

SD38 Richmond School District

K-7 Mathematics

Indicators of

Proficiency

for curricular learning standards

K-7 Mathematics: Indicators of Proficiency

The following grade level charts summarize the mathematics curricular content learning standards at each grade level with a corresponding descriptive indicator of proficiency.

Curricular competencies such as estimating, representing, communicating, explaining and using reasoning are embedded in some of the indicators of proficiency.

You can use grade level pages for each student, highlighting the areas they are currently proficient in, adding notes and evidence of learning. You can extrapolate from the proficiency indicator whether a student is “emerging,” “developing” or “extending.” This assessment information can be shared with parents and guardians and other collaborating teachers for communicating student learning purposes. A class profile can also be created to see what areas need further time and attention.

These indicators of proficiency were created during the 2020-2021 school year to support teachers who were supporting students in the Transitional Learning program.

Kindergarten Indicators of Proficiency (curricular content focus)

Curricular Content	Indicators of Proficiency (The student can...)
<p>Ways to make 5</p> <p>Representing numbers to 10</p> <p>Counting to 10</p> <p>Decomposing numbers to 10</p> <p>Compare more or less</p>	<p>Build five in many ways (ie. 2 and 3, 4 and 1, 2 and 2 and 1) using concrete materials like blocks.</p> <p>Represent quantities to 10 with materials, pictures and numbers.</p> <p>Count to 10 in sequence and with one-to-one correspondence.</p> <p>Compose and decompose numbers to 10 in many ways using materials, pictures and numbers.</p> <p>Put numbers in sequence/order.</p> <p>Say whether a set of blocks/cubes has more or less than another set.</p>
<p>Change in quantity to 10 using concrete materials</p>	<p>Use materials like blocks to show how many is one more or two more than a number.</p> <p>Use materials like blocks to demonstrate understanding of build and change math stories such as “Show me three blocks. What do you need to do to change that to a group of five blocks?”</p>
<p>Repeating patterns with two or three elements</p>	<p>“Read”, extend and create repeating patterns with two or three elements with concrete materials.</p> <p>Orally label repeating patterns with letters such as AB, ABB, ABC, etc.</p>
<p>Concrete or pictorial graphs</p> <p>Likelihood of familiar life events</p>	<p>Create and describe a concrete graph (“There are five fruits. Three bananas and two apples. There are more bananas.”)</p> <p>Use language like “likely or unlikely” to describe an event such as “It is likely that it will rain again tomorrow.”</p>

<p>Single attributes of 2D shapes</p>	<p>Create and describe 2D shape by the quantity of sides or corners or whether they have curved or straight sides.</p>
<p>Single attributes of 3D objects</p>	<p>Find and describe 3D shapes by the quantity of edges or corners/vertices or whether they have curved or straight faces.</p>
<p>Direct comparative linear measurement</p>	<p>Use positional language (such as beside, on top of, under) to describe the orientation of compositions of shapes and structures built with objects. <i>"The tall block is under the curvy one."</i></p> <p>Compares two objects and can determine which one is longer or taller.</p>
<p>Direct comparative measurement (mass, capacity)</p>	<p>Estimate and compare if one item is heavier or lighter than another.</p> <p>Estimate and compare how many objects two different containers will hold.</p>
<p>Attributes of coins Financial role play</p>	<p>Describe and compare the attributes of Canadian coins (size, colour, pictures).</p> <p>Role play financial transactions such as paying for something at a store.</p>

Grade One Indicators of Proficiency (curricular content focus)

