

**WEYMOUTH TOWNSHIP MATHEMATICS  
CURRICULUM**

**Content Area: Mathematics**

**Course Title: Middle School**

**Grade Level: 6**

**Unit 1 Plan:  
Number Systems**

**September-October  
Ongoing**

**Unit 2 Plan:  
Ratios and Proportional Relationships**

**November/December  
Ongoing**

**Unit 3 Plan:  
Expressions and Equations**

**January/February  
Ongoing**

**Unit 4 Plan:  
Geometry**

**March/April  
Ongoing**

**Date Created:**

**July 2022**

**Revised:**

**Board Approved on:**

**August 2023**

**6TH GRADE MATH CURRICULUM WEYMOUTH TOWNSHIP SCHOOL**  
**Gr –6 Subject MATH Unit Plan 1 : NUMBER SYSTEMS**

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**Unit Overview**

*Content topic and skill focus*

Students use the meaning of fractions, the meanings of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for dividing fractions make sense. Students use these operations to solve problems. Students extend their previous understanding of numbers and the ordering of numbers to the full system of rational numbers, which includes negative rational numbers, and in particular negative integers. They reason about the order and absolute value of rational numbers and about the location of points in all four quadrants of the coordinate plane.

**New Jersey Student Learning Standards**

*Standard, Strand, and Content statements (CPIs listed below)*

Learning in this unit will focus on: The Number System

**Standard:** MA.6.NS.A.1, MA.6.NS.B, MA.6.NS.B.2, MA.6.NS.B.3, MA.6.NS.B.4, MA.6.NS.C.5, MA.6.NS.C.6a, MA.6.NS.C.6b, MA.6.NS.C.6c, MA.6.NS.C.7a, MA.6.NS.C.7b, MA.6.NS.C.7c, MA.6.NS.C.7d, MA.6.NS.C.8

**Content Statement:** A. Apply and extend previous understandings of multiplication and division to divide fractions by fractions. B. Compute fluently with multi-digit numbers and find common factors and multiples. C. Apply and extend previous understandings of numbers to the system of rational numbers.

**Instructional Focus**

**Lesson #:** Section 1.3, 1.4, 1.5,2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.4, 4.1, 4.2, 4.3, 5.5, 6.4, 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8

**Essential Questions:**

- HOW DO YOU KNOW WHICH OPERATION TO CHOOSE WHEN SOLVING A REAL LIFE PROBLEM?
- WHAT IS THE EFFECT OF INSERTING PARENTHESES INTO A NUMERICAL EXPRESSION?
- WITHOUT DIVIDING HOW CAN YOU TELL WHEN A NUMBER IS DIVISIBLE BY ANOTHER NUMBER?
- HOW CAN YOU FIND THE LEAST COMMON MULTIPLE OF TWO NUMBERS?
- HOW CAN YOU FIND THE LEAST COMMON MULTIPLE OF TWO NUMBERS?

**Student Learning Objectives:**

MA.6.NS.A Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

MA.6.NS.A.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions.

- Section 2.1 Students will be able to multiply fractions, Section 2.2 Students will be able to divide fractions, Section 2.3 Students will be able to divide mixed numbers.
- MA.6.NS.B.2 Fluently divide multi-digit numbers using the standard algorithm.
- Section 2.6 Students will be able to divide whole numbers, Section 2.7 Students will be able to divide decimals.
- MA.6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

- Section 2.4 Students will be able to add and subtract decimals, Section 2.5 Students will be able to multiply decimals, Section 2.7 Students will be able to divide decimals.
- MA.6.NS.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express the sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.
  - Section 1.3 Students will be able to do Prime Factorization, Section 1.4 Students will be able to find the Greatest Common Factor, Section 1.5 Students will be able to find the Least Common Multiple, Section 5.5 Students will be able to factor expressions
  - MA.6.NS.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.
  - Section 8.1 Students will be able to solve problems involving integers, Section 8.2 Students will be able to compare and order integers, Section 8.3 Students will be able to solve problems with rational numbers, Section 8.4 Students will be able to solve problems using absolute value, Section 8.5 Students will be able to solve problems using the coordinate plane, Section 8.7 Students will be able to write and graph inequalities, Section 8.8 Students will be able to solve inequalities.
  - MA.6.NS.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. MA.6.NS.6a Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, and that 0 is its own opposite.
  - Section 8.1 Students will be able to solve problems involving integers, Section 8.3 Students will be able to solve problems with rational numbers,
  - MA.6.NS.C.6b Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.
    - Section 8.5 Students will be able to solve problems using the coordinate plane, Section 8.6 Students will be able to solve problems using polygons in the coordinate plane.
  - MA.6.NS.C.6c Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.
  - Section 8.1 Students will be able to solve problems involving integers, Section 8.2 Students will be able to compare and order integers, Section 8.3 Students will be able to solve problems with rational numbers, Section 8.4 Students will be able to solve problems using absolute value, Section 8.5 Students will be able to solve problems using the coordinate plane, Section 8.6 Students will be able to solve problems with polygons in the coordinate plane, Section 8.7 Students will be able to write and graph inequalities, Section 8.8 Students will be able to solve inequalities.
  - MA.6.NS.C.7 Understand ordering and absolute value of rational numbers.
  - MA.6.NS.C.7a Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.
- Section 4.1 Students will be able to solve problems using percents and fractions, Section 4.2 Students will be able to solve problems using percents and decimals, Section 4.3 Students will be able to solve problems comparing and ordering, fractions, decimals, and percents, Section 8.2 Students will be able to compare and order integers, Section 8.3 Students will be able to solve problems with rational numbers, Section 8.4 Students will be able to solve problems using absolute value, Section 8.7 Students will be able to write and graph inequalities, Section 8.8 Students will be able to solve inequalities.

<ul style="list-style-type: none"> <li>MA 6.NS.C.7b Write, interpret, and explain statements of order for rational numbers in real-world contexts.</li> <li>Section 4.1 Students will be able to solve problems using percents and fractions, Section 4.2 Students will be able to solve problems using percents and decimals, Section 4.3 Students will be able to solve problems comparing and ordering, fractions, decimals, and percents, Section 8.2 Students will be able to compare and order integers, Section 8.3 Students will be able to solve problems with rational numbers, Section 8.4 Students will be able to solve problems using absolute value</li> <li>MA.6.NS.C.7c Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.</li> <li>Section 8.4 Students will be able to solve problems using absolute value</li> <li>MA.6.NS.C.7d Distinguish comparisons of absolute value from statements about order.</li> <li>Section 8.4 Students will be able to solve problems using absolute value</li> <li>MA.6.NS.C.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.</li> <li>Section 3.4 Students will be able to graph ratios relationships, Section 6.4 Students will be able to write equations in two variables, Section 8.5 Students will be able to solve problems using the coordinate plane, 8.6 Students will be able to solve problems with polygons in the coordinate plane</li> </ul>	
<p><b>Suggested Activities</b></p> <ul style="list-style-type: none"> <li>Introduction videos</li> <li>ixl</li> <li>graphic organizers</li> <li>scavenger hunts</li> <li>flash cards</li> <li>My Dear Aunt Sally Game</li> <li>online questions correlated to textbook</li> <li>online textbook lesson</li> <li>Stem Videos</li> </ul>	<p><b>Instructional Materials/Resources</b></p> <ul style="list-style-type: none"> <li>Big Ideas Math Textbook copyright 2022</li> <li>Big Ideas record and practice journal</li> <li>Big Ideas resource by chapter workbook</li> <li>Big Ideas skills review handbook</li> <li>teacher made materials</li> <li>instructional videos</li> <li>online chapter review</li> <li>online practice test</li> <li>online test</li> <li>cumulative assessments</li> <li>benchmark tests</li> </ul>
<p><b>Pacing: approx # of class periods: 33</b></p>	

**NJ Student Learning Standards for Math**

MA.6.NS.A.1, MA.6.NS.B.2, MA.6.NS.B.3, MA.6.NS.B.4, MA.6.NS.C.5, MA.6.NS.C.6, MA.6.NS.C.7, MA.6.NS.C.8

**Interdisciplinary Connections**

**Language Arts Literacy** LA.W.6.1.B, LA.W.6.1.C, LA.W.6.1.E, LA.W.6.2.A, LA.W.6.2.B, LA. 6.2.C, LA.W.6.2.D, LA.W.6.2.F, LA.W.6.4, LA.L.6.2.B, LA.6.3.A, LA.L.6.4.C, LA.L.6.6

