Orange Public Schools

Office of Curriculum & Instruction

2019-2020 Mathematics Curriculum Guide

5th Grade Mathematics

Eureka Math - Unit 5: Addition & Multiplication with Volume & Area

March 16, 2020 – May 4, 2020

Board Approved: 1.14.2020

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From the New Jersey Student Learning Standards:

In **Grade 5**, instructional time should focus on three critical areas: (1) developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions); (2) extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations; and (3) developing understanding of volume

(1) Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them. Students also use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)

(2) Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They finalize fluency with multi-digit addition, subtraction, multiplication, and division. They apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths efficiently and accurately.

(3) Students recognize volume as an attribute of three-dimensional space. They understand that volume can be measured by finding the total number of same-size units of volume required to fill the space without gaps or overlaps. They understand that a 1- unit by 1-unit by 1-unit cube is the standard unit for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. They measure necessary attributes of shapes in order to determine volumes to solve real world and mathematical problems.

Yearlong Pacing Guide
Grade 5

Grade	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
5	Unit 1 5.NBT	Unit 2 5.NBT		Unit 3 5.NF	Unit 4 5.NF		Unit 5 5.MD		Unit 6 5.OA & 5.G	
6	Unit 1 6.G	Unit 2 6.RP	Unit 3 6.RP	Unit 4 6.NS	Unit 5 6.NS		Unit 6 6.EE	Unit 7 6.NS	Unit 8 6.SP	
7	Unit 1 7.G	Unit 2 7.RP	Unit 3 7.G	Unit 4 7.RP	Unit 5 7.NS	Unit 6 7.EE		Unit 7 7.G	Unit 8 7.SP	
8	Unit 1 8.G	Unit 2 8.G	Unit 3 8.EE	Unit 4 8.EE	Unit 5 8.F		Unit 6 8.SP	Unit 7 8.EE	Unit 8 8.G	

Unit 1	**Number & Ops in Base Ten:** Place Value & Decimal Fractions	Unit 2	**Number & Ops in Base Ten:** Multi-Digit Whole Numbers & Decimal Fraction Operations	Unit 3	**Number & Ops-Fractions:** Addition & Subtraction of Fractions
Unit 4	**Number & Ops-Fractions:** Multiplication & Division of Fractions	Unit 5	**Measurement & Data:** Addition & Multiplication with Volume & Area	Unit 6	**Algebraic Thinking / Geometry:** Problem Solving w/ Coordinate Plane

2019-2020 Grade 5 (Eureka)					
Quarter 1		**Quarter 2**	**Quarter 3**		**Quarter 4**
Unit 1/ Mod 1	Unit 2 / Mod 2	Unit 3 / Mod 3	Unit 4 / Mod 4	Unit 5 / Mod 5	Unit 6 / Mod 6
5.NBT.3a(M) 5.NBT.3b(M) 5.NBT.4(M)	5.NBT.1(M) 5.NBT.2(M) 5.NBT.5(M) 5.NBT.6(M) 5.NBT.7(M)	5.NF.1(M) 5.NF.2(M)	5.NF.3(M) 5.NF.4a(M) 5.NF.5a(M) 5.NF.5b(M) 5.NF.6(M) 5.NF.7a(M) 5.NF.7b(M) 5.NF.7c(M)	5.NF.4b(M) 5.MD.3a(M) 5.MD.3b(M) 5.MD.4(M) 5.MD.5a(M) 5.MD.5b(M) 5.MD.5c(M)	5.OA.3(A) 5.G.1(A) 5.G.2(A)
20 Days	35 Days	22 Days	38 Days	25 Days	40 Days
Oct. 7	Dec. 4	Jan. 15	March 20	May 4	Jun. 19

Major Work Supporting Content Additional Content

Table of Contents

References

“Eureka Math” *Great Minds.* 2018 < https://greatminds.org/account/products>

I. Unit Overview

In this module, students work with two- and three-dimensional figures. Volume is introduced to students through concrete exploration of cubic units and culminates with the development of the volume formula for right rectangular prisms. The second half of the module turns to extending students' understanding of two-dimensional figures. Students combine prior knowledge of area with newly acquired knowledge of fraction multiplication to determine the area of rectangular figures with fractional side lengths. They then engage in hands-on construction of two-dimensional shapes, developing a foundation for classifying the shapes by reasoning about their attributes. This module fills a gap between Grade 4's work with two-dimensional figures and Grade 6's work with volume and area.

