

MATH CURRICULUM

Grade 6



Principle Academy Charter School

Mathematics Grade 6

MISSION

The Principle Academy Charter School will show mastery of standards-driven, international, college preparatory curriculum, delivered through proven research-based instruction. Students will develop positive values and social behaviors through a nurturing school environment.

PHILOSOPHY

The philosophy of Principle Academy Charter School (“PAC”) is built on (1) the belief that student outcomes are paramount, and (2) the understanding that a strong foundation is necessary to ensure sustained, long-range success for all students. At our core, we believe that students must develop positive values and social behaviors through a nurturing school climate and student cultural activities. Our educational approach is classroom-based, and students receive all instruction from certified teachers within the school building. Our educational approach is grounded in a student-centered program where all curriculum, assessments, operational decisions, and parental and/or community involvement is designed to ensure that school time is focused on the student and his/her learning and development.

PAC executes its mission and philosophy by providing all children who enroll in PAC—regardless of the student’s background, socio-economic status, or academic record—with a world-class public education in a student-centered setting that emphasizes civic responsibility and personal development, as well as academic rigor. Each letter of CHARTER represents a **PRINCIPLE**, *i.e.*, a core value, of PAC:

- C - Civility (Kindness)
- H - Honesty
- A- Academics
- R - Respect
- T - Togetherness
- E - Empowerment
- R – Responsibility

PAC implements standards-driven curriculum, including clearly defined student-learning objectives that exceed the NJ Performance Framework for both grade and content level requirements. Our curriculum is aligned with the Common Core State Standards and the New Jersey Student Learning Standards (NJSLS). Our curriculum not only ensures that students are prepared for success in college, but also life beyond college

PAC has adopted the *Ready Mathematics* program (<https://www2.curriculumassociates.com/products/ready-new-jersey-mathematics.aspx>) and, likewise, has developed a new curriculum in compliance with the New Jersey Student Learning Standards and Curriculum Frameworks. Our curriculum is designed to develop strong mathematical thinkers, focus on conceptual understanding using real-world problem solving, and help students become active participants in their own learning.

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PAC LEADERSHIP TEAM

Kenneth Silver	School Director
Alvaro Cores	Assistant School Director
Greg Freelon	School/Student Liaison
Carol Spina	Dean of Instruction
Cyndee' Phoenix	Dean of Community Engagement
Paul A, Cicchini	Dean of Special Education

PAC SCHOOL BOARD

Peter Caporilli	President
Rolanda Brewer	Vice President
Ed Blake	
Stacey Zacharoff	
Kelli Prinz	Attorney
Michael Falkowski	SBA

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Addition/subtraction strategies:

- One-More-Than & Two-More Than
- Facts with Zero
- Doubles 4. Near Doubles
- Doubles plus 1 – Ex. $6+7 = 6+6+1$
- Doubles plus 2 – Ex. $6+8 = 6+6+2$
- Making tens – Ex. $9+7 = 10+6$
- Using relationships – Ex. $5+7=12$, so $7+5=12$, $12-5=7$ and $12-7=5$

Multiplication/division strategies:

- Doubles (facts with a factor of 2)
- Fives Facts
- Zeros and Ones
- Helping Facts

Fraction and fraction/ decimal/ percent strategies:

- Use models (area, length, & set) to build conceptual understanding that an equivalency means two amounts are the same
- Be patient with representations prior to rushing to teach rules for finding equivalent fractions and/or equivalent fractions - decimals - percent

Operations with integers strategies:

- Use models to quantity (number) and opposite (direction) to build a conceptual basis for procedural rules. Counters and number lines are two effective models for integer operations.
- Maintain quantity while changing direction to expose student misconceptions $-1 + -2$ cannot be the same as $-1 + 2$ because the direction of the 2 is different in each problem.
- Emphasize explanations prior to expecting students to follow procedural rules.

These lists are by no means exhaustive. If you use other strategies to help your students learn their basic facts, please continue to use them.

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Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
<p>Unit 1</p> <p>Operations and Reasoning about Ratios</p>	<ul style="list-style-type: none"> ■ 6.NS.A.1 ● 6.NS.B.2 ■ 6.RP.A.1 ■ 6.RP.A.2 ■ 6.RP.A.3* ● 6.NS.B.3 ● 6.NS.B.4 	<ul style="list-style-type: none"> • Apply and extend previous understandings of multiplication and division to divide fractions by fractions • Compute fluently with multi-digit numbers and find common factors and multiples • Understand ratio concepts and use ratio reasoning to solve problems 	<p>MP.1 Make sense of problems and persevere in solving them.</p>
<p><i>Unit 1: Suggested Open Educational Resources</i></p>	<p>6.NS.A.1 Traffic Jam 6.RP.A.1 Games at Recess 6.RP.A.2 Price per pound and pounds per dollar 6.RP.A.3 Voting for Three, Variation 1 6.RP.A.3c Shirt Sale 6.NS.B.3 Reasoning about Multiplication and Division and Place Value, Part 1 6.NS.B.4 Factors and Common Factors 6.NS.B.4 Multiples and Common Multiples</p>		<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments & critique the reasoning of others.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p>
<p>Unit 2</p> <p>Expressions and 3-D Geometry</p>	<ul style="list-style-type: none"> ■ 6.EE.A.1 ■ 6.EE.A.2 ■ 6.EE.A.3 ■ 6.EE.A.4 ■ 6.EE.B.6 □ 6.G.A.2 □ 6.G.A.4 	<ul style="list-style-type: none"> • Apply and extend previous understandings of arithmetic to algebraic expressions • Reason about and solve one-variable equations and inequalities • Solve real-world and mathematical problems involving area, surface area, and volume 	<p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p>
<p><i>Unit 2: Suggested Open Educational Resources</i></p>	<p>6.EE.A.1 The Djinni's Offer 6.EE.A.2 Rectangle Perimeter 1 6.EE.A.4 Rectangle Perimeter 2 6.EE.A.4 Equivalent Expressions 6.G.A.2 Volumes with Fractional Edge Lengths 6.G.A.4 Nets for Pyramids and Prisms</p>		<p>MP.8 Look for and express regularity in repeated reasoning.</p>

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Overview	Standards for Mathematical Content	Unit Focus	Standards for Mathematical Practice
<p><u>Unit 3</u></p> <p>Equations, The Rational Number System and 2-D Geometry</p>	<ul style="list-style-type: none"> ■ 6.EE.B.5 ■ 6.EE.B.7 ■ 6.NS.C.5 ■ 6.NS.C.6 ■ 6.NS.C.7 ■ 6.EE.B.8 ■ 6.NS.C.8* □ 6.G.A.3 □ 6.G.A.1 	<ul style="list-style-type: none"> • Reason about and solve one-variable equations and inequalities • Apply and extend previous understandings of numbers to the system of rational numbers • Solve real-world and mathematical problems involving area, surface area, and volume 	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p>
<p><i>Unit 3: Suggested Open Educational Resources</i></p>	<p>6.EE.B.5 Make Use of Structure</p> <p>6.EE.B.7 Morning Walk</p> <p>6.NS.C.5 Warmer in Miami</p> <p>6.NS.C.6 Mile High</p> <p>6.NS.C.7 Jumping Flea</p> <p>6.NS.C.7a Fractions on the Number Line</p> <p>6.NS.C.7b Comparing Temperatures</p> <p>6.EE.B.8 Fishing Adventures 1</p> <p>6.NS.C.8 Nome, Alaska</p> <p>6.G.A.1, 6.G.A.3 Polygons in the Coordinate Plane</p>		<p>MP.3 Construct viable arguments & critique the reasoning of others.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p>
<p><u>Unit 4</u></p> <p>Variability, Distributions, and Relationships between Quantities</p>	<ul style="list-style-type: none"> ■ 6.EE.C.9 ○ 6.SP.A.1 ○ 6.SP.A.2 ○ 6.SP.A.3 ○ 6.SP.B.4 ○ 6.SP.B.5 ■ 6.RP.A.3* ■ 6.NS.C.8* 	<ul style="list-style-type: none"> • Represent and analyze quantitative relationships between dependent and independent variables • Develop understanding of statistical variability • Summarize and describe distributions • Understand ratio concepts and use ratio reasoning to solve problems • Apply and extend previous understandings of numbers to the system of rational numbers 	<p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning.</p>
<p><i>Unit 4: Suggested Open Educational Resources</i></p>	<p>6.EE.C.9 Families of Triangles</p> <p>6.SP.A.1 Identifying Statistical Questions</p> <p>6.SP.A.2, 6.SP.B.4 Puppy Weights</p> <p>6.SP.A.3 Is It Center or Is It Variability?</p> <p>6.SP.B.5c Number of Siblings</p> <p>6.SP.B.5d Mean or Median?</p>		

