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| Grade: | 7 | Unit 1 - The Number System | 9-10 Weeks |
| Unit: | 1 | | |

| Progression | |
|------------------|---|
| 6th Grade | Students learned to... Order Numbers including Absolute Value Understand Positive and Negative Numbers Multiply and Divide Decimals |
| 7th Grade | Students will learn to... Add and Subtract Positive and Negative Integers Multiply and Divide Positive and Negative Integers Understand Terminating and Repeating Decimals Add and Subtract Rational Numbers Multiply and Divide Rational Numbers Solve Problems With Rational Numbers |
| 8th Grade | Students will extend their work to include.. Operations and Scientific Notation Properties of Integer Exponents Rational and Irrational Numbers Square Roots and Cube Roots Scientific Notation |

Mathematics Standards (*Appendices A & B*)

CCSS Math Standards Used in Unit 1
 Link: <http://www.corestandards.org/Math/Content/7/NS/>

Apply and extend previous understandings of operations with fractions.
 7.NS.A.1
Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

7.NS.A.1.A
 Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.*

7.NS.A.1.B
 Understand $p + q$ as the number located a distance $|q|$ from p , in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.

7.NS.A.1.C
 Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.

7.NS.A.1.D
 Apply properties of operations as strategies to add and subtract rational numbers.

7.NS.A.2

Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

7.NS.A.2.A

Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.

7.NS.A.2.B

Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.

7.NS.A.2.C

Apply properties of operations as strategies to multiply and divide rational numbers.

7.NS.A.2.D

Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.

7.NS.A.3

Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹ Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

CCSS.MATH.CONTENT.7.EE.B.3

Solve real-life and mathematical problems using numerical and algebraic expressions and equations

Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional $1/10$ of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar $9 \frac{3}{4}$ inches long in the center of a door that is $27 \frac{1}{2}$ inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.

Standards of Mathematical Practice (See Appendix B)

<http://www.corestandards.org/Math/Practice/>

MP1 Make sense of problems and persevere in solving them.

MP2 Reason abstractly and quantitatively.

MP3 Construct viable arguments and critique the reasoning of others.

MP4 Model with mathematics.

MP5 Use appropriate tools strategically.

MP6 Attend to precision.

MP7 Look for and make use of structure.

MP8 Look for and express regularity in repeated reasoning.

| Interdisciplinary Standards | | Key Vocabulary | |
|---|--|--|--|
| Technology Integration <i>(Appendix C)</i> | 21st Century Skills <i>(Appendix D)</i> | Absolute Value Additive Inverse | Terminating Decimals Repeating Decimals |
| IS1. Information Strategies IS2. Information Use | TCS1. Use of Information TCS5. Problem Solving | | |
| Enduring Understandings <ul style="list-style-type: none"> I can add and subtract positive and negative integers. I can multiply and divide positive and negative integers. I can add and subtract rational numbers. I can multiply and divide rational numbers. I can solve word problems with rational numbers. | | Essential Questions <ul style="list-style-type: none"> How can students describe real world situations using real numbers? How can students understand that multiplication is an extension of fractions to real numbers? Where can the application of properties assist in operations as it relates to world problems? Why is computation of positive and negative numbers necessary to determine relationships between quantities? | |
| Assessment Plan | | | |
| Summative Assessment(s)/Performance Based Assessments including 21st Century Learning RCC Interim Assessment, Instruction p.74 RCC Interim Assessment, Teacher Resource p.79 RCC Interim Assessment, Practice p.79 RCC Performance Task, Practice p.81 | | Formative and Diagnostic Assessment(s) STAR Math Assessment Skills Assessment #1 RCC Lesson Quizzes | |
| Text | Ready Common Core Mathematics Instruction 7, 2015, Curriculum Associates, Ready Common Core Mathematics Practice & Problem Solving 7, 2015, Curriculum Associates, | | |
| Print | Ready Common Core Mathematics Teacher Resource Book 7, 2015, Curriculum Associates, | | |
| Electronic | www.teacher-toolbox.com | | |
| DOK 1 Practice | http://www.commoncoresheets.com/SortedByGrade.php?Sorted=7th#s2 | | |
| Week 1 | Students will: <ul style="list-style-type: none"> Understand that the sum of a number and its opposite is zero in mathematical and real-world situations. Understand the the relationship between addition and subtraction. Represent $p + q$ as the number located a distance q from p on a number line | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| RCC Lesson 1: Understand Addition of Positive and Negative Integers 7.NS.A.1.A 7.NS.A.1.B | Ready Instruction Book p. 2 - 7 Practice and Problem Solving p.1 - 8 Teacher Resource Book Hands-on Activity p.5, 10 Lesson 1 Quiz https://www.teacher-toolbox.com/dam/jcr:b114dccb-0 | Teacher choice as needed Generally focused on procedural practice | Ready Video: Adding Integers Using a Number Line https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.NO.7.1100.10 Add integers using a number line. Use subtraction and absolute value to find the |

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| | 8b5-4825-a34a-6c0dd02ada4a/CC7M_LQ_L09.pdf | | distance between two numbers on a number line. |
| Week 2 | Students will: <ul style="list-style-type: none"> • Subtract rational numbers by adding the additive inverse • Use subtraction and absolute value to find the distance between two numbers on a number line. • Find the distance between two points on a coordinate plane that have either the same x- or y - value. | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| RCC Lesson 2: Understand Subtraction of Positive and Negative Integers 7.NS.A.1.C | Ready Instruction Book p. 8 - 13 Practice and Problem Solving p. 9 - 16 Teacher Resource Book Hands-on Activities p.18 Lesson 2 Quiz https://www.teacher-toolbox.com/dam/jcr:b5d7ec77-e41b-4c1a-a8eb-4e9f43465f98/CC7M_LQ_L02.pdf | Teacher choice as needed Generally focused on procedural practice | Ready Video Same as Lesson 1 |
| Week 3 | Students will: <ul style="list-style-type: none"> • Add and subtract integers • Represent addition and subtraction of integers on a horizontal/vertical number lines • Apply properties of operations to add and subtract integers. | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| RCC Lesson 3: Add and Subtract Positive and Negative Integers 7.NS.A.1.D | Ready Instruction Book p. 14 - 23 Practice and Problem Solving p. 17 - 26 Teacher Resource Book Hands-on Activity p.21, 24,28 Lesson 3 Quiz https://www.teacher-toolbox.com/dam/jcr:4f34b9f1-36ad-4fd1-afaf-eebf00f61329/CC7M_LQ_L03.pdf | Teacher choice as needed Generally focused on procedural practice | Ready Video https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.NO.7.1000.10 Add and subtract positive and negative integers. Apply properties of addition as a strategy to add and subtract integers |
| Week 4 | Students will: <ul style="list-style-type: none"> • Develop rules for multiplying and dividing integers using patterns. • Identify equivalent numbers to show that - • $\left(\frac{p}{q}\right) = \frac{(-p)}{q} = \frac{p}{(-q)}$ (using numbers, not variables) • Multiply and divide integers resulting in integer answers. | | |

