Reporting Category

Category 1: Numbers, Operations, and Quantitative Reasoning

The student will demonstrate an understanding of numbers, operations, and quantitative reasoning.

(7.1) **Number, operation, and quantitative reasoning.** The student represents and uses numbers in a variety of equivalent forms. The student is expected to

(A) compare and order integers and positive rational numbers;

**Supporting Standard**

(B) convert between fractions, decimals, whole numbers, and percents mentally, on paper, [or with a calculator]; and **Readiness Standard**

UMATHX Suggested Lessons and Activities

Access UMath X with the URL that your group was given. Login with a valid user name and password.

Go to [www.umathx.com](http://www.umathx.com) for:

- **Frameworks for Learning Support Sheets**

Log into UMath X
Then from menu on left, select the strand:

**Whole Numbers and Integers**

Then select Section: The Meaning of Integers

Then select the Lessons:

- Comparing Fractions Examples 1 & 2
- Explanation 3 & 4
- Example Questions 1,2,3,4,5,& 6

Select: Fractions

- Equivalent Fractions
- Comparison of Fractions

Select: Fractions

- Percent...Fractions....Decimals Number Line Example 1&2 Chart
- Order Fraction, Decimals, Percent 5 Questions (randomly generated)

Select: Fractions

- Percent... A Special Fraction
- Making Sense of Percent

Select: Fractions

- Introduction to Decimals
- Comparing Decimals
- Ordering Decimals

Select: Fractions

- Improper Fractions and Mixed Numbers
- Mixed Numbers – What are they?
- Introduction
- Mixed to Improper
- Improper to Mixed

- **Frameworks for Learning**
  - Fractions on Number Line
  - Percent As A Fraction
(C) represent squares and square roots using geometric models.

Supporting Standard

(7.2) Number, operation, and quantitative reasoning. The student adds, subtracts, multiplies, or divides to solve problems and justify solutions. The student is expected to

(A) represent multiplication and division situations involving fractions and decimals with models, including [concrete objects,] pictures, words, and numbers; Supporting Standard

(B) use addition, subtraction, multiplication, and division to solve problems involving fractions and decimals; Readiness Standard

- Support Sheets: Understanding Fractions, Equivalent Fractions
  - Percents, Fraction, Decimals
  - Introduction to Decimals
  - Improper Fractions and Mixed Numbers
  - Percent... A Special Fraction
- Support Sheets: Understanding Whole Numbers and Integers
  - The Meaning of Integers

Select: Exponents
  - Square Root
    - Squaring a Number – Examples 1&2
- Frameworks for Learning:
  - Square Root- What is It
  - Square Root - Estimation
- Support Sheets: Understanding Exponents
  - Square Root

Select: Fractions
  - Multiply Fractions
    - Pattern Blocks
    - Word Problems
    - Developing the Rule
    - A Summary
  - Dividing Fractions
    - Examples with Diagrams
    - Patterns with Examples
    - Another Explanation

Select: Fractions
  - Multiplication and Division of Decimals
    - Multiplying a Decimal by a Whole Number
    - Decimals Around Us – Word Problems

Select: Fractions
  - Adding Fractions
    - Word Problems
    - Fraction Card Game

Select: Fractions
  - Subtracting Fractions
    - Word Problems

Select: Fractions
  - Addition and Subtraction of Decimals
(C) use models, such as [concrete objects,] pictorial models, and number lines, to add, subtract, multiply, and divide integers and connect the actions to algorithms; **Supporting Standard**

(D) use division to find unit rates and ratios in proportional relationships such as speed, density, price, recipes, and student-teacher ratio; **Supporting Standard**
(E) simplify numerical expressions involving order of operations and exponents: **Supporting Standard**
(F) select and use appropriate operations to solve problems and justify the selections; and **Readiness Standard**
(G) determine the reasonableness of a solution to a problem. **Supporting Standard**

**Category 2: Patterns, Relationships, and Algebraic Reasoning**

The student will demonstrate an understanding of patterns, relationships, and algebraic reasoning.

