UbD Algebra 2 - Sequence and Functions

Time Frame: 11 Lessons	Unit 1: Sequence and Functions	Course Name: Algebra 2

Stage 1: Desired Results

Established Goal(s)	Transferable Skills	
Standards Addressed: **HSF-BF.A.1.a** Determine an explicit expression, a recursive process, or steps for calculation from a context. **HSF-BF.A.2** Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms. **HSF-IF.A.3** Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. **HSF-IF.B.5** Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function. **HSF-IF.C** Analyze functions using different representations. **HSF-LE.A.2** Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a	*Students will be able to independently use their learning to...* ● **apply sequences, functions, mathematical knowledge, skill, and reasoning to solve real-world problems.** ● develop clear and effective communication. ● increase self-direction. ● develop creative and practical problem-solving. ● develop informed and integrative thinking. ● students will also develop their math practices	
	Meaning	
	Understandings *Students will understand that...* ● sequences are a type of function in which the input variable is the position and the output variable is the term at that position. ● sequences can be used to model several situations represented in different ways	**Essential Questions** ● How do I represent a sequence as a linear or exponential function? ● How can you write a rule for the nth term of a sequence? ● How can you recognize an arithmetic sequence from its graph? ● How can you recognize a geometric sequence from its graph? ● How can you find the sum of an infinite geometric series?

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description of a relationship, or two input-output pairs (include reading these from a table).	Acquisition	
	Students will know... ● how to find missing terms in a geometric sequence. ● how to use a spreadsheet to create many terms of a sequence. ● how to use technology to graph a sequence. ● how to define arithmetic and geometric sequences recursively using function notation ● how to represent a sequence in different ways. ● how to represent situations with sequences. ● how to define a sequence using an equation. ● and determine the sum of a sequence representing a situation.	*Students will be able to...* ● give an example of a sequence. ● explain what it means for a sequence to be arithmetic or geometric. ● ask questions to get the information needed to represent a sequence in different ways. ● explain why different equations can represent the same sequence. Mathematical Practices: ● make sense of problems and persevere in solving them. ● reason abstractly and quantitatively. ● construct viable arguments and critique the reasoning of others. ● model with mathematics. ● use appropriate tools strategically. ● attend to precision. ● look for and make use of structure. ● look for and express regularity in repeated reasoning.