

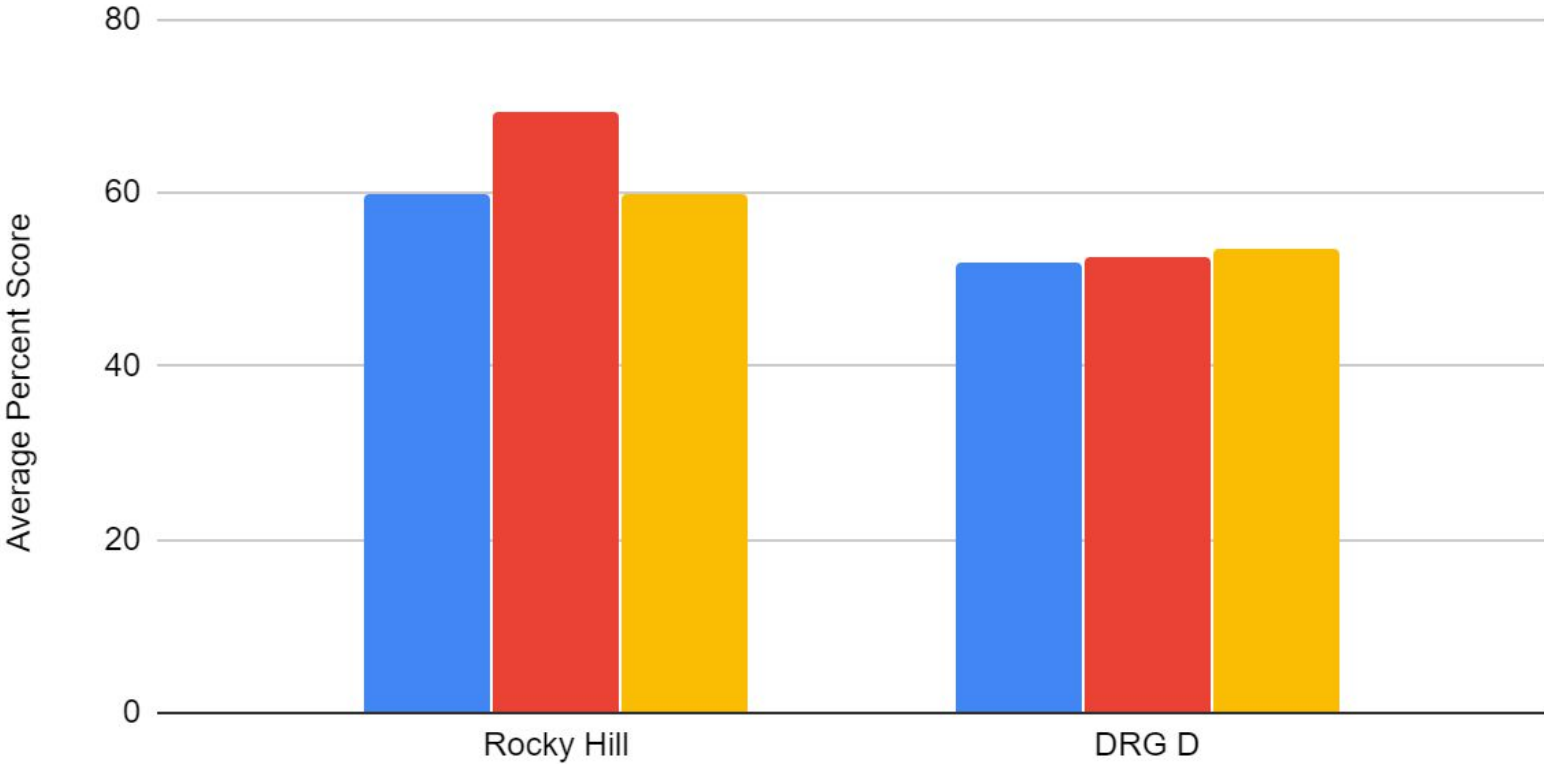
**2019-2020  
Middle School  
Mathematics  
Update**

