

My Flipped Classroom

Jocelyn Hall, jhall9@schools.nyc.gov

Class Website: www.MrsHallAlgebra2.wordpress.com

Presentation: <http://bit.ly/2Dk05pM>

Agenda

1. About Me
2. Our Perspective
 - a. KWL Chart
 - b. Flipped Classroom Overview Video
3. Student Perspective
 - a. A Flipped Lesson from Start to Finish
 - b. Student Feedback
4. Teacher Perspective
 - a. A Flipped Lesson from Start to Finish
5. Revisit KWL Chart

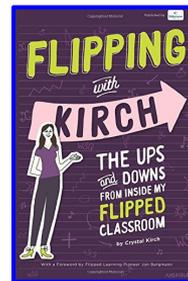
Lesson #44: The Natural Base e

Mrs. Hall
Algebra 2



About Me

- Why? AP Calculus
- How? MfA Professional Learning Team
- Biggest Influence? Crystal Kirch



My First Video

AP Calc : Absolute Extrema

<https://edpuzzle.com/media/564943850a249e772e49c917>

Find the absolute maximum and minimums of $f(x) = 8x^2 - \frac{4}{3}x^3$ on the closed interval $[-3,5]$.

$f'(x) = 16x - 4x^2$
 $0 =$

Absolute Extrema

My Most Recent Video

Algebra 2 : Simplifying and Multiplying Rational Expressions

<https://edpuzzle.com/media/5a6e3590cce27940e9499103>

Chapter 7, Section 7.3, Examples 1–4

Simplifying Rational Expressions

A **rational expression** is a fraction whose numerator and denominator are nonzero polynomials. The domain of a rational expression excludes values that make the denominator zero. A rational expression is in **simplified form** when its numerator and denominator have no common factors (other than ± 1).

Core Concept
Simplifying Rational Expressions
Let a , b , and c be expressions with $b \neq 0$ and $c \neq 0$.

Property $\frac{ac}{bc} = \frac{a}{b}$ Divide out common factor c .

Examples
 $\frac{15}{65} = \frac{3 \cdot 5}{13 \cdot 5} = \frac{3}{13}$ Divide out common factor 5.
 $\frac{3(x+3)}{(x+3)(x+2)} = \frac{3}{x+2}$ Divide out common factor $x+3$.

EXAMPLE 1 Simplifying a Rational Expression
Simplify $\frac{x^2 - 4x - 12}{x^2 - 4} = \frac{(x-6)(x+2)}{(x-2)(x+2)} = \frac{x-6}{x-2}$

① Factor Num + Den
② ÷ out common Factors
③

KWL Chart

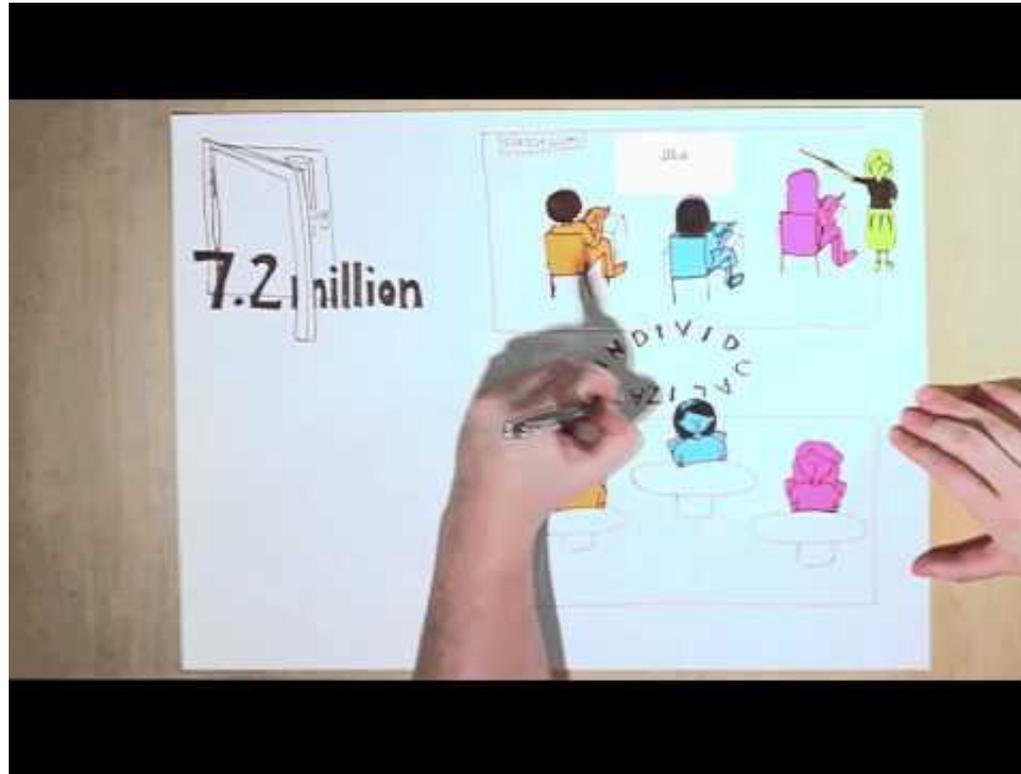
K - What do you know about Flipped Classrooms?