Representing numbers to 20	<p>Represent, compare, order numbers to 20.</p> <p>Demonstrate understanding of teen numbers as ten and ones.</p>
Counting to 20	<p>Count to 20 in various ways (by 1s, 2s, 5s, ascending and descending, counting on from a number).</p>
Ways to make 10	<p>Compose and decompose 10 in many ways using concrete, pictorial and symbolic forms (ie $5+5$, $5+3+2$, $6+3+1$).</p>
Compare more and less	<p>Put numbers to 20 in sequence/order.</p> <p>Given a number, such as 12, say what number is 1 more and what number is 1 less, (and 2 more/less).</p>
Addition and subtraction of number to/within 20	<p>Demonstrate understanding of the processes of addition and subtraction using materials, pictures and numbers/symbols.</p> <p>Use more than one strategy to add (ie. counting all, counting on or back, making and bridging 10, decomposing, using doubles).</p> <p>Use more than one strategy to subtract (ie comparing, counting back, removal, finding the difference).</p>
Change in quantity to 20 concretely and verbally	<p>Use materials such as blocks to how increases and decreases in quantity of a set (two more, one more, two less, one less).</p> <p>Verbally explain what they need to do to change 7 to 10 or 12 to 10.</p>
Repeating patterns with multiple elements and attributes	<p>Describe, label, extend and create repeating patterns with multiple elements with concrete materials.</p> <p>Record patterns with drawings and label patterns with letters such as ABAC, ABBCD.</p>

<p>Concrete graphs using one-to-one correspondence</p> <p>Likelihood of familiar life events</p>	<p>Create and describe a concrete graph ("There are 12 fruits. 7 bananas, 4 oranges and 1 apples. I can see there are 3 more bananas than oranges.")</p> <p>Use comparative language like "more or less likely" or "sometimes or never" to describe an event.</p>
<p>Comparison of 2D shapes</p> <p>Comparison of 3D objects</p> <p>Direct measurement with non-standard units (uniform and non-uniform)</p>	<p>Compare 2D shapes using math language to describe how the shapes are the same and how they are different.</p> <p>Compare 3D objects (boxes, cans, balls, cones) using math language to describe how the shapes are the same and how they are different.</p> <p>Describe relative positions when comparing 2D shapes and 3D objects such as using the terms up and down, in and out. <i>"In the picture, the circles are at the top and the squares are on the bottom."</i></p> <p>Measure how long or how tall an object is using non-standard units such as hands, cubes, books, popsicle sticks or paper clips.</p> <p>Use non-uniform (hands) and non-standard (cubes) to measure how large something is, by area.</p> <p>Estimate and count how much a container will hold (of something like cubes or spoons or beans).</p>
<p>Values of coins</p> <p>Monetary exchanges</p>	<p>Identify the value of Canadian coins by their numerical value.</p> <p>Represent monetary exchanges, such as paying for something or giving change using whole numbers to 20.</p>

Grade Two Indicators of Proficiency (curricular content focus)

Place value understanding to 100	<p>Represent and decompose numbers to 100.</p> <p>Count in various ways (by 2s, 5s, 10s from different starting points, ascending and descending).</p> <p>Compare and order numbers to 100 (put numbers in sequence, be able to tell what is 2 more/less, 5 more/less, ten more/less than a number).</p>
Developing fluency with addition and subtraction facts to 20	<p>Developing fluency and strategies for addition and subtraction facts to 20 (making and bridging 10, decomposing, using doubles and near doubles, counting on, counting up to find the difference, thinking about adding to subtract).</p>
Addition and subtraction of two-digit numbers	<p>Add and subtract two-digit numbers using decomposing, compensating, finding the difference and regrouping strategies and using tools such as ten frames, hundred charts and numberlines.</p>
Change in quantity to 20 and within 100, concretely, verbally and using symbols	<p>Use materials such as blocks, ten frames or hundred charts to solve addition and subtraction equations with a missing part, for example $30 + ? = 55$.</p> <p>Verbally explain what they need to do to change 9 to 17 or 19 to 4. Record these changes using numbers and symbols such as $9 + n = 17$ or $19 - \underline{\quad} = 4$.</p>
Complex repeating patterns	<p>Describe, label, extend and create complex repeating patterns such as positional patterns and radiating patterns.</p>
Introduction to increasing patterns	<p>Can create, extend and describe increasing patterns with concrete materials or with pictures.</p>
Pictorial representation of a concrete graph	<p>Create and describe a concrete graph and represent the graph in a chart using pictures with word and number labels.</p>
Likelihood of familiar life events	<p>Use comparative language like "certain or uncertain" or "equally likely" to describe an event.</p>