(7.3) **Patterns, relationships, and algebraic thinking.** The student solves problems involving direct proportional relationships. The student is expected to

(A) estimate and find solutions to application problems involving percent; and **Readiness Standard**

(B) estimate and find solutions to application problems involving proportional relationships such as similarity, scaling, unit costs, and related measurement units. **Readiness Standard**

- **Frameworks for Learning:**
  - Order of Operations
  - Support Sheets : Understanding Whole Numbers and Integers
    - Order of Operations
    - Adding and Subtracting Whole Numbers
  - Support Sheets: Understanding Fractions
    - Ratios and Proportion

- **Select: Percent**
  - The Meaning of Percent
    - Making Sense of Percent
    - Estimating Percent of a Bar
    - Estimating Percent of a Line

- **Select: Percent**
  - Problems Involving Percent

- **Select: Percent**
  - Ratios for Area and Volume

- **Select: Fractions**
  - Ratio and Proportion
  - Unit Rate

- **Frameworks for Learning**

- **Support Sheet: Understanding Percent**
  - The Meaning of Percent
  - Problem Involving Percent
  - Ratios for Area and Volume
(7.4) **Patterns, relationships, and algebraic thinking.** The student represents a relationship in numerical, geometric, verbal, and symbolic form. The student is expected to:

(A) generate formulas involving unit conversions within the same system (customary and metric), perimeter, area, circumference, volume, and scaling; **Supporting Standard**

(B) graph data to demonstrate relationships in familiar concepts such as conversions, perimeter, area, circumference, volume, and scaling; and **Supporting Standard**

(C) use words and symbols to describe the relationship between the terms in an arithmetic sequence (with a constant rate of change) and their positions in the sequence. **Supporting Standard**

(7.5) **Patterns, relationships, and algebraic thinking.** The student uses equations to solve problems. The student is expected to:

Select: **Measurement and Geometry**
- Introduction to Measurement
  - Metric Conversions – Length
  - Metric Prefixes at Work
  - Metric Match – Introduction and Examples (randomly generated)
  - US Standard Conversions - Length

Select: **Measurement and Geometry**
- Perimeter and Area of Polygons
  - Relationship – Area and Perimeter
  - The Graph – Length and Perimeter
  - The Graph – Length and Area

Select: **Algebra**
- Patterns, Patterns, Patterns
  - Number Patterns
  - Patterns to Formulas
  - Patterns, Formulas, Substitution
  - Patterns…Squares – Perimeter and Area

- **Frameworks for Learning:**
  - Metric Conversion – Length
  - Algebra – Patterns to Formulas

- **Support Sheets: Understanding Measurement and Geometry**
  - Introduction to Measurement
  - Perimeter and Area of Polygons

- **Support Sheets: Understanding Algebra**
  - Pattern, Patterns, Patterns
  - Patterns, Formulas, Substitution

Select: **Equations**
(A) use [concrete and] pictorial models to solve equations and use symbols to record the actions; and **Supporting Standard**

(B) formulate problem situations when given a simple equation and formulate an equation when given a problem situation. **Readiness Standard**

<table>
<thead>
<tr>
<th>Category 3: Geometry and Spatial Reasoning</th>
<th>Select: <strong>Measurement and Geometry</strong></th>
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<tbody>
<tr>
<td>The student will demonstrate an understanding of geometry and spatial reasoning.</td>
<td>Angles and Their Measure</td>
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<tr>
<td>(7.6) <strong>Geometry and spatial reasoning.</strong> The student compares and classifies two- and three-dimensional figures using geometric vocabulary and properties. The student is expected to</td>
<td>Classification</td>
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<td>Select: <strong>Measurement and Geometry</strong></td>
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<td></td>
<td>Perimeter and Area of Polygons</td>
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<td>Polygons...What are They?</td>
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<td>Classify Polygons with Venn Diagrams</td>
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<td>Select: <strong>Measurement and Geometry</strong></td>
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<td></td>
<td>Angles and their Measure</td>
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<td>Classify Angles – Memory Game</td>
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</table>
(A) use angle measurements to classify pairs of angles as complementary or supplementary; **Supporting Standard**

(B) use properties to classify triangles and quadrilaterals; **Supporting Standard**

(C) use properties to classify three-dimensional figures, including pyramids, cones, prisms, and cylinders; and **Supporting Standard**

(D) use critical attributes to define similarity. **Readiness Standard**

(7.7) **Geometry and spatial reasoning.** The student uses coordinate geometry to describe location on a plane. The student is expected to

(A) locate and name points on a coordinate plane using ordered pairs of integers; and **Supporting Standard**

(B) graph reflections across the horizontal or vertical axis and graph translations on a coordinate plane. **Readiness Standard**

(7.8) **Geometry and spatial reasoning.** The student uses geometry to model and describe the physical world. The student is expected to

(A) sketch three-dimensional figures when given the top, side, and front views; **Supporting Standard**