| Lessons | Tasks / Activities | Worksheets | Technology |
|---|---|---|---|
| RCC Lesson 4: Multiply and Divide Positive and Negative Integers 7.NS.A.2.A 7.NS.A.2.B 7.NS.A.2.C | Ready Instruction Book p. 24 - 33 Practice and Problem Solving p. 27 - 36 Teacher Resource Book Hands-on Activity p.32,38 Lesson 4 Quiz https://www.teacher-toolbox.com/dam/jcr:98c485d3-6b3c-45e2-b706-c01815f50894/CC7M_LQ_L04.pdf | Teacher choice as needed Generally focused on procedural practice | Ready Video https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.NO.7.1003.10 Multiply positive and negative integers. Divide positive and negative integers. |
| Week 5 | Students will: <ul style="list-style-type: none"> • Convert a positive proper fraction to a terminating decimal • Convert a positive improper fraction to a whole number decimal using long division (connect to a previous lesson) • Convert a positive proper fraction to a repeating decimal. Use symbols for repeating decimals. • Convert positive proper and improper fractions to repeating and nonrepeating decimals. | | |
| | RCC Lesson 5: Terminating and Repeating Decimals 7.NS.A.2.D | Ready Instruction Book p. 34 - 43 Practice and Problem Solving p. 37 - 46 Teacher Resource Book Hands-on Activity p.42,48 Lesson 5 Quiz https://www.teacher-toolbox.com/dam/jcr:9213b56b-2370-4b82-8f09-072edbe0168e/CC7M_LQ_L05.pdf | Generally focused on procedural practice |
| Week 6 | Students will: <ul style="list-style-type: none"> • Connect multiplying and dividing positive and negative fractions to what students already know about multiplying and dividing fractions and about multiplying and dividing integers. • Multiply and divide rational numbers, with a focus on positive and negative proper and improper fractions, but also including multiplying and dividing fractions by integers and integers by fractions. • Interpret products and quotients of rational numbers by describing real-world contexts. | | |
| | RCC Lesson 6: Multiply and Divide Rational Numbers 7.NS.A.2.A 7.NS.A.2.B 7.NS.A.2.C | Ready Instruction Book p. 44 - 53 Practice and Problem Solving p. 44 - 56 | Teacher choice as needed Generally focused on procedural practice |

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| | <p>Teacher Resource Book Hands-on Activity p.58</p> <p>Lesson 6 Quiz https://www.teacher-toolbox.com/dam/jcr:6b41607f-aff8-4b99-a8d7-ad231282b7a9/CC7M_LQ_L06.pdf</p> | | Multiply positive and negative rational numbers. Divide positive and negative rational numbers. |
| Week 7 | <p>Students will:</p> <ul style="list-style-type: none"> • Connect adding and subtracting positive and negative fractions to what students already know about adding fraction and adding and subtracting integers. • Use a number line with easy fractions to connect to distance model. • Add and subtract positive and negative proper fractions. • Add and subtract positive and negative improper fractions. • Add and subtract positive and negative mixed numbers. | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| <p><u>RCC Lesson 7:</u> Add and Subtract Rational Numbers</p> <p>7.NS.A.1.A 7.NS.A.1.B 7.NS.A.1.C 7.NS.A.1.D</p> | <p>Ready Instruction Book p. 54 - 63</p> <p>Practice and Problem Solving p. 57 - 66</p> <p>Teacher Resource Book Hands-on Activity p.68</p> <p>Lesson 7 Quiz https://www.teacher-toolbox.com/dam/jcr:b46c716b-fa1b-4ea4-8307-68eb0b22c719/CC7M_LQ_L07.pdf</p> | <p>Teacher choice as needed Generally focused on procedural practice</p> | <p>Ready Video https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.NO.7.1001.10</p> <p>Add and subtract positive and negative rational numbers. Use mental computations and estimation to check the reasonableness of an answer.</p> |
| Week 8 | <p>Students will:</p> <ul style="list-style-type: none"> • Solve problems involving negative integers. • Use whole-number approximations to estimate, and then compare the estimate to the actual result of the computation. • Connect previous one or two step equation-solving to solving equations with positive and negatives fractions. • Connect previous equation solving to solving equations with positive and negative decimals. | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| <p><u>RCC Lesson 8:</u> Solve Problems With Rational Numbers</p> <p>7.NS.A.3 7.EE.A.3</p> | <p>Ready Instruction Book p. 64 - 72</p> <p>Practice and Problem Solving p. 67 - 76</p> <p>Teacher Resource Book Hands-on Activity p.78</p> <p>Lesson 8 Quiz https://www.teacher-toolbox.com/dam/jcr:0a516e0b-2</p> | <p>Teacher choice as needed Generally focused on procedural practice</p> | <p>Ready Video https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.AL.7.1000.10</p> <p>Solve multi-step real-world problems by finding the sums, products and/or quotients of rational numbers in any form (fractions, decimals and/or percentages).</p> |

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| | 52d-42eb-816e-46d13b6b7a21/CC7M_LQ_L08.pdf | | |
| Week 9/10 | • Students will demonstrate mastery | | |
| Summative Assessment | | Performance Task | |
| RCC Unit 1 Interim Assessment -Student p. 74-75 -Scoring Guide Teacher Resource p. 79 | | RCC Unit 1 Performance Task -Student p. 76 -Rubric Teacher Resource p.80 - 81 | |
| Link to Game and Performance Task https://www.teacher-toolbox.com/dam/jcr:d1153f85-652e-413f-a6bb-58bccb0a9ece/CC%202016%20RPPS7M%20SE%20U1 | | | |
| Link to Unit Assessment https://www.teacher-toolbox.com/dam/jcr:4cbc2758-7f43-4760-85e3-cddd3e7d166e/CC%202014%20US7M%20RI%20SE%20IA1.pdf | | | |

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| Grade: 7 Unit: 2 | Ratio & Proportional Relationships | 6-7 Weeks |
| Progression | | |
| 6th Grade | Students learned about unit rate, ratios, and equivalent ratios. | |
| 7th Grade | Students will learn to: Find Unit Rates With Complex Fractions Identify Proportional Relationships and Constant of Proportionality Graph Proportional Relationships Interpret Equations and Graphs of Proportional Relationships Solve Multi-Step Percent Problems Involving Tax, Tips and Mark-ups Solve Multi-Step Percent Problems Involving % Change or % Error | |
| 8th Grade | Students will extend their work to represent proportional relationships and understand the slope-intercept equation for a line. | |
| Mathematics Standards (Appendices A & B) | | |
| <p>CCSS Math Standards Used in Unit 2 Link: http://www.corestandards.org/Math/Content/7/RP/</p> <p>Analyze proportional relationships and use them to solve real-world and mathematical problems.</p> <p>7.RP.A.1</p> <p>Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks $\frac{1}{2}$ mile in each $\frac{1}{4}$ hour, compute the unit rate as the complex fraction $\frac{1/2}{1/4}$ miles per hour, equivalently 2 miles per hour.</p> <p>7.RP.A.2</p> <p>Recognize and represent proportional relationships between quantities.</p> <p>7.RP.A.2.A</p> <p>Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.</p> <p>7.RP.A.2.B</p> <p>Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.</p> <p>7.RP.A.2.C</p> | | |

Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p , the relationship between the total cost and the number of items can be expressed as $t = pn$.

7.RP.A.2.D

Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate.

