Instructional Guide
Grade 6 – Mathematics – Module 5

This guide follows the NYSED Curriculum Map, as outlined in A Story of Ratios.
It includes references to additional lessons, activities, and resources to help you meet your students' needs.

Grade 6 Overview

Module	Date Range	Standards
M1: Ratios and Unit Rates	September 10, 2018-October 26, 2018	6.RP.1, 6.RP.2, 6.RP.3
M2: Arithmetic Operations Including Dividing by a Fraction	October 29, 2018-December 4, 2018	6.NS.1, **6.NS.2^F, 6.NS.3^F**, 6.NS.4 ^{F} = Required Fluency for Grade 6
M3: Rational Numbers	December 5, 2018-January 11, 2019	6.NS.5, 6.NS.6, 6.NS.7, 6.NS.8
M4: Expressions and Equations	January 14, 2019-March 14, 2019	6.EE.1, 6.EE.2, 6.EE.3, 6.EE.4, 6.EE.5, 6.EE.6, 6.EE.7, 6.EE.8, 6.EE.9
M5: Area, Surface Area, and Volume Problems	March 15, 2019 - May 7, 2019	6.G.1, 6.G.2, 6.G.3, 6.G.4
NYS Assessments begin toward the end of M5		
M6: Statistics	May 10, 2019-June 21, 2019	6.SP.1, 6.SP.2, 6.SP.3, 6.SP.4, 6.SP.5

Module 5 Notes:

Suggested scoring for each Mid and End of Module Assessment item is provided on the last page of each Curriculum Guide. Apply the NYS Math 2-point and 3-point holistic rubrics. These are available on the Module Resources link on the BPS Mathematics website.

"Higher order questions are those that the students cannot answer just by simple recollection or by reading the information "verbatim" from the text. Higher-order questions put advanced cognitive demand on students. They encourage students to think beyond literal questions.

Higher-order questions promote critical thinking skills because these types of questions expect students to apply, analyze, synthesize, and evaluate information instead of simply recalling facts."

https://dataworks-ed.com/blog/2014/10/higher-order-questions/

The "Application" problem in each lesson is always a higher order thinking (HOT) question.

As a follow-up to process related questions/inquiries, ask students to EXPLAIN WHY they are CHOOSING to take the expressed step, or WHY THEY ARE ABLE to take the next expressed step.

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Based on the *Next Generation Math Standards* (to be implemented in the 2020-2021), please keep the following upcoming changes in mind:

- 6.G.1 Clarification in the wording of the standard to "Find are of **triangles, trapezoids, and other polygons** by composing into rectangles or **decomposing into triangles and quadrilaterals**. Apply these techniques in the context of solving real-world and mathematical problems. Note: The inclusive definition of trapezoid will be utilized, which defines a trapezoid as "A quadrilateral with at least one pair of parallel sides." (This definition include a parallelogram)."
- 6.G.2 Clarification in the wording of the standard to "Find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems"
- 6.G.4 Clarification in the wording of the standard to include "Note: Three-dimensional figures include only right rectangular prisms, right rectangular pyramids, and right triangular prisms. When finding surface areas, all necessary measurements will be given."
- Added Standard: 6.G.5 Use area and volume models to explain perfect squares and perfect cubes.

Trend Data indicates:

5.G.1:

- BPS students performed 1% worse on the 16-17 DBA (76%) compared to the NYS Assessment (77%).
- On 2017 NYS Assessment, standard was tested as a multiple choice question.

5.G.2:

- BPS students performed 5% better on the 16-17 DBA (43%) compared to the NYS Assessment (38%).
- On 2017 NYS Assessment, standard was tested as a multiple choice question.

6.G.1:

- BPS students performed 22% worse on the 16-17 DBA (7%) compared to the NYS Assessment (25%).
- On 2017 NYS Assessment, standard was tested as 3 multiple choice questions.

6.G.2:

- BPS students performed 4% worse on the 16-17 DBA (36%) compared to the NYS Assessment (40%).
- On 2017 NYS Assessment, standard was tested as a multiple choice question and a 3-point constructed response question.

6.G.3:

- BPS students performed 31% worse on the 16-17 DBA (10%) compared to the NYS Assessment (41%).
- On 2017 NYS Assessment, standard was tested as a multiple choice question.

6.G.4:

- BPS students performed 8% worse on the 16-17 DBA (16%) compared to the NYS Assessment (24%).
- On 2017 NYS Assessment, standard was tested as 2 multiple choice questions.

Module 5: Area, Surface Area and Volume Problems
Suggested Date Range: March 15, 2019 - May 7, 2019

Module 5 is an opportunity to practice the material learned in Module 4 in the context of geometry; students apply their newly acquired capabilities with expressions and equations to solve for unknowns in area, surface area, and volume problems. They find the area of triangles and other two-dimensional figures and use the formulas to find the volumes of right rectangular prisms with fractional edge lengths. Students use negative numbers in coordinates as they draw lines and polygons in the coordinate plane. They also find the lengths of sides of figures, joining points with the same first coordinate or the same second coordinate and apply these techniques to solve real-world and mathematical problems.