W - What do you want to know about Flipped Classrooms?



10:00

Flipped Classroom Overview Video



Student Experience @ Home

www.MrsHallAlgebra2.wordpress.com

At Home

- Watch Video & Take Notes

Lesson #64

Watch the Lesson #64 video (pay attention to the two check points!)

Explore the lesson resources for Lesson #64 on the website

Lesson #64: Geometric Sequences

🕒 FEBRUARY 27, 2018 🗨️ LEAVE A COMMENT

Homework – Due Wednesday, February 28

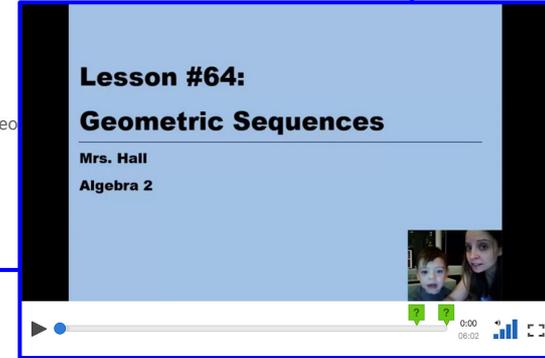
Lesson #64 Note Supplement– Take notes in your notebook OR print this paper out and take notes on this note supplement.

Lesson #64 Note Supplement Screen Shots

Lesson #64 (YouTube – link) – Watch the video

HW #64

HW #64 Solutions



10:00

Student Experience @ School

www.MrsHallAlgebra2.wordpress.com

At School

- Use the [Results of the WTQ](#) to build the Do Now
- Sample [Do Now Sheet](#)

Questions

What are some things you like from this WTQ form?

How would you adapt the WTQ form to fit your needs?

Unit 8: Sequences and Series https://mrshallalgebra2.wordpress.com/		Note Supplement
Lesson #64: Geometric Sequences		
Essential Question: How can you recognize an geometric sequence?		
Do Now [9.3/10 Try Average]		
SAT Questions		
4		4
32		
Jeremy deposited x dollars in his investment account on January 1, 2001. The amount of money in the account doubled each year until Jeremy had 489 dollars in his investment account on January 1, 2005. What is the value of x ?		
3		3
10		
A start-up company opened with 8 employees. The company's growth plan assumes that 2 new employees will be hired each quarter (every 3 months) for the first 5 years. If an equation is written in the form $y = at + b$ to represent the number of employees, y , employed by the company x quarters after the company opened, what		

Unit 8: Sequences and Series https://mrshallalgebra2.wordpress.com/		Note Supplement
Rien-Nothing		D'accord. Okay.
So instead of a difference it now becomes a ratio?		Exactly!
Where did the other little guy go?		Fired.
In order to find the first term of a geometric sequence when you are given another x and y value, can you set up a proportion (like $x/y = 1/2$, where you are given values for x and y)?		I'm not sure what you are saying. Let's look at #15 on the homework, and show me what you mean.
So would you subtract whatever is in the exponent first?		In terms of order of operations, yes.
Will I need to memorize the formulas for the SAT or SAT2s?		Out of curiosity I looked at some SATS. You aren't given these formulas. And there don't appear to be a lot of questions on sequences and series. And if they do have one it's arithmetic sequences/series.
So many formulas :(hurts my head		We're about half way through the formulas this unit
oh yeah I understand it all!!!!!!!!!!!!!! just one question... you said we don't have to memorize the geometric sequence equation since it will be given on the regent but do we have to memorize all the equations in lesson 63?		You could memorize the arithmetic series formula OR practice writing the series in summation notation to put in your calculator OR you could always add it by force
On the regents, do you think there will be a problem in which we are given a set of numbers and have to decide if it is an arithmetic or geometric sequence and write a rule for it?		You could. They LOVE to ask about geometric series which is Lesson #65.