7.RP.A.3

Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

Standards of Mathematical Practice (See Appendix B)

<http://www.corestandards.org/Math/Practice/>

MP1 Make sense of problems and persevere in solving them.

MP2 Reason abstractly and quantitatively.

MP3 Construct viable arguments and critique the reasoning of others.

MP4 Model with mathematics.

MP5 Use appropriate tools strategically.

MP6 Attend to precision.

MP7 Look for and make use of structure.

MP8 Look for and express regularity in repeated reasoning.

| Interdisciplinary Standards | | Key Vocabulary | |
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| Technology Integration <i>(Appendix C)</i> | 21st Century Skills <i>(Appendix D)</i> | unit rate complex fraction proportional relationship constant of proportionality markup | simple interest tax gratuity commission percent (change, increase, decrease, error) |
| IS1. Information Strategies IS2. Information Use | TCS1. Use of Information TCS5. Problem Solving | | |
| Enduring Understandings | | Essential Questions | |
| <ul style="list-style-type: none"> I can find unit rates with complex fractions I can identify proportional relationships and the constant of proportionality I can interpret a graph of a proportional relationship I can solve multi-step percent problems involving tax, tips, mark-ups., etc., as well as percent problems involving percent change or error | | <ul style="list-style-type: none"> I can find unit rates with complex fractions I can identify proportional relationships and the constant of proportionality I can interpret a graph of a proportional relationship I can solve multi-step percent problems involving tax, tips, mark-ups., etc., as well as percent problems involving percent change or error | |
| Assessment Plan | | | |
| Summative Assessment(s)/Performance Based Assessments including 21st Century Learning | | Formative and Diagnostic Assessment(s) | |
| RCC Interim Assessment Student p. 122-124 | | STAR Math Assessment (Fall) RCC Lesson Quizzes | |

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| Teacher p. 131-133 | | Quarterly Assessments | |
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| Text | Ready Common Core Mathematics Instruction 7 , 2014, Curriculum Associates, ISBN: 978-0-7609-8642-4 Ready Common Core Mathematics Practice & Problem Solving 7 , 2014, Curriculum Associates, ISBN: 978-1-4957-0484-0 | | |
| Print | Ready Common Core Mathematics Teacher Resource Book 7 , 2014, Curriculum Associates, | | |
| Electronic | www.teacher-toolbox.com | | |
| DOK 1 Practice | http://www.commoncoresheets.com/SortedByGrade.php?Sorted=7th#s2 | | |
| Week 1 | Students will: <ul style="list-style-type: none"> • Compute unit rates involving ratios with a fraction in the denominator • Compute unit rates involving ratios with a fraction in the numerator • Compute unit rates involving ratios with fractions in both the numerator and denominator | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| Lesson 9: Ratios Involving Complex Fractions 7.RP.A.1 | Ready Instruction Book p. 78- 87 Practice and Problem Solving p.85-94 Teacher Resource Book Hands-on Activity p.87, 93 Lesson 1 Quiz https://www.teacher-toolbox.com/dam/jcr:b114dccb-08b5-4825-a34a-6c0dd02ada4a/CC7M_LQ_L09.pdf | Teacher choice as needed Generally focused on procedural practice | Ready Video https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.AL.7.1001.10 |
| Week 2 | Students will: <ul style="list-style-type: none"> • Determine whether two quantities are in a proportional relationship by looking at values in a table, a line in the coordinate plane, and an equation. (Use equivalent fraction relationships and multiplication/division to find proportional ratios.) • Identify the constant of proportionality (unit rate) in a table and represented by an equation | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| Lesson 10: Understand Proportional Relationships 7.RP.A.2.A 7.RP.A.2.B | Ready Instruction Book p. 88-93 Practice and Problem Solving p.95-102 Teacher Resource Book Hands-on Activity p.98, 101 Lesson 2 Quiz https://www.teacher-toolbox.com/dam/jcr:6d9ba666-c60f-4149-8443-0b70f2f37ff1/CC7M_LQ_L10.pdf | Teacher choice as needed Generally focused on procedural practice | Ready Video https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.AL.7.1002.10 |

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| Week 3 | Students will: <ul style="list-style-type: none"> • Represent proportional relationships by equations • Graph proportional equations representing real world situations on a coordinate grid • Explain what a given point (x, y) on the graph of the equation of a proportional relationship means in terms of a real-world situation | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| <u>Lesson 11:</u> Equations for Proportional Relationships 7.RP.A.2.C 7.RP.A.2.D | Ready Instruction Book p. 94-101 Practice and Problem Solving p.103-110 Teacher Resource Book Hands-on Activity p.106, 109 Lesson 3 Quiz https://www.teacher-toolbox.com/dam/jcr:ee2843bf-ce45-44dd-9c74-6d19e7941177/CC7M_LQ_L11.pdf | Teacher choice as needed Generally focused on procedural practice | Ready Video https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.AL.7.1003.10 |
| Week 4 | Students will: <ul style="list-style-type: none"> • Set and solve multi-step simple interest problems • Set up and solve multi-step tax problems • Set up and solve multi-step problems involving markup and markdowns • Set up and solve multi-step problems involving gratuities, commissions, and fees | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| <u>Lesson 12:</u> Problem Solving with Proportional Relationships 7.RP.A.3 | Ready Instruction Book p. 101-111 Practice and Problem Solving p.111-120 Teacher Resource Book Hands-on Activity p. 112, 119 Lesson 4 Quiz https://www.teacher-toolbox.com/dam/jcr:c17e1722-c48a-45e3-ad75-1b3dbbcf43fa/CC7M_LQ_L12.pdf | Teacher choice as needed Generally focused on procedural practice | Ready Video Part 1 https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.AL.7.1004.10 Ready Video Part 2 https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.AL.7.1004.20 |
| Week 5 | Students will: <ul style="list-style-type: none"> • Set up and solve multi-step problems involving percent increase and decrease • Set up and solve multi-step problems involving percent error | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| <u>Lesson 13:</u> Proportional Relationships 7.RP.A.3 | Ready Instruction Book p.112-121 Practice and Problem Solving p.121-130 | Teacher choice as needed Generally focused on procedural practice | Ready Video Part 1 https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.AL.7.1004.10 Ready Video Part 2 |

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| | <p>Teacher Resource Book Hands-on Activity p.129</p> <p>Lesson 5 Quiz https://www.teacher-toolbox.com/dam/jcr:e992536d-366b-43be-bd53-f60088d76420/CC7M_LQ_L13.pdf</p> | | <p>https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.AL.7.1004.20</p> |
| Week 6/7 | <ul style="list-style-type: none"> • Students will demonstrate mastery | | |
| Summative Assessment | | Performance Task | |
| <p>RCC Unit 2 Interim Assessment</p> <p>-Student p. 122-123</p> <p>-Scoring Guide p. 131-132</p> | | <p>RCC Unit 2 Performance Task</p> <p>-Student p. 124</p> <p>-Rubric p. 133</p> | |

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| Grade: | 7 | Expressions and Equations | 5-6 Weeks |
| Unit: | 3 | | |

Progression

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| 6th Grade | Students learned to... Solve Problems with Proportional Relationships Solve Inequalities Solve Problems with Equations Equivalent Linear Expressions |
| 7th Grade | Students will learn to... Find Equivalent Linear Expressions Rewrite Linear Expressions In Different Ways Solve Problems with Equations Solve Problems with Inequalities |
| 8th Grade | Students will extend their work to ... Solve Linear Equations with Rational Coefficients Solutions of Linear Equations Operations and Scientific Notation Solve Problems Using Systems of Equations |

Mathematics Standards (Appendices A & B)

CCSS Math Standards Used in Unit 3

Link: <http://www.corestandards.org/Math/Content/7/EE/>

Use properties of operations to generate equivalent expressions.