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Unit 1 Grade 6				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
<p>■ 6.NS.A.1. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.</p> <p><i>For example, create a story context for $(2/3) \div (3/4)$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$ is $2/3$. (In general, $(a/b) \div (c/d) = ad/bc$.) How much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $3/4$-cup servings are in $2/3$ of a cup of yogurt? How wide is a rectangular strip of land with length $3/4$ mi and area $1/2$ square mi?</i></p>	MP.4 Model with mathematics.	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> divide a fraction by a fraction. represent division of fractions using visual models. interpret quotients of fractions in the context of the problem. compute quotients of fractions in order to solve word problems. write equations to solve word problems involving division of fraction by a fraction. use the relationship between multiplication and division to explain division of fractions. <p>Learning Goal 1: Compute quotients of fractions.</p> <p>Learning Goal 2: Construct visual fraction models to represent quotients of fractions and use the relationship between multiplication and division to explain division of fractions.</p> <p>Learning Goal 3: Solve real-world problems involving quotients of fractions and interpret the solutions in the context given.</p>	<p>Ready Math</p> <p>Lesson 6- Understand Division with Fractions</p> <p>Lesson 7- Divide with Fractions</p>	3
<p>○ 6.NS.B.2. Fluently divide multi-digit numbers using the standard algorithm.</p>		<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> use the standard algorithm to divide multi-digit numbers with speed and accuracy. <p>Learning Goal 4: Fluently divide multi-digit numbers using the standard algorithms.</p>	<p><i>Problems should be embedded in daily lessons throughout the school year.</i></p> <p>Ready Math</p> <p>Lesson 8- Divide Multi-Digit Numbers</p>	4
<p>■ 6.RP.A.1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.</p> <p><i>For example, "The ratio of wings to</i></p>	MP.2 Reason abstractly and quantitatively.	<p>Concept(s):</p> <ul style="list-style-type: none"> A ratio shows relative sizes or values of two quantities. <p>Students are able to:</p> <ul style="list-style-type: none"> describe a ratio relationship between two quantities using 	<p>Ready Math</p> <p>Lesson 1- Ratios</p>	3

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Unit 1 Grade 6				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
<i>beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."</i>		ratio language. Learning Goal 5: Explain the relationship of two quantities in given ratio using ratio language.		
<p>■ 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. <i>For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar." "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger."</i></p>	MP.2 Reason abstractly and quantitatively.	<p>Concept(s):</p> <ul style="list-style-type: none"> A rate is a ratio comparing two different types of quantities. <p>Students will be able to:</p> <ul style="list-style-type: none"> determine the unit rate given a ratio relationship. describe a unit rate relationship between two quantities using rate language. <p>Learning Goal 6: Use rate language, in the context of the ratio relationship, to describe a unit rate.</p>	Ready Math Lesson 2 Understand Unit Rate	3
<p>■ 6.RP.A.3. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. *(benchmarked)</p> <p>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.</p> <p>6.RP.A.3b. Solve unit rate problems including those involving unit pricing and constant speed. <i>For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were</i></p>	MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically MP.6 Attend to precision. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning	<p>Concept(s): No new concept(s) introduced Students are able to:</p> <ul style="list-style-type: none"> use ratio and rate reasoning to create tables of equivalent ratios relating quantities with <i>whole number</i> measurements, find missing values in tables and plot pairs of values. compare ratios using tables of equivalent ratios. solve real world and mathematical problems involving unit rate (including unit price and constant speed). calculate a percent of a quantity and solve problems by finding the whole when given the part and the percent. convert measurement units using ratio reasoning. transform units appropriately when multiplying and dividing quantities. <p>Learning Goal 7: Create and complete tables of equivalent ratios to solve real world and mathematical problems using ratio and rate reasoning that include making tables of equivalent ratios, solving unit rate problems, finding percent of a quantity as a rate per 100.</p> <p>Learning Goal 8: Use ratio and rate reasoning to convert measurement units and to transform units appropriately</p>	<p><i>Problems should be embedded in daily lessons throughout the school year.</i></p> <p>Ready Math</p> <p>Lesson 3 Equivalent Fractions</p> <p>Lesson 4- Solve Problems with Unit Rate</p> <p>Lesson 5- Solve Problems with Percent</p>	3

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Unit 1 Grade 6				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
<p><i>lawns being mowed?</i></p> <p>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.</p> <p>6.RP.A.3d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.</p>		<p>when multiplying or dividing quantities.</p>		
<p>6.NS.B.3. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.</p>		<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> add and subtract multi-digit decimals with accuracy and efficiency. multiply and divide multi-digit decimals with accuracy and efficiency. <p>Learning Goal 9: Fluently add, subtract, multiply and divide multi-digit decimals.</p>	<p><i>Problems should be embedded in daily lessons throughout the school year.</i></p> <p>Ready Math</p> <p>Lesson 9 – Add and Subtract Decimals</p> <p>Lesson 10- Multiply and Divide Decimals</p>	5
<p>6.NS.B.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.</p>	<p>MP.7 Look for and make use of structure.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> create lists of factors for two whole numbers less than or equal to 100; find the largest factor common to both lists. create lists of multiples for two whole numbers less than or equal to 12; find the smallest multiple common to both lists. <p>Learning Goal 10: Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two numbers less than or equal to 12.</p>	<p>Ready Math</p> <p>Lesson 11- Common Factors and Multiples</p>	4

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Unit 1 Grade 6 What This May Look Like

District/School Formative Assessment Plan	District/School Summative Assessment Plan
<ul style="list-style-type: none"> ● iReady Assessments ● Student Conferencing ● Observation Checklist ● Anecdotal Notes ● Homework ● Running Records ● Student Self-Evaluations ● Short constructed response questions ● Multiple choice questions ● Academic/Domain specific vocabulary ● Quizzes ● Math Journal ● Exit ticket ● Accountable talk 	<ul style="list-style-type: none"> ● Unit Benchmark ● Chapter Tests ● iReady Assessments ● State Assessments

Focus Mathematical Concepts

Prerequisite skills:

- 6.NS.A.1
- 3.OA.B.6-Understand division as an unknown-factor problem. For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8.
- 5.NF.B.7-Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.1
- 6.NS.B.2
- 5.NBT.B.6-Find whole-number quotients of whole numbers with up to four-digit dividends and two-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.
- 6.NS.B.3
- 5.NBT.B.5-Fluently multiply multi-digit whole numbers using the standard algorithm.
- 5.NBT.B.6-Find whole-number quotients of whole numbers with up to four-digit dividends and two-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.
- 6.NS.B.4
- 4.OA.B.4-Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.
- 5.OA.A.2-Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.

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6.RP.A.1

4.MD.A.1-Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...

4.OA.A.2-Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

5.NF.B.5-Interpret multiplication as scaling (resizing)

6.RP.A.2

4.OA.A.2-Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

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. For example, interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?

5.NF.B.7-Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions

6.RP.A.3

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.

Common Misconceptions:

6.NS.1 Sixth graders may incorrectly model division of fractions. Some students may think dividing by $1/2$ is the same as dividing in half. Dividing by $1/2$ means to find how many one halves there are in a quantity. Dividing in half means to take quantity and divide it into two equal parts. To address this misconception, ask them to demonstrate two examples, one that shows dividing by $1/2$ and another that shows dividing in half. For example, 9 divided by $1/2$ equals 18 and 9 divided in half equals 4 $1/2$.

6.NS.2 For some students, the traditional standard division algorithm is difficult simply because of the many steps involved in the procedure. Some sixth graders may focus on individual digits when dividing rather than thinking about the whole number. Others may ignore place value and get an incorrect answer. To help students, remind them to describe both the place value as they divide and place value of the digits in the quotients. Ask them to show the steps of division, one at a time. Provide graph paper to keep the work legible.

6.NS.3 Some students may not remember to use the concept of place value when adding tenths to hundredths. For example, when adding five-tenths to eighty-five hundredths, some students may not realize the answer is one whole and thirty-five hundredths. To help with this misconception, try using decimal blocks or drawing a picture to show how the decimals have been added. Adding a zero to 0.5 to write 0.50 before adding it to 0.85 helps students focus on the place value.

6.NS.4 Some students may confuse the concepts of factors and multiples. To help with this, use the vocabulary of factors and multiples when working with multiplication and division such as the numbers being multiplied are the factors, the product is the multiple. Paper foldables with vocabulary definition or mathematics games may also help students practice confusing vocabulary terms.

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6.RP.A.1.
Some sixth graders may confuse the order of the quantities as when to write the ratio of boys to girls in the sentence, “*There are 14 girls and 18 boys in our math class.*” Instead of writing 18:14, Other students may not recognize the difference between a part-to-part and a part-to-whole ratio as, “*There are 14 compared to 18 boys in class (14:18 part-to-part); however 14 of the 32 students in our class are girls (14:32 part-to-whole)*” To address these common misconceptions, ask students to label the quantities they are comparing such as 14 girls/18 boys.

6.RP.A.2.
Students often confuse the terms ratio, rate, and unit rate. Try using paper foldable with vocabulary definitions to help students with these confusing terms. To make the foldable, divide an 8 1/2 x 11 inch sheet of blank paper in half horizontally. Then fold it into thirds as if a letter is being folded to fit an envelope. Unfold and write the term on each of the sections. On the inside of the foldable, write the definitions that match each term. Students may want to cut on the vertical folded lines to flip up each section to practice the definitions.

6.RP.A.3.
Some sixth graders misunderstand and believe that a percent is always a natural number less than or equal to 100. To help this misconception, provide examples of percent amounts that are greater than 100% and percent amounts that are less than 1%. Try using a percent when for developing this understanding.

