

Long Beach Island Consolidated School District Curriculum Guide

Original Adoption:	August 2024
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Revised on:	August 2024
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Revised on:	August 2026
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Long Beach Island Consolidated School District Fifth Grade Mathematics Curriculum	
Content Area: Mathematics	
Course Title: Elementary	Grade Level: 5
Operations and Algebraic Thinking	20 Days
Number and Operations in Base Ten	50 Days
Number and Operations - Fractions	50 Days
Measurement	25 Days
Data Literacy	15 Days

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Geometry	20 Days
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Introduction

Effective mathematics education provides students with a balanced instructional program. In such a program, students become proficient in basic computational skills and procedures, develop conceptual understandings, and become skilled at problem solving. Standards-based mathematics instruction starts with basic material and increases in scope and content as the years progress. It is like an inverted pyramid, with the entire weight of the developing subject, including readiness for algebra, resting on the foundation built in the early grades.

During the school year the fifth grade teachers will provide effective mathematics instruction with a balanced instructional program. The instruction will include the whole group, centers/stations, both independent and or teacher lead, as well as technology and student pairing of learned concepts. In such a program, students become proficient in basic computational skills and procedures, develop conceptual understandings, and become skilled at problem solving.

The curriculum is aligned to the NJSL for Mathematics. Activities outlined in this curriculum infuse the Standards for Mathematical Practice. The curriculum is aligned to the NJSL for Mathematics. Activities outlined in this curriculum infuse the Standards for Mathematical Practice. In Grade 5, instruction focuses broadly on three critical areas:

- (1) developing accuracy and efficiency 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 accuracy and efficiency with whole number and decimal operations; and
- (3) developing understanding of volume.

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Alignment with State Mandates:

The following colors are used throughout this document to indicate areas in which the curriculum is aligned with the following NJSA requirements:

- Holocaust and genocides (N.J.S.A. 18A:35-28)
- History and contributions of African-Americans (Amistad Law) (N.J.S.A. 18A:35-4.43)
- Highlight and promote diversity and inclusion (Diversity & Inclusion Law) (N.J.S.A. 18A:35-4.36a)
- History of disabled and LGBT persons included in middle and high school curriculum (Section 18A:35-4.35)
- Climate Change - to prepare students to understand how and why climate change happens, the impact it has on our local and global communities and to act in informed and sustainable ways. Please click here for specific examples (by subject).

*WIDA English Language Development Standards (N.J.S.A. 18A:35-15 to 26)

***WIDA English Language Development Standard 3** [WIDA English Language Development Standards Framework, 2020 Edition](#)

“New Jersey remains committed to supporting multilingual learners through policies and practices that promote access, equity, and academic success. The English Language Development Standards provide a framework for ensuring that multilingual learners receive the instruction and support necessary to develop English language proficiency while meeting the expectations of the New Jersey Student Learning Standards. Implementation of these standards across all content areas supports inclusive learning environments and advances New Jersey’s commitment to preparing all students for success beyond graduation. The English Language Development Standards are a shared responsibility across all content areas and support inclusive and equitable learning environments. The English Language Development standards are a foundational component of standards-aligned instruction, guiding educators in designing learning experiences that make the NJSLs accessible to all students. The English Language Development Standards are designed to be implemented by all educators who work with multilingual learners. Classroom teachers, ESL and bilingual educators, specialists, and administrators share responsibility for ensuring that multilingual learners receive appropriate linguistic and academic support. Educators are encouraged to use these resources alongside the full framework when planning instruction, identifying language expectations, and designing opportunities for multilingual learners to engage meaningfully with grade-level content. ”

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Mathematical Practices Guidance and WIDA Language Expectations

“The Standards for Mathematical Practice in the New Jersey Student Learning Standards-Mathematics (NJSL - Mathematics: [2023 Standards for Mathematical Practice](#)) describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.” The table below lists the mathematical practices, and provides suggestions and strategies along with WIDA Language Expectations for supporting students in developing mathematical thinking and problem-solving skills.

Math Practice	Guidance for Developing Mathematical Thinking	WIDA Language Expectation Focus
Make sense of problems and persevere in solving them	Understanding the problem: ● Explain the main problem and the given facts in your own words. ● State what you need to find and notice about the details. ● Describe how the numbers or items connect to each other. Planning and Strategy ● List what you already tried and steps used so far. ● Think of different ways to organize or show the information. ● Find other similar problems to help you get started. Checking and Changing ● Name the steps you are most confident with. ● Decide what to change or try next.	Explain/Inform: Describe solution pathways and unpack meaning from a problem statement.
Reason abstractly and quantitatively	Quantities and Meanings ● Understand what the numbers represent and their relationships to each other (ex. How is ___ related to ___?) ● Understand visual or written signs that stand for math ideas. Methods and Properties	Explain: Relate abstract symbols, quantities, and numerical expressions to real-world contexts

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	● Explain the math rules used to work out an answer. ● Explain why a specific tool or step was used. ● Explain whether a different rule or operation could work instead.	
Construct viable arguments and critique the reasoning of others	Evidence ● Explain the evidence that supports your answer. ● Explain how you can prove... ● Explain how you know what the problem was asking. ● Explain what didn't work and why ● Show a counter example.	Argue: Justify mathematical solutions, compare reasoning methods, and respectfully challenge peers' claims.
Model with mathematics	Modeling ● Construct a model to represent the problem. ● Explain how you can represent the quantities. ● Create an equation or expression that matches the diagram, chart, or table. ● Explain what formula might apply to the problem.	Inform/Explain: Represent mathematical relationships visually, contextually, or via equations and diagrams.
Use appropriate tools strategically	Tools ● Describe tools that can be used. ● Describe what information you have. ● Estimate. ● Determine which tool would be most helpful. ● Describe what a _____ can show that _____ may not.	Inform: Describe the choice of tools (such as graphs, calculators, or manipulatives) and how they support calculations.
Attend to precision	Precision ● Communicate math terms being used. ● Explain how your solution answers the problem ● Explain how you show the meaning of the quantities. ● Explain what symbols are important. ● Explain how you could test your solution to see if it answers the problem.	Inform: Communicate precise mathematical vocabulary, units of measure, and clear labels.

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Look for and make use of structure	Structure • Describe observations/noticings. • Describe patterns you find. • Describe what can be eliminated. • Describe how this relates to ... • Explain how this connects to other math concepts.	Explain: Describe patterns, operational properties, or structural compositions within expressions or shapes.
Look for and express regularity in repeated reasoning	• Describe what you notice. • Describe trends or rules for • Explain how you can prove... • Predict or explain to support patterns.	Explain: Generalize repeating processes and describe trends or rules using consistent language structures.

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Unit: Operations and Algebraic Thinking	Duration: 20 days
Standards/Learning Targets	
Focus Standards (Major Standards)	
New Jersey Student Learning Standards: ● 5.OA.A.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. ● 5.OA.A.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. ● 5.OA.B.3 Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.	
Supporting and Additional Standards	
Primary Interdisciplinary Connections: Infused within the unit are connections to the NJSLs for Mathematics, Language Arts Literacy ● Science- ○ 3-5-ETS1-2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. ● ELA- open ended questions, relevant read alouds related to math are used to introduce and reinforce math concepts: ○ 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.	
Computer Science and Design Thinking: ● 8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim. ● 8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data.	

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- **8.2.5.ED.2:** Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.
- **8.2.5.ED.3:** Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.
- **8.1.5.AP.1:** Compare and refine multiple algorithms for the same task and determine which is the most appropriate.

Career Readiness, Life Literacies and Key Skills:

- **9.1.5.PB.2:** Describe choices consumers have with money (e.g., save, spend, donate).
- **9.4.5.CI.3:** Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).
- **9.4.5.CT.1:** Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2).
- **9.4.5.IML.3:** Represent the same data in multiple visual formats in order to tell a story about the data.