<p>Multiple attributes of 2D shapes</p>	<p>Constructing, describing and comparing 2D shapes such as squares, rectangles, triangles and circles with a focus on more than one attribute (ie. quantity of and type of sides).</p>
<p>Multiple attributes of 3D objects</p>	<p>Constructing, describing and comparing 3D shapes such as cubes, cylinders and cones with a focus on more than one attribute (ie. quantity of and type of faces or number of edges and vertices).</p> <p>Describe and compare 3D objects by naming the 2D face shapes and describing them using positional language. <i>"The box has square faces on the front and the back and rectangles on all the sides around it."</i></p>
<p>Direct linear measurement, introducing standard units (cm, m)</p>	<p>Measure how long or how tall an object is using standard units (cm and m) using measuring tools such as a ruler or measuring tape; record measurements including quantity and type of unit.</p>
<p>Coin combinations to 100 cents</p>	<p>Count a set of the same Canadian coin (ie can count by 5s to count a set of nickels).</p> <p>Count a combination of Canadian coins with a value up to 100cents using various strategies such as combining amounts to make sets of 50cents or counting on.</p>
<p>Spending and saving</p>	<p>Share their thinking about making spending and saving choices.</p>

<p>Increasing and decreasing patterns</p>	<p>Can create, extend and describe increasing and decreasing patterns with concrete materials or with pictures.</p> <p>Can extend number patterns (additive or multiplicative) or solve for the missing part of a sequence by following the pattern (ie. 35, 40, 45, 50, ____, ____, 65, 70)</p>
<p>Bar graphs and pictographs – one-to-one correspondence</p> <p>Likelihood of simulated events</p>	<p>Describe bar graphs and create bar graphs with results from a survey question such as What is your favourite animal? and then analyze the results using comparative language such as “The most popular animal is the whale. Dogs and bears are equally liked.”</p> <p>Use comparative language to describe the likelihood of simulated events such as tossing a coin or rolling a dice.</p>
<p>Construction of 3D shapes</p> <p>Measurement using standard units (linear, mass, capacity)</p> <p>Time concepts</p>	<p>Build, identify and compare 3D shapes such as prisms, cubes, and cylinders. Construct 3D shapes from nets or skeletons.</p> <p>Demonstrates an understanding of preservation of shape – that the orientation/position of the shape does not change its properties. <i>“It doesn't matter what face is on the bottom, it's still a prism.”</i></p> <p>Measure how long or how tall an object is using standard units (cm, m and km) using measuring tools such as a ruler or measuring tape; record measurements including quantity and type of unit.</p> <p>Know that 100cm=1 metre</p> <p>Compare and relate standard units (grams, kilograms, millilitres, litres) for measuring mass and capacity.</p> <p>Understand that time is measured in many ways including the following units: seconds, minutes, hours, days, weeks, months and years.</p> <p>Demonstrates an understanding of the relationships between units of time (knows how many days in a week, how many minutes in an hour).</p>
<p>Fluency with coins and bills to \$100</p> <p>Earning and payment</p>	<p>Count combinations of Canadian coins and bills up to a total value of \$100 demonstrating fluency with strategies such as counting the bills starting with larger denominations first and then counting on smaller denomination bills and then coins.</p> <p>Record values of coins and bills using correct notation with a \$ sign and decimal point.</p> <p>Demonstrate an understanding of different ways people can earn money and be paid.</p>

Grade Four Indicators of Proficiency (curricular content focus)