Math Focus:

- 6.NS.B.2 Multi-Digit Division
- 6.NS.B.3 Multi-Digit Decimal Operations

District/School Tasks	District/School Primary and Supplementary Resources
<p>ELA Connections:</p> <ul style="list-style-type: none"> • Math Journals • Math Word Wall • Math Storytelling • Think-Write-Pair-Share • Prompts use successful pre-writing strategies such as: <ul style="list-style-type: none"> ○ Make a web. ○ Draw a picture and label. ○ Write a definition in your own words. ○ Create examples of the skill/concept and explain. ○ Write about a real-life use of this math concept or skill. ○ Connect the concept/skill to concepts/skills you already learned and use. ○ Reflect on your understanding of this concept/skill on a scale of 1-5 and explain. ○ Create a K-W-L chart <p>International/ Global Activities-</p> <p>https://populationeducation.org/teacher-resources/</p> <p>http://www.realworldmath.org/</p>	<p>Fact Fluency Resources:</p> <ul style="list-style-type: none"> • https://www.factmonster.com/math/flashcards • https://kahoot.com/welcomeback/ • https://quizlet.com/ • https://www.socrative.com/ • https://www.funbrain.com/games/math-baseball • https://www.multiplication.com/games/all-games • https://mathfactspro.com/math-fact-fluency-game/ <p>Math Fluency Classroom Ideas:</p> <ul style="list-style-type: none"> • https://onestopteachershop.com/2015/06/5-ways-to-make-fact-fluency-fun.html • https://www.wearteachers.com/15-fun-ways-to-practice-math/ <p>Resources</p> <p>https://njctl.org</p> <p>https://www.engageny.org/</p> <p>https://www.illustrativemathematics.org/content-standards</p> <p>http://www.k-5mathteachingresources.com/</p> <p>https://www.mathplayground.com/</p>

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https://www.google.com/intl/en_us/earth/education/

Math in Daily Life

<http://www.learner.org/interactives/dailymath/>

Music and Math

<http://www.philtulga.com/resources.html>

**Math and Literature
Book Connection Suggestions**

Math Concept	Book Title
Addition	\$1.00 Word Riddle Book
Number Sense	A Million Fish...More or Less Subtraction
Proportional Reasoning, Length, Weight	Amazing Book of Mammal Records
Properties of Numbers	Among the Odds & Evens
Multiplication	Anno's Mysterious Multiplying Jar Properties of Shapes
Tessellations	Cloak for the Dreamer
Addition, Multiplication, Average, Length	Counting Crocodiles
Length, Proportional Reasoning	Cut Down to Size at High Noon
Coordinate Graphing	Fly on the Ceiling
Whole Number Computation, Number Sense	How Much is a Million?
Whole Number Computation, Money, Shapes, Logical Reasoning	I Hate Mathematics! Book
Length, Proportional Reasoning	If You Hopped Like a Frog
Length, Proportional Reasoning	Is a Blue Whale the Biggest Thing...
Length, Proportional Reasoning	Jim and the Beanstalk
Frequency Distribution	Martha Blah Blah Whole
Number Computation, Number Sense	Math Appeal
Whole Number Computation, Algebraic Equivalence, Logical Reasoning	Math for Smarty Pants
Addition, Number Sense	One Grain of Rice
Whole Number Computation	One Tiny Turtle
Division, Remainders	Remainder of One
Roman Numerals	Roman Numerals I to MM
Area, Perimeter	Spaghetti and Meatballs for All
Graphing	Tiger Math, Learning to Graph...
Graphing, Averages	Tikki Tikki Tembo
Computation, Graphing, Pounds, Ounces	Wilma Unlimited

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Instructional Best Practices and Exemplars

- Establish mathematics goals to focus learning. Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions.
- Implement tasks that promote reasoning and problem solving. Effective teaching of mathematics engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allow multiple entry points and varied solution strategies.
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- Facilitate meaningful mathematical discourse. Effective teaching of mathematics facilitates discourse among students to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.
- Pose purposeful questions. Effective teaching of mathematics uses purposeful questions to assess and advance students' reasoning and sense making about important mathematical ideas and relationships.
- Build procedural fluency from conceptual understanding. Effective teaching of mathematics builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems.
- Support productive struggle in learning mathematics. Effective teaching of mathematics consistently provides students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships.
- Elicit and use evidence of student thinking. Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning.
- Identifying Similarities and Differences
- Reinforcing Effort and Providing Recognition
- Homework and Practice
- Nonlinguistic Representations
- Cooperative Learning
- Setting Objectives and providing Feedback
- Gradual Release of Responsibility
- Managing response rates
- Checks for understanding
- Coaching
- Visuals
- Collaborative problem solving
- Active engagement strategies
- Establishing metacognitive reflection and articulation

21st Century Life and Careers Standards

Career Ready Practices:

CRP2: Apply appropriate academic and technical skills.

CRP4: Communicate clearly and effectively and with reason.

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Mathematics Grade 6

CRP6: Demonstrate creativity and innovation.

CRP8: Utilize critical thinking to make sense of problems and persevere in solving them.

CRP11: Use technology to enhance productivity.

CRP12: Work productively in teams while using cultural global competence

Personal Financial Literacy - Income And Careers

9.1.4.A.1 Explain the difference between a career and a job, and identify various jobs in the community and the related earnings.

9.1.4.A.2 Identify potential sources of income.

Career Awareness, Exploration, And Preparation - Career Awareness

9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

Technology Standards

8.1 Educational Technology: All students will use digital tools to assess, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

A. Technology Operations and Concepts:

8.1.2.A.1 Identify the basic features of a digital device and explain its purpose.

8.1.2.A.2 Create a document using a word processing application.

8.1.2.A.3 Compare the common uses of at least two different digital applications and identify the advantages and disadvantages of each.

8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual Environments (i.e. games, museums)

8.1.2.A.5 Enter information into a spreadsheet and sort the information.

8.1.2.A.6 Identify the structure and components of a database.

8.1.2.A.7 Enter information into a database or spreadsheet and filter the information.

B. Creativity and Innovation

8.1.2.B.1 Illustrate and communicate original ideas and stories using multiple digital tools and resources.

C. Communication and Collaboration:

8.1.2.C.1 Engage in a variety of developmentally appropriate learning activities with students in other classes, schools, or countries using various media formats such as online collaborative tools, and social media.

D. Digital Citizenship

8.1.2.D.1 Develop an understanding of ownership of print and non-print information.

E. Research and Information Fluency:

8.1.2.E.1 Use digital tools and online resources to explore a problem or issue.

F. Critical thinking, problem solving, and decision making:

8.1.2.F.1 Use geographic mapping tools to plan and solve problems.

8.2 Technology, Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

A. The Nature of Technology: Creativity and Innovation

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- 8.2.2.A.1 Define products produced as a result of the technology or of nature.
- 8.2.2.A.2 Describe how designed products and systems are useful at school, home or work.
- 8.2.2.A.3 Identify a system and the components that work together to accomplish its purpose.
- 8.2.2.A.4 Choose a product to make and plan the tools and material needed.
- 8.2.2.A.5 Collaborate to design a solution to a problem affecting the community.

Accommodations/ Differentiation

- Modify activities/assignments/projects/assessments
- Breakdown activities/assignments/projects/assessments into manageable units
- Additional time to complete activities/assignments/projects/assessments
- Provide an option for alternative activities/assignments/projects/assessments
- Adjust Pacing of Content
- Small Group Intervention/Remediation
- Individual Intervention/Remediation
- Guided Notes
- Graphic Organizers

IEP-Follow IEP Plan which may contain some of the following examples...

- In class/pull out support with special ed teacher
- Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Limit number of questions
- Scribe
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video

504-Follow 504 Plan which may contain some of the following examples...

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- In class/pull out support with special ed teacher
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- Preferred seating
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- Vocabulary support
- Mnemonic devices
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- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video
- Practice buddy

ELL

- Translation device/dictionary
- In class/pull out support with ESL teacher
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Math Diagnosis & Intervention System

All WIDA Can Do Descriptors can be found at this link: https://www.wida.us/standards/CAN_DOs/

WIDA Can Do Descriptors:

Listening

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Speaking
Reading
Writing
Oral Language

ELL Strategies

Develop Meaning
Elicit Prior Knowledge
Identify Relationships
Rephrase -Scaffold Language

At Risk Students

- Additional time during intervention time
- Questions read aloud
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
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- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video
- Practice buddy

Gifted & Talented

- Independent projects
- Enrichment pages
- Online games
- Leveled Homework
- Extension Activities
- Today's Challenge

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Mathematics Grade 6

Unit 2 Grade 6				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
<p>■ 6.EE.A.1. Write and evaluate numerical expressions involving whole-number exponents</p>	<p>MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure.</p>	<p>Concept(s): No new concept(s) introduced Students are able to:</p> <ul style="list-style-type: none"> write numerical expressions (involving whole number exponents) from verbal descriptions. evaluate numerical expressions involving whole number exponents. <p>Learning Goal 1: Write and evaluate numerical expressions involving whole number exponents.</p>	<p>Ready Math Lesson 15- Numerical Expressions with Exponents</p>	4
<p>■ 6.EE.A.2. Write, read, and evaluate expressions in which letters stand for numbers 6.EE.A.2a. Write expressions that record operations with numbers and with letters standing for numbers. <i>For example, express the calculation "Subtract y from 5" as $5 - y$.</i> 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. <i>For example, describe the expression $2(8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms</i> 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). <i>For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = \frac{1}{2}$</i></p>	<p>MP.2 Reason abstractly and quantitatively. MP.7 Look for and make use of structure.</p>	<p>Concept(s): No new concept(s) introduced Students are able to:</p> <ul style="list-style-type: none"> write algebraic expressions from verbal descriptions. use mathematical terms (sum, term, product, factor, quotient, coefficient) to identify the parts of an expression. evaluate algebraic expressions and formulas, including those involving exponents. <p>Learning Goal 2: Use mathematical language to identify parts of an expression. Learning Goal 3: Write and evaluate algebraic expressions involving exponents (include evaluating formulas).</p>	<p>Ready Math Lesson 16- Algebraic Expressions</p>	4
<p>■ 6.EE.A.3. Apply the properties of operations to generate equivalent expressions.</p>	<p>MP.2 Reason abstractly and quantitatively.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> Properties of operations: distributive property, 	<p>Ready Math</p>	4