In Topic A, students extend their spatial structuring to three dimensions through an exploration of volume. Students come to see volume as an attribute of solid figures and understand that cubic units are used to measure it (5.MD.3). Using improvised, customary, and metric units, they build three-dimensional shapes, including right rectangular prisms, and count units to find the volume (5.MD.4). By developing a systematic approach to counting the unit cubes, students make connections between area and volume. They partition a rectangular prism into layers of unit cubes and reason that the number of unit cubes in a single layer corresponds to the number of unit squares on a face. They begin to conceptualize the layers themselves, oriented in any one of three directions, as iterated units. This understanding allows students to reason about containers formed by box templates and nets, reasonably predict the number of cubes required to fill them, and test their predictions by packing the containers.

Concrete understanding of volume and multiplicative reasoning (5.MD.3) come together in Topic B as the systematic counting from Topic A leads naturally to formulas for finding the volume of a right rectangular prism (5.MD.5). Students solidify the connection between volume as packing and volume as filling by comparing the amount of liquid that fills a container to the number of cubes that can be packed into it. This connection is formalized as students see that 1 cubic centimeter is equal to 1 milliliter. Complexity increases as students use their knowledge that volume is additive to partition and calculate the total volume of solid figures composed of non-overlapping, rectangular prisms. Word problems involving the volume of rectangular prisms with whole number edge lengths solidify understanding and give students the opportunity to reason about scaling in the context of volume. Topic B concludes with a design project that gives students the opportunity to apply the concepts and formulas they have learned throughout Topics A and B to create a sculpture of a specified volume composed of varied rectangular prisms with parameters given in the project description.

In Topic C, students extend their understanding of area as they use rulers and set squares to construct and measure rectangles with fractional side lengths and find their areas. Students apply their extensive knowledge of fraction multiplication to interpret areas of rectangles with fractional side lengths (5.NF.4b) and solve real-world problems involving these figures (5.NF.6), including reasoning about scaling through contexts in which volumes are compared. Visual models and equations are used to represent the problems through the Read-Draw-Write (RDW) protocol.

Essential Questions

- How can we apply and extend previous understanding of multiplication and division to multiply and divide fractions?
- How can we solve real world problems involving the multiplication of fractions and mixed numbers by using visual fraction models or equations to represent the problem?
- How can we recognize volume as an attribute of solid figures and understand concepts of volume and measurement?
- How can we measure volume by counting unit cubes?
- How can we relate volume to the operations of multiplication and addition and solve real world problems involving volume?
- How can we understand the attributes of two dimensional figures relating to categories and subcategories?

Enduring Understanding

- Everyday objects have a variety of attributes, each of which can be measured in many ways.
- What we measure affects how we measure it.
- Measurements can be used to describe, compare, and make sense of phenomena.
- A measurement can be converted to a different unit with the two measurements representing the same amount.
- Line plots can be helpful when analyzing data, including data on measurements.
- Volume is measured in cubic units.
- Volume is determined by the amount of cubic units that fit into a three dimensional object.
- The formula for calculating the volume of a rectangular prism is directly connected to its physical shape.

II. Pacing Guide

Activity	New Jersey State Learning Standards (NJSLS)	Estimated Time (Blocks)
Topic A: Concepts of Volume (Lessons 1 -3)	5.MD.3 ; 5.MD.4	3
Topic B- Volume and the Operations of Multiplication and Addition (Lessons 4-9)	5.MD.3 ; 5.MD.5	6
Mid- Module Assessment (Topics A-B) *Optional*	5.MD.3 ; 5.MD.4 ; 5.MD.5	½
Unit/Module 1 Return/ Remediation or Further Application	5.MD.3 ; 5.MD.4 ; 5.MD.5	1
Topic C- Area of Rectangular Figures with Fractional Side Lengths (Lessons 10-15)	5.NF.4b 5.NF.6	6
Topic D- Drawing, Analysis, and Classification of Two-Dimensional Shapes (Lessons 16-21)	5.G.3 5.G.4	6
End-of-Module Assessment (Topics A-D) *Optional*	5.G.3 5.G.4;5.MD.3 ; 5.MD.4 5.MD.5;5.NF.4b 5.NF.6	½
Unit 5 Performance Task	5.MD.3	½
Total Time		**23 1/2 Blocks**
Grade 5 Interim Assessment 3	5.NF.2; 5.NF.3; 5.NF.5; 5.NF.7a; 5.NF.7b	**1**

Major Work Supporting Content Additional Content

III. Pacing Calendar

Please complete the pacing calendar based on the suggested pacing (*see Pacing Guide on page 1)*.