<p>Place value understanding to 10 000</p> <p>Fraction and decimal concepts</p>	<p>Represent and decompose numbers to 10 000.</p> <p>Count in various ways (by various multiples, starting points, increasing/decreasing) with numbers up to 10 000.</p> <p>Compare and order numbers to 10 000 (put numbers in sequence, be able to tell what is 5 greater/less, 10 greater/less, 100 greater/less, 1000 greater/less than a number).</p> <p>Represent fraction and decimal numbers in different forms including with concrete materials, ten frames, pictures and symbols.</p> <p>Begin to use greater than and less than symbols.</p> <p>Compare and order fractions (within 0-1) and decimal numbers (focus on tenths).</p>
<p>Fluency with addition and subtraction facts and multiplication (and related division) facts</p> <p>Addition and subtraction within 10 000</p> <p>Addition and subtraction with decimal numbers with tenths and hundredths</p> <p>Multiplication with two-digit numbers</p>	<p>Recall of addition and subtraction facts to 20.</p> <p>Recall of 2x, 5x and 10x multiplication facts to 100 with developing fluency of other multiples.</p> <p>Add and subtract numbers within 10 000 using decomposing, compensating and regrouping strategies.</p> <p>Add and subtract decimal numbers to the hundredths using whole number strategies such as decomposing by place value, compensating, finding the difference and regrouping.</p> <p>Multiply numbers with two-digits using more than one strategy such decomposing, regrouping, compensating, repeated addition.</p>
<p>Algebraic relationships among quantities</p> <p>One-step equations with an unknown number, using all operations</p>	<p>Use reasoning to verbally explain and represent with numbers and symbols, the process of solving for an unknown.</p> <p>Solve equations with the unknown number in different spots such as:</p> <p>$2000 \times 30 = n$ $450 + n = 700$ $n - 2500 = 500$ $n = 6000 \div 200$</p> <p>using strategies such as rewriting the equation, using related operations, using an open numberline.</p>

Increasing and decreasing patterns using tables and charts	<p>Can describe and interpret visual or concrete increasing and decreasing patterns, generalizing what the pattern is.</p> <p>Can record the terms and elements of the pattern in tables or charts.</p>
<p>One-to-one and many-to-one correspondence in bar graphs and pictographs</p> <p>Probability experiments (single events/outcomes)</p>	<p>Create, describe and analyze bar graphs and pictographs when the graphing unit is equal to one or many-to-one (such as a smiley face representing 10 people).</p> <p>Record and describe the outcomes of probability experiments such as tossing a coin, spinning a spinner or rolling a dice.</p>
<p>Regular and irregular polygons</p> <p>Line Symmetry</p> <p>Perimeter of regular and irregular shapes</p> <p>Telling time</p>	<p>Identify, describe and compare regular and irregular polygons.</p> <p>Explain what a polygon is. Explain what a regular and an irregular polygon is.</p> <p>Identify polygons in the faces of 3D shapes.</p> <p>Use shapes to create or draw a design that has line symmetry.</p> <p>Identify the line/s of symmetry in images, living things, structures, art.</p> <p>Using measuring tools like a ruler or measuring tape or a math tool like a geoboard, measure polygons and record the perimeter in a labelled diagram and equation.</p> <p>Tell time to the minute using both digital and analog clocks.</p> <p>Understands that there are 60 minutes in one hour.</p> <p>Describe the difference between am and pm.</p> <p>Tell time using the 24 hour clock.</p> <p>Connect fraction understanding to telling time (quarter to, half past, etc).</p>
<p>Monetary calculations up to \$100</p> <p>Making simple financial decisions</p>	<p>Use coins and bills and decimal notation to show how to add up the cost of several items up to \$100; fluency with strategies such as counting on and decomposing.</p> <p>Use coins and bills and decimal notation to show how to make change for amounts up to \$100; fluency with strategies such as counting up/adding up to make change.</p> <p>Solve problems or interpret stories or news articles involving simple financial transactions such as spending, saving, earning and payment.</p>

Grade Five Indicators of Proficiency (curricular content focus)