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Mathematics Grade 6

Unit 2 Grade 6				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
<p><i>For example, apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$</i></p> <p>■ 6.EE.A.4. Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). <i>For example, the expressions $y + y + y$ and $3y$ are equivalent because they name the same number regardless of which number y stands for</i></p>	MP.7 Look for and make use of structure.	<p>combining like terms</p> <p>Students are able to:</p> <ul style="list-style-type: none"> combine like terms to generate an equivalent expression. factor to generate an equivalent expression. multiply (apply the distributive property) to generate an equivalent expression. <p>Learning Goal 4: Apply properties of operations (factor, distribute, and combine like terms) to generate equivalent expressions and to identify when two expressions are equivalent.</p>	Lesson 17- Equivalent Expressions	
<p>■ 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.</p>	MP.2 Reason abstractly and quantitatively. MP.6 Attend to precision. MP.7 Look for and make use of structure.	<p>Concept(s):</p> <ul style="list-style-type: none"> A variable can represent an unknown number or any number in a set of numbers. <p>Students are able to:</p> <ul style="list-style-type: none"> write expressions for solving real-world problems. <p>Learning Goal 5: Use variables to represent numbers and write expressions when solving real world or mathematical problems.</p>	Ready Math Lesson 19- Solve Equations	4
<p>□ 6.G.A.2. Find the volume of a right rectangular prism 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 lengths of the prism. Apply the formulas $V = lwh$ and $V = Bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.</p>	MP. 2 Reason abstractly and quantitatively.	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> pack a right rectangular prism with fractional edge lengths with unit fraction cubes. show that the volume found by packing is the same as would be found by multiplying the edge lengths of the prism. apply volume formulas, $V = lwh$ and $V = bh$, to right rectangular prisms with fractional edge lengths. <p>Learning Goal 6: Find the volume of a right rectangular prism with fractional edge lengths by</p>	Ready Math Lesson 25- Volume	4

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Mathematics Grade 6

Unit 2 Grade 6				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
		packing it with unit cubes and show that the volume is the same as it would be if found by multiplying the edge lengths; apply volume formulas to right rectangular prisms with fractional edge lengths.		
<p>6.G.A.4. Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.</p>	<p>MP.1 Make sense of problems and persevere in solving them. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically</p>	<p>Concept(s): No new concept(s) introduced Students are able to:</p> <ul style="list-style-type: none"> represent three dimensional objects with nets made up of rectangles and triangles. find surface area of three-dimensional objects using nets. solve real world and mathematical problems involving surface area using nets. <p>Learning Goal 7: Represent three dimensional figures objects with nets made of rectangles and triangles, and use the nets to find the surface area of the figures in order to solve real world and mathematical problems.</p>	<p>Ready Math Lesson 24- Nets and Surface area</p>	3

Unit 2 Grade 6 What This May Look Like

District/School Formative Assessment Plan	District/School Summative Assessment Plan
<ul style="list-style-type: none"> iReady Assessments Student Conferencing Observation Checklist Anecdotal Notes Homework Running Records Student Self-Evaluations Short constructed response questions Multiple choice questions Academic/Domain specific vocabulary Quizzes Math Journal Exit ticket Accountable talk 	<ul style="list-style-type: none"> Unit Benchmark Chapter Tests iReady Assessments State Assessments

Principle Academy Charter School

Mathematics Grade 6

Focus Mathematical Concepts

Prerequisite skills:

6.EE.A.1

4.OA.B.4-Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

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.

6.EE.A.2

5.OA.A.2-Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.

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.

6.EE.A.3

1.OA.B.3-Apply properties of operations as strategies to add and subtract.3 Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 = 12$. (Associative property of addition.)

3.OA.B.5-Apply properties of operations as strategies to multiply and divide.2 Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)

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6.EE.A.4

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6.G.A.2

5.MD.C.5-Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

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Mathematics Grade 6

Common Misconceptions:

6.EE.1 Some students interpret 3^2 as $3 \times 2 = 6$. This is a common error. Use a number line representation to model the expression. Also, writing the expanded notation of $3^2 = 3 \times 3$ helps students.

6.EE.1 Some sixth graders may interpret 3^2 as $3 \times 2 = 6$. This is a common error. Use a number line representation to model the expression. Also, writing the expanded notation of $3^2 = 3 \times 3$ helps students.

6.EE. 2 Some students misunderstand or incorrectly read expressions. Students often confuse x^3 and $3x$. To address this, students create a chart with the meaning of x^3 and $3x$ such as: x^3 means $3x$ means $\left. \begin{array}{l} x \text{ times } x \text{ times } x \\ x \text{ to the third power} \\ 3 \text{ times } x \end{array} \right\} x+x+x$

6.EE. A.3 When addressing the distributive property, some students may multiply the first term in the parentheses but forget to do the same to the second term. To address this error, give students a plastic zip lock bag if approximately 25 counter in two different mixed colors in each bag. Direct students to empty the bag and count the number of each color counter such as there are 14 yellows and 11 reds. Ask students to use the distributive property to write an expression to show how many of each color would be in 4 bags. Students write the expression $4(14y+11r)$. Using the distributive property, the expression is $56y + 44r$. Interpret this as 56 yellows and 44 reds in 4 bags. Provide other examples. Give students error analysis problems such as the following: “Fred said $3(2+x)$ and $6+x$ are equivalent expressions. He was incorrect. Tell Fred what he did incorrectly?” One solution is to remind Fred that 3 must be distributed through both terms in the parenthesis. Using manipulative such as AlgeblocksTM or Algebra TilesTM is also helpful in modeling the distributive property.

6.EE. 4 Some sixth graders do not recognize when letters are used to represent variables and when letters are used to represent units of measures such as, 4m and 4m as in meters or 3h and 3 h as in hours. Use contextual examples to distinguish between the two. Some students may continue to combine $4x$ and $4x^2$. Use a manipulative such as square tiles to demonstrate the difference between the terms.

6.EE.B.6 Some students continually misrepresent real- world scenarios with expressions. They each make different errors. Do an error analysis on the work of the students who repeatedly make errors. Are they mistaking what the variable is? Do they have trouble translating verbal expressions to variable expressions? Write error analysis questions for the students to solve that use each of the common student errors being made in the class that you have identified.

6.G.A.2

Students may understand the relationship between volume as the filling of a space with cubes and the volume formulas but, due to weak fractional computations skills, may still produce incorrect responses. Provide additional opportunities for these students to improve their computational fluency.

Math Focus:

6.NS.B.2 Multi-Digit Division

6.NS.B.3 Multi-Digit Decimal Operations

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Mathematics Grade 6

District/School Tasks	District/School Primary and Supplementary Resources
<p>ELA Connections:</p> <ul style="list-style-type: none"> • Math Journals • Math Word Wall • Math Storytelling • Think-Write-Pair-Share • Prompts use successful pre-writing strategies such as: <ul style="list-style-type: none"> ○ Make a web. ○ Draw a picture and label. ○ Write a definition in your own words. ○ Create examples of the skill/concept and explain. ○ Write about a real-life use of this math concept or skill. ○ Connect the concept/skill to concepts/skills you already learned and use. ○ Reflect on your understanding of this concept/skill on a scale of 1-5 and explain. ○ Create a K-W-L chart <p>International/ Global Activities-</p> <p>https://populationeducation.org/teacher-resources/</p> <p>http://www.realworldmath.org/</p> <p>https://www.google.com/intl/en_us/earth/education/</p> <p>Math in Daily Life</p> <p>http://www.learner.org/interactives/dailymath/</p> <p>Music and Math</p> <p>http://www.philtulga.com/resources.html</p>	<p>Fact Fluency Resources:</p> <ul style="list-style-type: none"> • https://www.factmonster.com/math/flashcards • https://kahoot.com/welcomeback/ • https://quizlet.com/ • https://www.socrative.com/ • https://www.funbrain.com/games/math-baseball • https://www.multiplication.com/games/all-games • https://mathfactspro.com/math-fact-fluency-game/ <p>Math Fluency Classroom Ideas:</p> <ul style="list-style-type: none"> • https://onestopteachershop.com/2015/06/5-ways-to-make-fact-fluency-fun.html • https://www.weareteachers.com/15-fun-ways-to-practice-math/ <p>Resources</p> <p>https://njctl.org</p> <p>https://www.engageny.org/</p> <p>https://www.illustrativemathematics.org/content-standards</p> <p>http://www.k-5mathteachingresources.com/</p> <p>https://www.mathplayground.com/</p>

**Math and Literature
Book Connection Suggestions**

Math Concept	Book Title
Addition	\$1.00 Word Riddle Book
Number Sense	A Million Fish...More or Less Subtraction
Proportional Reasoning, Length, Weight	Amazing Book of Mammal Records
Properties of Numbers	Among the Odds & Evens
Multiplication	Anno's Mysterious Multiplying Jar Properties of Shapes

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Tessellations	Cloak for the Dreamer
Addition, Multiplication, Average, Length	Counting Crocodiles
Length, Proportional Reasoning	Cut Down to Size at High Noon
Coordinate Graphing	Fly on the Ceiling
Whole Number Computation, Number Sense	How Much is a Million?
Whole Number Computation, Money, Shapes, Logical Reasoning	I Hate Mathematics! Book
Length, Proportional Reasoning	If You Hopped Like a Frog
Length, Proportional Reasoning	Is a Blue Whale the Biggest Thing...
Length, Proportional Reasoning	Jim and the Beanstalk
Frequency Distribution	Martha Blah Blah Whole
Number Computation, Number Sense	Math Appeal
Whole Number Computation, Algebraic Equivalence, Logical Reasoning	Math for Smarty Pants
Addition, Number Sense	One Grain of Rice
Whole Number Computation	One Tiny Turtle
Division, Remainders	Remainder of One
Roman Numerals	Roman Numerals I to MM
Area, Perimeter	Spaghetti and Meatballs for All
Graphing	Tiger Math, Learning to Graph...
Graphing, Averages	Tikki Tikki Tembo
Computation, Graphing, Pounds, Ounces	Wilma Unlimited

Instructional Best Practices and Exemplars

- Establish mathematics goals to focus learning. Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions.
- Implement tasks that promote reasoning and problem solving. Effective teaching of mathematics engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allow multiple entry points and varied solution strategies.
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- Elicit and use evidence of student thinking. Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning.
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- Visuals
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21st Century Life and Careers Standards

Career Ready Practices:

CRP2: Apply appropriate academic and technical skills.