7.EE.A.1

Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

7.EE.A.2

Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, $a + 0.05a = 1.05a$ means that "increase by 5%" is the same as "multiply by 1.05."*

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

7.EE.B.3

Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar 9 3/4 inches long in the*

center of a door that is $27 \frac{1}{2}$ inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.

7.EE.B.4

Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

7.EE.B.4.A

Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p , q , and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?*

7.EE.B.4.B

Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p , q , and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.*

Standards of Mathematical Practice (See Appendix B)

<http://www.corestandards.org/Math/Practice/>

MP1 Make sense of problems and persevere in solving them.

MP2 Reason abstractly and quantitatively.

MP3 Construct viable arguments and critique the reasoning of others.

MP4 Model with mathematics.

MP5 Use appropriate tools strategically.

MP6 Attend to precision.

MP7 Look for and make use of structure.

MP8 Look for and express regularity in repeated reasoning.

| Interdisciplinary Standards | | Key Vocabulary | |
|---|--|---|--|
| Technology Integration <i>(Appendix C)</i> | 21st Century Skills <i>(Appendix D)</i> | Equivalent expressions | |
| IS1. Information Strategies IS2. Information Use | TCS1. Use of Information TCS5. Problem Solving | | |
| Enduring Understandings | | Essential Questions | |
| <ul style="list-style-type: none"> I can find equivalent linear expressions I can rewrite linear expressions in different ways Solve problems with equations Solve problems with inequalities | | <ul style="list-style-type: none"> How can students understand the connection between performing the inverse operation and undoing the operations? How can students understand and use the properties of operations? Where can students use variables to represent real-world situations and use the properties of | |

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| | operations to generate equivalent expressions for these situations? |
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Assessment Plan

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| Summative Assessment(s)/Performance Based Assessments including 21st Century Learning | Formative and Diagnostic Assessment(s) |
| RCC Interim Assessment, Student p 166 RCC Practice Problem Solving p 183 RCC Performance Task, Student p 168 RCC Performance Task Tips Practice Problem Solving p 185 | STAR Math Assessment (Fall) RCC Lesson Quizzes |

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| Text | Ready Common Core Mathematics Instruction 7 Curriculum Associates, Ready Common Core Mathematics Practice & Problem Solving 7 ,Curriculum Associates, |
| Print | Ready Common Core Mathematics Teacher Resource Book 7 |
| Electronic | www.teacher-toolbox.com |
| DOK 1 Practice | http://www.commoncoresheets.com/SortedByGrade.php?Sorted=7th#s3 |

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| Week 1 | Students will: <ul style="list-style-type: none"> • Add and subtract linear expressions with fractional and decimal coefficients by combining like terms. • Simplify expressions that include the distributive property, multiple variable terms, and negative numbers. • Apply properties of simplifying expressions to contexts such as perimeters and areas of triangles and rectangles. • Write equivalent expressions for linear expressions. |
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| Lessons | Tasks / Activities | Worksheets | Technology |
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| RCC Lesson 14: Equivalent Linear Expressions 7.EE.A.1 | Ready Instruction Book p. 126 - 135 Practice and Problem Solving p 141 - 150 Teacher Resource Book Hands-on Activity p.138,139,146, Materials: Algebra Tiles Lesson 14 Quiz https://www.teacher-toolbox.com/dam/jcr:af30849f-c98a-4bf1-b188-83c194340917/CC7M_LQ_L14.pdf | Teacher choice as needed Generally focused on procedural practice | Ready Video: Linear Expressions https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.AL.7.1005.10 Use the distributive property to expand linear expressions with rational coefficients. Use the GCF of two terms to factor a linear expression with rational coefficients Simplify a linear expression by combining like terms, as well as using the associative, commutative, and distributive properties. |

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| Week 2 | Students will: <ul style="list-style-type: none"> • Rewrite expressions in different forms to better understand relationships within contexts. • Incorporate expressions representing length and width formulas for perimeter and area of rectangles and triangles. |
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| Lessons | Tasks / Activities | Worksheets | Technology |
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| RCC Lesson 15: Writing Linear Expressions 7.EE.A.2 | Ready Instruction Book p. 136 - 145 Practice and Problem Solving p. 151-160 Teacher Resource Book Hands-on Activity p.148,150,156 Lesson 15 Quiz https://www.teacher-toolbox.com/dam/jcr:46a1ed74-83dd-4b7f-86ff-eb0ae3dca19a/CC7M_LQ_L15.pdf | Teacher choice as needed Generally focused on procedural practice | Ready Video: Linear Expressions Same video as Lesson 14 |
| Week 3 | Students will: <ul style="list-style-type: none"> • Solve problems involving rational numbers • Convert among fractions, decimals, and percents as needed to solve problems • Estimate the reasonableness of answers • Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where $p, q,$ and r are integers, fractions or decimals. • Solve using estimates for the fractions and decimals to get an estimated solution. | | |
| | Lessons RCC Lesson 16: Solve Problems with Equations 7.EE.B.3 7.EE.B.4.A | Tasks / Activities Ready Instruction Book p. 146 - 155 Practice and Problem Solving p. 161 - 170 Teacher Resource Book Hands-on Activity p.159,166 Lesson 16 Quiz https://www.teacher-toolbox.com/dam/jcr:d74beef4-bdd3-470f-a5ae-3eec1df43834/CC7M_LQ_L16.pdf | Worksheets Teacher choice as needed Generally focused on procedural practice |
| Week 4 | Students will: <ul style="list-style-type: none"> • Write and solve real-life inequalities that lead to the form $px + q < r$, where $p, q,$ and r are integers, fractions, or decimals. • Graph and interpret the solution set of an inequality. | | |
| | Lessons RCC Lesson 17: Solve Problems with Inequalities 7.EE.B.3 7.EE.B.4.B | Tasks / Activities Ready Instruction Book p. 156 - 165 Practice and Problem Solving p. 171 - 178 | Worksheets Teacher choice as needed Generally focused on procedural practice |

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| | <p>Teacher Resource Book Hands-on Activity p.168,176</p> <p>Lesson 17 Quiz https://www.teacher-toolbox.com/dam/jcr:48f5faa3-b41f-47a9-85a3-aefce431cd36/CC7M_LQ_L17.pdf</p> | | <p>$+ q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.</p> |
| Week 5/6 | <ul style="list-style-type: none"> • Students will demonstrate mastery | | |
| Summative Assessment | | Performance Task | |
| <p>RCC Unit 3 Interim Assessment -Student Instruction p.166 https://www.teacher-toolbox.com/dam/jcr:6a43f6a6-30aa-44d5-981c-07460a3e1de6/CC%202014%20US7M%20RI%20SE%20IA3.pdf -Scoring Guide Teacher Resource Book p.177</p> | | <p>RCC Unit 3 Performance Task -Student Instruction p.168 -Student Practice p.185 -Rubric Teacher Resource Book p.178 - 179 https://www.teacher-toolbox.com/dam/jcr:81af705a-9e9b-4eed-bd5e-6c19b5d53e69/CC%202014%20US7M%20RI%20TRB%20IA3.pdf</p> | |
| <p>Game and Review link https://www.teacher-toolbox.com/dam/jcr:6a3e87f4-19cd-4bde-babc-2b8d03319e4f/CC%202016%20RPPS7M%20TG%20U3.pdf</p> | | | |

