**MATHEMATICS STAGE 3**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: | STRAND: Measurement & Geometry | **SUB-STRAND**: 2D Space 1 | **WORKING MATHEMATICALLY:**  MA3-1WM & MA3-2WM |
| **OUTCOMES**:MA3-15MG | | **Manipulates, classifies and draws two-dimensional shapes, including equilateral, isosceles and scalene triangles, and describes their properties.** | | |
| **CONTENT:** | | **Classify (three sided) two-dimensional shapes and describe their features**   * Identify and name right-angled, equilateral, isosceles and scalene triangles * Recognise that a triangle can be both right angled and isosceles or right angled and scalene * Compare and describe features of the sides of equilateral, isosceles and scalene triangles * Explore by measurement side and angle properties of equilateral, isosceles and scalene triangles | | |
| ASSESSMENT FOR LEARNING (PRE-ASSESSMENT) | | **Pre-Assessment**: Students Classify triangles and their properties from images. Click on icon or URL for assessment sheet: <http://www.gscdn.org/library/cms/13/13813.pdf> | | |
| WARM UP / DRILL | | **Board Game:** Students play ‘Travel Around the Triangle’ at  <http://deceptivelyeducational.blogspot.com.au/2013/07/types-of-triangles-board-game.html> | | |
| NEWMAN’S PROBLEM orTENS ACTIVITY | | Fred had some triangles; two right angled, three isosceles, four equilateral and three scalene.What is the total angle sum of all the triangles Fred has? | | |
| QUALITY TEACHING ELEMENTS | | **INTELLECTUAL QUALITY** | **QUALITY LEARNING ENVIRONMENT** | **SIGNIFICANCE** |
| * Deep knowledge * Deep understanding * Problematic knowledge * Higher-order thinking * Metalanguage * Substantive communication | * Explicit quality criteria * Engagement * High expectations * Social support * Students’ self-regulation * Student direction | * Background knowledge * Cultural knowledge * Knowledge integration * Inclusivity * Connectedness * Narrative |
| RESOURCES | | Maths Tracks Triangles Unit 3A (embedded to left), metalanguage signage and environmental poster display, protractors, laminated copies of Travel around the triangle. Pre-test worksheet, IWB notebook (embedded), geo-strips, worksheets on triangles (embedded), protractors and rulers | | |

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES | |
| Explicitly communicate lesson outcomes and expectations of work quality.Define and reinforce metalanguage used in the unit: triangle, right angle, equilateral, isosceles and scalene. Revise those from the previous lesson before completing the culminating computer drawing activity.  * **Pre-Test**: Classification of Triangles. See embedded file to the right.  Revise the names of angles including acute, right, obtuse, straight, reflex & revolutions: <https://www.mangahigh.com/en-au/maths_games/shape/angles/types_of_angle>  * **Teach and review** the names and properties of equilateral, isosceles and scalene triangles.   <http://www.primaryresources.co.uk/maths/powerpoint/Different_Types_of_Triangles.swf>  <http://www.mangahigh.com/en-au/maths_games/shape/triangles/types_of_triangle> Explicitly teach angle sums of triangles using the interactive resource at <http://www.mathsisfun.com/triangle.html> Use the interactive resource below to explain the correct use of instruments of measure; rulers and protractors. <http://www.mathplayground.com/measuringangles.html> Extension activity | LEARNING SEQUENCERemediationLate S2 | * **Video:** Review terms and explore names and properties of triangles at the following URL.   <http://www.youtube.com/watch?v=rdNfOmEiNzs>  Students create different triangles in various orientations and sizes using geoboards  (or Geoboard iPad app).   * **Angle Bingo:** Students revise angle types (e.g. acute, obtuse, right and straight) at:   <http://www.toonuniversity.com/6m_angle_d.html>  <http://www.echalk.co.uk/Maths/Angles/angles.swf> |
| LEARNING SEQUENCE **S3** | * **Quiz Show:** Students revise angle names and properties in quiz show format at   <http://www.math-play.com/Angles-Jeopardy/Angles-Jeopardy.html>  **NB:** Use only the classifying and measuring columns. The column ‘Angles Formed by Parallel Lines’ is an extension activity. Terms (corresponding, congruent and supplementary) will require explanation.   * **iPads / Interactive Resource:** Students complete Activity 2-Types of Triangles in EZ Geometry 5&6 or complete the Manga High Triangle Quiz at   <http://www.mangahigh.com/en-au/maths_games/shape/triangles/types_of_triangle>   * **Sorting Task:** Students recognise that a triangle can be both isosceles and right /scalene and right.   <http://www.crickweb.co.uk/ks2numeracy-shape-and-weight.html#triangles>   * **Smart Notebook:** Classifying triangles - click on icon to the left. * **Digital Protractor Tool:**–Students complete worksheet to the left, then complete the Measuring Angles Activity using the digital protractor below.   <http://www.mathplayground.com/measuringangles.html>   * **Interactive Game (Unit Revision):** Students use drag and drop to sort quadrilaterals and triangles.   <http://www.bbc.co.uk/bitesize/ks2/maths/shape_space/shapes/play/popup.shtml>   * **Investigation:** Students complete ‘Lets Investigate Triangles.’ See embedded file to the left. * **Assessment**: Pages 6 & 7, Maths Tracks Stage 3A, Unit 12. See icon to the left.   Repeat Pre-Test to gauge new learning: Pages 144 & 145, Maths Tracks Student Book A   * **Baseball Geometry Game** – Fast Finishers complete the interactive game at <http://www.infoplease.com/images/dyn/knowledgebox/sfw41507.swf> |
| LEARNING SEQUENCEExtensionLate S3 | * **Interactive Game:** Students identify angles by size to complete Roboid Angles Mission.   <http://www.bbc.co.uk/bitesize/ks2/maths/shape_space/angles/play/popup.shtml>   * **Measuring Angles:** Students use protractors, rulers, and set squares to draw and measure right-angled and isosceles or right angled and scalene triangles. * **Calculate Missing Angle Measurements:** Students determine missing angles from a range of right-angled and isosceles or right-angled and scalene triangles. Refer to notebook link on left. |
| **EVALUATION & REFLECTION** | **Student Engagement:** **Achievement of Outcomes:**  **Resources:** **Follow up:** |