedy Pig as a class</td>
<td>Five Minute Frenzy</td>
<td>five Minute Frenzy</td>
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- **Multiplying Decimals:**
  - **Multiply the numbers just as if you were multiplying whole numbers.**
  - **1. Line up the numbers on the right - do not align the decimal points according to place value.**
  - **2. Starting on the right, multiply each digit in the top number by each digit in the bottom number, just as with whole numbers.**
  - **3. Add the products.**
  - **4. Place the decimal point in the answer by starting at the right and moving a number of places to the left equal to the sum of the decimal places in the numbers multiplied.**

- **Modelling an object:**
  - John 8.5 pages of Harry Potter novel each night. How many pages will he read over 7 nights?
  - Answer: 59.5 pages.

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#### Class Modelling / Guided Activity

<table>
<thead>
<tr>
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<tr>
<td>To divide a decimal by a whole number:</td>
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<td>Use Division or Long Division:</td>
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<tr>
<td><strong>Ignore the decimal point in multiplication:</strong></td>
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<tr>
<td><strong>Then put the decimal point in the same spot as the dividend (the number being divided):</strong></td>
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<td><strong>For example:</strong> Divide 9.1 by 7:</td>
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<tr>
<td><strong>Result:</strong> 1.31</td>
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This program addresses Stage 3 Outcomes of the NSW K-10 Mathematics Syllabus.

Working Mathematically... The number to get out is 6. Students talk about the probability and how this might change using more/less dice.

### Mathletics Workbook – page 38

- Decimal multiplication: In pairs, students are provided with a pack of playing cards with tens and picture cards removed. The aces are worth 1 and the jokers are worth 0. Student A flips up to five cards, making a decimal number up to three decimal places, and reads them aloud. Student B checks the answer using a calculator. The students swap roles and repeat.

- Fractional multiplication: In pairs, students are provided with a pack of playing cards with tens and picture cards removed. The aces are worth 1 and the jokers are worth 0. Student A flips up to five cards, making a decimal number up to three decimal places, and reads them aloud. Student B checks the answer using a calculator. The students swap roles and repeat.

### Mathletics Workbook – page 219

- Take a pack of cards and remove the Jacks, Queens, and Kings. Shuffle the remaining cards, and then lay the whole deck face up on the table in a snake. Place four different coloured counters on the first four cards in the snake. Then move each counter forward the number shown on its card (aces count as 1). Keep moving each counter until it can’t go any further.

- Students play Greedy Pig with 3 x 6 sided dice. The number to get out is 9. Students talk about the probability and how this might change using more/less dice.

### Mathletics Workbook – page 38

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### Mathletics Workbook – page 431

Resources needed: 4 yellow marbles, 2 blue marbles, 1 red marble.

Pose the following question: A container holds 4 yellow marbles, 2 blue marbles and 1 red marble. The marbles are identical in all ways except colour. Shake the container, and look at how the marbles settle. You win if two blue marbles touch. Did you win? Students respond to the following questions: Complete several shakes and look at your results.

- Approximately how often do you think you would win if you completed 100 throws?
- Make a prediction and then check it by doing the experiment.
- Can you explain how to work out the theoretical probability of winning?
This program addresses Stage 3 Outcomes of the NSW K-10 Mathematics Syllabus.

### Working Mathematically

Use the information to answer the following questions.

1. What are 3 red, 2 blue, 6 black, and 5 green marbles? Use this information to answer the following questions.

   - Can you find a way to arrange the cards so that all four counters finish on different cards?
   - Can you do the same with five counters?

### Mathletics Workbook

- **Page 38**

### Names

**Practise Opportunities (Guided Learning): Group C**

**Mathletics Workbook – page 38**

**Decimal multiplication:** in pairs, students are provided with a pair of playing cards with tens and picture cards removed. The aces are worth 1 and the jokers are worth 0. Student A flips up to five cards, making a decimal number up to three decimal places, and reads them aloud. Student B checks the numbers and writes an algorithm to multiply the numbers. Student B answers the following question in their books: what happens if you multiply a number by a multiple of ten? (Aces count as 1). Keep moving each counter until it can’t go any further without going off the end.

