**MATHEMATICS STAGE 3**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK:  | STRAND: Measurement & Geometry | **SUB-STRAND:** 2D Space 2 | **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:**  | **Identify and name parts of a circle** * Create a circle by finding points that are all the same distance from a fixed point (the centre)
* All points on a circle are equidistant from the centre
* *Identify and name parts of a circle, including the centre, radius, diameter, circumference, sector, semicircle and quadrant* *Additional content added as it was deemed necessary*
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT)  |  **Pre-Assessment:** Identify and name parts of a circle, including the centre, radius, diameter, circumference, sector, semicircle and quadrant. |
| WARM UP / DRILL | * **Parts of a circle**: Students play online game. (This explores the circle geometry properties of angles, chords, and tangents. The resource also investigates the selection of appropriate circle geometry properties in helping to determine unknowns.)

<http://www.learnalberta.ca/content/mejhm/index.html?l=0&ID1=AB.MATH.JR.SHAP&ID2=AB.MATH.JR.SHAP.CIRC&lesson=html/object_interactives/circles/use_it.html>* **Drawing and identifying parts of a circle**: As a class, identify circles around the school. Discuss the different parts of a circle and write up a diagram on the board.
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | Jane traced around a circle. It had a radius of 4.5cm. What is the diameter?  |
| 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
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| RESOURCES | Art paper, A4 paper, ropes, string, chalk, streamers, measuring tapes, worksheets, notebook file |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| Explicitly communicate lesson outcomes and work quality* **Define and reinforce metalanguage used in the unit**. *Students should be able to communicate using the following language*: **Teach and Review** the definition and meaning of the various parts of a circle such as the centre, radius, diameter, circumference, sector, semicircle and quadrant. Use notebook file to guide lesson.

* **Explore and draw** parts of a circle

<http://www.mathsisfun.com/geometry/circle.html>* **Investigation:** Students investigate that points around a circle are equidistant from the centre.

 | LEARNING SEQUENCERemediationS2 or Early S3 | * **Drawing and identifying parts of a circle:** Discuss the different parts of a circle and write up a diagram on the board. Students copy the information into their books.

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| LEARNING SEQUENCES3 | * **Group Investigation:** Organise students into groups and provide a range of materials such as ropes, string, chalk, streamers and measuring tapes to each group. Using the materials provided, students draw a large circle on the ground. Allow students time to report back to the class and question each group’s choices. After each group has presented, refer students back to the parts of a circle and ask them to label the different parts on their circle, including the centre, radius, diameter, circumference, sector, semi-circle and a quadrant.
* **Worksheets:** Label the various parts of a circle (e.g. the radius and diameter) and find their area.
* **Art Activity:** Gather various sized circles for students to trace around (jars, pencil containers, glue sticks, etc.) Give each student a sheet of A4 or art paper and get them to trace around the circles, creating an overlapping pattern that covers the entire page. Students colour each section of the circles in various colours. They can use textas, pencils or oil pastels for colouring.
* **Assessment:** Students complete a circle worksheet, labelling the various parts of a circle and finding the radius, diameter etc. of them.
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| LEARNING SEQUENCEExtension Late S3 or Early S2 | * **Extension circle activities:** Explicitly teach students how to find the area of a circle. Students complete the activities below including finding the area and shapes in a circle; circumscribing regular polygons and inscribing a square in a circle.

<http://illuminations.nctm.org/Lesson.aspx?id=2477> <http://www.bymath.com/studyguide/geo/sec/geo11.htm><http://www.education.com/study-help/article/geometry-help-inscribed-circumscribed/><http://www.mathsisfun.com/geometry/circle-area.html> |
| **EVALUATION & REFLECTION** | **Student Engagement: Achievement of Outcomes:****Resources: Follow Up:** |