TRUMBULL PUBLIC SCHOOLS
Trumbull, Connecticut

Mathematics Grade 5

2014

(Last revision date: 2005)

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Grade 5 Mathematics

Table of Contents

CORE VALUES AND BELIEFS

The Trumbull Public Schools Community, which engages in an environment conducive to learning, believes that all students will read and write effectively, therefore communicating in an articulate and coherent manner. All students will participate in activities that address problem-solving through critical thinking. Students will use technology as a tool in decision making. We believe that by fostering self-confidence, self-directed and student-centered activities, we will encourage independent thinking and learning. We believe ethical conduct to be paramount in sustaining our welcoming school climate.

INTRODUCTION

The Elementary Math Curriculum was last revised in 2005 and was aligned to the CT Frameworks for Mathematics. In 2010 the State of Connecticut adopted the Common Core State Standards (CCSS) prompting all Connecticut schools to use these standards to guide instruction. This curriculum guide reflects the necessary changes to our curriculum for alignment with the CCSS. It also includes specific grade level expectations and resources appropriate for this grade, making it a truly teacher-friendly instructional guide for ease in delivery. Appropriate professional development will further aid in fidelity to the implementation of the CCSS and assured use of the resources provided for instruction.

Please note: Minor adjustments to this curriculum guide may be necessary to adhere to the CCSS. As additional state and national resources are shared, the district will add essential information to this document.

PHILOSOPHY

Success in mathematics depends upon active involvement in a variety of interrelated experiences. When students participate in stimulating learning opportunities, they can reach their full potential.

The Trumbull Mathematics Program embraces these goals for all students.

The successful mathematician will:

- Acquire the factual knowledge necessary to solve problems
- Gain procedural proficiency in problem solving
- Demonstrate a perceptual understanding of problems posed
- Make meaningful mathematical connections to their world
- Solve problems utilizing a variety of strategies
- Utilize technology to improve the quality of the problem solving process
- Communicate effectively using mathematical terminology, both independently and collaboratively
- Use sound mathematical reasoning by utilizing the power of conjecture and proof in their thinking
- Become reflective thinkers through continuous self-evaluation
- Become independent, self-motivated, lifelong learners

The Trumbull Mathematics Program promotes the empowerment of students and encourages students to embrace the skills needed to become successful in the 21st century. Students expand their mathematical abilities by investigating real world phenomena. Through such experiences, students can access the beauty and power of mathematics and truly appreciate the impact it has on the world in which they live.

Developed by Trumbull K-12 Math Committee, June 2004; revised and approved April 2011

COURSE DESCRIPTION

In Grade 5, instructional time should focus on three critical areas:

1. Developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases(unit fractions divided by whole number and whole numbers divided by unit fractions)

2. Extending division to 2 – digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations

3. Developing understanding of volume

GOALS: Major Focus Areas for Grade 5 Mathematics

1. ***Developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole number and whole numbers divided by unit fractions)***

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

2. ***Extending division to 2 – digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations***

   Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They finalize fluency with multi-digit addition, subtraction, multiplication, and division. They apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 1- is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths efficiently and accurately.

3. ***Developing understanding of volume***

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

Grade 5 Mathematics: Trimester 1 (60 days)

Unit Name: Grade 5 Trimester 1

Content and Skills

Mathematical Practices: See Addendum for Mathematical Practices Poster

Quantity, Measurement, and Data:
- Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

Numeration, Operations, and Algebraic Thinking:

Operations and Algebraic Thinking
- Write and interpret numerical expressions.

Number and Operations in Base Ten
- Understand the place value system.
- Perform operations with multi-digit whole numbers and with decimals to hundredths.

Geometry:
- N/A.

Essential Question(s): Taken from the CCSS Mathematical Practices
- What is the problem asking? Does this make sense? (MP1)
- Can I clearly explain my reasoning? Can I understand the reasoning of others? Do I agree or disagree? (MP3)
- Can I model my thinking using manipulatives, words, numbers or pictures? (MP4)
- Is my answer correct? How can I prove it mathematically? (MP6 and 7)

Focus Question(s): These will be content specific (i.e. Explain how you arrived at an answer)
- Can you solve using a different strategy?
- Can you critique or agree with another person's strategy?