# Highlights From 2018-2019 School Year

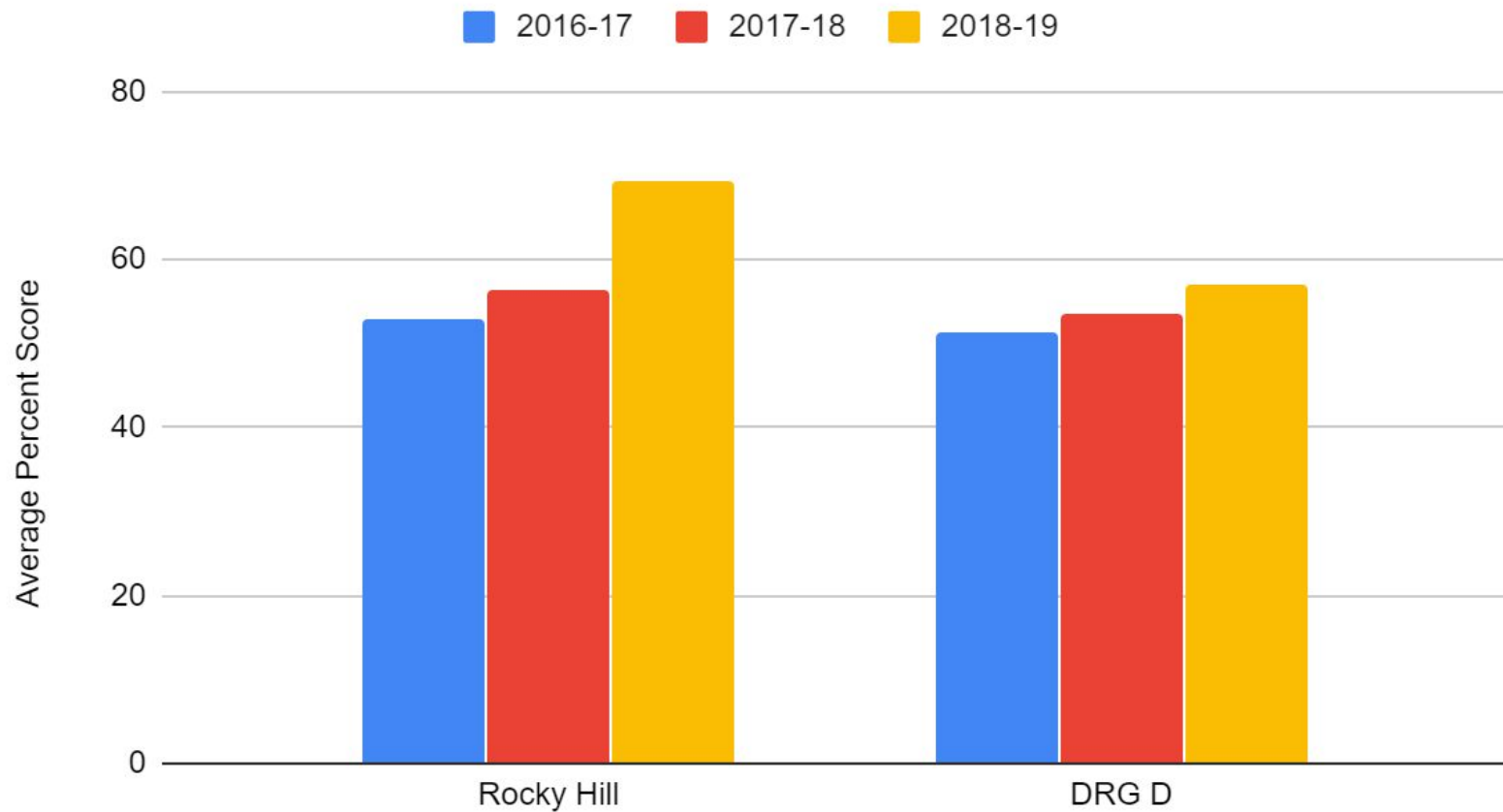
- The Board of Education Curriculum Committee met in March and June 2019 to discuss middle school mathematics instruction.
- Currently using the Glencoe Math program (courses 1-3).
- Accelerated courses begin in grade 6 (High Math), grade 7 (Pre-Algebra), and grade 8 (Algebra Honors and Academic).
- Discussion included answering Board questions which reviewed the Smarter Balanced and SAT data results for students in accelerated math courses.
- No changes were recommended.
- Discussion to be continued.