ELD-MA.4-5.Explain.Interpretive Interpret mathematical explanations by ● Identifying concept or entity ● Analyzing problem-solving steps ● Evaluating a pattern or structure that follows a given rule ELD-MA.4-5.Explain.Expressive Construct mathematical explanations that ● Introduce concept or entity ● Share solution with others ● Describe data and/or steps to solve problem ● State reasoning used to generate solution

Evidence of Student Learning

Performance Tasks/Use of Technology:

- Conferencing/Individual Small group
- Open Ended Questions
- Observations
- Google Slide
- SMART Board activities
- Google Forms quizzes
- Peardeck slides
- Webquests
- Hyperdoc activities
- Podcast creation

Other Assessments

Formative Tasks:

- Exit slips
- Analysis of student work
- Teacher observations
- Math journals/notebooks
- Diagnostic Computer Based Reports

Summative Assessments:

- Unit Review Assessments
- Unit Associated Tests & Quizzes
- Extension Projects

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● Kahoot games ● Quizlet review ● YouTube videos ● Flipgrid activities ● Spreker recording ● www.aaamath.com ● www.aplusmath.com ● https://illuminations.nctm.org/ ● https://www.freckle.com/ ● https://happynumbers.com/ ● https://www.prodigygame.com/ ● http://www.abcya.com/	● Performance Tasks Benchmark Assessments: ● District-wide common benchmark assessments Alternative Assessments: ● Performance Tasks ● Student created models ● Written/verbal explanations ● Peer assessment ● Self-assessment
Content	Skills
Essential Questions: ● Why do you use parentheses, brackets, or braces when evaluating numerical expressions? ● How would you use words and scenarios to write and interpret numerical expressions? ● How can you determine the “ten times” or “1/10th” relationships between multi-digit numbers? ● Why use the standard algorithm to multiply 3-digit whole numbers by 1-digit whole numbers? ● Why use various methods when dividing whole number quotients with four-digit dividends and 2-digit divisors? Enduring Understandings: <i>Students will know... ” I can..... ”</i> ● Basic facts and place-value patterns can be used to find products when one factor is a multiple of 10 or a multiple of 100. ● Numbers can be represented using a base number and an exponent for powers of ten.	<i>Students will be able to..</i> ● Evaluate numerical expressions with parentheses, brackets, and braces (including expressions containing fractions and decimals) ● Use parentheses, brackets, or braces to group parts of a numerical expression ● Write simple numerical expressions from a description that record calculations with numbers ● Interpret numerical expressions to compare their values without evaluating them ● Generate two numerical patterns using two given rules ● Identify and explain apparent relationships between corresponding terms ● Form ordered pairs consisting of corresponding terms based on two patterns and graph the ordered pairs on the coordinate plane

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• Patterns can be used to mentally multiply and divide decimals by 10, 100, and 1,000. • Any number, measure, numerical expression, algebraic expression, or equation can be represented in an infinite number of ways that have the same value. • Numerical patterns can be generated based on given rule sets	Introduce concept or entity through... ■ Mathematical terms and phrases to describe concept, process, or purpose (the angles within a circle can be measured with a protractor like this) ■ Relating verbs (belong to, are part of, be, have) to define or describe concept Share solution with others through... ■ Generalized nouns to add precision to discussion (conversion, measurement, volume) ■ Language choices to reflect on completed and on-going process (we should have done this, we might be able to, what if we try) ■ First person (I, we) to describe approach; third person to describe approach with neutral stance of authority ■ Observational (notice, it appears, looks like) and comparative language (different from, similar to, the same) to share results (We notice our process was different, but we have the same solution.)
Instructional Plan	
Suggested Activities	Resources
• I Ready • Manipulatives and collections of materials • Tasks involving collaboration and problem-solving amongst the 4 operations • Multiplication/Division fact practice tasks • enVision STEM Project • Pick a Project • Vocabulary cards and activities As appropriate: • VB-Mapp • ABLLS	Illustrative Math Tasks 5.OA Math Milestones - Grade 5 Tasks Grade 5 Student Handouts Math Is Visual videos & Tasks K-5math teaching resources

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Suggested Options for Differentiation

- **Multi-Language Learners**
 - Simplify written and verbal instructions
 - Provide written directions with models and diagrams when possible
 - Build in more group work to allow ML students to interact and communicate with peers
 - Provide vocabulary ahead of time
 - Use sentence frames to give students practice with academic language
 - Pre-teach as often as possible- share videos, articles, vocabulary etc. with ML students prior to use in class
 - Utilize visual charts/cues
 - Highlight key words
 - Provide manipulatives
 - Frequently check for understanding
- **Special Education/504 Plans**
 - Follow specific students accommodations and modifications as listed in individual student IEP or 504 plan
 - Provide opportunities for movement
 - Have manipulatives and other math resources available for student use
 - Incorporate small group instruction
 - Utilize visual charts/cues
 - Facilitate successful experiences
 - Provide tutoring if needed
 - Provide positive praise to increase motivation
 - Behavior management support.
 - Adjusted class schedules or grading.
 - Extended time on tests and assignments.
 - Verbal, visual, or technology aids.
- **Gifted and Talented**
 - Differentiated assignments/projects/assessments
 - Differentiate learning pace using curriculum acceleration
 - Curriculum compacting
 - Open ended/abstract questions to activate higher level thinking
 - Alternative modes of communication
 - Student developed extension activities

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- Plan self directed inquiry
- Student created rubrics
- Opportunities to push assessment/activity boundaries
- Self centered curriculum allowing for student choice
- **Students In Need of Academic Support:**
 - Ensure child has access to all appropriate academic resources both in school and at home
 - Provide structure and adhere to a consistent daily routine with clear and concise rules
 - Facilitate successful experiences
 - Provide tutoring if needed
 - Allow students to complete assignments in school
 - Do not penalize for late or missing assignments/materials
 - Offer encouragement and understanding
 - Allow students to have personal possessions and property in school
 - Give choice to provide a sense of control
- **Economically Disadvantaged:**
 - Provide clear, achievable expectations, do not lower academic requirements for them.
 - Build a safe and nurturing atmosphere
 - Be flexible with assignments
 - Offer several alternatives from which all students can choose.
 - Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.
 - Use real-world examples and create mental models for abstract idea
 - Provide increased knowledge base and vocabulary use about real world experiences.
 - Share the decision making in class.
 - Maintain expectations while offering choice and soliciting input
- **Culturally Diverse:**
 - Involve families in student learning
 - Provide social/emotional support
 - Respect cultural traditions
 - Build in more group work to encourage interaction with peers
 - Show photos, videos, and definitions when possible for culturally unique vocabulary
 - Teach study skills
 - Provided students with necessary academic resources and materials

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- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Support verbal explanations with non verbal cues: Gestures/ facial expressions Props, realia, manipulatives, concrete materials Visuals, graphs, pictures, maps
- Provide positive praise to increase motivation
- Provide real world connections and emphasize the value of education
- Communicate high expectations for the success of all students
- Integrate the arts into learning activities

Multi-Language Learners:

- Differentiate instruction and classroom assessment as guided by the [WIDA English Language Development Standards Framework, 2020 Edition](#).
- Follow the Individualized Educational Plans (IEP) for ML Special Education (SE) students.
- Encourage the ML student to use oral language. Discussions, especially pair-work, allow students to expand language usage in listening and speaking.
- Allow MLs to clarify ideas, make sense of their previous statements and elaborate on their views with specific explanations.
- Use wait time for MLs to express their ideas in class.
- Graphic organizers, color-coded anchor charts, word walls with visual imagery, and breakdown techniques for decoding dense mathematical word problems
- Structured talk protocols (Think-Pair-Share, Numbered Talks) and word banks
- Simplify written and verbal instructions
- Provide written directions with models and diagrams when possible
- Build in more group work to allow Multilingual Learner students to interact and communicate with peers
- Provide vocabulary ahead of time
- Use sentence frames to give students practice with academic language
- Pre-teach as often as possible- share videos, articles, vocabulary etc. with Multilingual Learner students prior to use in class
- Utilize visual charts/cues
- Highlight key words
- Provide manipulatives
- Frequently check for understanding

Special Education//Students with Disabilities:

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- Follow specific students accommodations and modifications as listed in individual student IEP or 504 plan
- Provide opportunities for movement
- Have manipulatives and other math resources available for student use
- Incorporate small group instruction
- Utilize visual charts/cues
- Facilitate successful experiences
- Provide tutoring if needed

Core Instructional and Supplemental Materials

- enVision Mathematics 2020 Grade 5 Topics 13 and 15

Varied Levels of Text:

- Marilyn Burns Math Library List: http://teacher.scholastic.com/reading/bestpractices/pdfs/mbmath_TitleList.pdf
- [EPIC](#)
- [Readworks](#)

The following Standards for Mathematical Practice and select New Jersey Student Learning Standards should be covered throughout the various units of the curriculum.

Standards for Mathematical Practices

- | | |
|--|--|
| MP.1 Make sense of problems and persevere in solving them | <ul style="list-style-type: none">● Find meaning in problems● Look for entry points● Analyze, conjecture and plan solution pathways● Monitor and adjust● Verify answers● Ask themselves the question: “Does this make sense?” |
|--|--|

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MP.2	Reason abstractly and quantitatively.	● Make sense of quantities and their relationships in problems ● Learn to contextualize and de-contextualize ● Create coherent representations of problems
MP.3	Construct viable arguments and critique the reasoning of others.	● Understand and use information to construct arguments ● Make and explore the truth of conjectures ● Recognize and use counterexamples ● Justify conclusions and respond to arguments of others
MP.4	Model with Mathematics.	● Apply mathematics to problems in everyday life ● Make assumptions and approximations ● Identify quantities in a practical situation ● Interpret results in the context of the situation and reflect on whether the results make sense
MP.5	Use appropriate tools strategically.	● Consider the available tools when solving problems ● Are familiar with tools appropriate for their grade or course (pencil and paper, concrete models, ruler, protractor, calculator, spreadsheet, computer programs, digital content located on a website, and other technological tools) ● Make sound decisions of which of these tools might be helpful
MP.6	Attend to precision.	● Communicate precisely to others ● Use clear definitions, state the meaning of symbols and are careful about specifying units of measure and labeling axes ● Calculate accurately and efficiently

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MP.7	Look for and make use of structure.	• Discern patterns and structures • Can step back for an overview and shift perspective • See complicated things as single objects or as being composed of several objects
Teacher Notes:		

Unit: Number and Operations in Base Ten	Duration: 50 days
Standards/Learning Targets	
Focus Standards (Major Standards)	
New Jersey Student Learning Standards: • 5.NBT.A.1 Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left. • 5.NBT.A.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. • 5.NBT.A.3a Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$. • 5.NBT.A.3b Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons. • 5.NBT.A.4 Use place value understanding to round decimals to any place. B. Perform operations with multi-digit whole numbers and with decimals to hundredths. • 5.NBT.B.5 Fluently multiply multi-digit whole numbers using the standard algorithm.	

