MYP Unit Plan Unit Title: 1 - 1 Teacher(s)	ner Patterns and Recu	rsion - <u>Advan</u>	ced Algebra II*	Time frame	
<u>Motiomeio, Don</u> <u>Mary; Razvi-Ra</u> <u>Wilmes, Mike</u>	jek, Maryam; Wal	<u>ter, Brittany;</u>	Mathematics, High School	(Week 4, 3 Weeks) 🎹 🗐	
Significant Concept (Enduring Understanding)					
Recognizing and describing patterns can help solve problems in daily life.					
Content Knowledge/ Big Ideas		Skills			
Recursion Sequences - Arithemtic, Geometric, Shifted Geometric Growth and Decay Introduce Limits Graphing Sequences Modeling through sequences - Loans, Investments		 I can identify the nth term in a sequence. I can use the recursive rule for arithmetic, geometric, and shifted geometric sequences to find a certain term. I can find the common difference in an arithmetic sequence. I can find the common ratio in a geometric sequence. I can write a recursive formula for a given arithmetic and geometric sequence. I can create a graph (with scales and labels for axes) of an arithmetic, geometric, or shifted geometric sequence. I can apply sequences to real life situations. 			
ATL Skill & Student Learning Outcome					
Organization Information Collaboration Literacy CommunicationReflection	 Thinking Applying Knowledge and Concepts Transfer Making connections 	Students knowled in series this know formulas They wil between types of	s will have backgrou ge on being able to of numbers and th wledge to writing res a lalso need to make patterns in data po series (arithmetic/	und find patterns ey will apply ecursive e connections pints and geometric).	
MYP Area of Interaction Focus	7 DP ToK Link	S			
Health and Social Education: I can take easy things that I knew before, like seeing a pattern in something, and turn it into something more.					
Unit Question (Essential Question)					
How can mathematical patterns influence our decision making?					
FROM ASSESSMENT TO TEACHING AND LEARNING ACTIVITIES THROUGH INQUIRY					
Assessment Reflections What	at MYP task will	be most app	ropriate?		

- What exemplars will students see so that they understand what is required?
- What will allow students the opportunity to answer the unit question using what they have learned?
- What considerations have you given the nature of the assessment (e.g. given in class, takehome, time allowed for completion)
- At what level of Bloom's Taxonomy does this task ask the student to engage?
- Where in the assessment task(s) are students invited to achieve at all levels of the descriptors?

<u>Assessments</u>

Chapter Test Summative: Written Test

Match Them Up Formative: Investigation

Students compare tables, rules, and graphs of arithmetic, geometric, and shifted geometric sequences.

MN Standards & IB Objectives

-Minnesota State Standards or National Standards that are being addressed

-Which MYP assessment criteria will be used?

Math, Grades 9-12, Algebra

9- Recognize linear, quadratic, exponential and other common functions in real-world and mathematical situations; represent these functions with tables, verbal descriptions, symbols and graphs; solve problems involving these functions, and explain results in the original context.

- 9.2.2.4 Express the terms in a geometric sequence recursively and by giving an explicit (closed form) formula, and express the partial sums of a geometric series recursively.
- 9.2.2.5 Recognize and solve problems that can be modeled using finite geometric sequences and series, such as home mortgage and other compound interest examples. Know how to use spreadsheets and calculators to explore geometric sequences and series in various contexts.

MYP: Mathematics (For use from Jan. 2008 or Sept. 2008), MYP Year 5, Assessment Criteria

Criterion A: Knowledge and understanding This criterion examines to what extent the student is able to:

- know and demonstrate understanding of the concepts from the five branches of mathematics (number, algebra, geometry and trigonometry, statistics and probability, and discrete mathematics)
- use appropriate mathematical concepts and skills to solve problems in both familiar and unfamiliar situations, including those in real-life contexts
- select and apply general rules correctly to solve problems, including those in real-life contexts.

