Module 1 Topic 2

Content Area: **Math**
Course(s):
Time Period: **Full Year**
Length: **9 Sessions**
Status: **Published**

Sequences

Standards

MATH.9-12.F.BF.A.1.a	Determine an explicit expression, a recursive process, or steps for calculation from a context.
MATH.9-12.F.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.
MATH.9-12.F.IF.A.3	Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers.
MATH.9-12.F.IF.B.5	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.

Learning Objectives

- Lesson 1: Students express geometric patterns, and scenarios using numeric, sequences. They then connect the, term number and terms with a table, of values and describe the growth, pattern in a sequence using a starting, value and operation. Students, recognize that sequences are, functions and describe their domain, and range. They create sequences to, fit given criteria.
- Lesson 2: Students generate additional terms in, sequences and describe their patterns., They then determine whether the, sequences are arithmetic or geometric, and identify their common difference, or common ratio. Students then match, graphs to each sequence in graphic, organizers. They create sequences, given the first term and common, difference or common ratio.
- Lesson 3: Students learn the difference between, recursive and explicit formulas, and analyze worked examples that, explain the formulas for arithmetic, and geometric sequences. They use, the formulas to generate the next, term or any term value in both types, of sequences. Students write the, recursive and explicit formulas for the, sequences in the previous lesson's, graphic organizers.
- Lesson 4: Students play a game as a, real-world situation to engage in the, mathematical modeling process., They organize their game results in a, table, use mathematics to predict the, results for an advanced version of the, game, and play the game to test their, prediction and make a mathematical, conclusion. Students then map their, thinking to the formal steps of the, mathematical modeling process.

Essential Skills

- Lesson 1: A sequence is a pattern involving an ordered arrangement of numbers, geometric, figures, letters, or other objects., • A term of a sequence is an individual number, figure, or letter in the sequence., • You can write a sequence as a function. The domain is the set of, • natural numbers., • An infinite sequence continues forever, or never ends., • A finite sequence terminates, or has an end term.

- Lesson 2: An arithmetic sequence is a sequence of numbers in which the difference between, any two consecutive terms is a constant., • A geometric sequence is a sequence of numbers in which the ratio between any two, consecutive terms is a constant., • The graph of a sequence is a set of discrete points., • The points of an arithmetic sequence lie on a line., • The points of a geometric sequence do not lie on a line.
- Lesson 3: A recursive formula expresses each new term of a sequence based on a preceding term, of the sequence., • An explicit formula for a sequence is a formula for calculating each term of the, sequence using the term's position., • Recursive and explicit formulas provide ways to determine unknown terms of a sequence.
- Lesson 4: Mathematical modeling involves noticing patterns and formulating mathematical, questions, organizing information and representing it using appropriate mathematical, notation, analyzing mathematical representations and using them to make predictions,, and then testing these predictions and interpreting the results., • You can use both recursive and explicit formulas for sequences that model situations., • You can use sequence formulas to make predictions about real-world situations.

Instructional Tasks/Activities

- Arts inspired projects
- Exit Ticket
- Formative Assessments
- Graphic Organizers
- Ladder Activity
- Mathia
- Pie Activity
- Quizizz
- Review, makeup assignments, complete missing assignments, absent work
- Stations or rotational activities
- Workbook Pages
- Worksheets

Assessment Procedure

- Exit Ticket/Entrance Ticket/Do Now
- Kahoot
- Problem Correction
- Project
- Quiz
- Review
- Rubric
- Teacher Collected Data
- Test
- Worksheet

Recommended Technology Activities

- Appropriate Content Specific Online Resource
- Chromebook
- Diffit
- Gimkit
- GoGuardian
- Google Classroom
- Google Docs
- Google Forms
- Google Slides
- Kahoot
- MagicSchool AI
- MATHia
- Online assessments
- Power Point
- Quizizz
- Screencastify

Accommodations & Modifications & Differentiation

Accommodations and Modifications should be used to meet individual needs. Their IEP and 504 plans should be used in addition to the following suggestions.

Gifted and Talented

- Compare & Contrast
- Conferencing
- Debates
- Jigsaw
- Peer Partner Learning
- Problem Solving
- Structured Controversy
- Think, Pair, Share
- Tutorial Groups

Instruction/Materials

- alter format of materials (type/highlight, etc.)
- color code materials
- eliminate answers
- extended time
- large print
- modified quiz as needed
- modified test as needed
- Modify Assignments as Needed
- Modify/Repeat/Model directions
- necessary assignments only
- Other (specify in plans)
- other- named in lesson
- provide assistance and cues for transitions
- provide daily assignment list
- read class materials orally
- reduce work load
- shorten assignments
- study guide/outline
- utilize multi-sensory modes to reinforce instruction

Environment

- alter physical room environment
- assign peer tutors/work buddies/note takers
- assign preferential seating
- individualized instruction/small group
- modify student schedule (Describe)
- other- please specify in plans
- provide desktop list/formula

Resources

- Carnegie Learning MATHbook
- Diffit
- www.KhanAcademy.com

State Mandated Topis in this Unit

State Mandated Topics Addressed in this Unit	

N/A	N/A