### Stage 3 Maths Program

<table>
<thead>
<tr>
<th>NSW K-10 Mathematics Syllabus Outcomes</th>
<th>Term I</th>
<th>Week 8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Addition and Subtraction (1)</strong></td>
<td><strong>Learning Goal - Addition and Subtraction</strong></td>
<td></td>
</tr>
<tr>
<td>MA3-5NA – Selects and applies appropriate strategies for addition and subtraction with counting numbers of any size</td>
<td>(refer to outcome)</td>
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<tr>
<td>- Solve word problems and record the strategy used, including problems involving money</td>
<td><strong>Success Criteria - Addition and Subtraction (refer to indicators)</strong></td>
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<tr>
<td>- Create a simple budget</td>
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<thead>
<tr>
<th>2D Space (1) – relate to Area</th>
<th>TIB - You will need to problem solve using money in real life situations. This includes: calculating your total bill at a store, how much you owe someone, or how much money you have in total. You will need to use subtraction skills to figure out how much someone owes you, or how much money you have left after you’ve been shopping. Being able to add and subtract money is very important.</th>
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</thead>
<tbody>
<tr>
<td>MA3-15MG - Manipulates, classifies and draws two-dimensional shapes, including equilateral, isosceles and scalene triangles, and describes their properties</td>
<td><strong>Learning Goal - Angles (refer to outcome)</strong></td>
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<tr>
<td>- Compare and describe side properties of the special quadrilaterals and special triangles</td>
<td><strong>Success Criteria - Angles (refer to indicators)</strong></td>
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<tr>
<td>- Classify and draw regular and irregular two-dimensional shapes from descriptions of their features</td>
<td>TIB - Understanding shapes will enable students to be more in tune to the world around them and see the connections between objects, as well as being better able to appreciate artistic works.</td>
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### Working Mathematically
- MA3-1WM - Describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions
- MA3-2WM - Selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations
- MA3-3WM - Gives a valid reason for supporting one possible solution over another

### Assessment

**Pre Test - See Attachment**

**Post Test - See Attachment**


**Homework - iMaths - Week 7 - II**
<table>
<thead>
<tr>
<th>Term –</th>
<th>Mathem atics Weekly Plan</th>
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<tbody>
<tr>
<td>Week – 1 2 3 4</td>
<td>Strands – Addition and Subtraction, 2D Shapes</td>
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<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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<tbody>
<tr>
<td><strong>Warm Up</strong></td>
<td>Maths Game</td>
<td>Ninja Maths</td>
<td>Ninja Maths</td>
<td>5 Minute Frenzy</td>
</tr>
<tr>
<td><strong>Key Ideas:</strong></td>
<td><strong>Whole Number</strong></td>
<td><strong>Data</strong></td>
<td><strong>Problem of the Day</strong></td>
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<tr>
<td><strong>Pre-Test: Addition and Subtraction:</strong> Solve each of the problems below. Show your working out:</td>
<td>Matthew pays $24 each month for a health club membership. What is the total yearly amount to be budgeted for the membership?</td>
<td>Marshall spent the day at a funfair. The admission ticket cost $6.48, and Marshall spent $8.67 on food. How much did Marshall spend in altogether?</td>
<td>Vicky spends $3.68 on her morning coffee. How much change will she get is she pays with a $10 note.</td>
<td>Post-Test: Addition and Subtraction: Open Ended: Students create an addition and a subtraction money word problem and solve it using one of the strategies they have learnt this week.</td>
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<td>If a computer costs $599.98 and its price was increased by $96.87, how much is the new price?</td>
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<td>Post-Test: 2D Space: Open Ended: Students draw a quadrilateral and a triangle and classify them by their name as well as marking e.g. mark if a shape have matching parallel lines or equal sides etc.</td>
</tr>
<tr>
<td>Sara spent $256.86 on her grocery shopping this week. She paid $300.00 in cash, how much change did Sara have?</td>
<td>What is a Quadrilateral?</td>
<td>Name ONE Quadrilateral?</td>
<td></td>
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<td>Matthew pays $24 each month for a health club membership. What is the total yearly amount to be budgeted for the membership?</td>
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Alliera Carroll and Mel Reskie – Shell Cove Public School
Explicitly model how to solve addition and word problems (involving money/decimals) using mental and written strategies:

### Column Algorithm:

- **Example:** If a student has a budget of $20.00 for clothes and spends $20.00 on a T-shirt, how much is left?
  - **Solution:** $20.00 - $20.00 = $0.00