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| Grade: | 7 | <h1>Geometry</h1> | <h2>8-9 Weeks</h2> |
| Unit: | 4 | | |
| Progression | | | |
| 6th Grade | Students learned to... Add and Subtract with Angles Area of Polygons Nets and Surface Area Volume Understand Unit Rate Equations for Proportional Relationships with Problem Solving | | |
| 7th Grade | Students will learn to... Solve Problems With Angles Draw Triangles To Meet Given Conditions Find the Area of Composed Figures and Circles Solve Problems With Scale Drawings Describe Plane Sections of Prisms and Pyramids | | |
| 8th Grade | Students will extend their work... Understand Properties of Transformations Understand Angle Relationships in Triangles Understand the Pythagorean Theorem and Solve Problems Understand Volume of Cylinders, Cones and Spheres and Solve Problems | | |
| Mathematics Standards (Appendices A & B) | | | |
| CCSS Math Standards Geometry Link http://www.corestandards.org/Math/Content/7/G/ Draw, construct, and describe geometrical figures and describe the relationships between them. 7.G.A1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. Computations with rational numbers extend the rules for manipulating fractions to complex fractions. 7.G.A2 Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle. 7.G.A3 Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids. Solve real-life and mathematical problems involving angle measure, area, surface area, and volume. 7.G.B4 Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle. 7.G.5 7.G.B5 Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure. | | | |

7.G.B6

Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

Analyze proportional relationships and use them to solve real-world and mathematical problems.

7.RP.A1

Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.

Standards of Mathematical Practice (See Appendix B)

<http://www.corestandards.org/Math/Practice/>

MP1 Make sense of problems and persevere in solving them.

MP2 Reason abstractly and quantitatively.

MP3 Construct viable arguments and critique the reasoning of others.

MP4 Model with mathematics.

MP5 Use appropriate tools strategically.

MP6 Attend to precision.

MP7 Look for and make use of structure.

MP8 Look for and express regularity in repeated reasoning.

| Interdisciplinary Standards | | Key Vocabulary | |
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| Technology Integration <i>(Appendix C)</i> | 21st Century Skills <i>(Appendix D)</i> | <ul style="list-style-type: none"> • Complementary angles • Supplementary angles • Vertical angles • Equivalent Ratios • Rate • Scale • Scale Drawing | <ul style="list-style-type: none"> • Cross section • Polygon • Circumference • Diameter • Radius • Net • Surface Area • Hierarchy |
| IS1. Information Strategies IS2. Information Use | TCS1. Use of Information TCS5. Problem Solving | | |
| Enduring Understandings <ul style="list-style-type: none"> • I can solve problems with angles • I can draw triangles to meet given conditions • I can find the area of composed figures and circles • I can solve problems with scale drawings • I can find the surface area and volume of solids • I can describe plane sections of prisms and pyramids | | Essential Questions <ul style="list-style-type: none"> • How can students derive the formula for parallelograms and rectangles given characteristics? • What is the relationship between a circle's circumference and its diameter? • Why is estimation used to approximate volumes of geometric solids? • When can a net be used to assist students in identifying specific geometric characteristics of solids? | |
| Assessment Plan | | | |
| Summative Assessment(s)/Performance Based Assessments including 21st Century Learning <ul style="list-style-type: none"> • RCC Interim Assessment, Student p. • RCC Performance Task, Student p. | | Formative and Diagnostic Assessment(s) STAR Math Assessment RCC Lesson Quizzes | |
| Text | Ready Common Core Mathematics Instruction 7, 2015, Curriculum Associates, | | |
| Print | Ready Common Core Mathematics Teacher Resource Book 7, 2015, Curriculum Associates, | | |

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| | Ready Common Core Mathematics Practice & Problem Solving 7 , 2015, Curriculum Associates, | | |
| Electronic | www.teacher-toolbox.com | | |
| DOK 1 Practice | http://www.commoncoresheets.com/SortedByGrade.php?Sorted=7th#s4 | | |
| Week 1 | Students will: <ul style="list-style-type: none"> • Write equations to find unknown angle measures using properties of supplementary and complementary angles • Write equations to find unknown angle measures using properties of vertical angles • Write equations to find unknown angle measures using properties of adjacent • Write equations to find unknown angle measures in more complex figures combining supplementary, complementary, vertical, and adjacent angles | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| <ul style="list-style-type: none"> • RCC Lesson 18: Problem Solving With Angles 7.G.B.5 | Ready Instruction Book p. 170 - 179 Practice and Problem Solving p. 189-198 Teacher Resource Book Hands-on Activity p. 191 Lesson 18 Quiz https://www.teacher-toolbox.com/dam/jcr:b986c2a1-b31c-46a4-9121-8b0436030bba/CC7M_LQ_L18.pdf | Teacher choice as needed Generally focused on procedural practice | Ready Video: Solving Problems With Angles https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.GEO.7.1003.10 Identify complementary, supplementary, adjacent and vertical angles. Use the relationship between angles to set up and solve a simple equation for an unknown angle in a figure. |
| Week 2 | Students will: <ul style="list-style-type: none"> • Construct triangles given angle measures, side lengths, or congruence • Determine whether or not it is possible to draw a triangle with given characteristics. If so draw the triangle, if not explain why. • Determine if a triangle is unique, if you can draw more than one variety of that triangle, or if no such triangle exists. • Draw a quadrilateral when given a description of side lengths and angle measures. | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| <ul style="list-style-type: none"> • RCC Lesson 19: Understand Conditions for Drawing Triangles 7.G.A.2 | Ready Instruction Book p. 180 - 185 Practice and Problem Solving p. 199-206 Teacher Resource Book Hands-on Activity p.194 Differentiated Activities p. 199 Lesson 19 Quiz https://www.teacher-toolbox.com/dam/jcr:ac981f07-2f | Teacher choice as needed Generally focused on procedural practice | Ready Video: Constructing Triangles pt 1 https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.GEO.7.1001.10 Part 2 https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.GEO.7.1001.20 Construct triangles from three measures of angles or sides. |