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- **5.NBT.B.6** Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
- **5.NBT.B.7** Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Supporting and Additional Standards

Primary Interdisciplinary Connections:

- Science- science experiments, manipulate data
 - **3-5-ETS1-3** Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.
- ELA- open ended questions, relevant read alouds related to math are used to introduce and reinforce math concepts
 - **SL.5.1** Engage effectively in a range of collaborative discussions (one-on-one and in groups) on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

Computer Science and Design Thinking:

- **8.1.5.DA.1:** Collect, organize, and display data in order to highlight relationships or support a claim.
- **8.1.5.DA.3:** Organize and present collected data visually to communicate insights gained from different views of the data.
- **8.2.5.ED.2:** Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.
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Career Readiness, Life Literacies and Key Skills:

- **9.1.5.PB.2:** Describe choices consumers have with money (e.g., save, spend, donate).
- **9.4.5.CI.3:** Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).
- **9.4.5.CT.1:** Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2).
- **9.4.5.IML.3:** Represent the same data in multiple visual formats in order to tell a story about the data.

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ELD-MA.4-5.Explain.Interpretive Interpret mathematical explanations by • Identifying concept or entity • Analyzing problem-solving steps • Evaluating a pattern or structure that follows a given rule ELD-MA.4-5.Explain.Expressive Construct mathematical explanations that • Introduce concept or entity • Share solution with others • Describe data and/or steps to solve problem • State reasoning used to generate solution

Performance Tasks/Use of Technology:

- Conferencing/Individual Small group
- Open Ended Questions
- Observations
- Google Slide
- SMART Board activities
- Google Forms quizzes
- Peardeck slides
- Webquests
- Hyperdoc activities
- Podcast creation
- Kahoot games
- Quizlet review
- YouTube videos
- Flipgrid activities
- *Spreaker* recording
- www.aaamath.com
- www.aplusmath.com
- <https://illuminations.nctm.org/>
- <https://www.freckle.com/>
- <https://happynumbers.com/>
- <https://www.prodigygame.com/>
- <http://www.abcya.com/>

Other Assessments

Formative Tasks:

- Exit slips
- Analysis of student work
- Teacher observations
- Math journals/notebooks
- Diagnostic Computer Based Reports

Summative Assessments:

- Unit Review Assessments
- Unit Associated Tests & Quizzes
- Extension Projects
- Performance Tasks

Benchmark Assessments:

- District-wide common benchmark assessments

Alternative Assessments:

- Performance Tasks
- Student created models
- Written/verbal explanations
- Peer assessment
- Self-assessment

Knowledge and Skills

Content

Skills

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Essential Questions:

- Why is it important to understand the relationship between a product and the magnitude of its factors?
- What models and strategies do we use to add, subtract, multiply, and divide decimals to hundredths?
- Why is it important to understand the place value of decimals to hundredths and whole numbers to billions?
- How are whole numbers and decimals written, compared and ordered?
- How can place value patterns help in multiplying and dividing decimals by a power of 10?
- What are the different ways numbers can be read and written?
- How can the place value system be useful in converting among different-sized metric units within a given measurement system?

Enduring Understandings:

Students will know... "I can..."

- Multiplication can be used to compare quantities. Visual models, such as area models, can be used to find the product of fractions. We can compare the size of a product to the size of one of its factors without performing the multiplication by applying the rules learned through visual modeling.
- Multiplication can result in a product that is greater than, less than, or equal to its factors.
- Understand that multiplication does not always result in a product that is bigger than the factors. The size of the products depends upon the value of the factors in relation to 1.
- Decimal place value is an extension of whole number place value.

Students will be able to..

- Identify and explain that/how a digit in the ones place represents 10 times as much as it represents in the place to its right.
- Explain patterns in the number of zeros of the product when multiplying by powers of 10.
- Explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10.
- Denote powers of 10 by using whole-number exponents.
- Read decimals to thousandths using base-ten numerals, number names, and expanded form.
- Write decimals to thousandths using base-ten numerals, number names, and expanded form.
- Compare two decimals to thousandths based on place value understanding.
- Record comparisons of two decimals to thousandths using $>$, $<$ or $=$.
- Multiply multi-digit whole numbers using the standard algorithm working towards accuracy and efficiency.
- find whole-number quotients with up to four-digit dividends and two-digit divisors using strategies based on place value.
- find whole-number quotients with up to four-digit dividends and two-digit divisors using strategies based on properties of operations or the relationship between multiplication and division.
- illustrate and explain the division calculation by using equations, rectangular arrays, and/or area models.
- Add and subtract decimals to hundredths using concrete models or drawings
- Add and subtract decimals to hundredths using strategies

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Understand place value in both whole numbers and decimals when multiplying, dividing, and rounding.	based on place value, properties of operations, and/or the relationship between addition and subtraction. Relate the strategy to the concrete model or drawing, and explain the reasoning used. Introduce concept or entity through... ■ Mathematical terms and phrases to describe concept, process, or purpose (the angles within a circle can be measured with a protractor like this) ■ Relating verbs (belong to, are part of, be, have) to define or describe concept Share solution with others through... ■ Generalized nouns to add precision to discussion (conversion, measurement, volume) ■ Language choices to reflect on completed and on-going process (we should have done this, we might be able to, what if we try) ■ First person (I, we) to describe approach; third person to describe approach with neutral stance of authority ■ Observational (notice, it appears, looks like) and comparative language (different from, similar to, the same) to share results (We notice our process was different, but we have the same solution.)
Instructional Plan	
Suggested Activities	Resources
enVision STEM Project Pick a Projects BrainPop - Numbers and Operations - I Ready - Manipulatives and collections of materials	Illustrative Math Tasks 5.NBT Math Milestones - Grade 5 Tasks Grade 5 Student Handouts Math Is Visual videos & Tasks

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- Tasks involving collaboration and problem-solving amongst the 4 operations (and with decimals to hundredths)
- Place Value practice tasks (Guess the Number; Roll it, Make it, Expand it; Place Value Battleship, etc.)
- [* Additional Resources by Standard](#)

As appropriate:

- VB-Mapp
- ABLLS

[K-5math teaching resources](#)

Suggested Options for Differentiation

- **Multi-Language Learners**
 - Simplify written and verbal instructions
 - Provide written directions with models and diagrams when possible
 - Build in more group work to allow ML students to interact and communicate with peers
 - Provide vocabulary ahead of time
 - Use sentence frames to give students practice with academic language
 - Pre-teach as often as possible- share videos, articles, vocabulary etc. with ML students prior to use in class
 - Utilize visual charts/cues
 - Highlight key words
 - Provide manipulatives
 - Frequently check for understanding
- **Special Education/504 Plans**
 - Follow specific students accommodations and modifications as listed in individual student IEP or 504 plan
 - Provide opportunities for movement
 - Have manipulatives and other math resources available for student use
 - Incorporate small group instruction
 - Utilize visual charts/cues
 - Facilitate successful experiences
 - Provide tutoring if needed
 - Provide positive praise to increase motivation

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- Behavior management support.
- Adjusted class schedules or grading.
- Extended time on tests and assignments.
- Verbal, visual, or technology aids.
- **Gifted and Talented**
 - Differentiated assignments/projects/assessments
 - Differentiate learning pace using curriculum acceleration
 - Curriculum compacting
 - Open ended/abstract questions to activate higher level thinking
 - Alternative modes of communication
 - Student developed extension activities
 - Plan self directed inquiry
 - Student created rubrics
 - Opportunities to push assessment/activity boundaries
 - Self centered curriculum allowing for student choice
- **Students In Need of Academic Support:**
 - Ensure child has access to all appropriate academic resources both in school and at home
 - Provide structure and adhere to a consistent daily routine with clear and concise rules
 - Facilitate successful experiences
 - Provide tutoring if needed
 - Allow students to complete assignments in school
 - Do not penalize for late or missing assignments/materials
 - Offer encouragement and understanding
 - Allow students to have personal possessions and property in school
 - Give choice to provide a sense of control
- **Economically Disadvantaged:**
 - Provide clear, achievable expectations, do not lower academic requirements for them.
 - Build a safe and nurturing atmosphere
 - Be flexible with assignments
 - Offer several alternatives from which all students can choose.
 - Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.
 - Use real-world examples and create mental models for abstract idea

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- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input

- **Culturally Diverse:**

- Involve families in student learning
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Support verbal explanations with non verbal cues: Gestures/ facial expressions Props, realia, manipulatives, concrete materials Visuals, graphs, pictures, maps
- Provide positive praise to increase motivation
- Provide real world connections and emphasize the value of education
- Communicate high expectations for the success of all students
- Integrate the arts into learning activities

Multi-Language Learners:

- Differentiate instruction and classroom assessment as guided by the [WIDA English Language Development Standards Framework, 2020 Edition](#).
- Follow the Individualized Educational Plans (IEP) for ML Special Education (SE) students.
- Encourage the ML student to use oral language. Discussions, especially pair-work, allow students to expand language usage in listening and speaking.
- Allow MLs to clarify ideas, make sense of their previous statements and elaborate on their views with specific explanations.
- Use wait time for MLs to express their ideas in class.
- Graphic organizers, color-coded anchor charts, word walls with visual imagery, and breakdown techniques for decoding dense mathematical word problems
- Structured talk protocols (Think-Pair-Share, Numbered Talks) and word banks
- Simplify written and verbal instructions

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- Provide written directions with models and diagrams when possible
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Core Instructional and Supplemental Materials

- **envision Mathematics 2020 Grade 5 Topics 1-6**

Varied Levels of Text:

- Marilyn Burns Math Library List: http://teacher.scholastic.com/reading/bestpractices/pdfs/mbmath_TitleList.pdf
- [EPIC](#)

Readworks

- [Feast for Ten, Cathryn FaldwMulti-Lingual Learner](#)
- [Moja Means One, Muriel Feelings](#)

The following Standards for Mathematical Practice and select New Jersey Student Learning Standards should be covered throughout the various units of the curriculum.