# 6th Grade Math SBAC 3-Year Trend Data

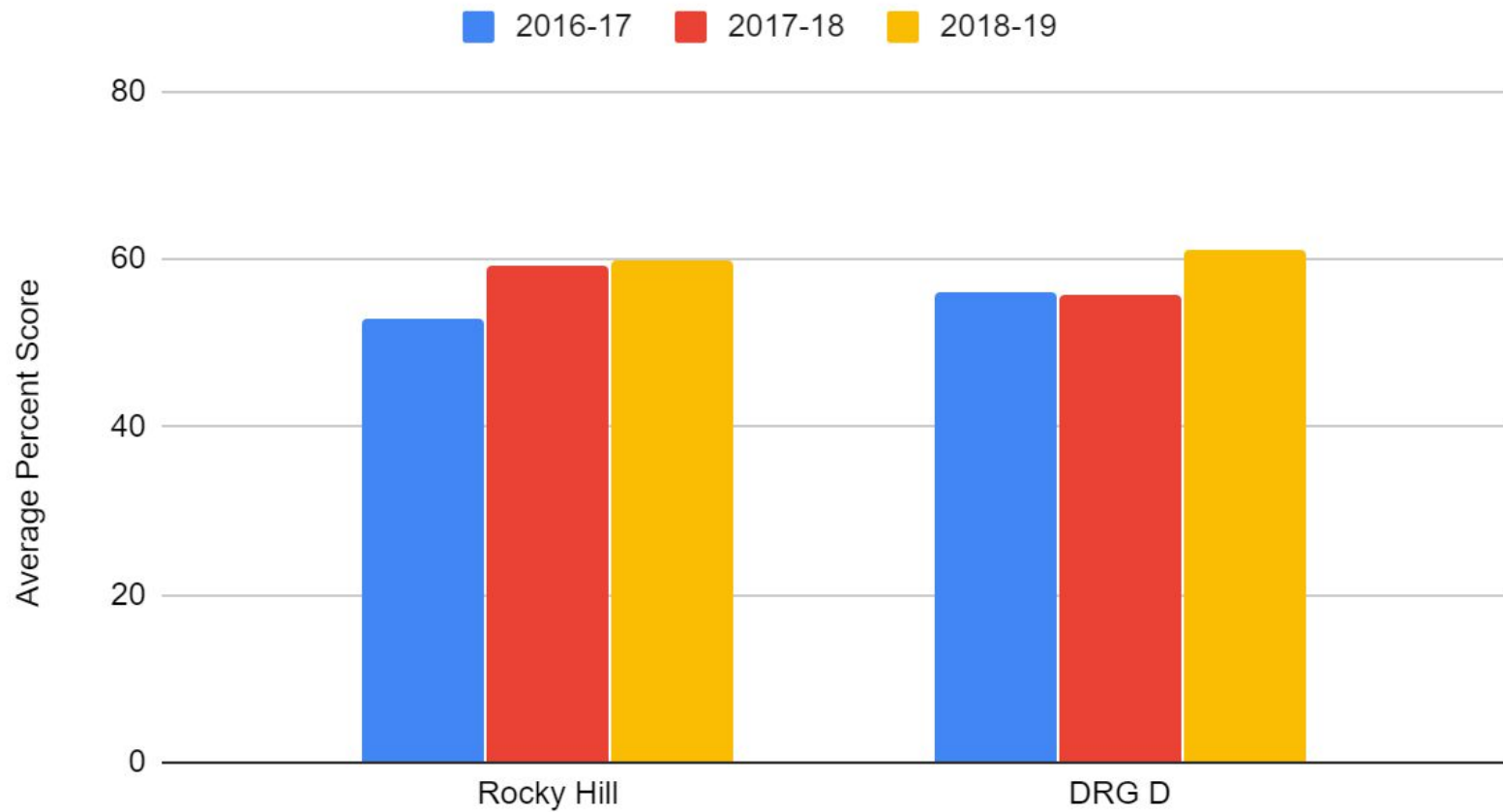
2016-17   2017-18   2018-19



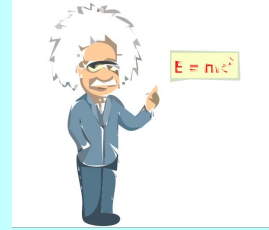
## 7th Grade Math SBAC 3-Year Trend Data



## 8th Grade Math SBAC 3-Year Trend Data



# Middle School Math Curriculum



## 2017-2018

- Contracted with an outside consultant on the Mathematical Practices for multiple days of training and coaching
- Reviewed and researched multiple math programs: Big Ideas, Engage NY, Math In Focus, Math Expressions and Illustrative Mathematics

## 2018-2019

- Selected the Illustrative Mathematics program for closer review
- Implemented small pilots of Illustrative Mathematics in grades 6-8
- Professional development on EL learners in Math
- Book study Conversations/Trainings on Number Talks, Classroom Discussions, Mathematical Mindset, and Visible Learning

## 2019-2020

- Training and professional development on Illustrative Mathematics by CREC consultant
- Piloted Illustrative Mathematics in each grade throughout the fall and winter

# What is Illustrative Mathematics

Illustrative Mathematics is a problem-based core program designed to address content and practice standards to foster learning for all. Students learn by doing math, solving problems in mathematical and real-world contexts, and constructing arguments using precise language. Teachers shift their instruction and facilitate student learning with high-leverage routines to guide students to understand and make connections between concepts and procedures.