**Career Readiness-Personal Financial Literacy** PFL.9.1.8.CDM.1, PFL.9.1.8.CDM.2, PFL.9.1.8.CDM.3., PFL.9.1.8.CP.1, PFL.9.1.8.CP.1, PFL.9.1.8.FI.4

**Career Awareness, Exploration, and Training** WRK.9.2.8.CAP.3

**Life Literacy and Key Skills** TECH.9.4.8.CT.1, TECH.9.4.8.IML.4, TECH.9.4.8.TL.1, TECH. 9.4.8.TL.2, TECH. 9.4.8.TL.3

### Integration of Technology

Math instruction engages students in a variety of learning experiences using technology. The following standards will be addressed through the activities in this unit:

**Computer Science and Design Thinking** CS.6-8.8.1.8.DA.1, CS.6-8.8.1.8.DA.4, CS.6-8.8.1.8.DA.5, CS.6-8.8.2.8.ED.2, CS.6-8.8.2.8.ED.3, CS.6-8.8.2.8.ED.7

### 21st Century Life and Career Skills

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

### Evidence of Learning

Summative and Benchmark Assessments	Formative Assessments and Alternative Activities
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Unit Pretest Unit Project Unit Test Performance Assessment Beginning of the year benchmark Trimester benchmark End of year benchmark	Hand Signals Student Conference Fun and Games Class work/participation Critical Thinking Skill activity Writing about Math Textbook Interactive Activities ixl record and practice journal	Lesson Review questions Reading Check questions Share/Pair Skills Practice Study Guide Teacher Observation Unit Review Vocabulary Review Graphic Organizers Homework and Practice pages Writing Connection Content Videos Online Questions
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### Instructional Delivery

Student learning experiences will include a combination of instructional strategies appropriate to the content and skills being taught. Lessons may include (but are not limited to) the following:

- Direct instruction/demonstration
- Interactive/Guided math strategies
- Cooperative learning activities
- Digital activities including videos, games, assessments
- Research projects and Presentation projects
- Small Group Instruction
- Share Examples
- Visual Aids
- Learning Centers
- Modeled, Shared, and Independent Activities
- Active Learning
- Art Projects

### Differentiated Instruction, Accommodations & Adaptations

Alternative Assessments  
Goal Setting with Students  
Homework Options  
Frequent Breaks  
Tests Read Aloud  
Color Coded Assignments/books/notebooks/folders

Cooperative Learning  
Picture Vocabulary Wall  
Anchor Charts of Concepts  
Change in Content, Process, Product  
Flexible Grouping  
Modified Class Assignments

<b>Special Education/IEP</b>	<b>504</b>
Assessments/assignments read orally w/ extended time Concept chunking Graphic organizer concept maps	Extended time for assignments Frequent breaks Sign agenda book daily

<p>Picture study guides Small group instruction Tests modified to include a word bank, drawings, and diagrams while still covering the essential concepts</p>	<p>Study guides Graphic organizers</p>
<p><b>ELL</b></p>	<p><b>Gifted &amp; Talented</b></p>
<p>Picture study guides Video presentation/Audio presentation Tests modified to include a word bank, drawings, and diagrams while still covering the essential concepts Spanish pupil editions including assessments</p>	<p>Independent extension research projects Jigsaw cooperative learning activities Student choice Advanced Activities Class grouping</p>
<p><b>At Risk/I&amp;RS</b></p>	<p><b>At Risk/I&amp;RS</b></p>
<p><b>Presentation accommodations</b> (changes the way information is presented)</p> <ul style="list-style-type: none"> <li>● Listen to audio recordings instead of reading text</li> <li>● Learn content from videos, and digital media instead of reading print versions</li> <li>● Work with fewer items per page or line</li> <li>● Have a “designated reader”—someone who reads test questions aloud to</li> <li>● Hear instructions spoken aloud</li> <li>● Get class notes from teacher</li> <li>● See an outline of a lesson</li> <li>● Use visual presentations of verbal material, such as word webs</li> <li>● Get a written list of instructions</li> </ul> <p><b>Response accommodations</b> (changes the way kids complete assignments or tests)</p> <ul style="list-style-type: none"> <li>● Give responses in a form (spoken or written) that’s easier for them</li> <li>● Dictate answers to a scribe who writes or types</li> <li>● Use a spelling dictionary or digital spell-checker</li> <li>● Use a laptop to type notes or give answers in class</li> <li>● Use a calculator or table of “math facts”</li> </ul> <p><b>Setting accommodations</b></p>	<ul style="list-style-type: none"> <li>● Take more time to complete a task or a test</li> <li>● Have extra time to process spoken information and directions</li> <li>● Take frequent breaks, such as after completing a worksheet</li> </ul> <p><b>Scheduling accommodations</b></p> <ul style="list-style-type: none"> <li>● Take more time to complete a project</li> <li>● Take a test in several sessions or over several days</li> <li>● Take sections of a test in a different order</li> <li>● Take a test at a specific time of day</li> </ul> <p><b>Organization skills accommodations</b></p> <ul style="list-style-type: none"> <li>● Mark notes with a highlighter</li> <li>● Use a planner or organizer to help coordinate assignments</li> <li>● Receive organizational skills instruction</li> </ul> <p><b>Common Modifications</b></p> <p><b>Assignment modifications</b></p> <ul style="list-style-type: none"> <li>● Complete fewer or different homework problems than peers</li> <li>● Write shorter answers to questions</li> <li>● Answer fewer or different test questions</li> <li>● Create alternate projects or assignments</li> </ul> <p><b>Curriculum modifications</b></p>

- Work or take a test in a different setting, such as a quiet room with few distractions
- Sit where they learn best (for example, near the teacher)
- Adjust lighting in the classroom
- Take a test in a small group setting

#### Timing accommodations

- Learn different material (such as continuing to work on multiplication while classmates move on to fractions)
- Get graded or assessed using a different standard than other students
- Be excused from particular projects

#### Internet Resources

Big Idea Math Series <https://www.bigideasmath.com/>

ixl math <https://www.ixl.com/>

prodigy <https://www.prodigygame.com/>

National Library of Virtual Manipulatives <http://nlvm.usu.edu/en/nav/vlibrary.html>

Internet4classrooms [https://www.internet4classrooms.com/skills\\_6th.htm](https://www.internet4classrooms.com/skills_6th.htm)

Future Smart Financial Literacy <https://platform.everfi.net/teacher/curriculum/25/demo>

Junior Achievement <http://learn.ja.org>

#### Gr –6 Subject MATH Unit Plan 2 : RATIOS AND PROPORTIONAL RELATIONSHIPS

#### Unit Overview

*Content topic and skill focus: Ratios and Proportions*

#### New Jersey Student Learning Standards

*Standard, Strand, and Content statements (CPIs listed below)*

Learning in this unit will focus on: Ratios and Proportions

**Standard MA.6.RP.A.1, MA.6.RP.A.2, MA.6.RP.A.3a, MA.6.RP.A.3b, MA.6.RP.A.3c, MA.6.RP.A.3d**

**Content Statement:** 6.RP.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. 6.RP.2 Understand the concept of a unit rate  $a/b$  associated with a ratio  $a : b$  with  $b \neq 0$ , and use rate language in the context of a ratio relationship. 6.RP.3 Use ratio and rate reasoning to solve real-world and mathematical problems. 6.RP.3 Use ratio and rate reasoning to solve real-world and mathematical problems.

#### Instructional Focus

**Lesson #:** Section 1.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 4.1, 4.2, 4.4, 6.4, 7.1, 7.7

#### Essential Questions:

- How can you represent a relationship between 2 quantities?
- How can you find two ratios that describe the same relationship?
- How can you use rates to describe changes in real-life problems?
- How can you compare two ratios?
- What is the connection between ratios, fractions, and percents?
- How can you use mental math to find the percent of a number?