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| | | 0b-43e5-8b6b-274a47873219/CC7M_LQ_L19.pdf | | Recognize when the given measures form a unique triangle Recognize when the given measures cannot be used to form a triangle. |
| Week 3 | Students will: <ul style="list-style-type: none"> Find the areas of two-dimensional objects composed of triangles, quadrilaterals, and polygons Apply formulas to solve real-world and mathematical problems | | | |
| Lessons | Tasks / Activities | Worksheets | Technology | |
| <ul style="list-style-type: none"> RCC Lesson 20: Area of Composed Figures 7.G.B.6 | Ready Instruction Book p. 186 - 195 Practice and Problem Solving p. 207 - 216 Teacher Resource Book Hands-on Activity p. 209 Lesson 20 Quiz https://www.teacher-toolbox.com/dam/jcr:5980a3ab-b735-4b52-8823-d44847a65932/CC7M_LQ_L20.pdf | Teacher choice as needed Generally focused on procedural practice | Ready Video: https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.GEO.7.1004.10 Find the area of two-dimensional objects composed of triangles and quadrilaterals. Apply formulas to solve real-world mathematical problems. | |
| Week 4 | Students will: <ul style="list-style-type: none"> Understand the relationship between the radius and diameter of a circle Understand that the ratio of a circumference to its diameter can be expressed as pi. Discover an expression for the area of a circle using the area of a parallelogram. Solve real-world problems involving the circumference of a circle and the area of a circle. | | | |
| Lessons | Tasks / Activities | Worksheets | Technology | |
| <ul style="list-style-type: none"> RCC Lesson 21: Area and Circumference of a Circle 7.G.B.4 | Ready Instruction Book p. 196-207 Practice and Problem Solving p. 217 - 228 Teacher Resource Book Hands-on Activity p. 215, 221 Lesson 21 Quiz https://www.teacher-toolbox.com/dam/jcr:21cbbb0f-8dd4-4a6e-97c0-6c654300f93c/CC7M_LQ_L21.pdf | Teacher choice as needed Generally focused on procedural practice | Ready Video: https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.GEO.7.1000.10 Understand the relationship between circumference and area of a circle. Use the formulas for area and circumference of a circle to solve problems. | |

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| Week 5 | Students will: <ul style="list-style-type: none"> • Understand that a scale is a ratio • Compute actual lengths from a scale drawing involving geometric figures • Compute actual areas from a scale drawing involving geometric figures • Reproduce a scale drawing using a different scale • Determine the scale drawing given the ratios of lengths and areas in the drawing and the actual dimensions | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| <ul style="list-style-type: none"> • <u>RCC Lesson 22:</u> Scale Drawings 7.G.A.1 7.RP.A.1 | Ready Instruction Book p. 208 - 217 Practice and Problem Solving p. 229 - 238 Teacher Resource Book Hands-on Activity p. 225, 231 Lesson 22 Quiz https://www.teacher-toolbox.com/dam/jcr:ef09bc31-cae6-4a80-9c29-215432766c25/CC7M_LQ_L22.pdf | Teacher choice as needed Generally focused on procedural practice | Ready Video: https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.GEO.7.1002.10 Given a model and a scale, find the side lengths of the real image as well as the area. Reproduce a scale drawing at a different scale. Given the side lengths of the model and the real image, calculate the scale. |
| Week 6 | Students will: <ul style="list-style-type: none"> • Find the volumes of cubes and right prisms by multiplying the area of the base by the height (with a focus on $A=Bh$, not $A= l \times w \times h$) • Find the volume of cubes and right prisms in real-world situations | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| <ul style="list-style-type: none"> • <u>RCC Lesson 23:</u> Volume of Solids 7.G.B.6 | Ready Instruction Book p. 218 - 227 Practice and Problem Solving p. 239 - 248 Teacher Resource Book Hands-on Activity p. 241 Lesson 23 Quiz https://www.teacher-toolbox.com/dam/jcr:5f8ab44d-a957-4e00-bdc6-a5f24ee0f27b/CC7M_LQ_L23.pdf | Teacher choice as needed Generally focused on procedural practice | Ready Video: https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.GEO.7.1006.10 Find the volume of three-dimensional shapes composed of cubes and right prisms. Apply formulas to solve real-world problems. |
| Week 7 | Students will: <ul style="list-style-type: none"> • Use 2 dimensional formulas to calculate surface area of cubes and right prisms | | |
| Lessons | Tasks / Activities | Worksheets | Technology |

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| <ul style="list-style-type: none"> RCC Lesson 24: Surface Area of Solids 7.G.B.6 | <p>Ready Instruction Book p. 228 - 237</p> <p>Practice and Problem Solving p.</p> <p>Teacher Resource Book Hands-on Activity p.244, 251</p> <p>Lesson 24 Quiz https://www.teacher-toolbox.com/dam/jcr:70909f3b-e667-4788-ad82-54462418df34/CC7M_LQ_L24.pdf</p> | <p>Teacher choice as needed Generally focused on procedural practice</p> | <p>Ready Video: https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.GEO.7.1005.10</p> <p>Find the surface area of three-dimensional objects composed of cubes and right prisms. Apply formulas to solve real-world mathematical problems.</p> |
| <p>Week 8</p> | <p>Students will:</p> <ul style="list-style-type: none"> Describe the intersection of a plane and a right rectangular prism Describe the intersection of a plane and a right rectangular pyramid Describe the intersection of a plane parallel to the base of a cone or a cylinder Understand that intersections may be parallel, perpendicular or neither parallel or perpendicular to the base of a solid | | |
| <p>Lessons</p> | <p>Tasks / Activities</p> | <p>Worksheets</p> | <p>Technology</p> |
| <ul style="list-style-type: none"> RCC Lesson 25: Understand Plane Solids of Prisms and Pyramids 7.G.A.3 | <p>Ready Instruction Book p. 238 - 243</p> <p>Practice and Problem Solving p. 249 - 266</p> <p>Teacher Resource Book Hands-on Activity 254,</p> <p>Lesson 25 Quiz https://www.teacher-toolbox.com/dam/jcr:f9154d06-f599-4831-8faf-40fa64727382/CC7M_LQ_L25.pdf</p> | <p>Teacher choice as needed Generally focused on procedural practice</p> | <p>Ready Video: https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.GEO.7.1007.10</p> <p>Describe the intersection* of a plane and a right rectangular prism. Describe the intersection* of a plane and a right rectangular pyramid.</p> <p>*Intersections may be parallel, perpendicular or neither to the base(s).</p> |
| <ul style="list-style-type: none"> Week 9/10 | <ul style="list-style-type: none"> Students will demonstrate mastery | | |
| <p>Summative Assessment</p> | | <p>Performance Task</p> | |
| <p>RCC Unit 4 Interim Assessment https://www.teacher-toolbox.com/dam/jcr:d6a14e22-6529-44c0-b31e-1d2e22c0310b/CC%202014%20US7M%20RI%20SE%20IA4.pdf -Student p. 244 -Scoring Guide Teacher p. 261</p> | | <p>RCC Unit 4 Performance Task -Student p. 246 -Practice p. 273 -Scoring Guide p 263 https://www.teacher-toolbox.com/dam/jcr:b7457272-325f-4e86-8739-ba72eea2ce6d/CC%202016%20RPPS7M%20TG%20U4.pdf</p> | |
| <p>Unit Game Shape Up and Performance Task https://www.teacher-toolbox.com/dam/jcr:5b5637a8-3ad2-4c51-8efc-ace87fe36735/CC%202016%20RPPS7M%20SE%20U4.pdf</p> | | | |

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| Grade: 7 Unit: 5 | Statistics and Probability | 9-10 Weeks |
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| Progression | |
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| 6th Grade | Students learned to... Understand Statistical Questions Measures of Center and Variability Understand Probability Concepts Experimental Probability Probability Models |
| 7th Grade | Students will learn to... Identify Random Samples Compare Data With Measures of Center and Variability Find Probabilities of Single and Compound Events Compare Theoretical and Experimental Probabilities |
| 8th Grade | Students will extend their work... Scatter Plots and Linear Models Solve Problems With Linear Models |

Mathematics Standards (*Appendices A & B*)

CCSS Math Standards Statistics and Probability
 Link <http://www.corestandards.org/Math/Content/7/SP/>
Use random sampling to draw inferences about a population.