Student Voice

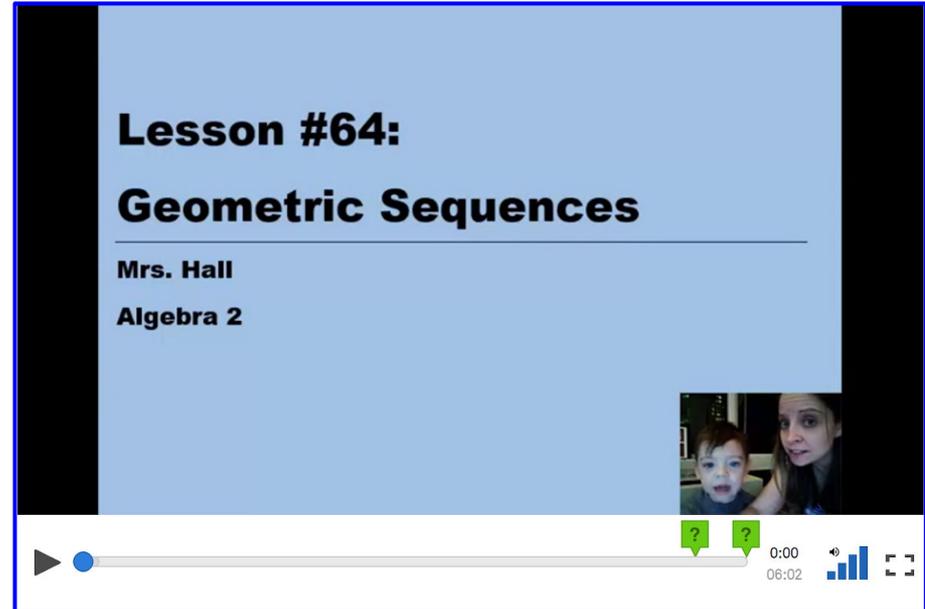
The Student Experience - Survey Results

Identify common themes in their responses.

Highlight anything surprising or significant.

A Flipped Lesson from Start to Finish

1. Make the Video
2. Upload the Video
3. Post the Online Resources
4. Build the Do Now
5. Class Time



Make the Video

- 2 - 3 Example Problem
- 1 Try Problem
- Approximately 10 minutes

Technology Used

- Laptop, iPad and Stylus
- [Camtasia](#) (~\$200)
- [Doceri](#) (~\$30)

Camtasia - Lesson43.tscproj

Media Bin

Lesson #43: Exponential Growth and Decay Functions (Exponent of a)
Essential Question: What are some of the characteristics of the graph of an exponential function?
Chapter 6, Section 6.1

Exponential Growth Model: $y = a(1+r)^t$
Exponential Decay Model: $y = a(1-r)^t$

a = initial amount
 $(1+r)/(1-r)$ = growth/decay factor
 r = % change as a decimal

Unit 8: Sequences and Series
<https://mrshallalgebra2.wordpress.com/>
Lesson #64: Geometric Sequences
Essential Question: How can you recognize an geometric sequence?
Chapter 8, Section 8.3, Examples 1-4

Note Supplement

Identifying Geometric Sequences

In a **geometric sequence**, the ratio of any term to the previous term is constant. This constant ratio is called the **common ratio** and is denoted by r .

EXAMPLE 1 Identifying Geometric Sequences

Tell whether each sequence is geometric.

a. 6, 12, 20, 30, 42, ... b. 256, 64, 16, 4, 1, ...