Criterion B: Investigating patterns This criterion examines to what extent the student is able to:

- select and apply appropriate inquiry and mathematical problem-solving techniques
- recognize patterns
- describe patterns as relationships or general rules
- draw conclusions consistent with findings

 justify or prove mathematical relationships and general rules.

-Which MYP objectives will be addressed during this unit?

LEARNING EXPERIENCES AND TEACHING

- How will I incorporate international mindedness throughout the unit?
- How will students learn the knowledge and practice the skills required?
- How will we use formative assessment to give students feedback during the unit?
- What different teaching methodologies will we employ?
- How are we differentiating teaching and learning for all?

Learning Activities

W- Teacher will present learning targets, explain that recursive models are important because students can use them to make real world predictions, and explain that mastery is essential to succeed.

H- Students will consider several "find the pattern" puzzles.

E-Investigations

- Monitoring Inventory
- Looking for the Rebound
- Doses of Medicine
- Match Them Up
- Repeat After Me
- Life's Big Expenditures

R- Students will practice, work collaberatively, and be given the opportunity to ask questions.

E- Students will complete a unit exam to demonstrate mastery of learning targets (skills).

Differentiations

Within each activity, there is a focus on the need to address multiple learning styles and multiple approaches to arriving at a solution. Multiple approaches as well as different solutions (where appropriate) are celebrated and encouraged.

On assessments, students are allowed to use different methods of justification. Some students may choose to draw pictures illustrating their solution, others might write a narrative description of what they did to arrive at their solution. Others might show more mathematical symbol work in an organized fashion.

Modifications

The activities will be created in a way that addresses individual students' needs. Some students will be able to do more challenging work and therefore will be given a harder activity that goes further than the other groups. There will be two sets, one for the more challenging group, the other for the basic students.

Highest ability students are placed in accelerated math where they will get much more challenging activities.

Homework activities will be modified by selecting challenging, yet appropriate problems which will be done by lower ability students.

I				
	As appropriate, homework may not be required from students.			
	Assessments and homework are graded with ability in mind. Higher ability students are expected to generate more thoughtful and complete responses. Lower ability students are still expected to master important concepts, but less emphasis is placed on their ability to explain reasoning completely.			
	Accommodation Ideas · Visual materials to support what's being given aloud · Break large pieces of information into smaller, more manageable chunks · Bullet succinct lists when possible · Provide pictures of key ideas, concepts when possible · Lists, schedules, etc. on board · Give advanced notice of changes in schedule · Give advanced notice of classroom transitions · Show due dates for large, long-term assignments on a calendar · Use graphic organizers when possible · Use direct, short verbal cues · Provide an outline for notes · Assign student a "buddy" in the classroom to help with organization and transition · Give choices, when possible, but limit it to two or three · Limit the number of instructions that are given at one time · React calmly and give non-threatening feedback · State expected behaviors clearly and provide examples · Avoid asking "why" questions to understand student behavior · Provide a predictable classroom structure, routine · Give adequate wait time when asking questions aloud · U			
	Resources			
	Discovering Advanced Algebra - An Investigative Approach to Algebra 2 by Key Curriculum Press			
ONGOING REFLECTIONS AND EVALUATION				
Students and Teachers	Unit Reflections			
 What did we find compelling? What learner- initiated inquiries arose during the learning? From the evidence, what understandings may have been constructed? 				

- How did we deepen our understanding of AOI?
- What opportunities exist for reflection both on the unit and on our own learning?
- What, if any, extension activities arose?

Collaboration

- How successful was the collaboration with other teachers within my subject group and/or form other subject groups?
- What interdisciplinary, if any, understandings were forged with other units?

Assessment

- In what ways did the assessment task allow students to achieve at the highest descriptors?
- How are skills that were taught articulating to the next level?

Data Collection

- What data am I collecting?
- For what purpose will the data be used?

< < Previous Year

© Rubicon International 2011. All rights reserved

Last Updated: 03/01/2011 Atlas Version 7.1.1