MARCH

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	**2**	**3**	**4**	**5**	**6**	**7**
8	**9**	**10**	**11**	**12**	**13**	**14**
15	**16**	**17**	**18**	**19**	**20**	**21**
22	**23**	**24**	**25**	**26**	**27**	**28**
29	**30**	**31**				

Please complete the pacing calendar based on the suggested pacing (*see Pacing Guide on page 1)*.

APRIL

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

Please complete the pacing calendar based on the suggested pacing (*see Pacing Guide on page 1)*.

MAY

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

IV. NJSLA Assessment Evidence Statements

Type I Type II Type III

NJSLS	Evidence Statement	Clarification	Math Practices	Calculator ?
5.MD.3	Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.	i) Measures may include those in whole cubic cm or cubic in.	MP.7	No
5.MD.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	i) Tasks assess conceptual understanding of volume (see 5.MD.3) as applied to a specific situation—not applying a volume formula.	MP.7	No
5.MD.5b	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. b. Apply the formulas V = l × w × h and V = B × h for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.	i) Tasks are with and without contexts. ii) 50% of tasks involve use of V = l × w × h and 50% of tasks involve use of V = B × h. iii) Tasks may require students to measure to find edge lengths to the nearest cm, mm or in.	MP.5 MP.7	No
5.MD.5c	Relate the operations of multiplication and addition and solve real world and mathematical problems involving volume. c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.	i) Tasks require students to solve a contextual problem by applying the indicated concepts and skills.	MP.2 MP.5	No
5.G.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.	i) A trapezoid is defined as "A quadrilateral with at least one pair of parallel sides."	MP.5 MP.7	No

5.G.4	Classify two-dimensional figures in a hierarchy based on properties.	i) A trapezoid is defined as "A quadrilateral with at least one pair of parallel sides."	MP.5 MP.7	No
5.NF.4b	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. b. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	i) 50% of the tasks present students with the rectangle dimensions and ask students to find the area; 50% of the tasks give the factions and the product and ask students to show a rectangle to model the problem.	MP.2 MP.5	No
5.NF.6-1	Solve real world problems involving multiplication of fractions, e.g., by using visual fraction models or equations to represent the problem.	i) Tasks do not involve mixed numbers. ii) Situations include area and comparison/times as much, with product unknown. (See Table 2, Common multiplication and division situations, p. 89 of CCSS.) iii) Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy.	MP.1 MP.4 MP.5	No
5.NF.6-2	Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	i) Tasks present one or both factors in the form of a mixed number. ii) Situations include area and comparison/times as much, with product unknown. iii) Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy.	MP.1 MP.2 MP.5	No

5.C.2-3	Base explanations/reasoning on the relationship between multiplication and division. Content Scope: Knowledge and skills articulated in 5.NF.3, 5.NF.4a	-	MP.2 MP.3 MP.6 MP.7	No
5.C.4-2	Base arithmetic explanations/reasoning on concrete referents such as diagrams (whether provided in the prompt or constructed by the student in her response), connecting the diagrams to a written (symbolic) method. Content Scope: Knowledge and skills articulated in 5.NF.4b	-	MP.2 MP.3 MP.5 MP.6	No
5.C.5-2	Base explanations/reasoning on a number line diagram (whether provided in the prompt or constructed by the student in her response). Content Scope: Knowledge and skills articulated in 5.NF.4a	-	MP.3 MP 6 MP.7	No
5.D.1	Solve multi-step contextual word problems with degree of difficulty appropriate to Grade 5, requiring application of knowledge and skills articulated in Type I, Sub-Claim A Evidence Statements	-	MP.4	No

