



Course: Pre-calculus 12
Teacher: Ablett
Unit: Geometric Sequences and Series
Date: April 1 – 16 (approximately)
Duration: 2 - 3 weeks
Description: Geometric sequences and series have real-life applications, such as in finances. We will also learn how to evaluate a series with sigma notation.

	Big Ideas	Essential Questions
Understand	<i>Which Big Ideas will be the focus of this unit?</i>	<i>What questions will be guiding your students' inquiry?</i>
	Understanding the characteristics of families of functions allows us to model and understand relationships and to build connections between classes of functions.	<ul style="list-style-type: none"> • How do we decide which kind of relation to use to model a given problem? • How are exponential functions and geometric sequences related? • What do functions and relations look like beyond the visible axes? • Under what conditions can the answer for an infinite geometric series exist? • How do we tell if a mathematical solution is reasonable? • Where can errors occur when solving a contextualized problem?

	Core Competencies	Curricular Competencies
Do	<i>Choose one or more Core Competencies that will be focused on and developed in this unit:</i>	<i>Which Curricular Competencies will students learn and be assessed on in this unit?</i>
	<p>Critical and Reflective Thinking</p> <ul style="list-style-type: none"> • Analysing and critiquing • Questioning and investigating • Reflecting and assessing 	<p>Reasoning and modelling</p> <ul style="list-style-type: none"> • Explore, analyse, and apply mathematical ideas using reason • Model with mathematics in situational contexts <p>Understanding and solving</p> <p>Develop, demonstrate, and apply conceptual understanding of mathematical ideas through story, inquiry, and problem solving</p> <p>Visualize to explore and illustrate mathematical concepts and relationships</p> <p>Apply flexible and strategic approaches to solve problems</p> <p>Solve problems with persistence and a positive disposition</p> <p>Communicating and representing</p> <p>Represent mathematical ideas in concrete, pictorial, and symbolic forms</p> <p>Use mathematical vocabulary and language to contribute to discussions</p> <p>Connecting and reflecting</p> <p>Reflect on mathematical thinking</p> <p>Connect mathematical concepts</p> <p>Use mistakes as opportunities to advance learning</p>

Curricular Content	
Know	<p><i>Which Curricular Content (specific to your course) will students learn and be assessed on this unit?</i></p> <p>Geometric sequences and series:</p> <ul style="list-style-type: none"> • common ratio, first term, general term • geometric sequences connecting to exponential functions • infinite geometric series • sigma notation
	<p><i>Which activities, projects, exercises or discussions will teach this Curricular Content?</i></p> <ul style="list-style-type: none"> • Class explorations of how exponential functions relate to geometric sequences • Explore global examples of mathematical modelling • Discuss financial applications of geometric sequences and series • Consider worked examples and analyse steps

First Peoples Principles of Learning
<p><i>How will they implement the First Peoples Principles of Learning?</i></p> <p>Through class discussions, independent work and self-reflection, students will have the opportunity to reinforce the following First Peoples Principles of Learning</p> <ul style="list-style-type: none"> • Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits and the ancestors. • Learning is holistic, reflexive, reflective, experimental, and relational (focused on connectedness, on reciprocal relationships, and a sense of place). • Learning is embedded in memory, history, and story. • Learning involves patience and time.

Unit Assessment		
<p><i>For Learning: Formative Assessment</i></p> <ul style="list-style-type: none"> • whiteboard work • online quizzes and activities • check of specific questions from homework • participation in video conferences 	<p><i>As Learning: Reflection/Self-Assessment</i></p> <ul style="list-style-type: none"> • weekly self-assessments through Google Forms 	<p><i>Of Learning: Summative Assessment</i></p> <ul style="list-style-type: none"> • test

Required Resources
<p><i>What resources (textbooks, computer programmes, website subscriptions) will students need to complete this unit?</i></p> <ul style="list-style-type: none"> • Pre-Calculus 11 textbook (McGraw-Hill Ryerson), chapter 6: Rational Expressions and Equations • CEMC, University of Waterloo https://courseware.cemc.uwaterloo.ca/45 • Computer for video-conferencing • Notebook and calculator