<p>Place value understanding to 1 000 000</p> <p>Fraction and decimal concepts</p>	<p>Represent and decompose numbers to 1 000 000.</p> <p>Count in various ways (by various multiples, starting points, increasing/decreasing) with numbers up to 1 000 000.</p> <p>Compare and order numbers to 1 000 000 demonstrating understanding of place value.</p> <p>Begin to use greater than and less than symbols.</p> <p>Represent equivalent fractions using concrete materials, pictures and symbols.</p> <p>Compare and order fractions (within 0 -1) and decimal numbers (focus on hundredths).</p>
<p>Fluency with addition and subtraction facts and multiplication (and related division) facts</p> <p>Addition and subtraction to/within 1 000 000</p> <p>Addition and subtraction with decimal numbers to thousandths</p> <p>Multiplication with three-digit numbers</p>	<p>Recall of addition and subtraction facts to 20.</p> <p>Recall of many multiplication facts to 100 such as 2s, 3s, 4s, 5s and 10s use those facts to solve other multiplication questions as well as division questions.</p> <p>Add and subtract numbers within 1 000 000 using decomposing, compensating and regrouping strategies.</p> <p>Add and subtract decimal numbers to the thousandths using whole number strategies such as decomposing by place value, compensating, finding the difference and regrouping.</p> <p>Multiply numbers with three-digits, using more than one strategy such decomposing, regrouping, compensating, distributive property, commutative property, repeated addition.</p>
<p>One-step equations with variables</p>	<p>Use reasoning to verbally explain and represent with numbers and symbols, the process of solving for an unknown (x).</p> <p>Solve equations with the unknown number in different spots such as:</p> <p>$200\,000 \times 30 = x$</p> <p>$4.50 + x = 7.00$</p> <p>$x - 2.750 = 5.000$</p> <p>$x = 600\,000 \div 2\,000$</p> <p>using strategies such as rewriting the equation, using related operations, using whole number strategies and connecting them to decimal numbers, using an open numberline.</p>

Rules for increasing and decreasing patterns	Can describe and interpret visual or concrete increasing and decreasing patterns, generalizing what the pattern rule is (ie. +5 or x2).
One-to-one and many-to-one correspondence in double bar graphs	Create, describe and analyze double bar graphs when the graphing unit is equal to one or many-to-one (such as a smiley face representing 10 people).
Probability experiments (single events/outcomes)	Record and describe the outcomes of probability experiments such as tossing a coin, spinning a spinner or rolling a dice.
Classification of prisms and pyramids	Identify 2D polygons found on the faces of 3D prisms and pyramids and identify and classify prisms and pyramids based on their attributes (ie. triangular prism, square-based pyramid). Explain what a prism and what a pyramid is. Identify prisms in the environment.
Single transformations	Complete and describe each motion of a transformation with a concrete object or shape (slide, turn, flip).
Area measurement of squares and rectangles	Represent the meaning of area measurement with materials or drawings. Can calculate the area of square and rectangles, using both a quantity and unit of measurement.
Relationship between area and perimeter	Analyzes and compares the connection between area and perimeter of squares and rectangles.
Duration, using measurement of time	Measure elapsed time and duration of time. Solve problems in context that involve elapsed time and duration.
Monetary calculations up to \$1000	Use coins and bills and decimal notation to show how to add up the cost of several items up to \$1000; fluency with strategies such as counting on and decomposing. Use coins and bills and decimal notation to show how to make change for amounts up to \$1000; fluency with strategies such as counting up/adding up to make change.
Develop simple financial plans	Create a plan to save for something and/or create a simple budget to plan an event.

Grade Six Indicators of Proficiency (curricular content focus)

