BIG IDEAS

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

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-solving experiences **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**

Learning Standards (continued)

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 risks when 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	