7.SP .1
 Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

7.SP .2
 Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.
For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.

7. SP.3.
 Informally assess the degree of visual overlap of two numerical data distributions with similar variability, measuring the difference between the centers by expressing it as a multiple of a measure of variability.
For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.

Draw informal comparative inferences about two populations.

7. SP.4.

Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.

For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.

Investigate chance processes and develop, use, and evaluate probability models.

7. SP.5.

Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $1/2$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

7SP .6.

Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.

For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.

7. SP.7.

Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.

a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.

For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.

b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.

For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?

7. SP.8.

Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.

a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.

b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose the event.

c. Design and use a simulation to generate frequencies for compound events.

For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?

Standards of Mathematical Practice (See Appendix B)

<http://www.corestandards.org/Math/Practice/>

- MP1 Make sense of problems and persevere in solving them.
- MP2 Reason abstractly and quantitatively.
- MP3 Construct viable arguments and critique the reasoning of others.
- MP4 Model with mathematics.
- MP5 Use appropriate tools strategically.
- MP6 Attend to precision.
- MP7 Look for and make use of structure.
- MP8 Look for and express regularity in repeated reasoning.

| Interdisciplinary Standards | | Key Vocabulary | |
|--|--|--|---|
| Technology Integration <i>(Appendix C)</i> | 21st Century Skills <i>(Appendix D)</i> | <ul style="list-style-type: none"> • Random Sample • Population • Biased Sample • Mean • Tree Diagram | <ul style="list-style-type: none"> • Mean Absolute Deviation (MAD) • Theoretical Probability • Sample Space • Uniform Probability Model • Compound Event |
| IS1. Information Strategies IS2. Information Use | TCS1. Use of Information TCS5. Problem Solving | | |
| Enduring Understandings I can... <ul style="list-style-type: none"> • Identify random samples • Make statistical inferences from random samples • Compare data with measures of central and variability • Find probabilities of single and compound events • Compare theoretical and experimental probabilities | | Essential Questions <ul style="list-style-type: none"> • Why is it important to be able to represent data using graphs and measures of central tendency? • How can data and probabilities be used to predict the outcome of future events? • How will students use predictions about relative frequency of an event using simulations to collect, record, organize and analyze data? • Why is model development of equal outcomes essential in determining probabilities of events? | |
| Assessment Plan | | | |
| Summative Assessment(s)/Performance Based Assessments including 21st Century Learning RCC Interim Assessment, Student p RCC Performance Task, Student p | | Formative and Diagnostic Assessment(s) STAR Math Assessment (Fall) RCC Lesson Quizzes | |

Text | **Ready Common Core Mathematics Instruction 7, 2014, Curriculum Associates,**

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| | ISBN: Ready Common Core Mathematics Practice & Problem Solving 7 , 2014, Curriculum Associates, ISBN: | | |
| Print | Ready Common Core Mathematics Teacher Resource Book 7 , 2014, Curriculum Associates, ISBN: | | |
| Electronic | www.teacher-toolbox.com | | |
| DOK 1 Practice | http://www.commoncoresheets.com/SortedByGrade.php?Sorted=7th#s5 | | |
| Week 1 | Students will: <ul style="list-style-type: none"> • Understand that a representative sample can be used to make predictions about a large population. • Describe different ways of finding a sample and determine which sample is most representative of a given population. • Create a representative sample and use it to make predictions about a population. | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| <u>RCC Lesson 26:</u> Understand Random Samples | Ready Instruction Book p. 248-253 Practice and Problem Solving p. 279-286 Leveled Activities Resource p 274 Lesson 26 Quiz https://www.teacher-toolbox.com/dam/jcr:483457cd-6ff5-460d-a40b-fa7e183bd390/CC7M_LQ_L26.pdf | Teacher choice as needed Generally focused on procedural practice | Ready Video: Understanding Statistics - Unit overview video https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.MS.6.1000.10 Understand that data generated from statistical questions will vary. Identify the difference between a statistical and non-statistical question. Understand that data distribution can be viewed by its center, spread, and overall shape. Understand Random Samples https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.MS.7.1001.10 Recognize when a sample is representative of a population. |
| Week 2 | Students will: <ul style="list-style-type: none"> • Use data from two samples to write ratios that can easily be used to make an estimate about a population. • Compare estimates made from multiple samples of the same size to gauge the variation in the estimates. • Predict the accuracy of the estimates made by various samples. | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| <u>RCC Lesson 27:</u> Making Statistical Inferences | Ready Instruction Book p. 254 - 263 Practice and Problem Solving p. 287-296 Teacher Resource Book Hands-on Activity p.278,284 | Teacher choice as needed Generally focused on procedural practice | Ready Video: Grandparents Gone Wired https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.MS.7.1001.10 Use data from a sample(s) to make inferences about the population. |

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| | Lesson 27 Quiz https://www.teacher-toolbox.com/dam/jcr:cb446325-e720-4bc4-be3f-ea4544c68e8a/CC7M_LQ_L27.pdf | | |
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| Week 3 | <p>Students will:</p> <ul style="list-style-type: none"> • Use visual representations, such as dot plots, to compare two real-world numerical data sets with similar and differing variabilities. • Compare data sets and measure the difference between centers. • Represent the difference between centers of data sets by using the mean. • Step through the calculations necessary to find the mean absolute deviation for each of two data sets. • Describe the variation in data sets. |
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| Lessons | Tasks / Activities | Worksheets | Technology |
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| <u>RCC Lesson 28:</u> Using Mean and Mean Absolute Deviation (MAD) to Compare Data | <p>Ready Instruction Book p. 264 - 271</p> <p>Practice and Problem Solving p. 297-304</p> <p>Teacher Resource Book Hands-on Activity p 286,289</p> <p>Lesson 28 Quiz https://www.teacher-toolbox.com/dam/jcr:8e1c0499-7770-4189-9949-89a534d55609/CC7M_LQ_L28.pdf</p> | Teacher choice as needed Generally focused on procedural practice | <p>Ready Video: Using Mean and Absolute Variation to Compare Data The Bow Wow Bunch P1 https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.MS.7.1002.10</p> <p>The Bow Wow Bunch P2 https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.MS.7.1002.20</p> <p>Calculate the mean absolute deviation of a set of data. Compare the means of two populations with similar variability using their mean absolute deviations. Visually compare the means of two populations with similar variability by using their dot plots. Calculate the difference in means of two populations and determine if it is likely that the difference is the result of chance.</p> |