### Split Strategy:

- **Example:** If a student has $10.00 for lunch and spends $3.50 on a salad, how much is left?
  - **Solution:** $10.00 - $3.50 = $6.50

### Compensation Strategy:

- **Example:** If a student has $20.00 for lunch and spends $2.00 on a salad, how much is left?
  - **Solution:** $20.00 - $2.00 = $18.00

### Overall Cost:

- **Example:** If a student has $20.00 for lunch and spends $2.00 on a salad, how much is left?
  - **Solution:** $20.00 - $2.00 = $18.00

### Example: Finding the Cost of a Triangle

- **Question:** What is the cost of a triangle with base 3 cm and height 4 cm?
  - **Solution:** Calculate the area of the triangle using the formula: Area = 1/2 * base * height
    - **Solution:** Area = 1/2 * 3 cm * 4 cm = 6 cm²

### Classifying Triangles

- **Example:** Classify the triangle below as acute, right, or obtuse.
  - **Solution:** The triangle is acute because all angles are less than 90°.

**Summary:**

- **Introduction:** Explore the properties of triangles and classify them based on their angles and side lengths.

**Objectives:**

1. Understand the basic properties of triangles.
2. Classify triangles as acute, right, or obtuse.
3. Use trigonometric ratios to solve problems.

**Materials:**

- Ruler
- Protractor
- Triangle worksheet

**Procedure:**

1. **Explain:** Triangles are three-sided polygons with three angles and three sides.
2. **Teach:** Introduce the types of triangles based on their angles:
   - **Acute Triangle**: All angles are less than 90°.
   - **Right Triangle**: One angle is exactly 90°.
   - **Obtuse Triangle**: One angle is greater than 90°.
3. **Practice:** Use the worksheet to classify triangles and practice trigonometric ratios.

**Assessment:**

- **Homework:** Complete the triangle worksheet and review the classification rules.

**Extension:**

- Explore the properties of special right triangles (30°-60°-90° and 45°-45°-90°).

**Conclusion:**

- Recap the key concepts and review the classification rules.

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### Explicitly Teaching

**Main Focus + Language**

**Whole Class Discussion:**

- Why is it important to have a budget? How does a budget help in saving money?

**Guided Practice:**

- **Objective:** Identify and classify triangles based on their properties.

**Independent Practice:**

- **Objective:** Apply the knowledge of triangle properties to solve real-world problems.

**Review:**

- **Objective:** Summarize the key points and prepare students for the next lesson.

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**Resources:**

- [Math Is Fun - Quadrilaterals](https://www.mathsisfun.com/quadrilaterals.html)
- [Classifying Triangles](https://www.example.com/triangles)