CRP4: Communicate clearly and effectively and with reason.

CRP6: Demonstrate creativity and innovation.

CRP8: Utilize critical thinking to make sense of problems and persevere in solving them.

CRP11: Use technology to enhance productivity.

CRP12: Work productively in teams while using cultural global competence

Personal Financial Literacy - Income And Careers

9.1.4.A.1 Explain the difference between a career and a job, and identify various jobs in the community and the related earnings.

9.1.4.A.2 Identify potential sources of income.

Career Awareness, Exploration, And Preparation - Career Awareness

9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

Technology Standards

8.1 Educational Technology: All students will use digital tools to assess, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

A. Technology Operations and Concepts:

8.1.2.A.1 Identify the basic features of a digital device and explain its purpose.

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8.1.2.A.2 Create a document using a word processing application.

8.1.2.A.3 Compare the common uses of at least two different digital applications and identify the advantages and disadvantages of each.

8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual Environments (i.e. games, museums)

8.1.2.A.5 Enter information into a spreadsheet and sort the information.

8.1.2.A.6 Identify the structure and components of a database.

8.1.2.A.7 Enter information into a database or spreadsheet and filter the information.

B. Creativity and Innovation

8.1.2.B.1 Illustrate and communicate original ideas and stories using multiple digital tools and resources.

C. Communication and Collaboration:

8.1.2.C.1 Engage in a variety of developmentally appropriate learning activities with students in other classes, schools, or countries using various media formats such as online collaborative tools, and social media.

D. Digital Citizenship

8.1.2.D.1 Develop an understanding of ownership of print and non-print information.

E: Research and Information Fluency:

8.1.2.E.1 Use digital tools and online resources to explore a problem or issue.

F. Critical thinking, problem solving, and decision making:

8.1.2.F.1 Use geographic mapping tools to plan and solve problems.

8.2 Technology, Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

A. The Nature of Technology: Creativity and Innovation

8.2.2.A.1 Define products produced as a result of the technology or of nature.

8.2.2.A.2 Describe how designed products and systems are useful at school, home or work.

8.2.2.A.3 Identify a system and the components that work together to accomplish its purpose.

8.2.2.A.4 Choose a product to make and plan the tools and material needed.

8.2.2.A.5 Collaborate to design a solution to a problem affecting the community.

Accommodations/ Differentiation

- Modify activities/assignments/projects/assessments
- Breakdown activities/assignments/projects/assessments into manageable units
- Additional time to complete activities/assignments/projects/assessments
- Provide an option for alternative activities/assignments/projects/assessments
- Adjust Pacing of Content
- Small Group Intervention/Remediation
- Individual Intervention/Remediation
- Guided Notes
- Graphic Organizers

IEP-Follow IEP Plan which may contain some of the following examples...

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Mathematics Grade 6

- In class/pull out support with special ed teacher
- Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Limit number of questions
- Scribe
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video

504-Follow 504 Plan which may contain some of the following examples...

- In class/pull out support with special ed teacher
- Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Limit number of questions
- Scribe
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System

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- Another look homework video
- Practice buddy

ELL

- Translation device/dictionary
- In class/pull out support with ESL teacher
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Math Diagnosis & Intervention System

All WIDA Can Do Descriptors can be found at this link: https://www.wida.us/standards/CAN_DOs/

WIDA Can Do Descriptors:

- Listening
- Speaking
- Reading
- Writing
- Oral Language

ELL Strategies

Develop Meaning

Elicit Prior Knowledge

Identify Relationships

Rephrase -Scaffold Language

At Risk Students

- Additional time during intervention time
- Questions read aloud
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Calculators

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- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video
- Practice buddy

Gifted & Talented

- Independent projects
- Enrichment pages
- Online games
- Leveled Homework
- Extension Activities
- Today's Challenge

Unit 3 Grade 6

Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
<p>■ 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.</p>	<p>MP.5 Use appropriate tools strategically. MP.6 Attend to precision.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • Solving an equation or inequality is a process of answering the question: determine which values from a specified set, if any, make the equation or inequality true. <p>Students are able to:</p> <ul style="list-style-type: none"> • substitute a number into an equation to determine whether it makes an equation true. • substitute a number into an inequality to determine whether it makes the inequality true. <p>Learning Goal 1: Use substitution to determine whether a given number makes an equation or inequality true.</p>	<p>Ready Math</p> <p>Lesson 18- Understand Solutions to Equations</p>	2
<p>■ 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</p>	<p>MP.1 Make sense of problems and persevere in solving them. MP.2 Reason</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • An equation is defined by two expressions that are equivalent to one another. <p>Students will be able to:</p> <ul style="list-style-type: none"> • solve real world problems by writing and solving equations of 	<p>Ready Math</p> <p>Lesson 19- Solve Inequalities</p>	4

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Unit 3 Grade 6				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
numbers.	abstractly and quantitatively. MP.6 Attend to precision. MP.7 Look for and make use of structure.	<p>the form $x + p = q$ (p, q, and x are non-negative and rational).</p> <ul style="list-style-type: none"> • solve real world problems by writing and solving equations of the form $px = q$ (p, q, and x are non-negative and rational). <p>Learning Goal 2: Solve real world problems by writing and solving equations of the form $x + p = q$ and $px = q$ (p, q, and x are non-negative rational numbers).</p>		
<p>■ 6.NS.C.5. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.</p>	MP.2 Reason abstractly and quantitatively. MP.5 Use appropriate tools strategically	<p>Concept(s):</p> <ul style="list-style-type: none"> • Positive and negative numbers, used together, describe quantities having opposite directions or opposite values. <p>Students are able to:</p> <ul style="list-style-type: none"> • represent quantities with positive and negative numbers in real-world contexts. • interpret positive and negative numbers in real-world contexts. • explain the meaning of zero, in context, in each real-world situation. <p>Learning Goal 3: Use positive and negative numbers to represent quantities in real-world situations, explaining the meaning of zero in the context of the real-world situation.</p>	Ready Math Lesson 12- Understand Positive and Negative Numbers	2
<p>■ 6.NS.C.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.</p> <p>6.NS.C.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, e.g., –</p>	MP.5 Use appropriate tools strategically. MP.8 Look for and express regularity in repeated reasoning.	<p>Concept(s):</p> <ul style="list-style-type: none"> • Opposite signs of numbers indicate locations on opposite sides of 0 on the number line. • The opposite of the opposite of a number is the number itself (e.g. the opposite of three is -3. The opposite of the opposite of three, $-(-3)$, is equal to the original number, 3). • Signs of numbers in ordered pairs indicate their locations in quadrants of the coordinate plane. • When two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. <p>Students are able to:</p> <ul style="list-style-type: none"> • position rational numbers on horizontal and vertical number lines. 	Ready Math Lesson 12- Understand Positive and Negative Numbers Lesson 14- The Coordinate Plane	4

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Unit 3 Grade 6				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
<p>$(-3) = 3$, and that 0 is its own opposite.</p> <p>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.</p> <p>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.</p>		<ul style="list-style-type: none"> position pairs of rational numbers on a coordinate plane. explain the conditions for which pairs of points are reflections across an axes in the coordinate plane. locate numbers and their opposites on the number line and explain their relation to 0. <p>Learning Goal 4: Locate rational numbers and their opposites on horizontal and vertical number line; explain their relation of the opposites to zero.</p> <p>Learning Goal 5: Plot pairs of positive and negative rational numbers in the coordinate plane; describe two ordered pairs that differ only by signs as reflections across one or both axes.</p>		
<p>■ 6.NS.C.7. Understand ordering and absolute value of rational numbers.</p> <p>6.NS.C.7a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. <i>For example, interpret $-3 > -7$ as a statement that -3 is located to the right of -7 on a number line oriented from left to right.</i></p> <p>6.NS.C.7b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. <i>For example, write $-3^{\circ}\text{C} > -7^{\circ}\text{C}$ to express the fact that -3°C is warmer than -7°C.</i></p> <p>6.NS.C.7c. Understand the absolute value of a rational</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.3 Construct viable arguments and critique the reasoning of others.</p> <p>MP.5 Use appropriate tools strategically</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> The absolute value of a rational number is its distance from 0 on the number line. <p>Students are able to:</p> <ul style="list-style-type: none"> given an inequality, determine the position of one rational number relative to another. write a inequality and explain statements of order for rational numbers in real world situations. <p>Learning Goal 6: Use statements of inequality to determine relative positions of two rational numbers on a number line; write and explain statements of order for rational numbers in real-world contexts.</p> <p>Learning Goal 7: Explain the meaning of absolute value of a rational number as distance from zero on the number line and as magnitude for a positive or negative quantity in a real-world situation.</p>	<p>Ready Math</p> <p>Lesson 13- Absolute Value and Ordering Numbers</p>	4