V. Differentiated Instruction

Pacing

If pacing is a challenge, consider the following modifications and omissions. Depending on students' strengths, consider consolidating Lessons 5 and 6. In Lesson 5, omit Problem 1 of the Concept Development, and move directly into renaming with the algorithm after Problem 2. Use the Problem Set from Lesson 6 for independent student practice. Consider consolidating Lessons 7 and 8 as well. Ask students to estimate the product beginning with the Concept Development of Lesson 7, and then use the Problem Set from Lesson 8 for student practice. Similarly, Lessons 11 and 12 can also be consolidated. Use estimation from the outset, and have students practice with the Problem Set from Lesson 12.

It is not recommended to omit any lessons from Topic D as it is a foundation for work later in the year. Students convert measurement units from small to large and from large to small using multiplication. This significantly expedites their understanding of and fluency with conversion and fraction multiplication as the year continues. In Lesson 14, students multiply whole numbers by unit fractions, which they learned to do in Grade 4 Module 5. If necessary, consider moving the fluency activity, "Multiply Unit Fractions," from Lesson 14 to Topic C to provide a few extra days of practice prior to beginning Lesson 14.

Scaffolds

The Common Core State Standards for Mathematics require that "all students must have the opportunity to learn and meet the same high standards if they are to access the knowledge and skills necessary in their post school lives." The writers of A Story of Units agree and feel strongly that accommodations cannot be just an extra set of resources for particular students. Instead, scaffolding must be folded into the curriculum in such a way that it is part of its very DNA. Said another way, faithful adherence to the modules IS the primary scaffolding tool.

See *III. The Common Core Approach to Differentiating Instruction (Pg. 14)* for additional information.

Use the links below for support with specific groups of learners.

Scaffolds for English Language Learners (Pg. 16-17)

Scaffolds for Students with Disabilities (Pg. 17-18)

Scaffolds for Students Performing Below Grade Level (Pg. 19)

Scaffolds for Students Performing Above Grade Level (Pg. 20)

Scaffolding Instruction for English Language Learners: A Resource Guide for Mathematics

VI. VOCABULARY

Term	Definition
Base	one face of a three-dimensional solid—often thought of as the surface on which the solid rests
Bisect	divide into two equal parts
Cubic Units	cubes of the same size used for measuring volume
Height	adjacent layers of the base that form a rectangular prism
Hierarchy	series of ordered groupings of shapes
Unit Cube	cube whose sides all measure 1 unit; cubes of the same size used for measuring volume)
Volume of solid	measurement of space or capacity

VII. Assessment Framework

Unit 5 Assessment Framework				
Assessment	**NJSLS**	**Estimated Time**	**Format**	**Graded ?**
Mid-Module Assessment (After Topic B - Optional) *Eureka Math*	5.MD.3, 5.MD.4, 5.MD.5	1 Block	Individual	Yes
End-of-Module Assessment (After Topic D - Optional) *Eureka Math*	5.MD.3, 5.MD.4, 5.MD.5., 5,G.3, 5.G.4, 5.NF.4b, 5.NF.6	1 Block	Individual	Yes
Grade 5 Interim Assessment 3 (Late March) *iReady Standards Mastery*	5.NF.2; 5.NF.3; 5.NF.5; 5.NF.7a; 5.NF.7b	1 Block	Individual	Yes

Unit 5 Performance Assessment / PBL Framework				
Assessment	**NJSLS**	**Estimated Time**	**Format**	**Graded ?**
Unit 5 Performance Task 1 (Mid April) *Carter's Candy Company*	5.MD.3	½ Block	Individual w/ Interview Opportunity	Yes; Rubric
Unit 5 Performance Task Option 1 (Optional) *Jeremy's Wall*	5.NBT.1	Teacher Discretion	Teacher Discretion	Yes, if administered
Extended Constructed Response (ECR)* (click here for access)	Dependent on unit of study & month of administration	Up to 30 minutes	Individual	Yes; Rubric

* Use the following links to access ECR protocol and district assessment scoring documents:

- *Assessment & Data in Mathematics Bulletin*
- *Extended Constructed Response Protocol*

Name _____ Block _____ Date _____

Carter's Candy Company (NJSLS 5.MD.3)