Standards for Mathematical Practices

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MP.1	Make sense of problems and persevere in solving them	● Find meaning in problems ● Look for entry points ● Analyze, conjecture and plan solution pathways ● Monitor and adjust ● Verify answers ● Ask themselves the question: “Does this make sense?”
MP.2	Reason abstractly and quantitatively.	● Make sense of quantities and their relationships in problems ● Learn to contextualize and de-contextualize ● Create coherent representations of problems
MP.3	Construct viable arguments and critique the reasoning of others.	● Understand and use information to construct arguments ● Make and explore the truth of conjectures ● Recognize and use counterexamples ● Justify conclusions and respond to arguments of others
MP.4	Model with Mathematics.	● Apply mathematics to problems in everyday life ● Make assumptions and approximations ● Identify quantities in a practical situation ● Interpret results in the context of the situation and reflect on whether the results make sense
MP.5	Use appropriate tools strategically.	● Consider the available tools when solving problems ● Are familiar with tools appropriate for their grade or course (pencil and paper, concrete models, ruler, protractor, calculator, spreadsheet, computer programs, digital content located on a website, and other technological tools)

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MP.6	Attend to precision.	• Make sound decisions of which of these tools might be helpful • Communicate precisely to others • Use clear definitions, state the meaning of symbols and are careful about specifying units of measure and labeling axes • Calculate accurately and efficiently
MP.7	Look for and make use of structure.	• Discern patterns and structures • Can step back for an overview and shift perspective • See complicated things as single objects or as being composed of several objects
Teacher Notes:		

Unit: Number and Operations - Fractions	Duration: 50 days
Standards/Learning Targets	
Focus Standards (Major Standards)	

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New Jersey Student Learning Standards:

- **5.NF.A.1** Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.
- **5.NF.A.2** Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.
- **5.NF.B.3** Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
- **5.NF.B.4a** Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.)
- **5.NF.B.4b** Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
- **5.NF.B.5a** Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.
- **5.NF.B.5b** Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.
- **5.NF.B.6** Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
- **5.NF.B.7a** Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for $(1/3) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$.
- **5.NF.B.7b** Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.
- **5.NF.B.7c** Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.
- **5.NF.B.3** Interpret a fraction as division of the numerator by the denominator (i.e., $a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction

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models or equations to represent the problem. For example, interpret $\frac{3}{4}$ as the result of dividing 3 by 4, noting that $\frac{3}{4}$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4.

Supporting and Additional Standards

Primary Interdisciplinary Connections: Infused within the unit are connections to the NJSLS for

- Science- science experiments, manipulate data
 - **3-5-ETS1-3** Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.
- ELA- open ended questions, relevant read alouds related to math are used to introduce and reinforce math concepts
- **SL.5.1** Engage effectively in a range of collaborative discussions (one-on-one and in groups) on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

Computer Science and Design Thinking:

- **8.1.5.DA.1:** Collect, organize, and display data in order to highlight relationships or support a claim.
- **8.1.5.DA.3:** Organize and present collected data visually to communicate insights gained from different views of the data.
- **8.2.5.ED.2:** Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.
- **8.2.5.ED.3:** Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

Career Readiness, Life Literacies and Key Skills:

- **9.1.5.PB.2:** Describe choices consumers have with money (e.g., save, spend, donate).
- **9.4.5.CI.3:** Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).
- **9.4.5.CT.1:** Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2).
- **9.4.5.IML.3:** Represent the same data in multiple visual formats in order to tell a story about the data.

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ELD-MA.4-5.Explain.Interpretive Interpret mathematical explanations by • Identifying concept or entity • Analyzing problem-solving steps • Evaluating a pattern or structure that follows a given rule ELD-MA.4-5.Explain.Expressive Construct mathematical explanations that • Introduce concept or entity • Share solution with others • Describe data and/or steps to solve problem • State reasoning used to generate solution

Performance Tasks/Use of Technology:

- Conferencing/Individual Small group
- Open Ended Questions
- Observations
- Google Slide
- SMART Board activities
- Google Forms quizzes
- Peardeck slides
- Webquests
- Hyperdoc activities
- Podcast creation
- Kahoot games
- Quizlet review
- YouTube videos
- Flipgrid activities
- Spreaker recording
- www.aaamath.com
- www.aplusmath.com
- <https://illuminations.nctm.org/>
- <https://www.freckle.com/>
- <https://happynumbers.com/>
- <https://www.prodigygame.com/>
- <http://www.abcya.com/>

Other Assessments

Formative Tasks:

- Exit slips
- Analysis of student work
- Teacher observations
- Math journals/notebooks
- Diagnostic Computer Based Reports

Summative Assessments:

- Unit Review Assessments
- Unit Associated Tests & Quizzes
- Extension Projects
- Performance Tasks

Benchmark Assessments:

- District-wide common benchmark assessments

Alternative Assessments:

- Performance Tasks
- Student created models
- Written/verbal explanations
- Peer assessment
- Self-assessment

Knowledge and Skills

Content

Skills

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Essential Questions:

- What does it mean to add and subtract fractions with unlike denominators?
- What is a standard procedure for adding subtracting fractions with unlike denominators?
- What visual models are useful in adding and subtracting fractions?
- What are the procedures for estimating and finding products and quotients of fractions and mixed numbers?
- What methods can be used to solve real world problems involving multiplication of fractions?
- How can we use fraction models to divide unit fractions by whole numbers?
- How can we use fraction models to divide whole numbers by unit fractions?
- How can we use real-world situations to divide whole numbers and fractions?
- Why is it important to use visual models when multiplying fractions by mixed numbers?
- How do tiling unit squares help us in finding the area of a rectangle with fractional side lengths?
- How can we use fraction models to divide unit fractions by whole numbers?
- How can we use fraction models to divide whole numbers by unit fractions?
- How can we use real-world situations to divide whole numbers and fractions?
- What tools can be employed to convert units of standard measurement to solve multi-step problems?
- What visual models are most useful to show multiplication and/or division of fractions?

Students will be able to....

- when adding or subtracting fractions, replacing given fractions with equivalent fraction produces an equivalent sum or difference of fractions with like denominators
- add and subtract fractions with unlike denominators, including mixed numbers, by replacing given fractions with equivalent fraction
- solve word problems involving addition and subtraction of fractions including those with unlike denominators referring to the same whole
- benchmark fractions and number sense can be used in estimating and assessing the reasonableness of answers to word problems involving addition and subtraction of fractions
- Interpret a fraction as division of the numerator by the denominator using visual fraction models or equations
- solve word problems involving division of whole numbers resulting in a fraction or mixed number quotient
- apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction
- interpret the product $(a/b) \times q$ as a part of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$ **
- interpret the product of a fraction and a fraction as $(a/b) \times (c/d) = ac/bd$ **
- tile a rectangle using the appropriate fractional unit square in order to find the area of a rectangle that has fractional side lengths
- show that the area found by tiling would be that same as multiplying the side lengths
- multiply fractional side lengths to find areas of rectangles

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- Why does using estimation help us to determine reasonableness when solving word problems involving fractions?
- How can we recognize the connection between fractions and division when solving word problems?
- What are the customary measurement units and how are they related?
- What are the metric measurement units and how are they related?

Enduring Understandings:

Students will know... "I can..."

- Models can be used to show different ways of adding and subtracting fractions.
- The same fractional amount can be represented by an infinite set of different but equivalent fractions.
- Equivalent fractions are found by multiplying or dividing the numerator and denominator by the same nonzero number.
- A fraction in simplest form is when 1 is the only common factor of the numerator and denominator.
- Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
- A fraction describes the division of a whole into equal parts, and it can be interpreted in more than one way depending on the whole to be divided.
- The inverse relationship between multiplication and division can be used to divide with fractions.
- Convert among different-sized standard measurement units within a given measurement system.
- Relationships between measurement units of the same length can be expressed as an equation (i.e. 1 ft = 12 in.).