### Student Learning Objectives:

- MA.6.RP.A Understand ratio concepts and use ratio reasoning to solve problems.
- MA.6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
  - Section 3.1 Students will be able to solve problems using ratios, Section 3.2 Students will be able to solve problems using tape diagrams, Section 3.3 Students will be able to solve problems using ratio tables, Section 3.4 Students will be able to solve problems by graphing ratio relationships, Section 3.5 Students will be able to solve problems using ratios and rates, Section 3.6 Students will be able to convert measures, Section 4.4 Students will be able to solve percent problems
  - MA.6.RP.A.2 Understand the concept of a unit rate  $a/b$  associated with a ratio  $a : b$  with  $b \neq 0$ , and use rate language in the context of a ratio relationship.
    - Section 3.5 Students will be able to solve problems using ratios and rates, Section 3.6 Students will be able to convert measures
    - MA.6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems.
    - MA.6.RP.A.3a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
      - Section 3.3 Students will be able to solve problems using ratio tables, Section 3.4 Students will be able to solve problems by graphing ratio relationships, Section 3.5 Students will be able to solve problems using ratios and rates, Section 3.6 Students will be able to convert measures, Section 4.4 Students will be able to solve percent problems, Section 6.4 Students will be able to write equations in 2 variables.
      - MA.6.RP.A.3b Solve unit rate problems including those involving unit pricing and constant speed.
        - Section 3.5 Students will be able to solve problems using ratios and rates, Section 3.6 Students will be able to convert measures
        - MA.6.RP.A.3c Find a percent of a quantity as a rate per 100 (e.g 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.
          - Section 4.1 Students will be able to solve problems using percents and fractions
          - Section 4.2 Students will be able to solve problems using percents and decimals
        - MA.6.RP.A.3d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
          - Section 1.5 Students will be able to solve problems using least common multiple, Section 3.6 Students will be able to convert measures, Section 7.1 Students will be able to find areas of parallelograms, Section 7.7 Students will be able to find volumes of rectangular prisms.

### Suggested Activities

- Introduction videos
- ixl
- graphic organizers
- scavenger hunts
- flash cards
- My Dear Aunt Sally Game
- online questions correlated to textbook
- online textbook lesson
- Stem Videos

### Instructional Materials/Resources

- Big Ideas Math Textbook copyright 2022
- Big Ideas record and practice journal
- Big Ideas resource by chapter workbook
- Big Ideas skills review handbook
- teacher made materials
- instructional videos
- online chapter review
- online practice test
- online test
- cumulative assessments
- benchmark tests

Pacing: approx # of class periods: 22

### NJ Student Learning Standards for Math

MA.6.RP.A.1, MA.6.RP.A.2, MA.6.RP.A.3a, MA.6.RP.A.3b, MA.6.RP.A.3c, MA.6.RP.A.3d

### Interdisciplinary Connections

**Language Arts Literacy** LA.W.7.1.B, LA.W.7.1.C, LA.W.7.1.E, LA.W.7.2.A, LA.W.7.2.B, LA. 7.2.C, LA.W.7.2.D, LA.W.7.2.F, LA.W.7.4, LA.L.7.2.B, LA.7.3.A, LA.L.7.4.C, LA.L.7.6

**Career Readiness-Personal Financial Literacy** PFL.9.1.8.CDM.1, PFL.9.1.8.CDM.2, PFL.9.1.8.CDM.3., PFL.9.1.8.CP.1, PFL.9.1.8.CP.1, PFL.9.1.8.FI.4

**Career Awareness, Exploration, and Training** WRK.9.2.8.CAP.3

**Life Literacy and Key Skills** TECH.9.4.8.CT.1, TECH.9.4.8.IML.4, TECH.9.4.8.TL.1, TECH. 9.4.8.TL.2, TECH. 9.4.8.TL.3

### Integration of Technology

Math instruction engages students in a variety of learning experiences using technology. The following standards will be addressed through activities in this unit:

### Computer Science and Design Thinking

CS.6-8.8.1.8.DA.1, CS.6-8.8.1.8.DA.4,  
CS.6-8.8.1.8.DA.5, CS.6-8.8.2.8.ED.2,  
CS.6-8.8.2.8.ED.3, CS.6-8.8.2.8.ED.7

### 21st Century Life and Career Skills

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

CRP12. Work productively in teams while using cultural global competence.

### Evidence of Learning

Summative and Benchmark Assessments	Formative Assessments and Alternative Activities
Unit Pretest Unit Project Unit Test Performance Assessment Beginning of the year benchmark Trimester benchmark End of year benchmark	Hand Signals Student Conference Fun and Games Class work/participation Critical Thinking Skill activity Writing about Math Textbook Interactive Activities ixl record and practice journal Lesson Review questions Reading Check questions Share/Pair Skills Practice Study Guide Teacher Observation Unit Review Vocabulary Review Graphic Organizers Homework and Practice pages Writing Connection Content Videos Online Questions

### Instructional Delivery

Student learning experiences will include a combination of instructional strategies appropriate to the content and skills being taught. Lessons may include (but are not limited to) the following:

- Direct instruction/demonstration
- Interactive/Guided math strategies
- Cooperative learning activities
- Digital activities including videos, games, assessments
- Research projects and Presentation projects
- Small Group Instruction
- Share Examples
- Visual Aids
- Learning Centers
- Modeled, Shared, and Independent Activities
- Active Learning
  
- Art Projects

### Differentiated Instruction, Accommodations & Adaptations

Alternative Assessments  
 Goal Setting with Students  
 Homework Options  
 Frequent Breaks

Tests Read Aloud  
 Color Coded Assignments/books/notebooks/folders  
 Cooperative Learning  
 Picture Vocabulary Wall

<p><b>Special Education/IEP</b></p>	<p><b>504</b></p>
<p>Assessments/assignments read orally w/ extended time Concept chunking Graphic organizer concept maps Picture study guides Small group instruction Tests modified to include a word bank, drawings, and diagrams while still covering the essential concepts</p>	<p>Extended time for assignments Frequent breaks Sign agenda book daily Study guides Graphic organizers</p>
<p><b>ELL</b></p>	<p><b>Gifted &amp; Talented</b></p>
<p>Picture study guides Video presentation/Audio presentation Tests modified to include a word bank, drawings, and diagrams while still covering the essential concepts Spanish pupil editions including assessments</p>	<p>Independent extension research projects Jigsaw cooperative learning activities Student choice Advanced Activities Class grouping</p>
<p><b>At Risk/I&amp;RS</b></p>	<p><b>At Risk/I&amp;RS</b></p>
<p><b>Presentation accommodations</b> (changes the way information is presented)</p> <ul style="list-style-type: none"> <li>● Listen to audio recordings instead of reading text</li> <li>● Learn content from videos, and digital media instead of reading print versions</li> <li>● Work with fewer items per page or line</li> <li>● Have a “designated reader”—someone who reads test questions aloud to</li> <li>● Hear instructions spoken aloud</li> <li>● Get class notes from teacher</li> <li>● See an outline of a lesson</li> <li>● Use visual presentations of verbal material, such as word webs</li> <li>● Get a written list of instructions</li> </ul> <p><b>Response accommodations</b> (changes the way kids complete assignments or tests)</p> <ul style="list-style-type: none"> <li>● Give responses in a form (spoken or written) that’s easier for them</li> <li>● Dictate answers to a scribe who writes or types</li> <li>● Use a spelling dictionary or digital spell-checker</li> </ul>	<p><b>Common Modifications</b></p> <p><b>Assignment modifications</b></p> <ul style="list-style-type: none"> <li>● Complete fewer or different homework problems than peers</li> <li>● Write shorter answers to questions</li> <li>● Answer fewer or different test questions</li> <li>● Create alternate projects or assignments</li> </ul> <p><b>Curriculum modifications</b></p> <ul style="list-style-type: none"> <li>● Learn different material (such as continuing to work on multiplication while classmates move on to fractions)</li> <li>● Get graded or assessed using a different standard than other students</li> <li>● Be excused from particular projects</li> </ul> <p><b>Scheduling accommodations</b></p> <ul style="list-style-type: none"> <li>● Take more time to complete a project</li> <li>● Take a test in several sessions or over several days</li> <li>● Take sections of a test in a different order</li> </ul>