# Illustrative Mathematics Districts

Redding/Easton

New Britain

Guilford

Middletown

Pomfort

Canton

New Hartford

Jumoke

Colebrook

Derby

West Haven

Darien

CES - Six to Six Interdistrict Magnet School

Region 1-Canaan, Cronwall, Kent, North Canaan,  
Salisbury, and Sharon

Region 4 - Chester/Deep River/Essex

Region 6 - Litchfield

Region 13 - Durham/Middlefield

Region 14 - Woodbury

Region 18 - Old Lyme

Region 16- Beacon Falls & Prospect

Ellington

Portland

CREC - Magnet Schools

Willington

Wilton

Winsted

Thomaston

Danbury

Manchester

Norwalk

Norfolk

Stratford

Vernon

Bolton

North Branford

Suffield

East Hartford

New Britain

Bristol

Seymour

South Windsor

Stafford

ACES

Region 15

Monroe

Stamford

Ridgefield

Fairfield

[DRG D Districts](#)

Old Saybrook

Clinton

East Granby

Wallingford

Southington

Berlin

Waterford

Bethel

Watertown

Shelton



# Pilot of Illustrative Mathematics



## Training and Professional Development

- Sent teachers to an all-day Illustrative Mathematics training in August 2019
- Continued training in September by CREC consultant
- Professional development sessions focused on Illustrative Math

## Implementation

- Piloted 2 units in each grade level (one in the fall and one in the winter)

## Results

- Gathered feedback from teachers and students

# To Summarize

- Reviewed the Smarter Balanced data
- Reviewed the middle school math course offerings
- Researched the use of Illustrative Math in other districts
- Researched the latest findings on middle school student learning in mathematics



# Desmos Middle School Math Program



Very recently, a new math program was released called **Desmos Middle School Math Program**.

The Desmos program:

- is created from the Illustrative Mathematics program;
- includes the use of student workbooks similar to the ones used in the current curriculum (Glencoe Mathematics); and
- includes computer-based learning activities.

# Desmos Middle School Math Program



The Desmos middle school math program includes:

- mathematical language routines (developed by Stanford University neurolinguistics);
- discussion and problem-solving (students learn by listening, but also by speaking and doing); and
- supports for students with disabilities (integrating the framework for Universal Design for Learning)

The Desmos math program allows for deeper understanding of the mathematical practice standards. The organization and structure of the program provides students with multiple opportunities to practice and extend their learning.

# Recommended Next Steps:



**Piloting Desmos Middle School Math Program** will allow us to:

- Create a blended model of Illustrative and Glencoe Math
- Differentiate learning for all students
- Challenge all learners
- Better prepare students for the rigor of high school mathematics
- Enable students to learn through their learning style including visual, auditory, verbal (linguistic), kinesthetic (physical), logical (mathematical), interpersonal (social), intrapersonal (solitary)

# Materials and Training Needed:



## Materials:

- Illustrative Math online materials - FREE
- Desmos middle school math program - Cost can be covered through existing funds (in lieu of Glencoe math workbooks)

## Professional development supports:

- Continued professional development and support from Paige Weaver
- Weekly professional development included in the purchase of the Desmos program