- represent fraction products as rectangular areas
- interpret multiplication as scaling (resizing) by comparing the size of a product to the size of one factor without performing the multiplication
- explain why multiplying a given number by a fraction greater than one results in a product greater than one and why multiplying a given number by a fraction less than one results in a product smaller than the given number
- multiplying a fraction a/b by n/n ($a/b = (n \times a)/(n \times b)$) has the same effect as multiplying a/b by 1 and creates an equivalent fraction
- real world problems involving multiplication of fractions and mixed numbers
- compute and interpret the quotients of a unit fraction by a non-zero whole number
- compute and interpret the quotients of a non-zero whole number by a unit fraction
- solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions

Describe data and/or steps to solve problem through... ■

Abstract, generalized, or multi-meaning noun groups to add precision to mathematical descriptions (operation, associative property, area formula, function) ■ Past tense doing verbs (measured, converted) and thinking verbs (remembered, thought, figured out) to recount steps ■ Visuals (charts, graphs, diagrams, manipulatives, drawings) to support approach and/or solution ■ Connectors to order steps (first, next, then) and indicate causal relationships (because, so, that means, as a result) State reasoning used to generate solution through... ■ Declarative statements to state conclusion with a neutral stance

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Relationships exist that enable you to convert between units of length by multiplying or dividing.	of authority (These two fractions are equivalent because...) ■ Causal connectors to express reasoning (We multiplied the two numbers together because...) ■ Conjunctions (if/then, when/then, because, as, since, so that) to establish result/condition relationships (if the field has a length that is twice its width, then the area is...
Instructional Plan	
Suggested Activities	Resources
• Ready Mathematics Program • I Ready • Manipulatives and collections of materials • Tasks involving collaboration and problem-solving amongst fractional representations and their parts • Fraction practice tasks and activities • Climate Change Example: To examine the impact climate change has on agriculture, students may solve word problems about the reduced yields of staple crops and their distribution that involve division of whole numbers and lead to answers in the form of fractions. • Climate Change Example: To examine the impact climate change has on agriculture, students may solve real-world problems about the reduced yields of staple crops and their distribution that involve division of unit fractions by non-zero whole numbers and/or division of whole numbers by unit fractions. • BrainPop (Fraction games) • * Additional Resources by Standard • Amistad Activity: 6.1.2.CivicsCM.3: Connect to Amistad Law fraction review Students use fraction review sheets to apply understanding of the skill while learning facts	Illustrative Math Tasks 5.NF Math Milestones - Grade 5 Tasks Grade 5 Student Handouts Math Is Visual videos & Tasks K-5math teaching resources Browse - PhET Simulations Fractions

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about famous African Americans throughout history.

As appropriate:

- VB-Mapp
- ABLLS

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- Differentiate learning pace using curriculum acceleration
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- Respect cultural traditions
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- Teach study skills
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- Highlight key words
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Core Instructional and Supplemental Materials

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Standards for Mathematical Practices

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- Analyze, conjecture and plan solution pathways
- Monitor and adjust
- Verify answers
- Ask themselves the question: “Does this make sense?”

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- Make sense of quantities and their relationships in problems
- Learn to contextualize and de-contextualize
- Create coherent representations of problems

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MP.3	Construct viable arguments and critique the reasoning of others.	● Understand and use information to construct arguments ● Make and explore the truth of conjectures ● Recognize and use counterexamples ● Justify conclusions and respond to arguments of others
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Teacher Notes:

Unit: Measurement	Duration: 25 days
Standards/Learning Targets	
Focus Standards (Major Standards)	
New Jersey Student Learning Standards: ● 5.M.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems. ● 5.M.B.2 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. ● 5.M.B.3 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and non-standard units. ● 5.M.B.4 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes (e.g., to represent the associative property of multiplication). b. Apply the formulas $V = l \times w \times h$ and $V = B \times h$ 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.	

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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.

Supporting and Additional Standards

Primary Interdisciplinary Connections:

- Science- science experiments, manipulate data
 - **3-5-ETS1-3** Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.
- ELA- open ended questions, relevant read alouds related to math are used to introduce and reinforce math concepts
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Career Readiness, Life Literacies and Key Skills:

- **9.1.5.PB.2:** Describe choices consumers have with money (e.g., save, spend, donate).
- **9.4.5.CI.3:** Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).
- **9.4.5.CT.1:** Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2).
- **9.4.5.IML.3:** Represent the same data in multiple visual formats in order to tell a story about the data.
-

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ELD-MA.4-5.Argue.Interpretive Interpret mathematics arguments by • Comparing conjectures with patterns, and/or rules • Distinguishing commonalities and differences among ideas in justifications • Extracting patterns or rules from solution strategies to create generalizations ELD-MA.4-5.Argue.Expressive Construct mathematics arguments that • Create conjecture using definitions, patterns, and rules • Generalize commonalities and differences across cases • Justify conclusions with patterns or rules • Evaluate others' arguments

Evidence of Student Learning

Performance Tasks/Use of Technology:

- Conferencing/Individual Small group
- Open Ended Questions
- Observations
- Google Slide
- SMART Board activities
- Google Forms quizzes
- Peardeck slides
- Webquests
- Hyperdoc activities
- Podcast creation
- Kahoot games
- Quizlet review
- YouTube videos
- Flipgrid activities
- Spreaker recording
- www.aaamath.com
- www.aplusmath.com
- <https://illuminations.nctm.org/>
- <https://www.freckle.com/>
- <https://happynumbers.com/>
- <https://www.prodigygame.com/>
- <http://www.abcya.com/>

Other Assessments

Formative Tasks:

- Exit slips
- Analysis of student work
- Teacher observations
- Math journals/notebooks
- Diagnostic Computer Based Reports

Summative Assessments:

- Unit Review Assessments
- Unit Associated Tests & Quizzes
- Extension Projects
- Performance Tasks

Benchmark Assessments:

- District-wide common benchmark assessments

Alternative Assessments:

- Performance Tasks
- Student created models
- Written/verbal explanations
- Peer assessment
- Self-assessment

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Knowledge and Skills	
Content	Skills
Essential Questions: - How can we convert different-sized standard measurement units (i.e., cm. to m.?) - How are length, weight, and volume the same/different? - When might you use length/weight/volume to measure an object? - Which type of tool would you use to measure (customary and metric)? - Compare how many cups it takes to fill a larger object. Are there any patterns? - How does knowing the smaller units of a larger measurement tool help you solve a problem? - What tool is the best tool to measure ...? - Is there a relationship between gallons and quarts, etc...? - Why is it important to know how much time has passed? - How does multiplication and division help you determine units of time? - How can we measure volume using unit cubes? Enduring Understandings: <i>Students will know... "I can..."</i> - Solve problems using measurements - Identify customary and metric measurement benchmarks - Compare customary units of length, weight, and liquid volume	<i>Students will be able to..</i> - Convert among different-sized standard measurement units within a given measurement system. - Use conversions in solving multi-step, real-world problems. - A cube with side length 1 unit is called a “unit cube”, has “one cubic unit” of volume, and can be used to measure volume. - A solid figure which can be packed without gaps or overlaps using (n) unit cubes has a volume of n cubic units. - Measure volumes by counting unit cubes, using cubic cm, cubic in., cubic ft., and non-standard units. - Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths. - Represent volumes as the product of three whole numbers. - Recognize and relate volume to multiplication and addition and apply this relationship when solving real world and mathematical problems. - recognize volume as additive and 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. Create conjecture using definitions, patterns, and rules through... ■ Relating verbs (have, belong to, be) to make a claim (9/15 is equivalent to 3/5 and 6/10 is an equivalent fraction too because they are all multiples) ■ Adverbial phrases (for qualities, quantities, frequency) to add precision related to conjecture (The interior angles of a triangle will always add up to 180°) Generalize

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• Compare metric units of length, mass, and liquid volume • Compare units of time • Solve problems involving elapsed time and start/finish time • Practice with mixed measurements • The volume of some objects can be found by breaking apart the object into other objects for which the volume of each can be found. • The formula of $V=l \times w \times h$ can be used to find the volume of a rectangular prism.	commonalities and differences across cases through... ■ Conditional clauses (when, if) to extend conjecture (If you remember the inverse operations, you can figure out the missing quantity by...) ■ Declarative statements to present generalizable processes (The divisibility rules can help you find all the factor pairs of a product.)
Instructional Plan	
Suggested Activities	Resources
Suggested Activities/Resources: • enVision STEM Project • Pick a Projects • Manipulatives and collections of materials • Tasks involving collaboration and problem-solving amongst peers; utilizing measurement explorations and tools • Measurement tasks and activities • BrainPop (Measurement and Data games) • * Additional Resources by Standard As appropriate: • VB-Mapp • ABLLS	Illustrative Math Tasks 5.MD Math Milestones - Grade 5 Tasks Grade 5 Student Handouts Math Is Visual videos & Tasks K-5math teaching resources
Suggested Options for Differentiation	
• Multi-Language Learners	