<p>Place value understanding from thousandths to billions</p>	<p>Represent and decompose numbers from thousandths to billions.</p> <p>Count in various ways (by various multiples, starting points, increasing/decreasing) with decimal numbers and numbers to the billions.</p> <p>Compare and order numbers from thousandths to billions, demonstrating understanding of place value.</p> <p>Use greater than and less than symbols.</p>
<p>Fraction and decimal concepts and relationships</p>	<p>Compare and order fractions (greater than 1) and decimal numbers (focus on thousandths).</p>
<p>Whole number percents and percentage discounts</p>	<p>Demonstrates understanding of what a percent represents.</p> <p>Solves percentage discount problems utilizing multiple strategies.</p>
<p>Introduction to ratios</p>	<p>Compare and record the quantities of a set of two different images or objects using part-to-part ratios.</p>
<p>Prime and composite numbers</p>	<p>Identify and explain why a number is prime with numbers to 100.</p> <p>Identify and explain why a number is composite with numbers to 100.</p>
<p>Greatest common factor Least common multiple</p>	<p>Factor a composite number to 100 into prime factors</p> <p>Compare two numbers (within 100) and identify the greatest common factors and the least common multiple.</p>
<p>Fluency with multiplication and division facts</p>	<p>Recall of most multiplication facts and related division facts Apply multiplication facts when multiplying larger numbers and decimal numbers.</p>
<p>Multiplication and division of decimal numbers</p>	<p>Multiply and divide decimal numbers using related strategies used for whole numbers such as decomposing and compensating.</p>
<p>Order of operations (introduction to brackets)</p>	<p>Solve equations including multiple operations and brackets/parentheses.</p>
<p>One-step equations with whole-number coefficients and solutions</p>	<p>Use reasoning to explain their process for solving one-step equations.</p> <p>Solve one-step equations with whole number coefficients such as $3x=12$ or $x+5=11$.</p>

<p>Increasing and decreasing patterns as functional relationships</p>	<p>Can describe and interpret visual or concrete increasing and decreasing patterns, generalizing what the pattern rule is (ie. +5 or x2).</p> <p>Can represent the pattern and pattern rule using expressions, tables or graphs.</p>
<p>Line graphs</p> <p>Single outcome probability, including theoretical and experimental probability</p>	<p>Create, describe and analyze line graphs. Choose when a line graph is an appropriate choice for representing data. Create and interpret a line graph to show change over time.</p> <p>List all the possible outcomes for a probability experiments (such as tossing a coin, spinning a spinner or rolling a dice) to determine the theoretical probability involved.</p> <p>Record and describe the outcomes of probability experiments (experimental probability) and compare this to the determined theoretical probability.</p>
<p>Perimeter of complex shapes</p> <p>Triangles</p> <p>Angle measurement and classification</p> <p>Combinations of transformations</p> <p>Volume and capacity</p>	<p>Identify and decompose complex/compound shapes.</p> <p>Using measuring tools like a ruler or measuring tape or a math tool like a geoboard, measure complex shapes and record the perimeter in a labelled diagram and equation.</p> <p>Identify and sort the six type of triangles by side lengths and angles.</p> <p>Measure angles with a protractor. Compare angles greater than (obtuse) and less than (acute) 90degrees.</p> <p>Draw a shape using coordinate points in the first quadrant (all positive integers) of the Cartesian plane and transform the shape using combinations of transformations (translate, reflect, rotate).</p> <p>Describe the transformations, making connecting to other math concepts such as symmetry and angles.</p> <p>Explain the difference between measuring volume and capacity and the units used to measure them.</p> <p>Can use metric units and understand the relationship between units such as cm^3 and ml.</p> <p>Build 3D shapes/objects with blocks or cubes to determine their volume.</p>
<p>Whole number percents and percentage discounts</p>	<p>Demonstrates understanding of what a percent represents.</p> <p>Solves percentage discount problems utilizing multiple strategies such as using a numberline line or relating percents to fractions.</p>

Grade Seven Indicators of Proficiency (curricular content focus)