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Unit 3 Grade 6				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
<p>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. <i>For example, for an account balance of -30 dollars, write $-30 = 30$ to describe the size of the debt in dollars.</i></p> <p>6.NS.C.7d. Distinguish comparisons of absolute value from statements about order. <i>For example, recognize that an account balance less than -30 dollars represents a debt greater than 30 dollars.</i></p>				
<p>■ 6.EE.B.8. Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams</p>	<p>MP.2 Reason abstractly and quantitatively. MP.6 Attend to precision. MP.7 Look for and make use of structure.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> An inequality may represent a constraint (or a condition) in a real-world problem. Infinity ($x > c$ and $x < c$ have an infinite number of solutions). <p>Students are able to:</p> <ul style="list-style-type: none"> represent real-world constraint or condition by writing an inequality of the form $x > c$ or $x < c$. graph inequalities of the form $x > c$ or $x < c$ on number lines. <p>Learning Goal 8: Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real world or mathematical problem and represent them on a number line.</p>	<p>Ready Math</p> <p>Lesson 20- Solve Inequalities</p>	4
<p>■ 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</p>	<p>MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> graph points in all four quadrants of the coordinate plane in order to solve real-world and mathematical problems. draw polygons in the coordinate plane. use absolute value to find distances between points with the same first coordinate or the same second coordinate. 	<p><i>Problems should be embedded in daily lessons throughout the school year.</i></p> <p>Ready Math</p>	<p>Repeated</p> <p>4</p>

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Unit 3 Grade 6				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
second coordinate. □ 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.	MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.	<ul style="list-style-type: none"> use coordinates to solve real-world distance, perimeter, and area problems. Learning Goal 9: Solve real world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Use the absolute value of the differences of their coordinates to find distances between points with the same first coordinate or same second coordinate.	Lesson 23- Polygons in the Coordinate Plane	
□ 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.	MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.5 Use appropriate tools strategically. MP.7 Look for and make use of structure.	Concept(s): No new concept(s) introduced Students are able to: <ul style="list-style-type: none"> compose rectangles in order to find the area of triangles, special quadrilaterals and polygons. decompose triangles, special quadrilaterals, and polygons into triangles and other shapes in order to find their area. compose rectangles and decompose into triangles in order to solve real-world problems. Learning Goal 10: Find the area of right triangles, other triangles, special quadrilaterals and polygons by composing into rectangles or decomposing into triangles and other shapes to solve real world or mathematical problems.	Ready Math Lesson 22- Area of Polygons	4

Unit 3 Grade 6 What This May Look Like

District/School Formative Assessment Plan	District/School Summative Assessment Plan
<ul style="list-style-type: none"> iReady Assessments Student Conferencing Observation Checklist Anecdotal Notes Homework Running Records Student Self-Evaluations Short constructed response questions Multiple choice questions 	<ul style="list-style-type: none"> Unit Benchmark Chapter Tests iReady Assessments State Assessments

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- Academic/Domain specific vocabulary
- Quizzes
- Math Journal
- Exit ticket
- Accountable talk

Focus Mathematical Concepts

Prerequisite skills:

6.EE.B.7

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. For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)

5.NF.B.4-Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

6.NS.C.6

3.NF.A.2-Understand a fraction as a number on the number line; represent fractions on a number line diagram.

6.NS.C.8*

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.

6.G.A.1

4.MD.A.3-Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.

5.NF.B.4-Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

6.G.A.3

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.

Common Misconceptions:

6.EE. 5 Many students have difficulty understanding that an inequality can have more than one solution. The best way to work on this concept is to use real-world examples that are familiar to students. For example, I have \$25 and want to buy some bracelets. The bracelets cost are \$ each. How many could I buy? This results in the inequality $8b \leq 25$ where b is the number of bracelets I can buy. Since students are not solving inequalities in this standard, if you include a negative number in the set of possible solutions, have a discussion about how the negative value only works for the equation and not the real-world scenario.

6.EE.B.7 Some students may need additional, on-going practice with writing and solving equations. Use advertisements in newspapers to generate real –world scenarios that may be used to write and solve the equations.

6.EE.B.8 Some students may need additional ongoing practice with writing inequalities to represent a real-world mathematics situation. Use advertisements in newspapers to generate ideas of real-world scenarios that can be used to write an inequality to represent an amount. Ask students to talk about the problems and the number lines they create to

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show the inequalities.

6.NS.5 Some sixth graders may believe the greater the magnitude of a negative number, the greater the number. To help with this misconception, continue to use the number line. Have the students trace a horizontal number line with a finger starting at a positive number such as 10 and moving left one number at a time. Ask the student each time the finger moves one number left if the number is getting larger or smaller. Continue across 0. By then, a pattern of numbers getting smaller as you move left on the number line should be established.

6.NS.6 Some sixth graders do not understand that negative signs change a number to the same distance on the opposite of 0. Use a tool such as a ruler to measure the distance to prove this is true. Some students confuse quadrant labels I and IV going counterclockwise. When introducing the quadrant numbers in the quadrants to help them remember. Some learners may confuse (3, 2) and (-3, 2), thinking both ordered pairs look the same. Using paper folding or mirrors may help the students understand the connection between signs on coordinates and their reflections across the axes.

6.NS.7 Common misconceptions occur when students are unable to order rational numbers on the number line. Some students may incorrectly place $-\frac{1}{3}$ $\frac{3}{4}$ between -1 and 0 instead of -2 and -1. To address this, have students order the opposites. For example, if a student has difficulty placing $-\frac{1}{3}$ $\frac{3}{4}$ on the number line, have the student place $\frac{1}{3}$ $\frac{3}{4}$. Discuss with the student how $\frac{1}{3}$ $\frac{3}{4}$ came between 1 and 2. Then use that reasoning to help the student place $-\frac{1}{3}$ $\frac{3}{4}$.

6.G.A.1.

Students who have difficulty performing more than two steps in solving problems may have difficulty finding the area of the composite figures even after decomposing them. These students benefit from writing the area of the joined shapes directly in the composite figures to help keep track of the parts. Students can also code the decomposition.

6.G.A.3.

Students who confuse knowing which coordinates to subtract may have memorized an algorithm for finding the distance (length of side) without understanding how to use the coordinates on the plane. To address this, provide additional experiences drawing polygons and explaining (orally and in writing) how to find the length if a side with the same first (and then same second) coordinates. Communication helps students clarify their understanding. To prevent the misconception that coordinates only appear in the first quadrant, it is important to use coordinate points in all four quadrants. This means that students will need to have previous experience with negative integers so they can find points such as (-3, -2).

Math Focus:

6.NS.B.2 Multi-Digit Division

6.NS.B.3 Multi-Digit Decimal Operations

District/School Tasks

ELA Connections:

- Math Journals
- Math Word Wall
- Math Storytelling
- Think-Write-Pair-Share

District/School Primary and Supplementary Resources

Fact Fluency Resources:

- <https://www.factmonster.com/math/flashcards>
- <https://kahoot.com/welcomeback/>
- <https://quizlet.com/>
- <https://www.socrative.com/>

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- Prompts use successful pre-writing strategies such as:
 - Make a web.
 - Draw a picture and label.
 - Write a definition in your own words.
 - Create examples of the skill/concept and explain.
 - Write about a real-life use of this math concept or skill.
 - Connect the concept/skill to concepts/skills you already learned and use.
 - Reflect on your understanding of this concept/skill on a scale of 1-5 and explain.
 - Create a K-W-L chart

International/ Global Activities-

- <https://populationeducation.org/teacher-resources/>
- <http://www.realworldmath.org/>
- https://www.google.com/intl/en_us/earth/education/

Math in Daily Life

- <http://www.learner.org/interactives/dailymath/>

Music and Math

- <http://www.philtulga.com/resources.html>

- <https://www.funbrain.com/games/math-baseball>
- <https://www.multiplication.com/games/all-games>
- <https://mathfactspro.com/math-fact-fluency-game/>

Math Fluency Classroom Ideas:

- <https://onestopteachershop.com/2015/06/5-ways-to-make-fact-fluency-fun.html>
- <https://www.weareteachers.com/15-fun-ways-to-practice-math/>

Resources

- <https://njctl.org>
- <https://www.engageny.org/>
- <https://www.illustrativemathematics.org/content-standards>
- <http://www.k-5mathteachingresources.com/>
- <https://www.mathplayground.com/>

**Math and Literature
Book Connection Suggestions**

Math Concept	Book Title
Addition	\$1.00 Word Riddle Book
Number Sense	A Million Fish...More or Less Subtraction
Proportional Reasoning, Length, Weight	Amazing Book of Mammal Records
Properties of Numbers	Among the Odds & Evens
Multiplication	Anno's Mysterious Multiplying Jar Properties of Shapes
Tessellations	Cloak for the Dreamer
Addition, Multiplication, Average, Length	Counting Crocodiles
Length, Proportional Reasoning	Cut Down to Size at High Noon
Coordinate Graphing	Fly on the Ceiling
Whole Number Computation, Number Sense	How Much is a Million?
Whole Number Computation, Money, Shapes, Logical Reasoning	I Hate Mathematics! Book
Length, Proportional Reasoning	If You Hopped Like a Frog

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Length, Proportional Reasoning	Is a Blue Whale the Biggest Thing...
Length, Proportional Reasoning	Jim and the Beanstalk
Frequency Distribution	Martha Blah Blah Whole
Number Computation, Number Sense	Math Appeal
Whole Number Computation, Algebraic Equivalence, Logical Reasoning	Math for Smarty Pants
Addition, Number Sense	One Grain of Rice
Whole Number Computation	One Tiny Turtle
Division, Remainders	Remainder of One
Roman Numerals	Roman Numerals I to MM
Area, Perimeter	Spaghetti and Meatballs for All
Graphing	Tiger Math, Learning to Graph...
Graphing, Averages	Tikki Tikki Tembo
Computation, Graphing, Pounds, Ounces	Wilma Unlimited

Instructional Best Practices and Exemplars

- Establish mathematics goals to focus learning. Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions.
- Implement tasks that promote reasoning and problem solving. Effective teaching of mathematics engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allow multiple entry points and varied solution strategies.
- Use and connect mathematical representations. Effective teaching of mathematics engages students in making connections among mathematical representations to deepen understanding of mathematics concepts and procedures and as tools for problem solving.
- Facilitate meaningful mathematical discourse. Effective teaching of mathematics facilitates discourse among students to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.
- Pose purposeful questions. Effective teaching of mathematics uses purposeful questions to assess and advance students' reasoning and sense making about important mathematical ideas and relationships.
- Build procedural fluency from conceptual understanding. Effective teaching of mathematics builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems.
- Support productive struggle in learning mathematics. Effective teaching of mathematics consistently provides students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships.
- Elicit and use evidence of student thinking. Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning.
- Identifying Similarities and Differences
- Reinforcing Effort and Providing Recognition
- Homework and Practice
- Nonlinguistic Representations

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- Cooperative Learning
- Setting Objectives and providing Feedback
- Gradual Release of Responsibility
- Managing response rates
- Checks for understanding
- Coaching
- Visuals
- Collaborative problem solving
- Active engagement strategies
- Establishing metacognitive reflection and articulation

21st Century Life and Careers Standards

Career Ready Practices:

CRP2: Apply appropriate academic and technical skills.