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- Simplify written and verbal instructions
- Provide written directions with models and diagrams when possible
- Build in more group work to allow ML students to interact and communicate with peers
- Provide vocabulary ahead of time
- Use sentence frames to give students practice with academic language
- Pre-teach as often as possible- share videos, articles, vocabulary etc. with ML students prior to use in class
- Utilize visual charts/cues
- Highlight key words
- Provide manipulatives
- Frequently check for understanding
- **Special Education/504 Plans**
 - Follow specific students accommodations and modifications as listed in individual student IEP or 504 plan
 - Provide opportunities for movement
 - Have manipulatives and other math resources available for student use
 - Incorporate small group instruction
 - Utilize visual charts/cues
 - Facilitate successful experiences
 - Provide tutoring if needed
 - Provide positive praise to increase motivation
 - Behavior management support.
 - Adjusted class schedules or grading.
 - Extended time on tests and assignments.
 - Verbal, visual, or technology aids.
- **Gifted and Talented**
 - Differentiated assignments/projects/assessments
 - Differentiate learning pace using curriculum acceleration
 - Curriculum compacting
 - Open ended/abstract questions to activate higher level thinking
 - Alternative modes of communication
 - Student developed extension activities
 - Plan self directed inquiry
 - Student created rubrics

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- Opportunities to push assessment/activity boundaries
- Self centered curriculum allowing for student choice
- **Students In Need of Academic Support:**
 - Ensure child has access to all appropriate academic resources both in school and at home
 - Provide structure and adhere to a consistent daily routine with clear and concise rules
 - Facilitate successful experiences
 - Provide tutoring if needed
 - Allow students to complete assignments in school
 - Do not penalize for late or missing assignments/materials
 - Offer encouragement and understanding
 - Allow students to have personal possessions and property in school
 - Give choice to provide a sense of control
- **Economically Disadvantaged:**
 - Provide clear, achievable expectations, do not lower academic requirements for them.
 - Build a safe and nurturing atmosphere
 - Be flexible with assignments
 - Offer several alternatives from which all students can choose.
 - Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.
 - Use real-world examples and create mental models for abstract idea
 - Provide increased knowledge base and vocabulary use about real world experiences.
 - Share the decision making in class.
 - Maintain expectations while offering choice and soliciting input
- **Culturally Diverse:**
 - Involve families in student learning
 - Provide social/emotional support
 - Respect cultural traditions
 - Build in more group work to encourage interaction with peers
 - Show photos, videos, and definitions when possible for culturally unique vocabulary
 - Teach study skills
 - Provided students with necessary academic resources and materials
 - Allow for alternative assignments

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- Provide visuals
- Assign peer tutor
- Support verbal explanations with non verbal cues: Gestures/ facial expressions Props, realia, manipulatives, concrete materials Visuals, graphs, pictures, maps
- Provide positive praise to increase motivation
- Provide real world connections and emphasize the value of education
- Communicate high expectations for the success of all students
- Integrate the arts into learning activities

Multi-Language Learners:

- Differentiate instruction and classroom assessment as guided by the [WIDA English Language Development Standards Framework, 2020 Edition](#).
- Follow the Individualized Educational Plans (IEP) for ML Special Education (SE) students.
- Encourage the ML student to use oral language. Discussions, especially pair-work, allow students to expand language usage in listening and speaking.
- Allow MLs to clarify ideas, make sense of their previous statements and elaborate on their views with specific explanations.
- Use wait time for MLs to express their ideas in class.
- Graphic organizers, color-coded anchor charts, word walls with visual imagery, and breakdown techniques for decoding dense mathematical word problems
- Structured talk protocols (Think-Pair-Share, Numbered Talks) and word banks
- Simplify written and verbal instructions
- Provide written directions with models and diagrams when possible
- Build in more group work to allow Multilingual Learner students to interact and communicate with peers
- Provide vocabulary ahead of time
- Use sentence frames to give students practice with academic language
- Pre-teach as often as possible- share videos, articles, vocabulary etc. with Multilingual Learner students prior to use in class
- Utilize visual charts/cues
- Highlight key words
- Provide manipulatives
- Frequently check for understanding

Special Education//Students with Disabilities:

- Follow specific students accommodations and modifications as listed in individual student IEP or 504 plan
- Provide opportunities for movement

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- Have manipulatives and other math resources available for student use
- Incorporate small group instruction
- Utilize visual charts/cues
- Facilitate successful experiences
- Provide tutoring if needed

Core Instructional and Supplemental Materials

- **enVision Mathematics 2020 Grade 5 Topics 11-12**

The following Standards for Mathematical Practice and select New Jersey Student Learning Standards should be covered throughout the various units of the curriculum.

Standards for Mathematical Practices

- | | | |
|------|--|--|
| MP.1 | Make sense of problems and persevere in solving them | <ul style="list-style-type: none">• Find meaning in problems• Look for entry points• Analyze, conjecture and plan solution pathways• Monitor and adjust• Verify answers• Ask themselves the question: “Does this make sense?” |
| MP.2 | Reason abstractly and quantitatively. | <ul style="list-style-type: none">• Make sense of quantities and their relationships in problems• Learn to contextualize and de-contextualize• Create coherent representations of problems |
| MP.3 | Construct viable arguments and critique the reasoning of others. | <ul style="list-style-type: none">• Understand and use information to construct arguments• Make and explore the truth of conjectures• Recognize and use counterexamples |

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MP.4	Model with Mathematics.	• Justify conclusions and respond to arguments of others
MP.5	Use appropriate tools strategically.	• Apply mathematics to problems in everyday life • Make assumptions and approximations • Identify quantities in a practical situation • Interpret results in the context of the situation and reflect on whether the results make sense
MP.6	Attend to precision.	• Consider the available tools when solving problems • Are familiar with tools appropriate for their grade or course (pencil and paper, concrete models, ruler, protractor, calculator, spreadsheet, computer programs, digital content located on a website, and other technological tools) • Make sound decisions of which of these tools might be helpful
MP.7	Look for and make use of structure.	• Communicate precisely to others • Use clear definitions, state the meaning of symbols and are careful about specifying units of measure and labeling axes • Calculate accurately and efficiently
		• Discern patterns and structures • Can step back for an overview and shift perspective • See complicated things as single objects or as being composed of several objects
Teacher Notes:		

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Unit: Data Literacy	Duration: 15 days
Standards/Learning Targets	
Focus Standards (Major Standards)	
New Jersey Student Learning Standards: ● 5.DL.A.1 Understand how different visualizations can highlight different aspects of data. Ask questions and interpret data visualizations to describe and analyze patterns. ● 5.DL.A.2 Develop strategies to collect, organize and represent data of various types and from various sources. Communicate results digitally through a data visual (e.g. chart, storyboard, video presentation). ● 5.DL.A.3 Collect and clean data to be analyzable (e.g., make sure each entry is formatted correctly, deal with missing or incomplete data). ● 5.DL.A.4 Using appropriate visualizations (i.e. double line plot, double bar graph), analyze data across samples. ● 5.DL.B.5 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.	
Supporting and Additional Standards	
Primary Interdisciplinary Connections: ● Science- science experiments, manipulate data ○ 3-5-ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. ● ELA- open ended questions, relevant read alouds related to math are used to introduce and reinforce math concepts ○ SL.5.1 Engage effectively in a range of collaborative discussions (one-on-one and in groups) on grade 5 topics and texts, building on others' ideas and expressing their own clearly.	
Computer Science and Design Thinking: ● 8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim. ● 8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data.	

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- **8.2.5.ED.2:** Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.
- **8.2.5.ED.3:** Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

Career Readiness, Life Literacies and Key Skills:

- **9.1.5.PB.2:** Describe choices consumers have with money (e.g., save, spend, donate).
- **9.4.5.CI.3:** Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).
- **9.4.5.CT.1:** Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2).
- **9.4.5.IML.3:** Represent the same data in multiple visual formats in order to tell a story about the data.

ELD-MA.4-5.Argue.Interpretive Interpret mathematics arguments by ● Comparing conjectures with patterns, and/or rules ● Distinguishing commonalities and differences among ideas in justifications ● Extracting patterns or rules from solution strategies to create generalizations ELD-MA.4-5.Argue.Expressive Construct mathematics arguments that ● Create conjecture using definitions, patterns, and rules ● Generalize commonalities and differences across cases ● Justify conclusions with patterns or rules ● Evaluate others' arguments

Evidence of Student Learning

Performance Tasks/Use of Technology:

- Conferencing/Individual Small group
- Open Ended Questions
- Observations
- Google Slide
- SMART Board activities
- Google Forms quizzes
- Peardeck slides
- Webquests
- Hyperdoc activities
- Podcast creation

Other Assessments

Formative Tasks:

- Exit slips
- Analysis of student work
- Teacher observations
- Math journals/notebooks
- Diagnostic Computer Based Reports

Summative Assessments:

- Unit Review Assessments
- Unit Associated Tests & Quizzes
- Extension Projects

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• Kahoot games • Quizlet review • YouTube videos • Flipgrid activities • Spreaker recording • www.aaamath.com • www.aplusmath.com • https://illuminations.nctm.org/ • https://www.freckle.com/ • https://happynumbers.com/ • https://www.prodigygame.com/ • http://www.abcya.com/	• Performance Tasks Benchmark Assessments: • District-wide common benchmark assessments Alternative Assessments: • Performance Tasks • Student created models • Written/verbal explanations • Peer assessment • Self-assessment
Knowledge and Skills	
Content	Skills
Essential Questions: • How does a line plot help you organize the data we collect? • How can you use your understanding of operations with fractions to solve problems about data presented in line plots? • How do varying data displays highlight different aspects of the data presented? • How can you determine that the data collected is complete or incomplete? Enduring Understandings: <i>Students will know... "I can..."</i> • Understand, represent and interpret line plots to display data sets.	<i>Students will be able to...</i> • make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$) • use operations with fractions to solve problems involving information presented in line plots • compare a variety of data displays to describe and analyze patterns. • communicate results digitally using appropriate visualizations (i.e. double line plot, double bar graph) Create conjecture using definitions, patterns, and rules through... ■ Relating verbs (have, belong to, be) to make a claim ($\frac{9}{15}$ is equivalent to $\frac{3}{5}$ and $\frac{6}{10}$ is an equivalent fraction too because they are all multiples) ■ Adverbial phrases (for qualities, quantities, frequency) to add precision related to

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• Compare data displays to describe and analyze patterns. • Ask questions and interpret data to analyze patterns. • Interpret and analyze data presented.	conjecture (The interior angles of a triangle will always add up to 180°) Generalize commonalities and differences across cases through... ■ Conditional clauses (when, if) to extend conjecture (If you remember the inverse operations, you can figure out the missing quantity by...) ■ Declarative statements to present generalizable processes (The divisibility rules can help you find all the factor pairs of a product.)
Instructional Plan	
Suggested Activities	Resources
• enVision STEM Project • Pick a Project • Manipulatives and collections of materials • Tasks involving collaboration and problem-solving amongst peers; utilizing measurement explorations and tools • Measurement tasks and activities • BrainPop (Measurement and Data games) • Measuring Classroom Objects • Connect to Climate Change Activity 6.1.2.Geo.HE.1 Carbon Footprint Activity Engage in a discussion about types of housing and use of power. Create a line plot with students to connect 1 whole to 3 parts (house, townhouse, apartment), and graph results with students. Convert poll into total square ft to see which grouping/Classification has the largest power waste/carbon footprint and how to then reduce As appropriate:	Illustrative Math Tasks 5.MD Math Milestones - Grade 5 Tasks Grade 5 Student Handouts Math Is Visual videos & Tasks K-5math teaching resources Tuva Labs https://tuvalabs.com/ CODAP https://codap.concord.org/ DataClassroom https://about.dataclassroom.com/ DataBytes https://www.dataspire.org/blog/data-story-bytes-for-a-quick-bit-of-data

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- VB-Mapp
- ABLIS

Suggested Options for Differentiation

- **Multi-Language Learners**
 - Simplify written and verbal instructions
 - Provide written directions with models and diagrams when possible
 - Build in more group work to allow ML students to interact and communicate with peers
 - Provide vocabulary ahead of time
 - Use sentence frames to give students practice with academic language
 - Pre-teach as often as possible- share videos, articles, vocabulary etc. with ML students prior to use in class
 - Utilize visual charts/cues
 - Highlight key words
 - Provide manipulatives
 - Frequently check for understanding
- **Special Education/504 Plans**
 - Follow specific students accommodations and modifications as listed in individual student IEP or 504 plan
 - Provide opportunities for movement
 - Have manipulatives and other math resources available for student use
 - Incorporate small group instruction
 - Utilize visual charts/cues
 - Facilitate successful experiences
 - Provide tutoring if needed
 - Provide positive praise to increase motivation
 - Behavior management support.
 - Adjusted class schedules or grading.
 - Extended time on tests and assignments.
 - Verbal, visual, or technology aids.
- **Gifted and Talented**
 - Differentiated assignments/projects/assessments
 - Differentiate learning pace using curriculum acceleration
 - Curriculum compacting

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- Open ended/abstract questions to activate higher level thinking
- Alternative modes of communication
- Student developed extension activities
- Plan self directed inquiry
- Student created rubrics
- Opportunities to push assessment/activity boundaries
- Self centered curriculum allowing for student choice
- **Students In Need of Academic Support:**
 - Ensure child has access to all appropriate academic resources both in school and at home
 - Provide structure and adhere to a consistent daily routine with clear and concise rules
 - Facilitate successful experiences
 - Provide tutoring if needed
 - Allow students to complete assignments in school
 - Do not penalize for late or missing assignments/materials
 - Offer encouragement and understanding
 - Allow students to have personal possessions and property in school
 - Give choice to provide a sense of control
- **Economically Disadvantaged:**
 - Provide clear, achievable expectations, do not lower academic requirements for them.
 - Build a safe and nurturing atmosphere
 - Be flexible with assignments
 - Offer several alternatives from which all students can choose.
 - Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.
 - Use real-world examples and create mental models for abstract idea
 - Provide increased knowledge base and vocabulary use about real world experiences.
 - Share the decision making in class.
 - Maintain expectations while offering choice and soliciting input
- **Culturally Diverse:**
 - Involve families in student learning
 - Provide social/emotional support
 - Respect cultural traditions
 - Build in more group work to encourage interaction with peers

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- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Teach study skills
- Provide students with necessary academic resources and materials
- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Support verbal explanations with non verbal cues: Gestures/ facial expressions Props, realia, manipulatives, concrete materials Visuals, graphs, pictures, maps
- Provide positive praise to increase motivation
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Multi-Language Learners:

- Differentiate instruction and classroom assessment as guided by the [WIDA English Language Development Standards Framework, 2020 Edition](#).
- Follow the Individualized Educational Plans (IEP) for ML Special Education (SE) students.
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- Frequently check for understanding

Special Education//Students with Disabilities:

- Follow specific students accommodations and modifications as listed in individual student IEP or 504 plan
- Provide opportunities for movement
- Have manipulatives and other math resources available for student use
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Core Instructional and Supplemental Materials

- **enVision Mathematics 2020 Grade 5 Topic 10**

The following Standards for Mathematical Practice and select New Jersey Student Learning Standards should be covered throughout the various units of the curriculum.

Standards for Mathematical Practices

- | | | |
|------|--|--|
| MP.1 | Make sense of problems and persevere in solving them | <ul style="list-style-type: none">● Find meaning in problems● Look for entry points● Analyze, conjecture and plan solution pathways● Monitor and adjust● Verify answers● Ask themselves the question: “Does this make sense?” |
| MP.2 | Reason abstractly and quantitatively. | <ul style="list-style-type: none">● Make sense of quantities and their relationships in problems● Learn to contextualize and de-contextualize● Create coherent representations of problems |
| MP.3 | Construct viable arguments and critique the reasoning of | <ul style="list-style-type: none">● Understand and use information to construct |

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	others.	arguments • Make and explore the truth of conjectures • Recognize and use counterexamples • Justify conclusions and respond to arguments of others
MP.4	Model with Mathematics.	• Apply mathematics to problems in everyday life • Make assumptions and approximations • Identify quantities in a practical situation • Interpret results in the context of the situation and reflect on whether the results make sense
MP.5	Use appropriate tools strategically.	• Consider the available tools when solving problems • Are familiar with tools appropriate for their grade or course (pencil and paper, concrete models, ruler, protractor, calculator, spreadsheet, computer programs, digital content located on a website, and other technological tools) • Make sound decisions of which of these tools might be helpful
MP.6	Attend to precision.	• Communicate precisely to others • Use clear definitions, state the meaning of symbols and are careful about specifying units of measure and labeling axes • Calculate accurately and efficiently
MP.7	Look for and make use of structure.	• Discern patterns and structures • Can step back for an overview and shift perspective • See complicated things as single objects or as being composed of several objects

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Teacher Notes:

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Unit: Geometry	Duration: 20 days
Standards/Learning Targets	
Focus Standards (Major Standards)	
● 5.G.A.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate). ● 5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. ● 5.G.B.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. ● 5.G.B.4 Classify two-dimensional figures in a hierarchy based on properties.	
Supporting and Additional Standards	
Primary Interdisciplinary Connections: ● Science- science experiments, manipulate data ○ 3-5-ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. ● ELA- open ended questions, relevant read alouds related to math are used to introduce and reinforce math concepts ○ SL.5.1 Engage effectively in a range of collaborative discussions (one-on-one and in groups) on grade 5 topics and texts, building on others' ideas and expressing their own clearly.	
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- **8.2.5.ED.2:** Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.
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- Extension Projects

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• Kahoot games • Quizlet review • YouTube videos • Flipgrid activities • Spreaker recording • www.aaamath.com • www.aplusmath.com • https://illuminations.nctm.org/ • http://www.abcya.com/ • https://www.prodigygame.com(adaptive to their needs) • www.xtramath.org(adaptive to their needs) • https://www.freckle.com/(adaptive to their needs)	• Performance Tasks Benchmark Assessments: • District-wide common benchmark assessments Alternative Assessments: • Performance Tasks • Student created models • Written/verbal explanations • Peer assessment • Self-assessment
Knowledge and Skills	
Content	Skills
Essential Questions: • How can we use a coordinate system to graph ordered pairs? • How can we represent and interpret real-world problems through graphing points on a coordinate plane? • Why is it necessary to generate numerical patterns using rules to form ordered pairs and exhibit how to graph on a coordinate plane? • Why is it important to classify two-dimensional shapes based on given attributes? • How can we classify two-dimensional figures to determine its hierarchy? • How can we use a line plot with a set of fractional measurements to solve real world problems? • Why is it important to understand the standard algorithm in order to fluently multiply multi-digit numbers?	<i>Students will be able to..</i> • A coordinate system is defined by a pair of perpendicular lines called axes with the intersection of the lines, the origin, occurring at 0 on each line. • A given point in the coordinate plane is located using an ordered pair of numbers called coordinates. • The first number in an ordered pair indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis. • The names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate). • Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane. • Interpret coordinate values of points in the context of the real world and mathematical problems

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- How can polygons, triangles, and quadrilaterals be described, classified and named?