Common Core State Standards for Mathematics *(See Appendix for complete description)*		Time Allotment	Assured Learner Activities		Assessment
5.OA.1 5.OA.2 5.NBT.1 5.NBT.2 5.NBT.5	5.NBT.6 5.MD.3 5.MD.4 5.MD.5	70 minutes daily per Trumbull Board of Education Policy # 6112.2	<u>Ten Minute Math</u> -Quick Images -Number Puzzles -Quick Images 3-D -Estimation and Number Sense -Practicing Place Value *Directions provided for all Ten Minute Math and games found in text.	▪ Investigations in Number, Data, and Space © 2007 and 2010 Addendum ▪ Basic fact practice & review	▪ Trimester Benchmark Assessments ▪ Basic Fact Assessments (6) ▪ Classroom mathematical discourse ▪ Class at a Glance Spreadsheet
Technology Competency Standards *(See Appendix for complete description)*					
2. Communicate and Collaborate 3. Research and Information Fluency 4. Critical Thinking 5. Digital Citizenship					

Grade 5 Mathematics: Trimester 2 (60 Days)

Unit Name: Grade 5 Mathematics: Trimester 2

Content and Skills

Mathematical Practices: See Addendum for Mathematical Practices Poster

Quantity, Measurement, and Data:
- N/A.

Numeration, Operations, and Algebraic Thinking:

Number and Operations in Base Ten
- Understand the place value system.
- Perform operations with multi-digit whole numbers and with decimals to hundredths.

Number and Operations - Fractions
- Use equivalent fractions as a strategy to add and subtract fractions.
- Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

Geometry:
- Classify two-dimensional shapes into categories based on their properties.

Essential Question(s): Taken from the CCSS Mathematical Practices
- What is the problem asking? Does this make sense? (MP1)
- Can I clearly explain my reasoning? Can I understand the reasoning of others? Do I agree or disagree? (MP3)
- Can I model my thinking using manipulatives, words, numbers or pictures? (MP4)
- What patterns do I see in Quick Images? (MP6 and 7)

Focus Question(s): These will be content specific (i.e. Explain how you arrived at an answer)
- Can you solve using a different strategy?
- Can you critique or agree with another person's strategy?

Common Core State Standards for Mathematics *(See Appendix for complete description)*		Time Allotment	Assured Learner Activities		Assessment
5.NBT.1 5.NBT.3 5.NBT.4 5.NBT.5 5.NBT.6 5.NF.1 5.NF.2	5.NF.3 5.NF.4 5.NF.5 5.NF.6 5.NF.7 5.G.3 5.G.4	70 minutes daily per Trumbull Board of Education Policy # 6112.2	<u>Ten Minute Math</u> - Estimation and Number Sense - Guess My Rule - Quick Images 2D - Quick Survey - Practicing Place Value *Directions provided for all Ten Minute Math and games found in text.	▪ Investigations in Number, Data, and Space © 2007 and 2010 Addendum ▪ Basic fact practice & review	▪ Trimester Benchmark Assessments ▪ Basic Fact Assessments (6) ▪ Classroom mathematical discourse ▪ Class at a Glance Spreadsheet
Technology Competency Standards *(See Appendix for complete description)*					
2. Communicate and Collaborate 3. Research and Information Fluency 4. Critical Thinking 5. Digital Citizenship					

Grade 5 Mathematics: Trimester 3 (61 Days)

Unit Name: Grade 5 Mathematics: Trimester 3

Content and Skills

Mathematical Practices: See Addendum for Mathematical Practices Poster

Quantity, Measurement, and Data:
- Convert like measurement units within a given measurement system.
- Represent and interpret data.

Numeration, Operations, and Algebraic Thinking:

Operations and Algebraic Thinking
- Write and interpret numerical expressions.
- Analyze patterns and relationships.

Number and Operations in Base Ten
- Understand the place value system.
- Perform operations with multi-digit whole numbers and with decimals to hundredths.

Geometry:
- Graph points on the coordinate plane to solve real-world problems.

Essential Question(s): Taken from the CCSS Mathematical Practices
- What is the problem asking? Does this make sense? (MP1)
- Can I clearly explain my reasoning? Can I understand the reasoning of others? Do I agree or disagree? (MP3)
- Can I model my thinking using manipulatives, words, numbers or pictures? (MP4)
- What patterns do I see in Quick Images? (MP6 and 7)

Focus Question(s): These will be content specific (i.e. Explain how you arrived at an answer)
- Can you solve using a different strategy?
- Can you critique or agree with another person's strategy?

Common Core State Standards for Mathematics *(See Appendix for complete description)*		Time Allotment	Assured Learner Activities		Assessment
5.OA.1 5.OA.2 5.OA.3 5.NBT.1 5.NBT.2 5.NBT.3 5.NBT.4 5.NBT.5	5.NBT.6 5.NBT.7 5.NF.2 5.NF.6 5.MD.1 5.MD.2 5.G.1 5.G.2	70 minutes daily per Trumbull Board of Education Policy # 6112.2	<u>Ten Minute Math</u> - Closest Estimate - Number Puzzles - Estimation and Number Sense - Practicing Place Value - Quick Survey *Directions provided for all Ten Minute Math and games found in text.	▪ Investigations in Number, Data, and Space © 2007 and 2010 Addendum ▪ Basic fact practice & review	▪ Trimester Benchmark Assessments ▪ Basic Fact Assessments (6) ▪ Classroom mathematical discourse ▪ Class at a Glance Spreadsheet
Technology Competency Standards *(See Appendix for complete description)* 2. Communicate and Collaborate 3. Research and Information Fluency 4. Critical Thinking 5. Digital Citizenship					

Instructional/Teaching Strategies

Common Core State Standards Mathematical Practices:
1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of a structure.
8. Look for and express regularity in repeated reasoning.