<ul style="list-style-type: none"> <li>● Use a laptop to type notes or give answers in class</li> <li>● Use a calculator or table of “math facts”</li> </ul> <p><b>Setting accommodations</b></p> <ul style="list-style-type: none"> <li>● Work or take a test in a different setting, such as a quiet room with few distractions</li> <li>● Sit where they learn best (for example, near the teacher)</li> <li>● Adjust lighting in the classroom</li> <li>● Take a test in a small group setting</li> </ul> <p><b>Timing accommodations</b></p> <ul style="list-style-type: none"> <li>● Take more time to complete a task or a test</li> <li>● Have extra time to process spoken information and directions</li> <li>● Take frequent breaks, such as after completing a worksheet</li> </ul>	<ul style="list-style-type: none"> <li>● Take a test at a specific time of day</li> </ul> <p><b>Organization skills accommodations</b></p> <ul style="list-style-type: none"> <li>● Mark notes with a highlighter</li> <li>● Use a planner or organizer to help coordinate assignments</li> <li>● Receive organizational skills instruction</li> </ul>
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### Internet Resources

Big Idea Math Series <https://www.bigideasmath.com/>  
ixl math <https://www.ixl.com/>  
prodigy <https://www.prodigygame.com/>  
National Library of Virtual Manipulatives <http://nlvm.usu.edu/en/nav/vlibrary.html>  
Internet4classrooms [https://www.internet4classrooms.com/skills\\_6th.htm](https://www.internet4classrooms.com/skills_6th.htm)  
Future Smart Financial Literacy <https://platform.everfi.net/teacher/curriculum/25/dem>  
Junior Achievement <http://learn.ja.org>

### Gr –6 Subject MATH Unit Plan 3 : Expressions and Equations

#### Unit Overview

*Content topic and skill focus: Expressions and Equations*

#### New Jersey Student Learning Standards

*Standard, Strand, and Content statements (CPIs listed below)*

Learning in this unit will focus on: Expressions and Equations

**Standard MA.6.EE.A.1, MA.6.EE.2a, MA.6.EE.2b, MA.6.EE.2c, MA.6.EE.A.3, MA.6.EE.A.4, MA.6.EE.B.5, MA.6.EE.B.6, MA.6.EE.B.7, MA.6.EE.B.8, MA.6.EE.C.9**

**Content Statement:** Students understand the use of variables in mathematical expressions. They write expressions and equations that correspond to given situations, evaluate expressions, and use expressions and formulas to solve problems. Students understand that expressions in different forms can be equivalent, and they use the properties of operations to rewrite expressions in equivalent forms. Students know that the solutions of an equation are the values of the variables that make the equation true. Students use properties of operations and the idea of maintaining the equality of both sides of an equation to solve simple one-step equations. Students construct and analyze tables, such as tables of quantities that are in equivalent ratios, and they use equations (such as  $3x = y$ ) to describe relationships between quantities.

## **Instructional Focus Expressions/Equations**

**Lesson #:** Sections 1.1, 1.2, 1.3, 1.4, 1.5, 5.1, 5.2, 5.3, 5.4, 5.5, 6.1, 6.2, 6.3, 6.4, 7.1, 7.2, 7.3, 7.5, 7.6, 7.7, 8.7, 8.8

### **Essential Questions:**

- How can you use repeated factors in real-life situations?
- What is the effect of inserting parentheses into a numerical expression?
- How can you find the greatest common factor of two numbers?
- How can you write an expression that represents an unknown quantity?
- How can you use mental math to multiply two numbers?
- How can you use addition and subtraction to solve an equation?
- How can you use multiplication or division to solve an equation?
- How can you use a number line to represent solutions to an inequality?

### **Student Learning Objectives:**

- MA.6.EE.A Apply and extend previous understandings of arithmetic to algebraic expressions.
- MA.6.EE.A.1 Write and evaluate numerical expressions involving whole-number exponents.
- Section 1.1 Students will be able to use powers and exponents, Section 1.2 Students will be able to use the order of operations, Section 5.1 Students will be able to solve algebraic expressions.
- MA.6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers.
- MA.6.EE.A.2a Write expressions that record operations with numbers and with letters standing for numbers.
- Section 5.2 Students will be able to write expressions, Section 5.3 Students will be able to solve problems using the properties of addition and multiplication, Section 5.4 Students will be able to solve problems using the distributive property, Section 6.1 Students will be able to write equations in one variable, Section 6.2 Students will be able to solve equations using addition and subtraction, Section 6.3 Students will be able to solve equations using multiplication or division, Section 6.4 Students will be able to write equations in two variables, Section 8.7 Students will be able to write and graph inequalities, Section 8.8 Students will be able to solve inequalities
- MA.6.EE.A.2b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity.
- Section 1.3 Students will be able to do Prime Factorization, Section 1.4 Students will be able to find the Greatest Common Factor, Section 1.5 Students will be able to find the Least Common Multiple, Section 1.5 Students will be able to find the greatest common factor, Section 5.1 Students will be able to solve algebraic expressions, Section 5.2 Students will be able to write expressions, Section 5.3 Students will be able to solve problems using the properties of addition and multiplication, Section 5.4 Students will be able to solve problems using the distributive property, Section 5.5 Students will be able to factor expressions, Section 6.1 Students will be able to write equations in one variable.
- MA.6.EE.A.2c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).

- Section 5.1 Students will be able to solve algebraic expressions, Section 5.2 Students will be able to write expressions, Section 5.3 Students will be able to solve problems using the properties of addition and multiplication, Section 5.4 Students will be able to solve problems using the distributive property, Section 6.1 Students will be able to write equations in one variable, Section 6.2 Students will be able to solve equations using addition and subtraction, Section 6.3 Students will be able to solve equations using multiplication or division, Section 6.4 Students will be able to write equations in two variables, Section 7.1 Students will be able to find the areas of parallelograms, Section 7.2 Students will be able to find the areas of triangles, Section 7.3 Students will be able to find the areas of trapezoids and kites, Section 7.5 Students will be able to find the surface areas of prisms, Section 7.7 Students will be able to find the volume of rectangular prisms, Section 8.7 Students will be able to write and graph inequalities, Section 8.8 Students will be able to solve inequalities
- MA.6.EE.A.3 Apply the properties of operations to general equivalent expressions.
- Section 5.3 Students will be able to solve problems using the properties of addition and multiplication, Section 5.4 Students will be able to solve problems using the distributive property, Section 5.5 Students will be able to factor expressions
- MA.6.EE.A.4 Identify when two expressions are equivalent.
- Section 5.3 Students will be able to solve problems using the properties of addition and multiplication, Section 5.4 Students will be able to solve problems using the distributive property, Section 5.5 Students will be able to factor expressions
- MA.6.EE.B.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
- Section 6.1 Students will be able to solve equations using addition or subtraction, Section 6.2 Students will be able to solve equations using multiplication or division, Section 6.3 Students will be able to write and graph inequalities, Section 6.4 Students will be able to solve problems using inequalities using addition or subtraction, Section 7.1 Students will be able to find the areas of parallelograms, Section 7.2 Students will be able to find the areas of triangles, Section 7.3 Students will be able to find the areas of trapezoids and kites, Section 7.5 Students will be able to find the surface areas of prisms, Section 7.7 Students will be able to find the volume of rectangular prisms, Section 8.7 Students will be able to write and graph inequalities, Section 8.8 Students will be able to solve inequalities.  
MA.6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
- Section 6.1 Students will be able to solve equations using addition or subtraction, Section 6.2 Students will be able to solve equations using multiplication or division, Section 6.3 Students will be able to write and graph inequalities, Section 6.4 Students will be able to solve problems using inequalities using addition or subtraction, Section 7.1 Students will be able to find the areas of parallelograms, Section 7.2 Students will be able to find the areas of triangles, Section 7.3 Students will be able to find the areas of trapezoids and kites, Section 7.5 Students will be able to find the surface areas of prisms, Section 7.7 Students will be able to find the volume of rectangular prisms, Section 8.7 Students will be able to write and graph inequalities, Section 8.8 Students will be able to solve inequalities.
- MA.6.EE.B.7 Solve real-world and mathematical problems by writing and solving equations of the form  $x + p = q$  and  $px = q$  for cases in which  $p$ ,  $q$ , and  $x$  are all nonnegative rational numbers.
- Section 6.1 Students will be able to solve equations using addition or subtraction, Section 6.2 Students will be able to solve equations using multiplication or division, Section 6.3 Students will be able to write and graph inequalities, Section 6.4 Students will be able to solve problems using inequalities using addition or subtraction, Section 7.1 Students will be able to find the areas of parallelograms, Section 7.2 Students will be able to find the areas of triangles, Section 7.7 Students will be able to find the volume of rectangular prisms.

