**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**
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**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
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