

Circumference, Area and Volume – Math Grade 7

<i>What I want students to know, do and understand?</i>		
Concept(s)	Relationship, space (spatial awareness), cause and effect	
Big Idea	Curricular Competencies	Content
The constant ratio between the circumference and diameter of circles can be used to describe, measure and compare spatial relationships.	<p>REASONING AND ANALYZING</p> <ul style="list-style-type: none"> • Use reasoning and logic to explore, analyze, and apply mathematical ideas • Estimate reasonably • Use tools/technology to explore and create patterns and relationships, and test conjectures <p>UNDERSTANDING AND SOLVING</p> <ul style="list-style-type: none"> • Apply multiple strategies to solve problems • Develop, demonstrate and apply mathematical understanding through play, inquiry and problem solving • Visualize to explore mathematical concepts • 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 <p>COMMUNICATING AND REPRESENTING</p> <ul style="list-style-type: none"> • Use mathematical vocabulary and language to contribute to mathematical discussions • Explain and justify mathematical ideas and decisions • Communicate mathematical thinking in many ways <p>CONNECTING AND REFLECTING</p> <ul style="list-style-type: none"> • Reflect on mathematical thinking • Connect mathematical concepts to each other and other areas of personal interest • Incorporate First Peoples worldviews and perspectives 	<ul style="list-style-type: none"> • Circumference and area of circles • Volume of rectangular prisms and cylinders • Financial literacy (see GRASPS task)
<i>How will I know my students have it?</i>		
Summative Assessment		
<p>GRASPS TASK –</p> <ul style="list-style-type: none"> • Which sized pizza boxes are needed for small, medium and large pizzas? • Which pizza restaurants have the best buy? Most pizza for the cost? • Connect to financial literacy 		

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GRASPS TASK -

Goal - comparing areas of different sized circles and connecting to the volume of a rectangular prism

Role – Owner of a Pizzeria

Audience – yourself and your customers

Situation – You own a small pizzeria and have limited storage space. You need to purchase pizza boxes for the various sizes of pizza that you make. These boxes need to take up the least amount of space in your shop. You will need to calculate the area and circumference of your various pizzas, to determine which volume of pizza boxes would be most effective for this purpose.

Product – create physical models or drawings that show the circumference and area of your various pizzas, as well as the volume of the associated pizza boxes

Differentiation – provide formula sheets as necessary, make physical models to reinforce understanding, providing scaffolding templates as needed

Indigenous connections: FNEESC Math Unit on Surface Area and Volume of Bentwood Boxes