Enduring Understandings:

Students will know... "I can..."

- A line graph is a visual way to show two sets of related information on a coordinate grid. Lines on a coordinate grid are marked at a consistent interval.
- Two intersecting number lines can be used to identify the location of points on a plane. Ordered pairs tell the distance a point is from the origin on the X and Y axis.
- Two dimensional figures have more than one name when they can be classified in more than one way. Two-dimensional figures can be organized in a hierarchy to show their relationship to one another.
- Two- and three-dimensional objects with or without curved surfaces can be described, classified, and analyzed by their attributes.
- Plane shapes have many properties that make them different from one another. Polygons can be described and classified by their sides and angles.

- Recognize the attributes belonging to a category of two-dimensional figures also belong to all subcategories.
- Classify two-dimensional figures in a hierarchy based on properties.

Justify conclusion with patterns or rules through... ■ Conditional structures (if/then, when) to demonstrate conclusions (Adding 3 to an even number always gives you an odd number and if you add 3 to an odd number, you will get an even number.) ■ Technical nouns and noun groups to add precision and details (exponents, decimals, inverse operations, intersecting lines) ■ Drawings, manipulatives, diagrams, graphs, models to demonstrate thinking Evaluate others' arguments through... ■ Questions (how, what, why) and requests (could, would) to ask for clarification or information (How did you know how to start? Could you explain this part of your diagram?) ■ Declarative statements to disagree/debate (I don't think that's right, I disagree, how did you, I did it differently, let's compare our process)

Instructional Plan

Suggested Activities

- Manipulatives and collections of materials
- Tasks involving collaboration and problem-solving amongst peers; utilizing Geometry explorations
- Geoboard tasks and activities (create, identify, define)
- Shape "Hunt" inside and outside of the classroom
- [BrainPop \(Geometry games\)](#)

Resources

[Illustrative Math Tasks 5.G](#)
[Math Milestones - Grade 5 Tasks](#)
[Grade 5 Student Handouts](#)
[Math Is Visual videos & Tasks](#)

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- [LGBTQ Activity 6.1.2.CivicsCM.3 sorting quadrilaterals by similar attributes](#) : Students will open with a think-pair-share to group classmates by similar attributes to understand that although we are different, we all share something the same. Connect this idea to identify and sorting quadrilaterals

As appropriate:

- VB-Mapp
- ABLLS

[K-5math teaching resources](#)

Suggested Options for Differentiation

- **Multi-Language Learners**
 - Simplify written and verbal instructions
 - Provide written directions with models and diagrams when possible
 - Build in more group work to allow ML students to interact and communicate with peers
 - Provide vocabulary ahead of time
 - Use sentence frames to give students practice with academic language
 - Pre-teach as often as possible- share videos, articles, vocabulary etc. with ML students prior to use in class
 - Utilize visual charts/cues
 - Highlight key words
 - Provide manipulatives
 - Frequently check for understanding
- **Special Education/504 Plans**
 - Follow specific students accommodations and modifications as listed in individual student IEP or 504 plan
 - Provide opportunities for movement
 - Have manipulatives and other math resources available for student use
 - Incorporate small group instruction
 - Utilize visual charts/cues
 - Facilitate successful experiences
 - Provide tutoring if needed

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- Provide positive praise to increase motivation
 - Behavior management support.
 - Adjusted class schedules or grading.
 - Extended time on tests and assignments.
 - Verbal, visual, or technology aids.
- **Gifted and Talented**
 - Differentiated assignments/projects/assessments
 - Differentiate learning pace using curriculum acceleration
 - Curriculum compacting
 - Open ended/abstract questions to activate higher level thinking
 - Alternative modes of communication
 - Student developed extension activities
 - Plan self directed inquiry
 - Student created rubrics
 - Opportunities to push assessment/activity boundaries
 - Self centered curriculum allowing for student choice
- **Students In Need of Academic Support:**
 - Ensure child has access to all appropriate academic resources both in school and at home
 - Provide structure and adhere to a consistent daily routine with clear and concise rules
 - Facilitate successful experiences
 - Provide tutoring if needed
 - Allow students to complete assignments in school
 - Do not penalize for late or missing assignments/materials
 - Offer encouragement and understanding
 - Allow students to have personal possessions and property in school
 - Give choice to provide a sense of control
- **Economically Disadvantaged:**
 - Provide clear, achievable expectations, do not lower academic requirements for them.
 - Build a safe and nurturing atmosphere
 - Be flexible with assignments
 - Offer several alternatives from which all students can choose.
 - Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.

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- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input

- **Culturally Diverse:**

- Involve families in student learning
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Support verbal explanations with non verbal cues: Gestures/ facial expressions Props, realia, manipulatives, concrete materials Visuals, graphs, pictures, maps
- Provide positive praise to increase motivation
- Provide real world connections and emphasize the value of education
- Communicate high expectations for the success of all students
- Integrate the arts into learning activities

Multi-Language Learners:

- Differentiate instruction and classroom assessment as guided by the [WIDA English Language Development Standards Framework, 2020 Edition](#).
- Follow the Individualized Educational Plans (IEP) for ML Special Education (SE) students.
- Encourage the ML student to use oral language. Discussions, especially pair-work, allow students to expand language usage in listening and speaking.
- Allow MLs to clarify ideas, make sense of their previous statements and elaborate on their views with specific explanations.
- Use wait time for MLs to express their ideas in class.
- Graphic organizers, color-coded anchor charts, word walls with visual imagery, and breakdown techniques for decoding dense mathematical word problems
- Structured talk protocols (Think-Pair-Share, Numbered Talks) and word banks

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- Simplify written and verbal instructions
- Provide written directions with models and diagrams when possible
- Build in more group work to allow Multilingual Learner students to interact and communicate with peers
- Provide vocabulary ahead of time
- Use sentence frames to give students practice with academic language
- Pre-teach as often as possible- share videos, articles, vocabulary etc. with Multilingual Learner students prior to use in class
- Utilize visual charts/cues
- Highlight key words
- Provide manipulatives
- Frequently check for understanding

Special Education//Students with Disabilities:

- Follow specific students accommodations and modifications as listed in individual student IEP or 504 plan
- Provide opportunities for movement
- Have manipulatives and other math resources available for student use
- Incorporate small group instruction
- Utilize visual charts/cues
- Facilitate successful experiences
- Provide tutoring if needed

Core Instructional and Supplemental Materials

- **enVision Mathematics 2020 Grade 5 Topics 14-16**

Varied Levels of Text:

- Marilyn Burns Math Library List
http://teacher.scholastic.com/reading/bestpractices/pdfs/mbmath_TitleList.pdf
- [EPIC](#)
- [Readworks](#)

The following Standards for Mathematical Practice and select New Jersey Student Learning Standards should be covered throughout the various units of the curriculum.

Standards for Mathematical Practices

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MP.1	Make sense of problems and persevere in solving them	● Find meaning in problems ● Look for entry points ● Analyze, conjecture and plan solution pathways ● Monitor and adjust ● Verify answers ● Ask themselves the question: “Does this make sense?”
MP.2	Reason abstractly and quantitatively.	● Make sense of quantities and their relationships in problems ● Learn to contextualize and de-contextualize ● Create coherent representations of problems
MP.3	Construct viable arguments and critique the reasoning of others.	● Understand and use information to construct arguments ● Make and explore the truth of conjectures ● Recognize and use counterexamples ● Justify conclusions and respond to arguments of others
MP.4	Model with Mathematics.	● Apply mathematics to problems in everyday life ● Make assumptions and approximations ● Identify quantities in a practical situation ● Interpret results in the context of the situation and reflect on whether the results make sense
MP.5	Use appropriate tools strategically.	● Consider the available tools when solving problems ● Are familiar with tools appropriate for their grade or course (pencil and paper, concrete models, ruler, protractor, calculator, spreadsheet, computer programs, digital content located on a website, and other technological tools)

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MP.6	Attend to precision.	• Make sound decisions of which of these tools might be helpful • Communicate precisely to others • Use clear definitions, state the meaning of symbols and are careful about specifying units of measure and labeling axes • Calculate accurately and efficiently
MP.7	Look for and make use of structure.	• Discern patterns and structures • Can step back for an overview and shift perspective • See complicated things as single objects or as being composed of several objects
Teacher Notes:		