**Students answer the following questions in their books:**

- What happens if you divide a number by a multiple of ten?
- Can you devise a strategy for dividing by a multiple of ten?

When we divide by 10 the number becomes smaller by 1 place value.

When we divide by 100 the number becomes smaller by 2 place values.

When we divide by 1000 the number becomes smaller by 3 place values.

**Work with these students on the following concept:** Look what happens to 45 when we apply these rules:

- Multiply: 
  - 3.2 x 1.4 = a. 0.3
  - 1.6 x 0.7 = b. 0.3
  - 2.2 x 0.42 = c. 0.2

- Divide: 
  - 1.6 + 9 = a. 0.001
  - 2.621 + 3 = b. 0.84

- Powers of: 
  - 10^3 = a. 100
  - 10^2 = b. 100
  - 10^0 = c. 1

**Students play Greedy Pig with 1 x 6 sided dice. The number to get out is 3. Students talk about the probability and how this might change using more/less dice.”**

**https://nrich.maths.org/7219**

- Take a pack of cards and remove the Jacks, Queens and Kings. Shuffle the remaining cards, and then lay the whole pack face up on the table in a snake.
- Place four different coloured counters on the first four cards in the snake. Then move each counter toward the number shown on the card. (Aces count as 1). Keep moving each counter until it can’t go any further without going off the end.

**Questions:**

- Did your counters all finish on different cards?
- Repeat the experiment a few times.

- How often did all the counters finish on different cards?
- How often did they all finish on the same card?
- Can you explain your results?

**Probability of Simple Events:**

- Can you devise a strategy for dividing a decimal number by 100 and 1000.
- Students are asked to write a strategy for dividing a decimal number by 100 and 1000.
- Students are encouraged to write a strategy for dividing a decimal number by 100 and 1000.
- Students should be able to communicate using the following language:
  - whole, equal parts, half, quarter, eighth, third, sixth, twelfth, fifth, tenth, hundredth, thousandth, one-thousandth, fraction, numerator, denominator, mixed numeral, whole number, number line, proper fraction, improper fraction, decimal, decimal point, digit, place value, decimal places.
  - The decimal 1.12 is read as ‘one point one two’ and not ‘one point twelve.’

**Chance 1&2:** Students should be able to communicate using the following language:

- chance, event, likelihood, certain, possible, likely, unlikely, impossible, experiment, outcome, probability.
- The probability of an outcome is the value between 0 and 1 used to describe the chance that the outcome will occur.

**Engine Room focused teaching:**

- Student groupings will vary as content/topic changes.
This program addresses Stage 3 Outcomes of the NSW K-10 Mathematics Syllabus.

Working Mathematically:

- Create a spinner using 4 colours that have an unequal chance of occurring when spun.
- Calculate the probability of each colour being spun, as a fraction, decimal and percentage.

Problem Solving:

- Is the probability of picking a green marble from the bag? 
- (2) What is the probability of picking a black marble from the bag? 
- (3) What is the probability of picking a color that isn’t black? 
- (4) Carson decides to add 4 red marbles to the bag. How much did he increase his chances of picking a red marble? Write your answer as a fraction, decimal, or percent.

Reading:

- Read the question to yourself and let me know if you want help with any word.
- Comprehension:
  - Can you tell me what the question is asking you to find?
- Transformation:
  - What could you do to get the answer?
- Process SKILLS:
  - Do you think:
  - Try doing it and as you are doing it tell me what you are thinking? Encoding: Now write down your answer.

Differentiation:

- Smaller groups for instruction of content allows for higher participation and engagement in the task.
- Students will work with the teacher and develop their skills and abilities through games, worksheets, mentals and interactive learning. These activities are differentiated to cater for the learning needs of all the students.

Assessment:

- Pre-and post-assessment, anecdotal observations

Language:

- Fractions & Decimals 1x&2: Students should be able to communicate using the following language: whole, equal parts, half, quarter, eighth, third, sixth, twelfth, fifth, tenth, hundredth, thousandth, one thousandth, fraction, numerator, denominator, mixed numeral, whole number, number line, proper fraction, improper fraction, decimal, decimal point, digit, place value, decimal places.
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