

# Graphing and Transformations – Math Grade 7

<i>What I want students to know, do and understand?</i>		
Concept(s)	Representation, system	
Big Idea	Curricular Competencies	Content
Data from circle graphs can be used to illustrate proportion and to compare and interpret.	<p><b>REASONING AND ANALYZING</b></p> <ul style="list-style-type: none"> <li>• Use logic and patterns to solve puzzles and play games</li> <li>• Use reasoning and logic to explore, analyze, and apply mathematical ideas</li> <li>• Use tools/technology to explore and create patterns and relationships, and test conjectures</li> <li>• Model mathematics in contextualized experiences</li> </ul> <p><b>UNDERSTANDING AND SOLVING</b></p> <ul style="list-style-type: none"> <li>• Apply multiple strategies to solve problems</li> <li>• Visualize to explore mathematical concepts</li> <li>• Engage in problem solving experiences that are connected to place, story, cultural practices and perspectives relevant to local First Peoples communities, the local community, and other cultures</li> </ul> <p><b>COMMUNICATING AND REPRESENTING</b></p> <ul style="list-style-type: none"> <li>• Use mathematical vocabulary and language to contribute to mathematical discussions</li> <li>• Explain and justify mathematical ideas and decisions</li> <li>• Communicate mathematical thinking in many ways</li> <li>• Represent mathematical ideas in concrete, pictorial and symbolic forms</li> </ul> <p><b>CONNECTING AND REFLECTING</b></p> <ul style="list-style-type: none"> <li>• Reflect on mathematical thinking</li> <li>• Connect mathematical concepts to each other and other areas of personal interest</li> <li>• Use mathematical arguments to support personal choices</li> <li>• Incorporate First Peoples worldviews and perspectives</li> </ul>	<ul style="list-style-type: none"> <li>• Circle graphs</li> <li>• Cartesian coordinates and graphing</li> <li>• Combinations of transformations</li> <li>• Percents</li> </ul>
<i>How will I know my students have it?</i>		
Summative Assessment		
<b>Circle Graphs</b> Connect Circle Graphs to Social and Science	<b>Cartesian Graphing and Transformations</b>	

## Graphing and Transformations – Math Grade 7

### GRASPS TASK

**Goal** – To create a circle graph that represents personal data

**Role** – A researcher/statistician for Statistics Canada

**Audience** – The Canadian Government and people

**Situation** – As a researcher for Statistics Canada, you collect data on the people who live here. While you love data and statistics, you know not everyone else does and need to create a user-friendly way of representing your data that others can understand. The other part of your job involves analyzing your data and making conclusions about it.

**Product** – conduct a survey of the people in your class, collecting demographic data. Then, represent that data in a visual way. Once you have represented your data, you will also need to analyze and interpret it, making conclusions about the population you polled.

**Differentiation** – provide circle graph templates and sentence starters to support analysis; encourage students to use multiple forms of representation for their data, beyond just circle graphs.

### GRASPS TASK –

**Goal** – create an artistic design using various transformations and the Cartesian plane. Someone else must be able to re-create it based on your instructions

**Role** – An artist

**Audience** – your patrons and customers

**Situation** – You are an artist who is interested in creating mathematical art. You are creating an artistic design, using any medium you want, that uses various transformations. As an artist, you do not make a lot of money, so you also teach art on the side, and create kits similar to ‘paint by number’ projects where people can re-create your creations, following your instructions.

**Product** – Create your own artistic design and a set of instructions that someone else could use to re-create it.

**Differentiation** – Simplify the design, use less kinds of transformations, limit transformations to less quadrants

**Indigenous connections:** plot Coast Salish shapes on Cartesian plane, discuss how transformations are used in Indigenous art  
Re-create Metis bead work using grid paper, connect to Cartesian coordinates