**Area of Learning: MATHEMATICS — Geometry Grade 12**

**BIG IDEAS**

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| **Diagrams** are fundamental to investigating, communicating, and discovering properties and relations in geometry. |  | Finding **invariance amidst** **variation** drives geometric investigation. |  | Geometry involves creating, testing, and refining **definitions**. |  | The **proving process** begins with conjecturing, looking for counter-examples, and refining the conjecture, and the process may end with a written proof. |  | **Geometry** stories and applications vary across cultures and time. |

**Learning Standards**

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| **Curricular Competencies** | **Content** |
| *Students are expected to do the following:*  Reasoning and modelling   * Develop **thinking strategies** to solve puzzles and play games * Engage in **spatial reasoning** in a dynamic environment * Explore, **analyze**, and apply mathematical ideas using **reason**, **technology**, and **other tools** * **Estimate reasonably** and demonstrate **fluent, flexible, and strategic thinking** about number * **Model** with mathematics in **situational contexts** * **Think creatively** and with **curiosity and wonder** when exploring problems   Understanding and solving   * Develop, demonstrate, and apply conceptual understanding of mathematical ideas through play, story, **inquiry**, and problem solving * **Visualize** to explore and illustrate geometric concepts and relationships * Apply **flexible and strategic approaches** to **solve problems** * Solve problems with **persistence and a positive disposition** * Engage in problem-solvingexperiences **connected** with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures | *Students are expected to know the following:*   * geometric **constructions** * **parallel and perpendicular** lines:   + **circles as tools** in constructions   + perpendicular bisector * **circle geometry** * **constructing tangents** * transformations of 2D shapes:   + **isometries**   + **non-isometric transformations** * **non-Euclidean geometries** |

**Area of Learning: MATHEMATICS — Geometry Grade 12**

**Learning Standards (continued)**

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| **Curricular Competencies** | **Content** |
| Communicating and representing   * **Explain, justify,** and evaluate geometric ideas and **decisions** in  **many ways** * **Represent** mathematical ideas in concrete, pictorial, and  symbolic forms * Use geometric vocabulary and language to contribute to **discussions**  in the classroom * Take riskswhen offering ideas in classroom **discourse**   Connecting and reflecting   * **Reflect** on geometric thinking * **Connect mathematical concepts** with each other, other areas,  and personal interests * Use **mistakes** as **opportunities to advance learning** * **Incorporate** First Peoples worldviews, perspectives, **knowledge**,  and **practices** to make connections with mathematical concepts |  |