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| Week 4 | <p>Students will:</p> <ul style="list-style-type: none"> • Use data gathered from two populations to compare the mean, median and mode. • Describe which measure of center is best to represent data. • Use data gathered from two populations to compare the measures of variability including range, mean absolute deviation, and interquartile range. |
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| Lessons | Tasks / Activities | Worksheets | Technology |
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| <u>RCC Lesson 29:</u> Using Measures of Center and Variability to Compare Data | <p>Ready Instruction Book p. 272 - 279</p> <p>Practice and Problem Solving p. 305-312</p> | Teacher choice as needed Generally focused on procedural practice | Ready Video: Using Measures of Center and Variability to Compare Data Weird is the New Normal 24m |

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| | <p>Teacher Resource Book Hands-on Activity p. 295,297,300</p> <p>Lesson 29 Quiz https://www.teacher-toolbox.com/dam/jcr:22232aeb-6a6b-480d-b66a-8cf540597e5f/CC7M_LQ_L29.pdf</p> | | <p>https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.MS.7.1003.10</p> <p>Visually compare the medians of two samples by using their boxplots. Compare the medians of two samples using their quartiles. Calculate the difference in medians of two samples and determine if it is meaningful.</p> |
| Week 5 | <p>Students will:</p> <ul style="list-style-type: none"> Understand that a probability is between 0 and 1, with 0 being impossible, close to zero being unlikely, close to $\frac{1}{2}$ being neither likely nor unlikely, near 1 being likely, and 1 being certain. Represent the likelihood of a number on a numberline. For a given situation determine if the probability of the event is closer to 0 or to 1. Given the probability of an event, determine if the event is impossible, unlikely, equally likely, very likely, or certain. Connect the probabilities of 0, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, and 1 to equivalent decimal and percent representations. | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| <u>RCC Lesson 30:</u> Understand Probability Concepts | <p>Ready Instruction Book p. 280-285</p> <p>Practice and Problem Solving p. 313-321</p> <p>Teacher Resource Book Hands-on Activity p. 303</p> <p>Lesson 30 Quiz https://www.teacher-toolbox.com/dam/jcr:d694d051-fcb1-4792-bdcc-4a57999d1a29/CC7M_LQ_L30.pdf</p> | Teacher choice as needed Generally focused on procedural practice | <p>Ready Video: Take a Chance 16m https://cainc.i-ready.com/lessonPreview.jsf?componentId=DI.MATH.MS.7.1004.10</p> <p>Explain why the probability of an event cannot be greater than 1. Explain why events that are likely to occur have probabilities close to 1, unlikely to occur have probabilities near 0, etc. Evaluate probabilities to determine how likely an event is to occur.</p> |
| Week 6 | <ul style="list-style-type: none"> Perform an experiment multiple times (pulling a colored marble out of a bag or rolling a number cube) to gather data for a number of outcomes. Calculate the experimental probability. Calculate the experimental probability of an event using the combined data of many groups. Compare this probability to the individual probabilities. Describe some reasons why the experimental probabilities of the groups may be different. Describe the probabilities you would expect for 1000 outcomes or 10,000 outcomes. (Begin to introduce the idea of theoretical probability informally.) Make a conjecture about the outcome of a similar experiment with different numbers (for example 50 marble pulls with replacement for 3 green marbles, 6 blue marbles, and 3 blue marbles.) Students try the experiment and compare their predictions to the experimental outcomes to explore and refine conjectures about theoretical probability. | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| <u>RCC Lesson 31:</u> Experimental Probability | Ready Instruction Book p. 286 - 295 | Teacher choice as needed Generally | Ready Video: |

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| | <p>Practice and Problem Solving p. 321-330</p> <p>Teacher Resource Book Hands-on Activity 314,318</p> <p>Lesson 31 Quiz https://www.teacher-toolbox.com/dam/jcr:6cf9dcfa-8d44-426c-a8f8-d581680741b1/CC7M_LQ_L31.pdf</p> | focused on procedural practice | <p>What's the Catch and Release? 22m https://cainc.i-ready.com/lesson/Preview.jsf?componentId=DI.MATH.MS.7.1005.10</p> <p>Approximate the probability of a chance event occurring by observing its behavior in the long run. Predict the approximate relative frequency of a chance event, given the probability of the event occurring.</p> |
| Week 7 | <p>Students will:</p> <ul style="list-style-type: none"> Find theoretical probabilities using real-world situations. Develop a uniform probability model and use the model to determine probabilities of events. Compare these probabilities to experimental results. Explain possible discrepancies. Develop a probability model (which may not be uniform) and use model to determine probabilities of events. Compare these probabilities to experimental results. Explain possible discrepancies. | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| <u>RCC Lesson 32:</u> Probability Models | <p>Ready Instruction Book p. 296 - 307</p> <p>Practice and Problem Solving p.331-342</p> <p>Teacher Resource Book Hands-on Activity p. 324</p> <p>Lesson 32 Quiz https://www.teacher-toolbox.com/dam/jcr:e9406c04-2102-4613-8478-6e2b40daac2c/CC7M_LQ_L32.pdf</p> | Teacher choice as needed Generally focused on procedural practice | <p>Ready Video: IBetz and Jukeboxes 30m https://cainc.i-ready.com/lesson/Preview.jsf?componentId=DI.MATH.MS.7.1006.10</p> <p>Create a probability model, given a table of data, a description of an event, or a diagram. Compare probability models to data collected through observation.</p> |
| Week 8 | <p>Students will:</p> <ul style="list-style-type: none"> List the possible outcomes for a compound event using organized lists, tables, and tree diagrams. Identify the desired outcomes and the total number of outcomes from organized lists, tables, and tree diagrams. Identify the probability of a compound event using organized lists, tables, and tree diagrams. | | |
| Lessons | Tasks / Activities | Worksheets | Technology |
| <u>RCC Lesson 33:</u> Probability of Compound Events | <p>Ready Instruction Book p. 308-319</p> <p>Practice and Problem Solving p. 343-354</p> <p>Teacher Resource Book Hands-on Activity</p> | Teacher choice as needed Generally focused on procedural practice | <p>Ready Video: It's a Coin Toss 28m https://cainc.i-ready.com/lesson/Preview.jsf?componentId=DI.MATH.MS.7.1007.10</p> <p>Find the probabilities of compound events using organized lists, tables, and tree diagrams. Dill or No Dill 26m</p> |

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| | pgs. 330,336,342 Lesson 33 Quiz https://www.teacher-toolbox.com/dam/jcr:6f95923a-0c86-4026-9ec3-3b3763e243a8/CC7M_LQ_L33.pdf | | https://cainc.i-ready.com/lesson/Preview.jsf?componentId=DI.MATH.MS.7.1008.10 Design and use a simulation to observe frequencies of compound events. |
| Week 9/10 | Students will: <ul style="list-style-type: none"> Demonstrate mastery of unit objectives | | |
| Game: It's Probable p355 Practice and Problem Solving https://www.teacher-toolbox.com/dam/jcr:19ad142f-7f4f-4b5c-a048-bc6e6d15040e/CC%202016%20RP%20SE%20U5.pdf | | | |
| Summative Assessment | | Performance Task | |
| RCC Unit 5 Interim Assessment -Student p. 320 -Practice p. -Scoring Guide (p. XX) | | RCC Unit 5 Performance Task -Student p. 322 -Rubric (p. XX) | |