(B) make a net (two-dimensional model) of the surface area of a three-dimensional figure; and **Supporting Standard**

(C) use geometric concepts and properties to solve problems in fields such as art and architecture. **Supporting Standard**

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<td>Classifying Solids</td>
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<td>A Solid is...</td>
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<td>A Polyhedron is</td>
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<td>A Prism is...</td>
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<td>A Pyramid is...</td>
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<td>A Cylinder is...</td>
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<td>A Cone is...</td>
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- **Support Sheets: Understanding Measurement and Geometry**
  - Angles and Their Measure
  - Solids... Volume and Surface Area

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<td>Examples – 1 &amp; 2</td>
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<td>Given Solid – Build It Example 1 &amp; 2</td>
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<tr>
<td>Given Views – Build It Example 1, 2, 3, &amp; 4</td>
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**Category 4: Measurement**

The student will demonstrate an understanding of the concepts and uses of measurement.

(7.9) **Measurement.** The student solves application problems involving estimation and measurement. The student is expected to

(A) estimate measurements and solve application problems involving length (including perimeter and circumference) and area of polygons and other shapes; **Readiness Standard**

(B) connect models for volume of prisms (triangular and rectangular) and cylinders to formulas of prisms (triangular and rectangular) and cylinders; and **Supporting Standard**

(C) estimate measurements and solve application problems involving volume of prisms (rectangular and triangular) and cylinders. **Readiness Standard**

**Support Sheets:**
- Understanding Measurement and Geometry
- Projective Geometry
- Understanding Graphing
- Transformations

**Select:**
- **Measurement and Geometry**
  - Perimeter and Area of Polygons
    - Joan Walks
    - Perimeter of Various Shapes – Examples 1, 2 & 3
    - Find the Perimeter – 3 Examples
  - Introduction to Area
  - Areas of Polygons

**Select:**
- **Measurement and Geometry**
  - Radius, Circumference, Diameter
    - PI…A Special Number
    - Circumference of A Circle
    - Area of a Circle
    - Examples: 1, 2, 3, 4 & 5

**Select:**
- **Measurement and Geometry**
  - Solids….Volume and Surface Area
    - Volume of a Solid
    - Volume of a Prism – Example 1
    - Volume of a Cylinder

- **Support Sheets:** Understanding Measurement and Geometry
  - Solids….Volume and Surface Area
  - The Circle
Category 5: Probability and Statistics
The student will demonstrate an understanding of probability and statistics.

(7.10) **Probability and statistics.** The student recognizes that a physical or mathematical model (including geometric) can be used to describe the experimental and theoretical probability of real-life events. The student is expected to

(A) construct sample spaces for simple or composite experiments; and
(B) find the probability of independent events. **Supporting Standard**

(7.11) **Probability and statistics.** The student understands that the way a set of data is displayed influences its interpretation. The student is expected to

(A) select and use an appropriate representation for presenting and displaying relationships among collected data, including line plot, line graph, bar graph, stem and leaf plot, circle graph, and Venn diagrams, and justify the selection; and **Supporting Standard**
(B) make inferences and convincing arguments based on an analysis of given or collected data. **Readiness Standard**

(7.12) **Probability and statistics.** The student uses measures of central tendency and variability to describe a set of data. The student is expected to

(A) describe a set of data using mean, median, mode, and range; and **Supporting Standard**
(B) choose among mean, median, mode, or range to describe a set of data and justify the choice for a particular situation. **Readiness Standard**

Select: **Probability**
- Introduction to Probability
- Possible Outcomes – What Are They? - Examples 1, 2, 3, 4 & 5

Select: **Probability**
- Independent Events
  - What Are They?
  - Probability Examples – 1, 2 & 3

- **Frameworks for Learning:**
  - Probability the Language
  - Probability with Spinners

- **Support Sheets: Understanding Probability and Statistics**
  - Introduction to Probability
  - Independent Events

Select: **Graphing**
- Statistics
  - Introduction: Bar Graph (1 and 2), Line Graph (1 and 2)
  - Data...What Is It?
  - Presenting Data
    - Stem and Leaf – Examples 1&2
    - Bar Graph – Examples 1&2
    - Line Graph – Example 1&2
    - Circle Graph or Pie Graph – Example 1&2
    - Scatter Plot – Example 1&2

- **Support Sheets: Understanding Graphing**
  - Statistics

Select: **Graphing**
- Statistics
  - Measures of Central Tendency
    - Introduction
    - The Mean Average
    - The Median Average
    - The Mode
    - Summary