CRP4: Communicate clearly and effectively and with reason.

CRP6: Demonstrate creativity and innovation.

CRP8: Utilize critical thinking to make sense of problems and persevere in solving them.

CRP11: Use technology to enhance productivity.

CRP12: Work productively in teams while using cultural global competence

Personal Financial Literacy - Income And Careers

9.1.4.A.1 Explain the difference between a career and a job, and identify various jobs in the community and the related earnings.

9.1.4.A.2 Identify potential sources of income.

Career Awareness, Exploration, And Preparation - Career Awareness

9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

Technology Standards

8.1 Educational Technology: All students will use digital tools to assess, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

A. Technology Operations and Concepts:

8.1.2.A.1 Identify the basic features of a digital device and explain its purpose.

8.1.2.A.2 Create a document using a word processing application.

8.1.2.A.3 Compare the common uses of at least two different digital applications and identify the advantages and disadvantages of each.

8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual Environments (i.e. games, museums)

8.1.2.A.5 Enter information into a spreadsheet and sort the information.

8.1.2.A.6 Identify the structure and components of a database.

8.1.2.A.7 Enter information into a database or spreadsheet and filter the information.

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B. Creativity and Innovation

8.1.2.B.1 Illustrate and communicate original ideas and stories using multiple digital tools and resources.

C. Communication and Collaboration:

8.1.2.C.1 Engage in a variety of developmentally appropriate learning activities with students in other classes, schools, or countries using various media formats such as online collaborative tools, and social media.

D. Digital Citizenship

8.1.2.D.1 Develop an understanding of ownership of print and non-print information.

E: Research and Information Fluency:

8.1.2.E.1 Use digital tools and online resources to explore a problem or issue.

F. Critical thinking, problem solving, and decision making:

8.1.2.F.1 Use geographic mapping tools to plan and solve problems.

8.2 Technology, Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

A. The Nature of Technology: Creativity and Innovation

8.2.2.A.1 Define products produced as a result of the technology or of nature.

8.2.2.A.2 Describe how designed products and systems are useful at school, home or work.

8.2.2.A.3 Identify a system and the components that work together to accomplish its purpose.

8.2.2.A.4 Choose a product to make and plan the tools and material needed.

8.2.2.A.5 Collaborate to design a solution to a problem affecting the community.

Accommodations/ Differentiation

- Modify activities/assignments/projects/assessments
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IEP-Follow IEP Plan which may contain some of the following examples...

- In class/pull out support with special ed teacher
- Additional time during intervention time
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- Extended time for completing tasks

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- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Limit number of questions
- Scribe
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
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- Math Diagnosis & Intervention System
- Another look homework video

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ELL

- Translation device/dictionary
- In class/pull out support with ESL teacher

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- Practice buddy

Gifted & Talented

- Independent projects
- Enrichment pages
- Online games
- Leveled Homework
- Extension Activities
- Today's Challenge

Unit 4 Grade 6

Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
<p>■ 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.</p> <p><i>For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time.</i></p>	<p>MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.6 Attend to precision.</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • Two quantities that change in relationship to one another may be represented with an equation in two variables, with a graph, and with a table of values. <p>Students are able to:</p> <ul style="list-style-type: none"> • represent two quantities that related to one another, with variables. • write an equation in two variables. • distinguish the dependent variable from the independent variable. • analyze a given graph and table of values, and relate them to the equation. <p>Learning Goal 1: Write an equation using two variables (independent and dependent) to represent two quantities that change in relationship to one another in a real world problem.</p> <p>Learning Goal 2: Analyze the relationship between the dependent and independent variables and relate the equation to a given graph and to its table of values.</p>	<p>Ready Math</p> <p>Lesson 21- Dependent and Independent Variables</p>	4
<p>○ 6.SP.A.1. Recognize a statistical question as one that anticipates variability in the data related to the</p>	<p>MP.2 Reason abstractly and quantitatively. MP.6 Attend to precision</p>	<p>Concept(s):</p> <ul style="list-style-type: none"> • Variability/Variation • A statistical question is one that anticipates variability 	<p>Ready Math</p> <p>Lesson 26- Understand</p>	2

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Unit 4 Grade 6				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
question and accounts for it in the answers. <i>For example, “How old am I?” is not a statistical question, but “How old are the students in my school?” is a statistical question because one anticipates variability in students’ ages.</i>		<p>in the data that is related to the question.</p> <p>Students are able to:</p> <ul style="list-style-type: none"> distinguish questions that are statistical (anticipate variability in data) from those that are not. <p>Learning Goal 3: Distinguish questions that are statistical (anticipate variability in data) from those that are not.</p>	Statistical Questions	
<ul style="list-style-type: none"> 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. 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. 6.SP.B.4. Display numerical data in plots on a number line, including dot plots, histograms, and box plots. 	MP.4 Model with mathematics.	<p>Concept(s):</p> <ul style="list-style-type: none"> A data set has a distribution which can be described by its center, spread, and overall shape. A measure of center summarizes, with a single number, the values of an entire data set. A measure of variation describes, with a single number, how the values of a data set vary. <p>Students are able to:</p> <ul style="list-style-type: none"> distinguish center from variation. display numerical data in dot plots on a number line. display numerical data in histograms on a number line. display numerical data in box plots on a number line. <p>Learning Goal 4: Display numerical data in plots on the number line (including dot plots, histograms, and box plots) and summarize in relation to their context.</p>	<p>Ready Math</p> <p>Lesson 27 Measures of Center and variability</p> <p>Lesson 28- Display Data on Dot Plots, Histograms, and Box Plots</p>	7
<ul style="list-style-type: none"> 6.SP.B.5. Summarize numerical data sets in relation to their context, such as by: <ul style="list-style-type: none"> 6.SP.B.5a. Reporting the number of observations. 6.SP.B.5b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. 6.SP.B.5c. Giving quantitative measures of center (median and/or 	MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically.	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> determine the number of observations of a data set. describe the data in context, including how it was measured and the units of measurement. calculate measures of center, mean and median. calculate measures of spread, interquartile range and mean absolute deviation. describe the overall shape of a distribution (skewed left, skewed right, etc). identify striking deviations (outliers). 	Ready Math Lesson 29 Analyze Numerical Data	4

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Unit 4 Grade 6				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
<p>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.</p> <p>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.</p>		<ul style="list-style-type: none"> choose measures of center and variability appropriate to the shape of the distribution and context. <p>Learning Goal 5: Summarize numerical data in relation to their context by identifying the number of observations and describing how the data was measured.</p> <p>Learning Goal 6: Calculate, and interpret measures of center (mean and median) and variability (interquartile range and mean absolute deviation); report measures of center and variability appropriate to the shape of the distribution and context.</p>		
<p>■ 6.RP.A.3. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.</p> <p>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.</p> <p>6.RP.A.3b. Solve unit rate problems including those involving unit pricing and constant speed. <i>For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?</i></p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically</p> <p>MP.6 Attend to precision.</p> <p>MP.7 Look for and make use of structure.</p> <p>MP.8 Look for and express regularity in repeated reasoning</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> use ratio and rate reasoning to create tables of equivalent ratios relating quantities with <i>whole number</i> measurements, find missing values in tables and plot pairs of values. compare ratios using tables of equivalent ratios. solve real world and mathematical problems involving unit rate (including unit price and constant speed). calculate a percent of a quantity and solve problems by finding the whole when given the part and the percent. convert measurement units using ratio reasoning. transform units appropriately when multiplying and dividing quantities. <p>Learning Goal 7: Create and complete tables of equivalent ratios to solve real world and mathematical problems using ratio and rate reasoning that include making tables of equivalent ratios, solving unit rate problems, finding percent of a quantity as a rate per 100.</p> <p>Learning Goal 8: Use ratio and rate reasoning to convert</p>	<p><i>Problems should be embedded in daily lessons throughout the school year.</i></p>	<p>Repeat ed</p>

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Unit 4 Grade 6				
Content Standards	Suggested Standards for Mathematical Practice	Critical Knowledge & Skills	Resources	Days
<p>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.</p> <p>6.RP.A.3d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.</p>		<p>measurement units and to transform units appropriately when multiplying or dividing quantities.</p>		
<p>■ 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.</p>	<p>MP.1 Make sense of problems and persevere in solving them.</p> <p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.5 Use appropriate tools strategically.</p>	<p>Concept(s): No new concept(s) introduced</p> <p>Students are able to:</p> <ul style="list-style-type: none"> graph points in all four quadrants of the coordinate plane in order to solve real-world and mathematical problems. draw polygons in the coordinate plane. use absolute value to find distances between points with the same first coordinate or the same second coordinate. use coordinates to solve real-world distance, perimeter, and area problems. <p>Learning Goal 9: Solve real world and mathematical problems by graphing points in all four quadrants of the coordinate plane; use the absolute value of the differences of their coordinates to find distances between points with the same first coordinate or same second coordinate.</p>	<p><i>Problems should be embedded in daily lessons throughout the school year.</i></p>	
Unit 4 Grade 6 What This May Look Like				
District/School Formative Assessment Plan			District/School Summative Assessment Plan	
<ul style="list-style-type: none"> iReady Assessments Student Conferencing Observation Checklist Anecdotal Notes 			<ul style="list-style-type: none"> Unit Benchmark Chapter Tests iReady Assessments State Assessments 	

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- Homework
- Running Records
- Student Self-Evaluations
- Short constructed response questions
- Multiple choice questions
- Academic/Domain specific vocabulary
- Quizzes
- Math Journal
- Exit ticket
- Accountable talk

Focus Mathematical Concepts

Prerequisite skills:

6.EE.C.9

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.