<ul style="list-style-type: none"> <li>MA.6.EE.B.8 Write an inequality of the form <math>x &gt; c</math> or <math>x &lt; c</math> to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form <math>x &gt; c</math> or <math>x &lt; c</math> have infinitely many solutions; represent solutions of such inequalities on number line diagrams.</li> <li>Section 8.7 Students will be able to write and graph inequalities, Section 8.8 Students will be able to solve inequalities</li> <li>MA.6.EE.C.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.</li> <li>Section 6.4 Students will be able to solve problems using inequalities using addition or subtraction</li> </ul>	
<p><b>Suggested Activities</b></p> <ul style="list-style-type: none"> <li>Introduction videos</li> <li>ixl</li> <li>graphic organizers</li> <li>scavenger hunts</li> <li>flash cards</li> <li>My Dear Aunt Sally Game</li> <li>online questions correlated to textbook</li> <li>online textbook lesson</li> <li>Stem Videos</li> </ul>	<p><b>Instructional Materials/Resources</b></p> <ul style="list-style-type: none"> <li>Big Ideas Math Textbook copyright 2022</li> <li>Big Ideas record and practice journal</li> <li>Big Ideas resource by chapter workbook</li> <li>Big Ideas skills review handbook</li> <li>teacher made materials</li> <li>instructional videos</li> <li>online chapter review</li> <li>online practice test</li> <li>online test</li> <li>cumulative assessments</li> <li>benchmark tests</li> </ul>
<p><b>Pacing: approx # of class periods: 34</b></p>	

**NJ Student Learning Standards for Math**

**MA.6.EE.1, MA.6.EE.2a, MA.6.EE.2b, MA.6.EE.2c, MA.6.EE.3, MA.6.EE.4, MA.6.EE.5, MA.6.EE.6, MA.6.EE.7, MA.6.EE.8, MA.6.EE.9**

**Interdisciplinary Connections**

**Interdisciplinary Connections**

**Language Arts Literacy** LA.W.7.1.B, LA.W.7.1.C, LA.W.7.1.E, LA.W.7.2.A, LA.W.7.2.B, LA. 7.2.C, LA.W.7.2.D, LA.W.7.2.F, LA.W.7.4, LA.L.7.2.B, LA.7.3.A, LA.L.7.4.C, LA.L.7.6

**Career Readiness-Personal Financial Literacy** PFL.9.1.8.CDM.1, PFL.9.1.8.CDM.2, PFL.9.1.8.CDM.3., PFL.9.1.8.CP.1, PFL.9.1.8.CP.1, PFL.9.1.8.FI.4

**Career Awareness, Exploration, and Training** WRK.9.2.8.CAP.3

**Life Literacy and Key Skills** TECH.9.4.8.CT.1, TECH.9.4.8.IML.4, TECH.9.4.8.TL.1, TECH. 9.4.8.TL.2, TECH. 9.4.8.TL.3

**Integration of Technology**

Math instruction engages students in a variety of learning experiences using technology. The following standards will be addressed through activities in this unit:

**Computer Science and Design Thinking** CS.6-8.8.1.8.DA.1, CS.6-8.8.1.8.DA.4, CS.6-8.8.1.8.DA.5, CS.6-8.8.2.8.ED.2, CS.6-8.8.2.8.ED.3, CS.6-8.8.2.8.ED.7

**21st Century Life and Career Skills**

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

**Evidence of Learning**

<b>Summative and Benchmark Assessments</b>	<b>Formative Assessments and Alternative Activities</b>	
Unit Pretest Unit Project Unit Test Performance Assessment Beginning of the year benchmark Trimester benchmark End of year benchmark	Hand Signals Student Conference Fun and Games Class work/participation Critical Thinking Skill activity Writing about Math Textbook Interactive Activities ixl prodigy record and practice journal	Lesson Review questions Reading Check questions Share/Pair Skills Practice Study Guide Teacher Observation Unit Review Vocabulary Review Graphic Organizers Homework and Practice pages Writing Connection Content Videos

	Online Questions
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**Instructional Delivery**

Student learning experiences will include a combination of instructional strategies appropriate to the content and skills being taught. Lessons may include (but are not limited to) the following:

- Direct instruction/demonstration
- Interactive/Guided math strategies
- Cooperative learning activities
- Digital activities including videos, games, assessments
- Research projects and Presentation projects
- Small Group Instruction
- Share Examples
- Visual Aids
- Learning Centers
- Modeled, Shared, and Independent Activities
- Active Learning
- Art Projects

**Differentiated Instruction, Accommodations & Adaptations**

Alternative Assessments  
 Goal Setting with Students  
 Homework Options  
 Frequent Breaks  
 Tests Read Aloud  
 Color Coded Assignments/books/notebooks/folders

Cooperative Learning  
 Picture Vocabulary Wall  
 Anchor Charts of Concepts  
 Change in Content, Process, Product  
 Flexible Grouping  
 Modified Class Assignments

<b>Special Education/IEP</b>	<b>504</b>
Assessments/assignments read orally w/ extended time Concept chunking Graphic organizer concept maps Picture study guides Small group instruction Tests modified to include a word bank, drawings, and diagrams while still covering the essential concepts	Extended time for assignments Frequent breaks Sign agenda book daily Study guides Graphic organizers
<b>ELL</b>	<b>Gifted &amp; Talented</b>
Picture study guides Video presentation/Audio presentation Tests modified to include a word bank, drawings, and diagrams while still covering the essential concepts Spanish pupil editions including assessments	Independent extension research projects Jigsaw cooperative learning activities Student choice Advanced Activities Class grouping

At Risk/I&RS	At Risk/I&RS
<p><b>Presentation accommodations</b> (changes the way information is presented)</p> <ul style="list-style-type: none"> <li>● Listen to audio recordings instead of reading text</li> <li>● Learn content from videos, and digital media instead of reading print versions</li> <li>● Work with fewer items per page or line</li> <li>● Have a “designated reader”—someone who reads test questions aloud to</li> <li>● Hear instructions spoken aloud</li> <li>● Get class notes from teacher</li> <li>● See an outline of a lesson</li> <li>● Use visual presentations of verbal material, such as word webs</li> <li>● Get a written list of instructions</li> </ul> <p><b>Response accommodations</b> (changes the way kids complete assignments or tests)</p> <ul style="list-style-type: none"> <li>● Give responses in a form (spoken or written) that’s easier for them</li> <li>● Dictate answers to a scribe who writes or types</li> <li>● Use a spelling dictionary or digital spell-checker</li> <li>● Use a laptop to type notes or give answers in class</li> <li>● Use a calculator or table of “math facts”</li> </ul> <p><b>Setting accommodations</b></p> <ul style="list-style-type: none"> <li>● Work or take a test in a different setting, such as a quiet room with few distractions</li> <li>● Sit where they learn best (for example, near the teacher)</li> <li>● Adjust lighting in the classroom</li> <li>● Take a test in a small group setting</li> </ul> <p><b>Timing accommodations</b></p> <ul style="list-style-type: none"> <li>● Take more time to complete a task or a test</li> <li>● Have extra time to process spoken information and directions</li> </ul>	<p><b>Common Modifications</b></p> <p><b>Assignment modifications</b></p> <ul style="list-style-type: none"> <li>● Complete fewer or different homework problems than peers</li> <li>● Write shorter answers to questions</li> <li>● Answer fewer or different test questions</li> <li>● Create alternate projects or assignments</li> </ul> <p><b>Curriculum modifications</b></p> <ul style="list-style-type: none"> <li>● Learn different material (such as continuing to work on multiplication while classmates move on to fractions)</li> <li>● Get graded or assessed using a different standard than other students</li> <li>● Be excused from particular projects</li> </ul> <p><b>Scheduling accommodations</b></p> <ul style="list-style-type: none"> <li>● Take more time to complete a project</li> <li>● Take a test in several sessions or over several days</li> <li>● Take sections of a test in a different order</li> <li>● Take a test at a specific time of day</li> </ul> <p><b>Organization skills accommodations</b></p> <ul style="list-style-type: none"> <li>● Mark notes with a highlighter</li> <li>● Use a planner or organizer to help coordinate assignments</li> <li>● Receive organizational skills instruction</li> </ul>