Brainstorming; Classroom Discourse; Computational Fact Fluency Practice; Daily Classroom Routines; Model Instruction; Small Group Instruction; Whole Class Instruction; Peer Modeling; Problem Solving Strategies; Mathematical Vocabulary Walls; Math Journals; Word Problem Interpretation and Creation; Use Technology to Solve Problems; Question and Answer Sessions; Refocus Students; Flexible Grouping; Ten-Minute-Math; Use Graphic Organizers; Use Math Games; Identify Similarities and Differences, Note Taking, and Wait Time.

TEXTS

Title	Author	Publisher	Date of Publication
Investigations In Number, Data, and Space	■ TERC, Cambridge, MA ■ Pearson Publishing ■ National Science Foundation	Pearson	2007
Investigations and the Common Core Standards	■ TERC, Cambridge, MA ■ Pearson Publishing ■ National Science Foundation	Pearson	2012

SUPPLEMENTARY MATERIALS, RESOURCES, and TECHNOLOGY

Supplementary Materials:

- **Investigations Card Kits**

- **Manipulative materials**
  - Centimeter cubes
  - 1 Inch color tiles
  - Dice
  - Fraction and Decimal Kits
  - Geoboards
  - Geometric solids
  - Meter/yardstick
  - Number line
  - Power Polygons
  - Ruler
  - Snap cubes

Resources:

Groundworks: Algebraic Thinking	*Dr. Carole Greenes* *Dr. Carol Findell*	*The Wright Group*	*2006*
Groundworks: Reasoning with Data and Probability	*Dr. Carole Greenes* *Dr. Carol Findell* *Dr. Tammy Tsankova* *Dr. Barbara Irvin*	*The Wright Group*	*2006*
Groundworks: Reasoning About Measurement	*Dr. Carole Greenes* *Dr. Carol Findell* *Dr. Linda Schulman Dacey* *Dr. Rika Spungin*	*The Wright Group*	*2003*
Math To Know Handbook	*Mary C. Cavanagh*	*Houghton Mifflin Company*	*2000*
Math To Know Teacher's Resource Book	*Mary C. Cavanagh*	*Houghton Mifflin Company*	*2000*

Websites:

- **Common Core State Standards for Mathematics:**
  http://www.corestandards.org/Math

- **National Library of Virtual Manipulatives: http://nlvm.usu.edu**

- **NCTM Illuminations: www.illuminations.nctm.org**

- **National Council of Teachers of Mathematics: www.nctm.org**

- **Extra Math**: **http://xtramath.org**

- **Learn Zillions: http://learnzillion.com**

- **Pearson Successnet: www.pearsonsuccessnet.com**

- **Smarter Balanced Assessment Consortium: http://www.smarterbalanced.org/**

Grade 5 Vocabulary:

Acute triangle

Addend

Additive Identity Property of 0

Algorithm

Area

Area Model

Arithmetic Patterns

Array

Associative Property of Addition

Associative Property of Multiplication

Attribute

Axis

Bar graph

Bar model

Base of a solid figure

Base of an exponent

Base-ten numeral form

Base-ten numerals

Benchmark

Benchmark fractions

Braces

Brackets

Capacity

Centimeter

Common denominator

Common factor

Common multiple

Commutative Property of Addition

Commutative Property of Multiplication

Compatible numbers

Compose

Congruent

Coordinate grid

Coordinate plane

Coordinate system

Coordinates

Corresponding terms

Cube

Cubic unit

Cup

Customary system

Data

Decagon

Decagonal prism

Decimal

Decimal fraction

Decimal point

Decimeter

Decompose

Dekameter

Denominator

Diagonal

Difference

Distributive Property

Dividend

Divisible

Divisor

Elapsed time

Equation

Equilateral triangle

Equivalent fractions

Estimate

Evaluate

Expanded form

Exponent

Expression

Factor

Fluid ounce

Foot

Formula

Fraction

Fraction bar

Fraction greater than one

Fraction less than one

Gallon

Gram

Greater than

Height

Heptagon

Hexagon

Hexagonal prism

Hierarchy

Hundredth

Hundredths

Inch

Inequality

Intersect

Interval

Inverse operations

Isosceles triangle

Kilogram

Kilometer

Lateral face

Length

Less than

Like denominators

Line graph

Line of symmetry

Line plot

Line symmetry

Liter

Long division

Lowest terms

Mass

Meter

Metric system

Mile

Milligram

Milliliter

Millimeter

Minuend

Mixed number

Multiple

Multiplicative Identity Property of 1

Multiply

Nonagon

Number line

Numerator

Numerical expression

Obtuse triangle

Octagon

Octagonal prism

Order of Operations

Ordered pair

Origin

Ounce

Parallel lines

Parallelogram

Parentheses

Partial product

Partial quotient

Pattern

Pentagon

Pentagonal prism	Solid figure
Pentagonal pyramid	Square
Period	Square unit
Perpendicular	Standard form
Perpendicular lines	Subtrahend
Pint	Sum
Place value	Tenth
Plane	Tenths
Polygon	Term
Polyhedron	Thousandth
Pound	Thousandths
Powers of ten	Three-dimensional figure
Prime number	Tiling
Prism	Ton
Product	Trapezoid
Pyramid	Two dimensional figure
Quadrant	Unit cube
Quadrilateral	Unit fraction
Quart	Unlike denominators
Quotient	Variable
Reasonableness	Vertex
Rectangle	Vertices
Regular polygon	Volume
Remainder	Weight
Rhombus	Whole numbers
Right rectangular prism	x-axis
Right triangle	x-coordinate
Rounding	Yard
Scale	y-axis
Scalene triangle	y-coordinate
Scaling	
Sequence	
Simplest form	
Simplify	

Vocabulary adapted from the Granite Public Schools: www.graniteschools.org

RUBRICS

- *Report Card Rubric*
- *Basic Fact Rubric*

RESOURCE FILE and APPENDICES

- *Common Core State Standards for Mathematics*
- *Mathematical Practices Poster*
- *Technology Competency Standards*
- *Grade 5 District Basic Facts Plan*
- *Grade 5 Report Card*
- *Grade 5 Pacing Guides*
- *Grade 5 Parent Report Card Companion*

CURRENT REFERENCES

Common Core State Standards for Mathematics
www.corestandards.org

International Society for Technology in Education
www.iste.org/STANDARDS

National Council of Teachers of Mathematics
www.nctm.org

Connecticut Common Core State Standards – Mathematics – Grade 5

==Operations and Algebraic Thinking== **- Write and interpret numerical expressions.**

5.OA.A.1: Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

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

Analyze patterns and relationships.

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.*

==Number and Operations in Base Ten== **- Understand the place value system.**

5.NBT.A.1: Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.

5.NBT.A.2: Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.

5.NBT.A.3: Read, write, and compare decimals to thousandths.

   a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000)$.

   b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.

5.NBT.A.4: Use place value understanding to round decimals to any place.

Perform operations with multi-digit whole numbers and with decimals to hundredths.

5.NBT.B.5: Fluently multiply multi-digit whole numbers using the standard algorithm.

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.

==Number and Operations – Fractions== **- Use equivalent fractions as a strategy to add and subtract fractions.**

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.A.2: Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.*

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

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.4: Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

   a. Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. *For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (c/d) = ac/bd.)*

   b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.

5.NF.B.5: Interpret multiplication as scaling (resizing), by:

   a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.

   b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence a/b = (n×a)/(n×b) to the effect of multiplying a/b by 1.

5.NF.B.6: Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

5.NF.B.7: Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. (Note: Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade.)

   a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for $(1/3) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$.

   b. Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.

   c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share 1/2 lb. of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?

<mark>Measurement and Data</mark> - Convert like measurement units within a given measurement system.

5.MD.A.1: Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

Represent and interpret data.

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.*

Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

5.MD.C.3: Recognize volume as an attribute of solid figures and understand concepts of volume measurement.

   a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.

b. A solid figure which can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units.

5.MD.C.4: Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

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

    a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.

    b. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.

    c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.

==Geometry== - Graph points on the coordinate plane to solve real-world and mathematical problems.

5.G.A.1: Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate).

5.G.A.2: Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

Classify two-dimensional figures into categories based on their properties.

5.G.B.3: Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. *For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.*

5.G.B.4: Classify two-dimensional figures in a hierarchy based on properties.

Mathematical Practices

1. Make sense of problems and persevere in solving them.

2. Reason abstractly and quantitatively.

3. Construct viable arguments and critique the reasoning of others.

4. Model with mathematics.

5. Use appropriate tools strategically.

6. Attend to precision.

7. Look for and make use of structure.

8. Look for and express regularity in repeated reasoning.

Technology Competency Standards

1. Creativity and Innovation - Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.
2. Communication and Collaboration - Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
3. Research and Information Fluency - Students apply digital tools to gather, evaluate, and use information.
4. Critical Thinking, Problem Solving, and Decision Making - Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.
5. Digital Citizenship - Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
6. Technology Operations and Concepts – Students demonstrate a sound understanding of technology concepts, systems, and operations.