Carter's Candy Company is selling a new type of chocolate. They have decided to sell the candy in packages of 24. You are leading a team in charge of developing a box for the candy. Use unit cubes to build all of the possible boxes for the package of candy.

a) How many possibilities are there? Record the dimensions and volume of each box.

b) What do you notice about all of the volumes?

c) After determining all of the possible boxes, you must make a recommendation to the president of the company about which box should be used. Write a paragraph explaining which box would be best. Make sure to explain your reasons for choosing this box.

d) Two of your team members get in an argument about the boxes. Cathy says that a 1x24 box is the same as a 24x1 box. Curtis says that these dimensions would lead to two different boxes. Who do you agree with? Why?

5th Grade Carter's Candy Company Name: _____ Date: _____

NJSLS: 5.MD.3 Type:_____ Teacher: _____

Unit 5 Performance Task 1 PLD Rubric

SOLUTION:

a. 8 possibilities (1x24, 2x12, 3x8, 4x6 (and the reverse)).
b. The volumes are always 24 cubic units.
c. Responses vary
d. Dimensions lead to a box with the same volume.

Level 5: Distinguished Command	**Level 4: Strong Command**	**Level 3: Moderate Command**	**Level 2: Partial Command**	**Level 1: No Command**
All parts correct • Student recognizes that all the boxes will have a volume of 24. • Student identifies all the combinations that will lead to a volume of 24: 1x24, 2x12, 3x8, 4x6 (and the reverse) • Student identifies relationship between volume and linear dimensions. • Student chooses a side. Clearly constructs and communicates a complete response based on explanations/ reasoning. Response includes an **efficient** and logical progression of steps, complete justification of a conclusion with minor computational error.	All parts correct but explanation contains minor errors • Student recognizes that all the boxes will have a volume of 24. • Student identifies all the combinations that will lead to a volume of 24: 1x24, 2x12, 3x8, 4x6 (and the reverse) • Student identifies relationship between volume and linear dimensions. • Student chooses a side. Clearly constructs and communicates a complete response based on explanations/ reasoning. Response includes a **logical** progression of steps, complete justification of a conclusion with minor conceptual error.	One part incorrect • Student is able to build boxes that have a volume of 24 but may not find all of the possible combinations. • Student recognizes the connection between volume and dimensions. • Student recommends which box to use but explanation lacks detail or is unclear. • Student is unsure how to settle the argument between Cathy and Curtis. Constructs and communicates a complete response based on explanations/ reasoning using: Response includes a **logical but incomplete** progression of steps, minor calculation errors.	Two parts incorrect • Student is able to build some boxes with a volume of 24. • Student is unable to explain whether Cathy or Curtis is correct. • Student may recommend a box but it unable to use math language to justify reasoning Constructs and communicates an incomplete response based on explanations/ reasoning using: Response includes an **incomplete or illogical** progression of steps, major calculation errors.	No parts correct. The student shows no work or justification.

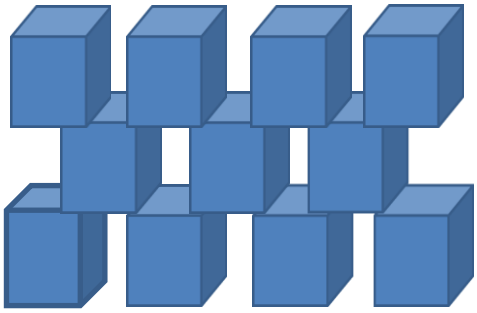
Carter's Candy Company – Scoring Guide

	Solution
a.	• Student identifies all the combinations that will lead to a volume of 24: 1x24, 2x12, 3x8, 4x6 (and the reverse)
b.	• Student identifies relationship between volume and linear dimensions.
c.	• Student chooses a side – Cathy or Curtis. Student demonstrates that both boxes have the same volume and the same dimensions. However, because of packaging and the outside of the box, and depending on how the candy is shaped and needs to be stacked, these could be considered different boxes. Allow a variety of responses, as long as student demonstrates understanding of the conept of volume.
d.	• Student's written explanation chooses a box that would be best and uses mathematical language to justify the choice.