- Take frequent breaks, such as after completing a worksheet

### Internet Resources

Big Idea Math Series <https://www.bigideasmath.com/>

ixl math <https://www.ixl.com/>

prodigy <https://www.prodigygame.com/>

National Library of Virtual Manipulatives <http://nlvm.usu.edu/en/nav/vlibrary.html>

Internet4classrooms [https://www.internet4classrooms.com/skills\\_6th.htm](https://www.internet4classrooms.com/skills_6th.htm)

Future Smart Financial Literacy <https://platform.everfi.net/teacher/curriculum/25/demo>

Junior Achievement <http://learn.ja.org>

## Gr –6 Subject MATH Unit Plan 4 : Geometry

### Unit Overview

*Content topic and skill focus: Geometry*

### New Jersey Student Learning Standards

*Standard, Strand, and Content statements (CPIs listed below)*

Learning in this unit will focus on: Geometry

#### **Standard MA.6.G.A.1, MA.6.G.A.2, MA.6.G.A.3, MA.6.G.A.4**

**Content Statement:** Students in Grade 6 also build on their work with area in elementary school by reasoning about relationships among shapes to determine area, surface area, and volume. They find areas of right triangles, other triangles, and special quadrilaterals by decomposing these shapes, rearranging or removing pieces, and relating the shapes to rectangles. Using these methods, students discuss, develop, and justify formulas for areas of triangles and parallelograms. Students find areas of polygons and surface area of prisms and pyramids by decomposing them into pieces whose area they can determine. They reason about right rectangular prisms with fractional side lengths to extend formulas for the volume of a right rectangular prism to fractional side lengths. They prepare for work on scale drawings and constructions in Grade 7 by drawing polygons in the coordinate plane.

#### **Instructional Focus Geometry**

**Lesson #:** Sections 7.1, 7.2, 7.3, 7.5, 7.6, 7.7, 8.6

#### **Essential Questions:**

- How can you draw three-dimensional figures?
- How can you find the area of the entire surface of a prism?
- How can you use a net to find the surface area of a pyramid?
- How can you find the volume of a rectangular prism with fractional edge lengths?

**Student Learning Objectives:**

- MA.6.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
- Section 7.1 Students will be able to find the areas of parallelograms, Section 7.2 Students will be able to find the areas of triangles, Section 7.3 Students will be able to find the areas of trapezoids and kites, Section 7.5 Students will be able to find the surface areas of prisms, Section 7.6 Students will be able to find surface area of pyramids, Section 8.6 Students will be able to solve problems with polygons in the coordinate plane.
- MA.6.G.A.2 Find the volume of right rectangular prisms with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge length of the prism. Apply the formulas  $V = \ell wh$  and  $V = bh$  to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
- Section 7.7 Students will be able to find volumes of rectangular prisms.
- MA.6.G.A.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.
- Section 8.6 Students will be able to solve problems with polygons in the coordinate plane.
- MA.6.G.A.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the net to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.
- Section 7.4 Students will be able to solve problems with 3-dimensional figures, Section 7.5 Students will be able to find the surface areas of prisms, Section 7.6 Students will be able to find surface areas of pyramids.

**Suggested Activities**

- Introduction videos
- ixl
- graphic organizers
- scavenger hunts
- flash cards
- My Dear Aunt Sally Game
- online questions correlated to textbook
- online textbook lesson
- Stem Videos

**Instructional Materials/Resources**

- Big Ideas Math Textbook copyright 2022
- Big Ideas record and practice journal
- Big Ideas resource by chapter workbook
- Big Ideas skills review handbook
- teacher made materials
- instructional videos
- online chapter review
- online practice test
- online test
- cumulative assessments
- benchmark tests

**Pacing: approx # of class periods: 23**

**NJ Student Learning Standards for Math**

MA.6.G.A.1, MA.6.G.A.2, MA.6.G.A.3, MA.6.G.A.4

**Interdisciplinary Connections**

**Language Arts Literacy** LA.W.7.1.B, LA.W.7.1.C, LA.W.7.1.E, LA.W.7.2.A, LA.W.7.2.B, LA. 7.2.C, LA.W.7.2.D, LA.W.7.2.F, LA.W.7.4, LA.L.7.2.B, LA.7.3.A, LA.L.7.4.C, LA.L.7.6

**Career Readiness-Personal Financial Literacy** PFL.9.1.8.CDM.1, PFL.9.1.8.CDM.2, PFL.9.1.8.CDM.3., PFL.9.1.8.CP.1, PFL.9.1.8.CP.1, PFL.9.1.8.FI.4

**Career Awareness, Exploration, and Training** WRK.9.2.8.CAP.3

**Life Literacy and Key Skills** TECH.9.4.8.CT.1, TECH.9.4.8.IML.4, TECH.9.4.8.TL.1, TECH. 9.4.8.TL.2, TECH. 9.4.8.TL.3

### Integration of Technology

Math instruction engages students in a variety of learning experiences using technology. The following standards will be addressed through activities in this unit:

**Computer Science and Design Thinking** CS.6-8.8.1.8.DA.1, CS.6-8.8.1.8.DA.4, CS.6-8.8.1.8.DA.5, CS.6-8.8.2.8.ED.2, CS.6-8.8.2.8.ED.3, CS.6-8.8.2.8.ED.7

### 21st Century Life and Career Skills

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

### Evidence of Learning

Summative and Benchmark Assessments	Formative Assessments and Alternative Activities
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Unit Pretest Unit Project Unit Test Performance Assessment Beginning of the year benchmark Trimester benchmark End of year benchmark	Hand Signals Student Conference Fun and Games Class work/participation Critical Thinking Skill activity Writing about Math Textbook Interactive Activities ixl prodigy record and practice journal	Lesson Review questions Reading Check questions Share/Pair Skills Practice Study Guide Teacher Observation Unit Review Vocabulary Review Graphic Organizers Homework and Practice pages Writing Connection Content Videos Online Questions
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### Instructional Delivery

Student learning experiences will include a combination of instructional strategies appropriate to the content and skills being taught. Lessons may include (but are not limited to) the following:

- Direct instruction/demonstration
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- Research projects and Presentation projects
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- Share Examples
- Visual Aids
- Learning Centers
- Modeled, Shared, and Independent Activities
- Active Learning
- Art Projects

### Differentiated Instruction, Accommodations & Adaptations

Alternative Assessments  
Goal Setting with Students  
Homework Options  
Frequent Breaks  
Tests Read Aloud  
Color Coded Assignments/books/notebooks/folders

Cooperative Learning  
Picture Vocabulary Wall  
Anchor Charts of Concepts  
Change in Content, Process, Product  
Flexible Grouping  
Modified Class Assignments

<b>Special Education/IEP</b>	<b>504</b>
Assessments/assignments read orally w/ extended time Concept chunking Graphic organizer concept maps Picture study guides Small group instruction	Extended time for assignments Frequent breaks Sign agenda book daily Study guides Graphic organizers