6.SP.A.1

5.MD.B.2-Make a line plot to display a data set of measurements in fractions of a unit ($1/2$, $1/4$, $1/8$). 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.

6.SP.A.2, 6.SP.A.3, 6.SP.B.4

5.MD.B.2-Make a line plot to display a data set of measurements in fractions of a unit ($1/2$, $1/4$, $1/8$). 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.

6.RP.A.3*

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.

6.NS.C.8*

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.

Common Misconceptions:

6.EE.C.9 Some students may confuse what a graph represents. To help, have students explain in their own words what the graph means.

6.NS.C.8.

Students may have procedural graphing misconceptions and may not plot points in spaces rather than intersections. Some sixth graders count intervals on lines rather than x or y

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axis. Provide hands-on experiences for these learners. Have students plot real objects on a coordinate grid while you observe. Then, have them find the distance between the objects and explain how they found it.

6.RP.A.3.
Some sixth graders misunderstand and believe that a percent is always a natural number less than or equal to 100. To help this misconception, provide examples of percent amounts that are greater than 100% and percent amounts that are less than 1%. Try using a percent when for developing this understanding.

Math Focus:

- 6.NS.B.2 Multi-Digit Division
- 6.NS.B.3 Multi-Digit Decimal Operations

District/School Tasks	District/School Primary and Supplementary Resources
<p>ELA Connections:</p> <ul style="list-style-type: none">• Math Journals• Math Word Wall• Math Storytelling• Think-Write-Pair-Share• Prompts use successful pre-writing strategies such as:<ul style="list-style-type: none">○ Make a web.○ Draw a picture and label.○ Write a definition in your own words.○ Create examples of the skill/concept and explain.○ Write about a real-life use of this math concept or skill.○ Connect the concept/skill to concepts/skills you already learned and use.○ Reflect on your understanding of this concept/skill on a scale of 1-5 and explain.○ Create a K-W-L chart <p>International/ Global Activities-</p> <p>https://populationeducation.org/teacher-resources/</p> <p>http://www.realworldmath.org/</p> <p>https://www.google.com/intl/en_us/earth/education/</p> <p>Math in Daily Life</p> <p>http://www.learner.org/interactives/dailymath/</p>	<p>Fact Fluency Resources:</p> <ul style="list-style-type: none">• https://www.factmonster.com/math/flashcards• https://kahoot.com/welcomeback/• https://quizlet.com/• https://www.socrative.com/• https://www.funbrain.com/games/math-baseball• https://www.multiplication.com/games/all-games• https://mathfactspro.com/math-fact-fluency-game/ <p>Math Fluency Classroom Ideas:</p> <ul style="list-style-type: none">• https://onestopteachershop.com/2015/06/5-ways-to-make-fact-fluency-fun.html• https://www.weareteachers.com/15-fun-ways-to-practice-math/ <p>Resources</p> <p>https://njctl.org</p> <p>https://www.engageny.org/</p> <p>https://www.illustrativemathematics.org/content-standards</p> <p>http://www.k-5mathteachingresources.com/</p> <p>https://www.mathplayground.com/</p>

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Music and Math http://www.philtulga.com/resources.html	
Math and Literature Book Connections Suggestions	
Math Concept	Book Title
Addition	\$1.00 Word Riddle Book
Number Sense	A Million Fish...More or Less Subtraction
Proportional Reasoning, Length, Weight	Amazing Book of Mammal Records
Properties of Numbers	Among the Odds & Evens
Multiplication	Anno's Mysterious Multiplying Jar Properties of Shapes
Tessellations	Cloak for the Dreamer
Addition, Multiplication, Average, Length	Counting Crocodiles
Length, Proportional Reasoning	Cut Down to Size at High Noon
Coordinate Graphing	Fly on the Ceiling
Whole Number Computation, Number Sense	How Much is a Million?
Whole Number Computation, Money, Shapes, Logical Reasoning	I Hate Mathematics! Book
Length, Proportional Reasoning	If You Hopped Like a Frog
Length, Proportional Reasoning	Is a Blue Whale the Biggest Thing...
Length, Proportional Reasoning	Jim and the Beanstalk
Frequency Distribution	Martha Blah Blah Whole
Number Computation, Number Sense	Math Appeal
Whole Number Computation, Algebraic Equivalence, Logical Reasoning	Math for Smarty Pants
Addition, Number Sense	One Grain of Rice
Whole Number Computation	One Tiny Turtle
Division, Remainders	Remainder of One
Roman Numerals	Roman Numerals I to MM
Area, Perimeter	Spaghetti and Meatballs for All
Graphing	Tiger Math, Learning to Graph...
Graphing, Averages	Tikki Tikki Tembo
Computation, Graphing, Pounds, Ounces	Wilma Unlimited
Instructional Best Practices and Exemplars	
<ul style="list-style-type: none"> • Establish mathematics goals to focus learning. Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions. • Implement tasks that promote reasoning and problem solving. Effective teaching of mathematics engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allow multiple entry points and varied solution strategies. • Use and connect mathematical representations. Effective teaching of mathematics engages students in making connections among mathematical representations to deepen 	

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understanding of mathematics concepts and procedures and as tools for problem solving.

- Facilitate meaningful mathematical discourse. Effective teaching of mathematics facilitates discourse among students to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.
- Pose purposeful questions. Effective teaching of mathematics uses purposeful questions to assess and advance students' reasoning and sense making about important mathematical ideas and relationships.
- Build procedural fluency from conceptual understanding. Effective teaching of mathematics builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems.
- Support productive struggle in learning mathematics. Effective teaching of mathematics consistently provides students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships.
- Elicit and use evidence of student thinking. Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning.
- Identifying Similarities and Differences
- Reinforcing Effort and Providing Recognition
- Homework and Practice
- Nonlinguistic Representations
- Cooperative Learning
- Setting Objectives and providing Feedback
- Gradual Release of Responsibility
- Managing response rates
- Checks for understanding
- Coaching
- Visuals
- Collaborative problem solving
- Active engagement strategies
- Establishing metacognitive reflection and articulation

21st Century Life and Careers Standards

Career Ready Practices:

CRP2: Apply appropriate academic and technical skills.

CRP4: Communicate clearly and effectively and with reason.

CRP6: Demonstrate creativity and innovation.

CRP8: Utilize critical thinking to make sense of problems and persevere in solving them.

CRP11: Use technology to enhance productivity.

CRP12: Work productively in teams while using cultural global competence

Personal Financial Literacy - Income And Careers

9.1.4.A.1 Explain the difference between a career and a job, and identify various jobs in the community and the related earnings.

9.1.4.A.2 Identify potential sources of income.

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Career Awareness, Exploration, And Preparation - Career Awareness

9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

9.2.8.B.3 Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.

Technology Standards

8.1 Educational Technology: All students will use digital tools to assess, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

A. Technology Operations and Concepts:

8.1.2.A.1 Identify the basic features of a digital device and explain its purpose.

8.1.2.A.2 Create a document using a word processing application.

8.1.2.A.3 Compare the common uses of at least two different digital applications and identify the advantages and disadvantages of each.

8.1.2.A.4 Demonstrate developmentally appropriate navigation skills in virtual Environments (i.e. games, museums)

8.1.2.A.5 Enter information into a spreadsheet and sort the information.

8.1.2.A.6 Identify the structure and components of a database.

8.1.2.A.7 Enter information into a database or spreadsheet and filter the information.

B. Creativity and Innovation

8.1.2.B.1 Illustrate and communicate original ideas and stories using multiple digital tools and resources.

C. Communication and Collaboration:

8.1.2.C.1 Engage in a variety of developmentally appropriate learning activities with students in other classes, schools, or countries using various media formats such as online collaborative tools, and social media.

D. Digital Citizenship

8.1.2.D.1 Develop an understanding of ownership of print and non-print information.

E: Research and Information Fluency:

8.1.2.E.1 Use digital tools and online resources to explore a problem or issue.

F. Critical thinking, problem solving, and decision making:

8.1.2.F.1 Use geographic mapping tools to plan and solve problems.

8.2 Technology, Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

A. The Nature of Technology: Creativity and Innovation

8.2.2.A.1 Define products produced as a result of the technology or of nature.

8.2.2.A.2 Describe how designed products and systems are useful at school, home or work.

8.2.2.A.3 Identify a system and the components that work together to accomplish its purpose.

8.2.2.A.4 Choose a product to make and plan the tools and material needed.

8.2.2.A.5 Collaborate to design a solution to a problem affecting the community.

Accommodations/ Differentiation

- Modify activities/assignments/projects/assessments

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- Breakdown activities/assignments/projects/assessments into manageable units
- Additional time to complete activities/assignments/projects/assessments
- Provide an option for alternative activities/assignments/projects/assessments
- Adjust Pacing of Content
- Small Group Intervention/Remediation
- Individual Intervention/Remediation
- Guided Notes
- Graphic Organizers

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ELL

- Translation device/dictionary
- In class/pull out support with ESL teacher
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