# Questions



# Middle School Math Courses 2019-2020 DRG D

Town	6th Grade Math			7th Grade Math			8th Grade Math		
Clinton	GR 6 Math			GR 7 Math			GR 8 Math	Algebra I	
Colchester	GR 6 Math			GR 7 Math			GR 8 Math	H Algebra I	
Stonington	GR 6 Math			GR 7 Math			GR 8 Math	H Geometry, P & S	
Shelton	GR 6 Math			GR 7 Math			Pre-Algebra	Algebra I	
Milford	GR 6 Math			GR 7 Math		Advanced	GR 8 Math	Advanced Math	
North Haven	GR 6 Math			GR 7 Math		Advanced	GR 8 Math	Algebra I	
Old Saybrook	GR 6 Math			GR 7 Math		Accelerated	GR 8 Math	H Algebra I	
Southington	GR 6 Math			GR 7 Math		Accelerated	GR 8 Math	H Algebra I	
Wethersfield	GR 6 Math			GR 7 Math		Pre-Algebra	GR 8 Math	Pre-Algebra	H Algebra I
Cromwell	GR 6 Math		Accelerated	GR 7 Math		Accelerated	GR 8 Math	Algebra I	
<i>Rocky Hill</i>	<i>GR 6 Math</i>		<i>Accelerated</i>	<i>GR 7 Math</i>		<i>Accelerated</i>	<i>GR 8 Math</i>	<i>Academic Alg I</i>	<i>H Algebra I</i>
Newington	GR 6 Math		Pre-Algebra	GR 7 Math	Advanced Math	Algebra I	GR 8 Math	Algebra I	Geometry
Berlin	Basic Math	GR 6 Math	Advanced	Pre-Alg Concepts	Pre-Algebra	H Pre-Algebra	Algebra Concepts	Algebra I	H Algebra I



## Middle School Math Courses 2019-2020 DRG B

Town	6th Grade Math		7th Grade Math			8th Grade Math		
Avon	GR 6 Math		GR 7 Math		GR 7 H Math	GR 8 Math	Honors	
Glastonbury	GR 6 Math	Accelerated	GR 7 Math		Accelerated	GR 8 Math	Transition to Alg	H Algebra I
South Windsor	GR 6 Math	Accelerated	GR 7 Math		Pre-Algebra	Pre-Algebra	H Algebra	H Geometry
Simsbury	GR 6 Math	Pre-Algebra	GR 7 Math	Pre-Algebra	Algebra I	GR 8 Math	Algebra I	Advanced Topics
Farmington	GR 6 Math	Advanced	GR 7 Math	Pre-Algebra 7	H Pre-Algebra 7	GR 8 Math	Algebra I	H Algebra

# Options for GMS Math Offerings

Option 1: Current Model - Offering Algebra Beginning in Grade 8

<b><u>6th Grade</u></b>	<b><u>7th Grade</u></b>	<b><u>8th Grade</u></b>
Accelerated 6th Grade	Accelerated 7th Grade	Honors Algebra
Core 6	Core 7	Academic Algebra
		Core 8

# Options for GMS Math Offerings

## Option 2: Three Levels Beginning in Grade 7

<u>6th Grade</u>	<u>7th Grade</u>	<u>8th Grade</u>
Accelerated 6th Grade	<b>Level 1</b> Accelerated 7th Grade	Honors Algebra
Core 6	<b>Level 2</b> Core 7	Academic Algebra
	<b>Level 3</b> Core 7	Core 8

# Options for GMS Math Offerings

## Option 3: Offering Algebra in Grade 7

<u>6th Grade</u>	<u>7th Grade</u>	<u>8th Grade</u>
Pre-Algebra	Algebra	Geometry
		Honors Algebra
Accelerated 6th Math	Pre-Algebra	Academic Algebra
Core 6th	Core 7th	Pre-Algebra/Core 8th

# Impact of Adding Algebra in an Earlier Grade

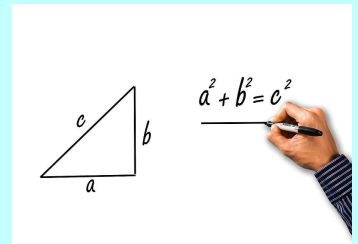
- May need to assess students at an earlier age (elementary school).
- May affect the “team” model across grades 6–8.
- May require teachers to move grade levels based on certification.
- Students currently do not receive math credit at the high school if they are not at the high school. We may want to revisit this practice for Algebra and Geometry.
- This may affect the high school math courses. We may need to offer math courses beyond calculus, possibly for college credit.

# Advantages of Adding Algebra at an Earlier

- Offers a curriculum commensurate with students' current abilities thereby allowing each student to reach his/her full potential at his/her own pace.
- Enables students with higher ability to learn at an appropriate pace.
- Enhances learning and promotes individualized instruction.
- Empowers instructors to modify teaching technique according to class level.
- Allows the district to meet the individual needs and interests of a diverse array of learners in Rocky Hill.

***“Just because a student can mimic steps shown by the teacher doesn’t ensure that he has the sophistication to deeply understand the mathematics.”***

***~ Linda Gojak***



# Next Steps and Questions

