

Richmond Public Schools
Curriculum Framework
Algebra II

Strand: Functions	
All.5 The student will investigate and apply the properties of arithmetic and geometric sequences and series to solve practical problems, including writing the first n terms, determining the n^{th} term, and evaluating summation formulas. Notation will include \sum and a_n .	
Suggested Pacing	
3 Class Periods	
Spiraling Standards	
	MA.13-The student will determine the sum of finite and infinite convergent series.
Essential Questions	Common Misconceptions
<p>What is the difference between a series and a sequence?</p> <p>What is the difference between arithmetic and geometric sequences and series?</p> <p>What is Sigma notation (Σ)?</p> <p>What real-world situations use sequences and series?</p>	<p>students may confuse arithmetic and geometric sequences and series</p> <p>students may have difficulty identifying the common difference or common ratio</p> <p>students may evaluate formulas incorrectly</p>
Understanding the Standard	Essential Knowledge and Skills
<ul style="list-style-type: none"> Sequences and series arise from practical situations. The study of sequences and series is an application of the investigation of patterns. 	<p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> Distinguish between a sequence and a series.

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<ul style="list-style-type: none"> • A sequence is a function whose domain is the set of natural numbers. • Sequences can be defined explicitly and recursively. 	<ul style="list-style-type: none"> • Generalize patterns in a sequence using explicit and recursive formulas. • Use and interpret the notations \sum, n, n^{th} term, and a_n. • Given the formula, determine a_n (the n^{th} term) for an arithmetic or a geometric sequence. • Given formulas, write the first n terms and determine the sum, S_n, of the first n terms of an arithmetic or geometric series. • Given the formula, determine the sum of a convergent infinite series. • Model practical situations using sequences and series.
Vocabulary	Instructional Activities Organized by Learning Objective
<p>sequence, series, arithmetic, geometric, infinite, pattern, domain, natural numbers, explicit, recursive, term, convergent</p>	<p>Textbook</p> <p>Eureka Math Algebra 2 Topic E</p> <p>Algebra 2, ©2012, Price, et al, McGraw-Hill page(s) 681 - 694</p>
Assessment	
<p>Common Assessment AII.5</p>	<p>Notes</p> <p>Arithmetic and Geometric Sequences (Purplemath)</p> <p>Sequences and Series Foldable (Smartboard Exchange)</p> <p>Resources</p> <ul style="list-style-type: none"> • Print Coach book, Virginia edition, lesson 17 & 27 of chapter 3 <p>VDOE Lesson Plan AII.5</p> <ul style="list-style-type: none"> • Technology-based Sequences and Series (Khan Academy) Summation Notation (Khan Academy)

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	<p>Station Activities Name that Sequence or Series</p>
Cross-Curricular Connections	Tiered Differentiations
<p>Business and Finance-sequences, series, and summation are used in money, production, and manufacturing.</p>	<p>Tier 1- Students will be required to identify the type of sequence or series and the values of the variables to be substituted. Tier 2- Students will be given the variables to be substituted in the sequence or series but will have to identify the type of sequence. Tier 3- Students will be given which type of sequence or series is being asked to solve, along with the values for each value to be substituted.</p>