Name _____ Block _____ Date _____

Jeremy's Wall (5.MD.3)

Jeremy is building a wall out of bricks that are cubes. He builds the bottom row by leaving some space between each brick. This is what his wall looks like:



Jeremy continues building his wall until the bottom row has 8 bricks in it and it is 5 bricks high. He fills in the space between the bricks with a special colorful plaster. Jeremy then calculates that the volume of his wall is 38 cubic units. Is Jeremy correct? Why or why not?

IX. Modifications

Special Education/ 504:	English Language Learners:
-Adhere to all modifications and health concerns stated in each IEP. -Give students a MENU options, allowing students to pick assignments from different levels based on difficulty. -Accommodate Instructional Strategies: reading aloud text, graphic organizers, one-on-one instruction, class website (Google Classroom), handouts, definition list with visuals, extended time -Allow students to demonstrate understanding of a problem by drawing the picture of the answer and then explaining the reasoning orally and/or writing , such as Read-Draw-Write -Provide breaks between tasks, use positive reinforcement, use proximity -Assure students have experiences that are on the Concrete- Pictorial- Abstract spectrum by using manipulatives -Implement supports for students with disabilities (click here) - Make use of strategies imbedded within lessons -Common Core Approach to Differentiate Instruction: Students with Disabilities (pg 17-18) - Strategies for students with 504 plans	- Use manipulatives to promote conceptual understanding and enhance vocabulary usage - Provide graphic representations, gestures, drawings, equations, realia, and pictures during all segments of instruction - During i-Ready lessons, click on “Español” to hear specific words in Spanish - Utilize graphic organizers which are concrete, pictorial ways of constructing knowledge and organizing information - Use sentence frames and questioning strategies so that students will explain their thinking/ process of how to solve word problems - Utilize program translations (if available) for L1/ L2 students - Reword questions in simpler language - Make use of the ELL Mathematical Language Routines (click here for additional information) -Scaffolding instruction for ELL Learners -Common Core Approach to Differentiate Instruction: Students with Disabilities (pg 16-17)
Gifted and Talented:	**Students at Risk for Failure:**
- Elevated contextual complexity - Inquiry based or open ended assignments and projects - More time to study concepts with greater depth - Promote the synthesis of concepts and making real world connections - Provide students with enrichment practice that are imbedded in the curriculum such as: ● Application / Conceptual Development ● Are you ready for more? - Provide opportunities for math competitions - Alternative instruction pathways available - Common Core Approach to Differentiate Instruction: Students with Disabilities (pg. 20)	- Assure students have experiences that are on the Concrete- Pictorial- Abstract spectrum - Modify Instructional Strategies, reading aloud text, graphic organizers, one-on-one instruction, class website (Google Classroom), inclusion of more visuals and manipulatives, Peer Support - Constant parental/ guardian contact - Provide academic contracts to students & guardians - Create an interactive notebook with samples, key vocabulary words, student goals/ objectives. - Plan to address students at risk in your learning tasks, instructions, and directions. Anticipate where the needs will be, then address them prior to lessons. -Common Core Approach to Differentiate Instruction: Students with Disabilities (pg 19)

21st Century Life and Career Skills:

Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.
https://www.state.nj.us/education/cccs/2014/career/9.pdf

- **CRP1**. Act as a responsible and contributing citizen and employee.
- **CRP2**. Apply appropriate academic and technical skills.
- **CRP3**. Attend to personal health and financial well-being.
- **CRP4**. Communicate clearly and effectively and with reason.
- **CRP5**. Consider the environmental, social and economic impacts of decisions.
- **CRP6**. Demonstrate creativity and innovation.
- **CRP7**. Employ valid and reliable research strategies.
- **CRP8**. Utilize critical thinking to make sense of problems and persevere in solving them.
- **CRP9**. Model integrity, ethical leadership and effective management.
- **CRP10**. Plan education and career paths aligned to personal goals.
- **CRP11**. Use technology to enhance productivity.
- **CRP12**. Work productively in teams while using cultural global competence.

Students are given an opportunity to communicate with peers effectively, clearly, and with the use of technical language. They are encouraged to reason through experiences that promote critical thinking and emphasize the importance of perseverance. Students are exposed to various mediums of technology, such as digital learning, calculators, and educational websites.