<p>Fraction, decimal and percentage concepts and relationships</p>	<p>Compare and order fractions (greater than 1) and decimal numbers.</p> <p>Represent and compare fractions, decimals and percentages in different forms, including equivalent forms.</p> <p>Explain the relationship between fractions, decimals and percentages.</p>
<p>Extending fluency with multiplication and division facts</p> <p>Operations with decimal numbers</p> <p>Order of operations (use of brackets)</p> <p>Operations with integers</p>	<p>Recall of multiplication facts and related division facts and application of these facts when multiplying and dividing greater numbers.</p> <p>Fluency with all operations using decimal numbers, applying strategies such as decomposing, compensating and regrouping and demonstrating understanding of place value and of decimal and fraction relationships.</p> <p>Solve equations including multiple operations and brackets/parentheses.</p> <p>Represent integers concretely, pictorially and symbolically using two-sided counters and number lines.</p> <p>Compare and order integers along a number line.</p> <p>Solve contextual problems involving integers such as thinking about temperature differences.</p> <p>Add, subtract, multiply and divide small integer numbers using both the two-sided counters and number line approaches.</p>
<p>Two-step equations with whole-number coefficients, constants, and solution</p>	<p>Use reasoning to explain their process for solving two-step equations.</p> <p>Solve two-step equations with whole number co-efficients and constants such as $3x + 4 = 19$.</p>
<p>Discrete linear relations</p>	<p>Can describe and interpret visual increasing and decreasing patterns, generalizing what the pattern rule is in the form of an algebraic expression (ie $2x + 1$).</p> <p>From a table of values, can create a graph to represent the linear relationship of the number pattern.</p>

Circle graphs	<p>Create, label and analyze circle graphs. Construct, label and interpret circle graphs using fractions or percentages to indicate amounts of time.</p> <p>Translate percentages in a circle graph to quantities and vice versa.</p>
Experimental probability with two independent events	Record and describe the outcomes of probability experiments (experimental probability) with two independent events such as tossing two coins (HT, HH, TT) or two spinners.
Cartesian coordinates and graphing	<p>Plot points in all four quadrants of the Cartesian plane.</p> <p>Create a 2D shape using coordinate points on the Cartesian plane.</p>
Combinations of transformations	Transform the 2D shape multiple times using translations, rotations and reflections, describing the transformations using mathematical language.
Circumference and area of circles	<p>Understands and can measure the dimensions of circle to calculate the circumference of a circle accurately.</p> <p>Explains the relationship between pi, diameter and circumference.</p> <p>Can accurately calculate the area of a circle when provided with or measuring the radius.</p>
Volume of cylinders	<p>Can measure the necessary dimensions of a cylinder needed to find the volume.</p> <p>Calculates the volume of a cylinder accurately.</p> <p>Explain what is being measured when volume is being measured.</p>
Volume of rectangular prisms	<p>Identify the dimensions of a rectangular prism.</p> <p>Calculate the area of the base of a rectangular prism and the volume of a rectangular prism.</p> <p>Identify the unit used when measuring volume.</p>
Financial percentages	<p>Solves financial percentage problems such as discounts or adding taxes, utilizing multiple strategies such as using a numberline or relating percents to fractions.</p> <p>Demonstrates understanding of the effect of discounts and taxes on the cost of a goods or service.</p>

K-7 Problem-Solving Competencies

The following indicators of proficiency are provided to support the assessment of some of the problem-solving mathematics curricular competencies that are focused on throughout the school year. Please note that the indicators of proficiency connects the curricular competency to the specific grade level curricular content.

Indicators of Proficiency (curricular competency focus)

Grade Level	Curricular Competencies	Indicators of Proficiency (the student can...)
All grades	<p>1) Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving</p> <p>2) Develop and use multiple strategies to engage in problem solving</p>	<p>1) Demonstrate an understanding of (<i>numbers to 10, numbers to 100, fractions, integers, etc – grade level curricular content</i>) by applying this understanding to solve and pose math problems.</p> <p>2) Engages in the problem-solving process by using more than one strategy such as (<i>list grade level and content appropriate strategies</i>) to think about and solve a math problem and communicate the solution.</p> <p>Examples of strategies: Mental Math Strategies Making ten, doubles, near doubles, counting on, doubling and halving, annexing the 0/0s</p> <p>Approaches Using concrete materials, drawing a picture, using a numberline, using a ten frame or grid, using a visual representation or model, create a story, using benchmark numbers, orally think through or explain reasoning, use numbers, symbols and words in written form</p> <p>Problem-Solving Process Find a pattern, visualize, make a diagram, make a table or chart, identify the important information, guess and check, work backwards, simplify the problem, solve in a different way to confirm solution</p>