Writing Rules for Geometric Sequences

Core Concept

Rule for a Geometric Sequence

Algebra The n th term of a geometric sequence with first term a_1 and common ratio r is given by:

$$a_n = a_1 r^{n-1}$$

Example The n th term of a geometric sequence with a first term of 2 and a common ratio of 3 is given by:

$$a_n = 2(3)^{n-1}$$

EXAMPLE 2 Writing a Rule for the n th Term

Write a rule for the n th term of each sequence. Then find a_6 .

Upload the Video

Add Same 2 Questions

- Answer the Try
- Complete Your WTQ*

The screenshot shows the EdPuzzle interface for a lesson titled "Lesson78". The video player displays a math problem: "Try: Regents: If $\sin A = -\frac{7}{25}$ and $\angle A$ terminates in Quadrant IV, $\tan A$ equals". Below the problem are four multiple-choice options: 1) $-\frac{7}{25}$, 2) $-\frac{7}{24}$, 3) $-\frac{24}{7}$, 4) $-\frac{24}{25}$. A video thumbnail is visible in the bottom right corner of the video player. The interface includes a "Save" button, a "Finish" button, and a "You cannot answer while creating a lesson" warning. A "Continue" button and "Edit" options are also present.

Technology Used:

- [EdPuzzle](#) (free)

The screenshot shows the EdPuzzle analytics dashboard for a video titled "Henri, Ltd - Progress". The dashboard includes a "Video Views" section with a progress bar showing the number of times a student switched a video portion. The progress bar is divided into segments labeled x0, x1, x2, and x3. Below the progress bar is a "Video progress bar (time)" section with a timeline from 0:00 to 9:03. The timeline is divided into segments labeled x1, x2, x1, x1, x1, x1, x1, and x1. The dashboard also includes a "Quiz #1 at 8:35" section with a question: "Answer the Try. Enter your answer to part c." The question text is: "a. $a_1 = 500$ an = $(a_1 - D)(1 + r)^{n-1}$ + 100 b. 118 mosquitoes c. decreases until 118". Below the question is a text input field and a "Add comment" button. The dashboard also includes a "Video Watched" section with a table showing the following data:

Video Watched	Correct responses	Grade
100%	0/1	0/100

The dashboard also includes a "submitted responses: 1/1" section.

*Watch, Try, Question (WTQ)

Sample - [WTQ Google Form](#)

Sample - [WTQ Student Responses](#)

Which lesson from Unit 8 did you watch?	AVERAGE of If y
Lesson #60: Sequences	8.2
Lesson #61: Series and Summation Notation	7.8
Lesson #62: Arithmetic Sequences	8.9
Lesson #63: Sum of a Finite Arithmetic Series	7.8
Lesson #64: Geometric Sequences	8.6
Lesson #65: Sum of a Finite Geometric Series	7.4
Lesson #66: Sums of Infinite Geometric Series	7.4
Lesson #67: Recursive and Explicit Rules in Arithmetic and Geometric Sequences	7.7
Lesson #68: Writing Recursive Rules for Non-Arithmetic, and Non-Geometric Sequences	6.7
Grand Total	7.8

Unit #8 : WTQ - Watch, Try, Question

* Required

Last *
Type your last name

Your answer _____

First *
Type your first name

Your answer _____

W :: "WATCH"

The first part of the WTQ is to "Watch". Make sure you have taken good notes and used the "rewind" and "pause" buttons whenever you needed to slow down or hear something again.

Which lesson from Unit 8 did you watch? *

Lesson #60: Sequences

Lesson #61: Series and Summation Notation

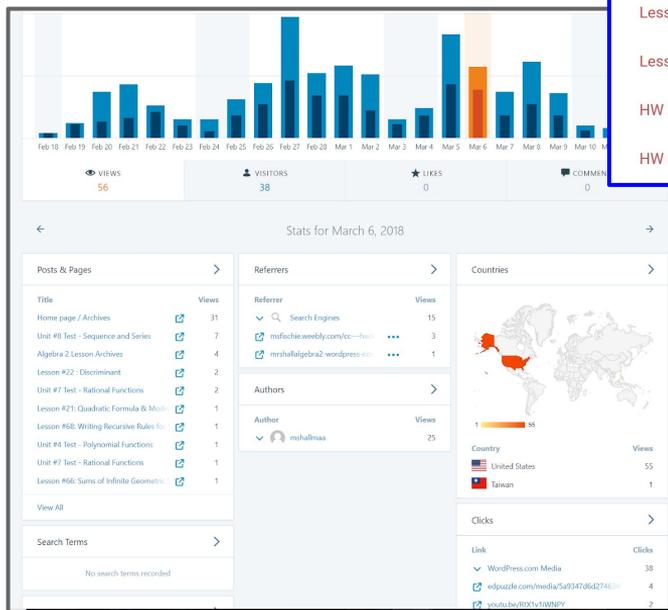
Lesson #62: Arithmetic Sequences

Post the Online Resources

- For each lesson I post the same five resources

Technology Used

- [Wordpress](#) (free*)



