

Probability, Statistics & Trigonometry: Sequences and Series

Stage 1 Desired Results		
ESTABLISHED GOALS: <u>Competencies:</u> - Students will demonstrate resourcefulness by evaluating and selecting the most effective tools to solve mathematical problems and deepen their understanding of concepts. - Students will demonstrate accuracy and clarity using correct mathematical terminology, specifying units of measure, and calculating with the degree of precision appropriate for the problem context. - Students will demonstrate structural awareness by discerning patterns and functional relationships within complex mathematical concepts to simplify and solve problems. - Students will demonstrate the ability to notice repetitive calculations or patterns, evaluate the reasonableness of results, and formulate general methods, formulas, or shortcuts while maintaining oversight of the process. - Students will demonstrate the ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials. - Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences. - Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style. <u>Content Standards:</u> - A.SSE.A.1.A Interpret parts of an expression, such as terms, factors, and coefficients. - F.IF.C.8.B Use the properties of exponents to interpret expressions for exponential functions. - F.BF.A.1.A Determine an explicit expression, a recursive process, or steps for calculation from a context. - F.BF.A.1.B Combine standard function types using arithmetic operations. - A.SSE.B.4 Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. - MP2 Reason abstractly and quantitatively. - MP4 Model with mathematics. - MP7 Look for and make use of structure. - MP8 Look for and express regularity in repeated reasoning.	Transfer	
	<i>Students will be able to independently use their learning to make informed decisions based upon their understanding of the patterns of numbers.</i>	
	Meaning	
	ENDURING UNDERSTANDINGS <i>Students will understand that...</i> - a constant increase or decrease applied at regular intervals always results in a linear relationship between two quantities. - a constant percent increase or decrease applied at regular intervals always results in an exponential relationship between two quantities.	ESSENTIAL QUESTIONS How do different factors alter an outcome?
	Acquisition	
	<i>Students will know...</i> - the recursive rule for an arithmetic sequence. - the recursive rule for geometric sequence. $a_n = a_1 + (n - 1)d$. $a_n = a_1 r^{n-1}$. - the formula for geometric mean. - summation notation. <i>vocabulary: arithmetic sequence, arithmetic series, geometric sequence, geometric series, geometric mean</i>	<i>Students will be skilled at...</i> - writing recursive and explicit formulas for arithmetic sequences. - calculating the sum of the first n terms of an arithmetic series. - writing recursive and explicit formulas for geometric sequences. - calculating the sum of the first n terms of a geometric series. - calculating the sum of an infinite geometric series - using induction to prove statements.

Content Area Literacy Standards		21st Century Skills
• RST.11-12.2 Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms. • RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text. • RST.11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to <i>grades 11-12 texts and topics</i>.		• <i>reason effectively</i> • <i>use systems thinking</i> • <i>apply technology effectively</i> • <i>make judgments and decisions</i> • <i>solve problems</i> • <i>access and evaluate information</i>

Stage 2 - Evidence	
<i>Evaluative Criteria</i>	<i>Assessment Evidence</i>
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

Language Arts Integration

- 1.OA.1 Use

Mathematics Integration

- 1.OA.1 Use

Technology Integration

- 1.OA.1 Use

District Materials