Module 5 Vocabulary			
Altitude of a Triangle	Area	Area of a Rectangle	Area of a Triangle
Base	Cube	Hexagon	Net
Parallel Planes	Pentagon	Perpendicular Plane	Polygons
Prism	Right Rectangular Prism	Surface Area	Surface of a Prism
Triangular Region	Vertex (Vertices)	Volume	

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Module 5: Topics	Standards	Lessons	Approximate Date Range
A: Area of Triangles, Quadrilaterals, and Polygons	6.G.1	Lessons 1-6	3/15/19 – 3/22/19
B: Polygons on the Coordinate Plane	6.G.3	Lessons 7-10	3/25/19 – 3/28/19
Mid-Module Assessment (Topics A – B)			3/29/19 – 4/5/19
C: Volume of Right Rectangular Prisms	6.G.2	Lessons 11-14	4/11/19 – 4/15/19
D: Nets and Surface Area	6.G.2, 6.G.4	Lessons 15-19 (19a optional)	4/16/19 – 4/30/19
End-of-Module Assessment (Topics C –D)			5/6/19 – 5/7/19

Culturally and Linguistically Responsive Teaching Resources
Culturally and Linguistically Responsive Teaching (CLRT) in the Mathematics Classroom
Materials, resources, and/or discussions address diverse cultural backgrounds and real world applications
Artifacts (posters, charts etc.) in the mathematics classroom are representative of the cultures of the student population
All students are given an opportunity to engage in mathematical discussions
Teacher demonstrates high expectations for all students

Link to EngageNY scaffolding document (math):
https://www.engageny.org/resource/scaffolding-instruction-english-language-learners-resource-guides-english-language-arts-and

BPS Culturally and Linguistically Responsive Teaching Resources page:
http://www.buffaloschools.org/MathDept.cfm?subpage=127047&adminActivate=1

Additionally, please refer to the suggestions for scaffolding listed in the Module Teachers' Guide.

Possible Special Education Accommodations	
• Provide Interactive Notebook Activities • Scaffold Depth Of Knowledge questions • Modify the number of questions • Provide a peer partner • Extended time for written tasks/verbal response • Break long tasks over multiple days • Provide exemplars of performance tasks	• Use of graphic organizers to support concepts • Allow for multiple ways to respond (verbal, written response board, scribe). • Arrange seating for maximum student engagement and minimum distraction. • Video clips to build background knowledge. • Pre-teach group protocols

Standards	Additional Resources *(for Differentiation, Reinforcement, Homework, etc.)*	
HOT Tasks	*"Higher order questions are those that the students cannot answer just by simple recollection or by reading the information "verbatim" from the text. Higher-order questions put advanced cognitive demand on students. They encourage students to think beyond literal questions.* *Higher-order questions promote critical thinking skills because these types of questions expect students to apply, analyze, synthesize, and evaluate information instead of simply recalling facts."* *https://dataworks-ed.com/blog/2014/10/higher-order-questions/*	***Building Blocks*** http://www.insidemathematics.org/assets/common-core-math-tasks/building%20blocks.pdf *Content Standards: 6.G.2* *Standards of Mathematical Practice: MP.4, MP.6*

Standards		Additional Resources *(for Differentiation, Reinforcement, Homework, etc.)*	
S	6.G.1	FS Pg. 70 FL Pgs. 136 - 139 LZ: 6.G.1	KA: 6.G.1 IM: 6.G Tasks
S	6.G.2	LZ: 6.G.2 KA: 6.G.2	IM: 6.G Tasks FL Pgs. 140 – 143
S	6.G.3	LZ: 6.G.3 KA: 6.G.3	IM: 6.G Tasks FL Pgs. 148 - 151
S	6.G.4	LZ: 6.G.4 KA: 6.G.4	IM: 6.G Tasks FL Pgs. 144 - 147

Code Key	
FS = Fluency support from EngageNY **FL** = Finish Line **IM** = Illustrative Mathematics	**LZ** = LearnZillion **KA** = Khan Academy

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NYS MATHEMATICS CURRICULUM MODULE ASSESSMENT TASK
SUGGESTED SCORING INFORMATION

Mid-Module Assessment (Topics A – B) 6.G.1, 6.G.3		
Item	**2-pt holistic rubric**	**3-pt holistic rubric**
1	x	
2		X
3	x	
4		X

End-of-Module Assessment (Topics C – D) 6.G.1, 6.G.2, 6.G.3, 6.G.4			
Item	**2-pt holistic rubric**	**3-pt holistic rubric**	**Standards**
1		X	6.G.4 6.G.2
2		X	6.G.4 6.G.2
3	x		6.G.4
4	x		6.G.4
5	x		6.G.3
6	x		6.G.1