Lesson #64: Geometric Sequences

FEBRUARY 27, 2018 LEAVE A COMMENT

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HW #64 Solutions

Build the Do Now

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Lesson #64: Geometric Sequences
 Essential Question: How can you recognize an geometric sequence?

Do Now [9.3/10 Try Average]

SAT Questions

4 **4**

37

Jeremy deposited x dollars in his investment account on January 1, 2001. The amount of money in the account doubled each year until Jeremy had 480 dollars in his investment account on January 1, 2005. What is the value of x ?

3 **3**

19

A start-up company opened with 8 employees. The company's growth plan assumes that 2 new employees will be hired each quarter (every 3 months) for the first 5 years. If an equation is written in the form $y = ax + b$ to represent the number of employees, y , employed by the company x quarters after the company opened, what is the value of k ?

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Class Time

Teacher Packet

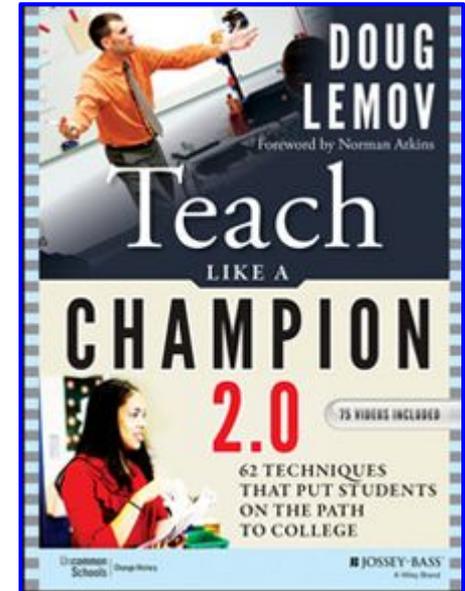
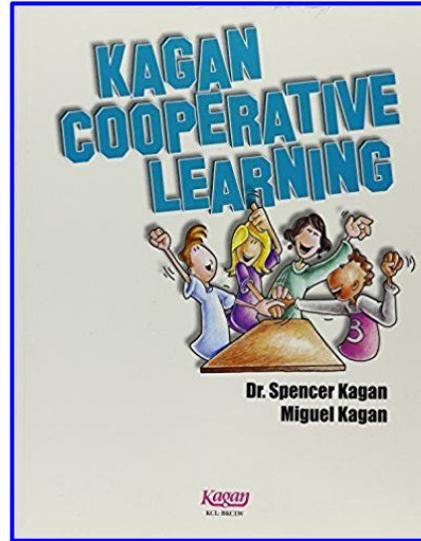
1. Do Now / Written Response
2. Screen Shots
3. WTQ Responses
4. Homework with Answers

Always

- Do Now / Written Responses
- Homework Time

Occasionally

- Sorts/Matching Activities
- Kagan Cooperative Learning - Quiz-Quiz-Trade
- Teach Like a Champion - Show Me, Big Ideas, Circulate



Revisit KWL Chart

K - What do you know about Flipped Classrooms?

W - What do you want to know about Flipped Classrooms?

L - What have you learned?



10:00

Reflection on My Flipped Journey

Year 1 - Flipped AP Calculus - [Video Library](#) | Blended Geometry - [Website](#) | [Student Video](#)

Focus - creating videos, questions embedded in the video

Summer - [Flipping with Kirch Book Club](#)



Year 2 - Flipped Algebra 2

Focus - streamlined data collection, student feedback to build the structure

Summer - [Flipped Learning Certification Level 1](#)



Year 3 - Flipped Algebra 2

Focus - use of class time, Kagan Strategies

Summer - Mastery Based Learning, [Flipped Learning Certification Level II](#)