<p>Tests modified to include a word bank, drawings, and diagrams while still covering the essential concepts</p>	
<p><b>ELL</b></p>	<p><b>Gifted &amp; Talented</b></p>
<p>Picture study guides Video presentation/Audio presentation Tests modified to include a word bank, drawings, and diagrams while still covering the essential concepts Spanish pupil editions including assessments</p>	<p>Independent extension research projects Jigsaw cooperative learning activities Student choice Advanced Activities Class grouping</p>
<p><b>At Risk/I&amp;RS</b></p>	<p><b>At Risk/I&amp;RS</b></p>
<p><b>Presentation accommodations</b> (changes the way information is presented)</p> <ul style="list-style-type: none"> <li>● Listen to audio recordings instead of reading text</li> <li>● Learn content from videos, and digital media instead of reading print versions</li> <li>● Work with fewer items per page or line</li> <li>● Have a “designated reader”—someone who reads test questions aloud to</li> <li>● Hear instructions spoken aloud</li> <li>● Get class notes from teacher</li> <li>● See an outline of a lesson</li> <li>● Use visual presentations of verbal material, such as word webs</li> <li>● Get a written list of instructions</li> </ul> <p><b>Response accommodations</b> (changes the way kids complete assignments or tests)</p> <ul style="list-style-type: none"> <li>● Give responses in a form (spoken or written) that’s easier for them</li> <li>● Dictate answers to a scribe who writes or types</li> <li>● Use a spelling dictionary or digital spell-checker</li> <li>● Use a laptop to type notes or give answers in class</li> <li>● Use a calculator or table of “math facts”</li> </ul> <p><b>Setting accommodations</b></p> <ul style="list-style-type: none"> <li>● Work or take a test in a different setting, such as a quiet room with few distractions</li> </ul>	<p><b>Common Modifications</b></p> <p><b>Assignment modifications</b></p> <ul style="list-style-type: none"> <li>● Complete fewer or different homework problems than peers</li> <li>● Write shorter answers to questions</li> <li>● Answer fewer or different test questions</li> <li>● Create alternate projects or assignments</li> </ul> <p><b>Curriculum modifications</b></p> <ul style="list-style-type: none"> <li>● Learn different material (such as continuing to work on multiplication while classmates move on to fractions)</li> <li>● Get graded or assessed using a different standard than other students</li> <li>● Be excused from particular projects</li> </ul> <p><b>Scheduling accommodations</b></p> <ul style="list-style-type: none"> <li>● Take more time to complete a project</li> <li>● Take a test in several sessions or over several days</li> <li>● Take sections of a test in a different order</li> <li>● Take a test at a specific time of day</li> </ul> <p><b>Organization skills accommodations</b></p> <ul style="list-style-type: none"> <li>● Mark notes with a highlighter</li> <li>● Use a planner or organizer to help coordinate assignments</li> </ul>

<ul style="list-style-type: none"> <li>● Sit where they learn best (for example, near the teacher)</li> <li>● Adjust lighting in the classroom</li> <li>● Take a test in a small group setting</li> </ul> <p><b>Timing accommodations</b></p> <ul style="list-style-type: none"> <li>● Take more time to complete a task or a test</li> <li>● Have extra time to process spoken information and directions</li> <li>● Take frequent breaks, such as after completing a worksheet</li> </ul>	<ul style="list-style-type: none"> <li>● Receive organizational skills instruction</li> </ul>
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**Internet Resources**

Big Idea Math Series <https://www.bigideasmath.com/>  
 ixl math <https://www.ixl.com/>  
 prodigy <https://www.prodigygame.com/>  
 National Library of Virtual Manipulatives <http://nlvm.usu.edu/en/nav/vlibrary.html>  
 Internet4classrooms [https://www.internet4classrooms.com/skills\\_6th.htm](https://www.internet4classrooms.com/skills_6th.htm)  
 Future Smart Financial Literacy <https://platform.everfi.net/teacher/curriculum/25/demo>  
 Junior Achievement <http://learn.ja.org>

**Gr –6 Subject MATH Unit Plan 5 : Statistics and Probability**

**Unit Overview**

*Content topic and skill focus: Statistics and Probability*

**New Jersey Student Learning Standards**

*Standard, Strand, and Content statements (CPIs listed below)*

Learning in this unit will focus on: Statistics and Probability

**Standard MA.6.SP.A.1, MA.6.SP.A.2, MA.6.SP.A.3, MA.6.SP.B.4, MA.6.SP.B.5a, MA.6.SP.B.5b, MA.6.SP.B.5c, MA.6.SP.B.5d**

**Content Statement:** Building on and reinforcing their understanding of numbers, students begin to develop their ability to think statistically. Students recognize that a data distribution may not have a definite center and that different ways to measure center yield different values. The median measures center in the sense that it is roughly the middle value. The mean measures center in the sense that it is the value that each data point would take on if the total of the data values were redistributed equally, and also in the sense that it is a balance point. Students recognize that a measure of variability (interquartile range or mean absolute deviation) can also be useful for summarizing data because two very different sets of data can have the same mean and median yet be distinguished by their variability.

Students learn to describe and summarize numerical data sets, identifying clusters, peaks, gaps, and symmetry, considering the context in which the data were collected.

### **Instructional Focus Statistics and Probability**

**Lesson #: Sections 9.1, 9.2, 9.3, 9.4, 9.5, 10.1, 10.2, 10.3, 10.4, 10.5**

#### **Essential Questions:**

- How can you tell if a question is a statistical question?
- How can you find an average value of a data set?
- In what other ways can you describe an average of a data set?
- How can you describe the spread of a data set?
- How can you use the distances between each data value and the mean of a data set to measure the spread of a data set?
- How can you use place values to represent data graphically?
- How can you use intervals, tables, and graphs to organize data?
- How can you describe the shape of the distribution of a data set?
- How can you use quartiles to represent data graphically?

#### **Student Learning Objectives:**

- MA.6.SP.A.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.
- Section 9.1 Students will be able to use statistics to answer math problems., Section 9.2 Students will be able to use mean to solve math problems, Section 9.3 Students will be able to use measures of center to solve math problems, Section 10.1 Students will be able to solve problems using stem-and-leaf plots, Section 10.4 Students will be able to choose appropriate measures to solve problems.
- MA.6.SP.A.2 Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.
- Section 9.1 Students will be able to use statistics to answer math problems, 9.2 Students will be able to use mean to solve math problems, Section 9.3 Students will be able to use measures of center to solve math problems, Section 9.4 Students will be able to use measures of variation to solve math problems, Section 9.5 Students will be able to use mean absolute deviation to solve math problems, Section 10.1 Students will be able to solve problems using stem-and-leaf plots, Section 10.3 Students will be able to use shapes of distributions to solve math problems, Section 10.4 Students will be able to choose appropriate measures to solve problems, Section 10.5 Students will be able to use box-and-whisker plots to solve math problems.
- MA.6.SP.A.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.
- Section 9.2 Students will be able to use mean to solve math problems, Section 9.3 Students will be able to use measures of center to solve math problems, Section 9.4 Students will be able to use measures of variation to solve math problems, Section 9.5 Students will be able to use mean absolute deviation to solve math problems, Section 10.1 Students will be able to solve problems using stem-and-leaf plots, Section 10.4 Students will be able to choose appropriate measures to solve problems, Section 10.5 Students will be able to use box-and-whisker plots to solve math problems.
- MA.6.SP.B.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
- Section 9.1 Students will be able to use statistics to answer math problems, 9.2 Students will be able to use mean to solve math problems, Section 9.3 Students will be able to use measures of center to solve math problems, Section 9.4 Students will be able to use measures of variation to solve math problems, Section 9.5 Students will be able to use mean absolute

deviation to solve math problems, Section 10.1 Students will be able to solve problems using stem-and-leaf plots, Section 10.2 Students will be able to use histograms to solve math problems, Section 10.3 Students will be able to use shapes of distributions to solve math problems, Section 10.4 Students will be able to choose appropriate measures to solve problems, Section 10.5 Students will be able to use box-and-whisker plots to solve math problems.