Technology Standards:

All students will be prepared to meet the challenge of a dynamic global society in which they participate, contribute, achieve, and flourish through universal access to people, information, and ideas.

https://www.state.nj.us/education/cccs/2014/tech/

8.1 Educational Technology:

All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

A. **Technology Operations and Concepts:** Students demonstrate a sound understanding of technology concepts, systems and operations.
B. **Creativity and Innovation:** Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
C. **Communication and Collaboration:** Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
D. **Digital Citizenship:** Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
E. **Research and Information Fluency:** Students apply digital tools to gather, evaluate, and use of information.
F. **Critical thinking, problem solving, and decision making:** Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming:

All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

A. **The Nature of Technology: Creativity and Innovation-** Technology systems impact every aspect of the world in which we live.
B. **Technology and Society:** Knowledge and understanding of human, cultural, and societal values are fundamental when designing technological systems and products in the global society.
C. **Design:** The design process is a systematic approach to solving problems.
D. **Abilities in a Technological World:** The designed world in a product of a design process that provides the means to convert resources into products and systems.
E. **Computational Thinking: Programming-** Computational thinking builds and enhances problem solving, allowing students to move beyond using knowledge to creating knowledge.

Interdisciplinary Connections:	
English Language Arts:	
L.5.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.
SL.5.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 5 topics and texts*, building on others' ideas and expressing their own clearly.
W.5.1	Write opinion pieces on topics or texts, supporting a point of view with reasons and information.

X. Core Instruction & Supplemental Resources

Core Instruction

EUREKA MATH V. 2019
(GREAT MINDS)

GRADE	TEACHER RESOURCES	STUDENT RESOURCES
K (v. 2019)	• **Teacher Edition: Module 1-6** • Eureka Math Teacher Resource Pack • Eureka K-5 PD Toolkit	• Learn Workbook Set: Module 1-6 • Succeed Workbook Set: Module 1-6 • Practice Workbook, Fluency: Module 1-6
1	• **Teacher Edition: Module 1-6** • Eureka Math Teacher Resource Pack • Eureka K-5 PD Toolkit	• Learn Workbook Set: Module 1-6 • Succeed Workbook Set: Module 1-6 • Practice Workbook, Fluency: Module 1-6
2	• **Teacher Edition: Module 1-8** • Eureka Math Teacher Resource Pack • Eureka K-5 PD Toolkit	• Learn Workbook Set: Module 1-8 • Succeed Workbook Set: Module 1-8 • Practice Workbook, Fluency: Module 1-8
3	• **Teacher Edition: Module 1-7** • Eureka Math Teacher Resource Pack • Eureka K-5 PD Toolkit	• Learn Workbook Set: Module 1-7 • Succeed Workbook Set: Module 1-7 • Practice Workbook, Fluency: Module 1-7
4	• **Teacher Edition: Module 1-7** • Eureka Math Teacher Resource Pack • Eureka K-5 PD Toolkit	• Learn Workbook Set: Module 1-7 • Succeed Workbook Set: Module 1-7 • Practice Workbook, Fluency: Module 1-7
5	• **Teacher Edition: Module 1-6** • Eureka Math Teacher Resource Pack • Eureka K-5 PD Toolkit	• Learn Workbook Set: Module 1-6 • Succeed Workbook Set: Module 1-6 • Practice Workbook, Fluency: Module 1-6

5 Practices for Orchestrating Productive Mathematics Discussions

Anticipate

Consider how students might mathematically interpret a problem, the array of strategies—both correct and incorrect—that they might use to tackle it, and how those strategies and interpretations might relate to the mathematical concepts, representations, procedures, and practices that you would like the students to learn.

- Solve the problem yourself first. If possible work with colleagues.
- Ask yourself the following questions:
  - What strategies have students used in the past?
  - What representations are students most likely to use?
  - What incorrect or unproductive strategies are students likely to try?
  - What things might get in the way of students being able to engage with the problem? How can you remove those barriers?
  - What questions will you ask those who struggle?

Monitor

Pay close attention to students' mathematical thinking and solution strategies as they work on the task.

- Create a list of strategies the students may produce.
- Circulate the room. Watch and listen to students as they work.
- If any students use strategies you anticipated, write their name or group number on your list.
- Ask questions that will help students make their thinking visible.
- Ask questions that will help students clarify their thinking.
- Press students to consider aspects of the task to which they need to attend.

