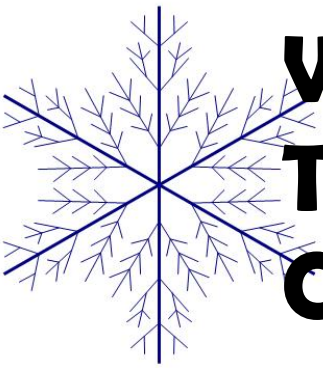

Wintry Transformational Geometry

Engage grade 7 students with ***The Geometer's Sketchpad***

Abstract:

Students use The Geometer's Sketchpad and its sketching/transformational tools to create snowflake designs that are scientifically sound and which address curriculum expectations.

Curriculum Connections:

- **7m45** (Overall) - "describe location in the four quadrants of a coordinate system, dilatate two-dimensional shapes, and **apply transformations to create** and analyse designs."
- **7m56** (Specific) - "**create** and analyse designs involving translations, reflections, dilatations, and/or simple rotations of two-dimensional shapes, using a variety of tools"
- Note: could be used by **grade 6** students (expectations specify only 90/180° rotations, but could be used by them as it involves the same tools)

Synopsis of Student Directions (attached):

Phase 1:
Create part of one branch of a snowflake

Phase 2:
Use reflection to complete the branch

Phase 3:
Use rotation to create all 6 branches of the snowflake

Phase 4:
Use properties of a rotation to tweak all 6 branches of the snowflake

Phase 5:
Use copy-paste and dilations to create a "snowstorm" of varying-size flakes