- MA.6.SP.B.5 Summarize numerical data sets in relation to their context, such as by:
- MA.6.SP.B.5a. Reporting the number of observations.
- Section 9.1 Students will be able to use statistics to solve math problems, Section 9.2 Students will be able to solve math problems using mean, Section 9.3 Students will be able to use measures of center to solve math problems, Section 9.4 Students will be able to use measures of variation to solve math problems, Section 9.5 Students will be able to use mean absolute deviation to solve math problems, Section 10.1 Students will be able to solve problems using stem-and-leaf plots, Section 10.2 Students will be able to use histograms to solve math problems, Section 10.4 Students will be able to choose appropriate measures to solve problems.
- MA.6.SP.B.5 b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.
- Section 9.1 Students will be able to use statistics to solve math problems.
- MA.6.SP.B.5c Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.
- Section 9.2 Students will be able to use mean to solve math problems, Section 9.3 Students will be able to use measures of center to solve math problems, Section 9.4 Students will be able to use measures of variation to solve math problems, Section 9.5 Students will be able to use mean absolute deviation to solve math problems, Section 10.1 Students will be able to solve problems using stem-and-leaf plots, Section 10.4 Students will be able to use box-and-whisker plots to solve math problems, Section 10.5 Students will be able to use box-and-whisker plots to solve math problems.
- MA.6.SP.B.5d Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.
- Section 10.4 Students will be able to choose appropriate measures to solve problems

**Suggested Activities**

- Introduction videos
- ixl
- graphic organizers
- scavenger hunts
- flash cards
- My Dear Aunt Sally Game
- online questions correlated to textbook
- online textbook lesson
- Stem Videos

**Instructional Materials/Resources**

- Big Ideas Math Textbook copyright 2022
- Big Ideas record and practice journal
- Big Ideas resource by chapter workbook
- Big Ideas skills review handbook
- teacher made materials
- instructional videos
- online chapter review
- online practice test
- online test
- cumulative assessments
- benchmark tests

**Pacing: approx # of class periods: 23**

## NJ Student Learning Standards for Math

MA.6.SP.A.1, MA.6.SP.A.2, MA.6.SP.A.3, MA.6.SP.B.4, MA.6.SP.B.5a, MA.6.SP.B.5b, MA.6.SP.B.5c, MA.6.SP.B.5d

### Interdisciplinary Connections

**Language Arts Literacy** LA.W.7.1.B, LA.W.7.1.C, LA.W.7.1.E, LA.W.7.2.A, LA.W.7.2.B, LA. 7.2.C, LA.W.7.2.D, LA.W.7.2.F, LA.W.7.4, LA.L.7.2.B, LA.7.3.A, LA.L.7.4.C, LA.L.7.6

**Career Readiness-Personal Financial Literacy** PFL.9.1.8.CDM.1, PFL.9.1.8.CDM.2, PFL.9.1.8.CDM.3., PFL.9.1.8.CP.1, PFL.9.1.8.CP.1, PFL.9.1.8.FI.4

**Career Awareness, Exploration, and Training** WRK.9.2.8.CAP.3

**Life Literacy and Key Skills** TECH.9.4.8.CT.1, TECH.9.4.8.IML.4, TECH.9.4.8.TL.1, TECH. 9.4.8.TL.2, TECH. 9.4.8.TL.3

### Integration of Technology

Math instruction engages students in a variety of learning experiences using technology. The following standards will be addressed through the activities in this unit:

**Computer Science and Design Thinking** CS.6-8.8.1.8.DA.1, CS.6-8.8.1.8.DA.4, CS.6-8.8.1.8.DA.5, CS.6-8.8.2.8.ED.2, CS.6-8.8.2.8.ED.3, CS.6-8.8.2.8.ED.7

### 21st Century Life and Career Skills

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

**Evidence of Learning**

Summative and Benchmark Assessments	Formative Assessments and Alternative Activities	
Unit Pretest Unit Project Unit Test Performance Assessment Beginning of the year benchmark Trimester benchmark End of year benchmark	Hand Signals Student Conference Fun and Games Class work/participation Critical Thinking Skill activity Writing about Math Textbook Interactive Activities ixl record and practice journal	Lesson Review questions Reading Check questions Share/Pair Skills Practice Study Guide Teacher Observation Unit Review Vocabulary Review Graphic Organizers Homework and Practice pages Writing Connection Content Videos Online Questions

**Instructional Delivery**

Student learning experiences will include a combination of instructional strategies appropriate to the content and skills being taught. Lessons may include (but are not limited to) the following:

- Direct instruction/demonstration
- Interactive/Guided math strategies
- Cooperative learning activities
- Digital activities including videos, games, assessments
- Research projects and Presentation projects
- Small Group Instruction
- Share Examples
- Visual Aids
- Learning Centers
- Modeled, Shared, and Independent Activities
- Active Learning
- Art Projects

**Differentiated Instruction, Accommodations & Adaptations**

Alternative Assessments  
 Goal Setting with Students  
 Homework Options  
 Frequent Breaks  
 Tests Read Aloud  
 Color Coded Assignments/books/notebooks/folders

Cooperative Learning  
 Picture Vocabulary Wall  
 Anchor Charts of Concepts  
 Change in Content, Process, Product  
 Flexible Grouping  
 Modified Class Assignments

<b>Special Education/IEP</b>	<b>504</b>
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<p>Assessments/assignments read orally w/ extended time  Concept chunking  Graphic organizer concept maps  Picture study guides  Small group instruction  Tests modified to include a word bank, drawings, and diagrams while still covering the essential concepts</p>	<p>Extended time for assignments  Frequent breaks  Sign agenda book daily  Study guides  Graphic organizers</p>
<p><b>ELL</b></p>	<p><b>Gifted &amp; Talented</b></p>
<p>Picture study guides  Video presentation/Audio presentation  Tests modified to include a word bank, drawings, and diagrams while still covering the essential concepts  Spanish pupil editions including assessments</p>	<p>Independent extension research projects  Jigsaw cooperative learning activities  Student choice  Advanced Activities  Class grouping</p>
<p><b>At Risk/I&amp;RS</b></p>	<p><b>At Risk/I&amp;RS</b></p>
<p><b>Presentation accommodations</b> (changes the way information is presented)</p> <ul style="list-style-type: none"> <li>● Listen to audio recordings instead of reading text</li> <li>● Learn content from videos, and digital media instead of reading print versions</li> <li>● Work with fewer items per page or line</li> <li>● Have a “designated reader”—someone who reads test questions aloud to</li> <li>● Hear instructions spoken aloud</li> <li>● Get class notes from teacher</li> <li>● See an outline of a lesson</li> <li>● Use visual presentations of verbal material, such as word webs</li> <li>● Get a written list of instructions</li> </ul> <p><b>Response accommodations</b> (changes the way kids complete assignments or tests)</p> <ul style="list-style-type: none"> <li>● Give responses in a form (spoken or written) that’s easier for them</li> <li>● Dictate answers to a scribe who writes or types</li> <li>● Use a spelling dictionary or digital spell-checker</li> <li>● Use a laptop to type notes or give answers in class</li> <li>● Use a calculator or table of “math facts”</li> </ul>	<p><b>Common Modifications</b></p> <p><b>Assignment modifications</b></p> <ul style="list-style-type: none"> <li>● Complete fewer or different homework problems than peers</li> <li>● Write shorter answers to questions</li> <li>● Answer fewer or different test questions</li> <li>● Create alternate projects or assignments</li> </ul> <p><b>Curriculum modifications</b></p> <ul style="list-style-type: none"> <li>● Learn different material (such as continuing to work on multiplication while classmates move on to fractions)</li> <li>● Get graded or assessed using a different standard than other students</li> <li>● Be excused from particular projects</li> </ul> <p><b>Scheduling accommodations</b></p> <ul style="list-style-type: none"> <li>● Take more time to complete a project</li> <li>● Take a test in several sessions or over several days</li> <li>● Take sections of a test in a different order</li> <li>● Take a test at a specific time of day</li> </ul> <p><b>Organization skills accommodations</b></p>

### Setting accommodations

- Work or take a test in a different setting, such as a quiet room with few distractions
- Sit where they learn best (for example, near the teacher)
- Adjust lighting in the classroom
- Take a test in a small group setting

### Timing accommodations

- Take more time to complete a task or a test
- Have extra time to process spoken information and directions
- Take frequent breaks, such as after completing a worksheet

- Mark notes with a highlighter
- Use a planner or organizer to help coordinate assignments
- Receive organizational skills instruction

### Internet Resources

Big Idea Math Series <https://www.bigideasmath.com/>

ixl math <https://www.ixl.com/>

prodigy <https://www.prodigygame.com/>

National Library of Virtual Manipulatives <http://nlvm.usu.edu/en/nav/vlibrary.html>

Internet4classrooms [https://www.internet4classrooms.com/skills\\_6th.htm](https://www.internet4classrooms.com/skills_6th.htm)

Future Smart Financial Literacy <https://platform.everfi.net/teacher/curriculum/25/demo>

Junior Achievement <http://learn.ja.org>

Last Update: **JULY 2022**