Select

Select particular students to share their work with the rest of the class to get specific mathematics into the open for discussion. The selection of particular students and their solutions is guided by the previously anticipated strategies and your assessment of how each approach will contribute to that goal.

- Based on the previously anticipated strategies and the mathematical goal of the activity, decide which student strategies to highlight.
- Select students who will share their work with the class.

Sequence

Make purposeful choices about the order in which students' work is shared to maximize the chances of achieving the mathematical goals for the discussion.

- Based on the mathematical goal, decide on the purpose for the sequence of work. For example: least efficient to most efficient, concrete to abstract, misconceptions to conceptions, or building representations.
- Decide in which order students will present their work.

Connect

Help students draw connections between their solutions and other students' solutions as well as the key mathematical ideas in the lesson. Help students to make judgments about the consequences of different approaches for the range of problems that can be solved, one's likely accuracy and efficiency in solving them, and the kinds of mathematical patterns that can be most easily discerned. Know where you want the discussion to "land" and make choices that are likely to get you there. If necessary, you may have to demonstrate an approach that students didn't come up with themselves.

- As students share, ask questions to elicit and clarify student thinking.
- After each student shares, ask questions to connect it to previously shared work or ask a student to summarize what another student said in their own words.
- Ask students to compare and contrast strategies or representations during the discussion.
- If students did not come up with an approach that you need them to see in order for the discussion to "land," demonstrate this approach and connect it to the work that students did.

IDEAL MATH BLOCK

Whole Group Instruction	55min	INSTRUCTION (Grades 3 – 8) Daily Routine: Mathematical Content or Language Routine (7 – 10 min) Anchor Task: Anticipate, Monitor, Select, Sequence, Connect Tech Integration: Digital applets embedded within lessons designed to enhance student learning Collaborative Work* Guided Learning/Guided Practice Independent Work (Demonstration of Student Thinking) Additional Activities / Let's Practice		
Rotation Stations (Student Notebooks & Chromebooks Needed)	1-2X 30 min	STATION 1: Focus on current Grade Level Content STUDENT EXPLORATION* Independent or groups of 2-3 Emphasis on MP's 3, 6 (Reasoning and Precision) And MP's 1 & 4 (Problem Solving and Application) TOOLS/RESOURCES Practice Problems Extra Practice/Enrichment Are you ready for more? Put Your Thinking Cap On	STATION 2: Focus on Student Needs TECH STATION Independent TECH INTEGRATION iReady - *i-Ready* delivers online lessons driven by student data to provide tailored instruction that meets students where they are in their learning trajectory. Dreambox (ELL) – Adaptive online learning platform.	TEACHER STATION: Focus on Grade Level Content; heavily scaffolded to connect deficiencies TARGETED INSTRUCTION 4 – 5 Students TOOLS/ RESOURCES Homework Manipulatives Reteach Workbook Transition Guide *all students seen in 2 weeks
Closure	5 min	INSTRUCTION Exit Ticket (Demonstration of Student Thinking) TOOLS/RESOURCES Notebooks or Exit Ticket Slips		

* Promotes discourse and collaboration

Supplemental Resources

Achieve the Core

Tasks - https://achievethecore.org/category/416/mathematics-tasks

Coherence Map - https://achievethecore.org/page/1118/coherence-map

Embarc

https://embarc.online/

Engage NY

https://www.engageny.org/ccss-library/?f%5B0%5D=field_subject%253Aparents_all%3A13601

Greatminds

https://greatminds.org/math

iReady Digital Platform

https://login.i-ready.com/

Illustrative Mathematics

Content Standard Tasks - https://tasks.illustrativemathematics.org/content-standards

Practice Standard Tasks - https://tasks.illustrativemathematics.org/practice-standards

Open Up Resources - https://access.openupresources.org/sign_in

iM Additional Resources - https://bit.ly/imshare

Khan Academy

https://www.khanacademy.org/math/illustrative-math

NJDOE Digital Item Library

https://nj.digitalitemlibrary.com/home?subject=Math

Ready Teacher Toolbox

https://teacher-toolbox.com/