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**Alliera Carroll and Mel Reskic – Shell Cove Public School**
<p>| Group Activities | Revision Group - Names | If groups have not finished their budgeting activity, allow them to continue. <strong>Additional Activity:</strong> Work with this group. Using a range of money word problems, work through the answers by using strategies learnt in modelling lesson (subtraction problems). Additionally, group can complete: <em>Money and Financial Mathematics Worksheets - Year 4 (must have access to Teach Starter account)</em> | Work with this group. Using a range of money word problems, work through the answers by using strategies learnt in modelling lesson (subtraction problems). Additionally, group can complete: <em>Money and Financial Mathematics Worksheets - Year 4 (must have access to Teach Starter account)</em> | 5/6M Town Groups-Based on Continuum Clusters | Work with this group. Provide students with a range of triangles already cut out. Using a ruler, work with the students to classify each triangle correctly. Students can then sketch/trace the triangle in their books and label the sides and classify it by name. |
| --- | --- | --- | --- | --- |
| Group Activities | Middle Group- Names | Students are provided with a range of money word problems (extended from Revision Group) and must solve using strategies learnt in modelling session (addition problems). | Students are provided with a range of money word problems (extended from Revision Group) and must solve using strategies learnt in modelling session (addition problems). Additionally, group can complete: <em>Money and Financial Mathematics Worksheets - Year 5 (must have access to Teach Starter account)</em> | 5/6M Town Groups-Based on Continuum Clusters | Provide this group with a range of task cards e.g. <a href="https://www.teacherspayteachers.com/Product/Classifying-Triangles-Math-Center-1828123">https://www.teacherspayteachers.com/Product/Classifying-Triangles-Math-Center-1828123</a> Students will use the answer sheet to answer each numbered task card relating to classifying triangles. If some students are ready, they can extend themselves by naming the triangle according to its angle using a protractor: <em>modelling will be required</em>. |</p>
<table>
<thead>
<tr>
<th>Group Activities</th>
<th>Main Group - Names</th>
<th>Extension</th>
<th>5/6M Town Groups - Based on Continuum Clusters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Extension: Students in this group will extend themselves by solving a range of budgeting word problems and solve in their books. Example of budgeting questions: <a href="http://www.bath.kyschools.us/userfiles/65/Classes/4640/budgeting%20follow%20up.doc">http://www.bath.kyschools.us/(userfiles/65/Classes/4640/budgeting%20follow%20up.doc</a>](<a href="http://www.bath.kyschools.us/userfiles/65/Classes/4640/budgeting%20follow%20up.doc">http://www.bath.kyschools.us/userfiles/65/Classes/4640/budgeting%20follow%20up.doc</a>)</td>
<td>This group works independently solving a range of problems using a range of strategies. Use power point slides to create task cards: <strong>Money and Financial Mathematics - Upper Years Interactive PowerPoint (must have access to Teach Starter account)</strong></td>
<td>If technology available use, otherwise this lesson provides an alternative to using technology:</td>
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<td></td>
<td><strong>Extension Question/Challenge:</strong> <a href="https://nrich.maths.org/13541">https://nrich.maths.org/13541</a> <strong>Charlie's Money</strong>  <strong>Stage: 3 Short</strong> Charlie spent 1/4 of his money on a book and then gave his brother 2/3 of what was left. He then had $9. How much money did he start off with? <strong>Solution:</strong> <a href="https://nrich.maths.org/13541/solution">https://nrich.maths.org/13541/solution</a></td>
<td>Additionally, group can complete: <strong>Money and Financial Mathematics Worksheets - Year 6 (must have access to Teach Starter account)</strong></td>
<td>Provide each student with the sheet above with 9 points. <a href="https://nrich.maths.org/2847">https://nrich.maths.org/2847</a> <strong>Right Angles</strong> <strong>Stage: 3</strong> Can you make a right-angled triangle on this peg-board by joining up three points round the edge? Can you work systematically to prove this? <strong>Extension:</strong> Provide a circle with 12 points and complete same activity:</td>
</tr>
</tbody>
</table>
|                  | **Solution:** [https://nrich.maths.org/2847/solution](https://nrich.maths.org/2847/solution) | | }
### Feedback / Exit Slip

**Feedback** –
Use the thumb method after explicit modelling to determine students understanding and where they will be placed for group activities.

**Marking Exit Slips** –
Next to each student's Exit Slip, the teacher will check students’ answers and will either write an:
- **A** = Achieved
- **N/Y** = Not Yet

**N/Y** students will become your target group.

**Students will write something that they have learnt about budgets and something they still want to know.**

**Students must use strategies learnt from today’s lesson to solve problems:**

**Revision:**
- $13.67 + $3.85
- $34.98 + $47.63
- $8732.98 + $276.87 + $63.98

**Middle:**
- $26.00 - $12.65
- $100.00 - $46.75
- $50 000 - $7 895 – 4

**Main:**
- $65.38

**Revision:**
- Using protractors, classify triangles based on their angles; acute, obtuse, right etc.
- Draw a number of triangles for a partner and they have to classify them.
- Students complete a range of Mathletics tasks sheets related to topic.

**Middle:**
- Draw a quadrilateral with 2 parallel lines.
- Draw and label a parallelogram.

**Main:**
- Draw a quadrilateral with 2 congruent sides.

### Early Finishes / Extension

**Extension Question/challenge:** [https://nrich.maths.org/13541](https://nrich.maths.org/13541)

**Charlie’s Money:** Charlie spent 1/4 of his money on a book and then gave his brother 2/3 of what was left. He then had $9. How much money did he start off with?

**Solution:** [https://nrich.maths.org/13541/solution](https://nrich.maths.org/13541/solution)

- Students complete budgets if not completed.
- Provide students with a range of catalogues. They create a simple budget by coming up with their own monthly allowance to buy the things that they want and need.
- Students create a range of money problems for a partner and they will have to solve it in their books.
- Students play ‘How much is it worth?’ using Australian money. They play with a partner and each will have the same budget. The person who creates the most words using their budget/ the closet one who spend all their budget or close to it wins: [https://www.teacherspayteachers.com/Product/How‐much‐is‐your‐word‐worth‐Australian‐Money‐1638407](https://www.teacherspayteachers.com/Product/How‐much‐is‐your‐word‐worth‐Australian‐Money‐1638407)
- Students complete a range of Mathletics tasks sheets related to topic.

### Reflection / Registration