

MINIMUM REQUIREMENTS FOR A MATH 9 CREDIT: (ADAPTED CURRICULUM)

The following table is intended to be a guide for grade 9 teachers who want to set a base line for the minimum standards required for a pass at the grade 9 level.

The table could act as an outline for a grade 9 adapted curriculum.

Minimal standards for each specific outcome are indicated by limiting examples.

Basic prerequisites for each strand are also indicated.

Students who achieve a 75% competency level for a given specific outcome can be deemed to have minimally met the requirements for that outcome.

Materials to support this adapted curriculum are:

1. Prerequisite questions: Pearson Education *Exam View* Grade 9 Prerequisites
2. *Math Makes Sense 9* Textbook – selected questions at the adapted level
3. Pearson Education *Preparation and Practice Workbook* – selected questions at the adapted level
4. Middle School *Math with Pizzaz*
5. Teacher developed worksheets (to be developed).

MINIMUM REQUIREMENTS FOR A MATH 9 CREDIT: (ADAPTED CURRICULUM)

Prerequisites for Number Strand:

Adding, subtracting, multiplying, dividing:

- a) simple fractions with denominators, 2, 3, 4, 6, 8, 12
- b) integers between -10 and 10
- c) Ordering integers on the real number line

Strand: Number	
Specific Outcome	Limiting Example
1. Demonstrate an understanding of powers with integral bases	1. Express as a power: $3 \times 3 \times 3 \times 3 \times 3$ 2. Express as repeated multiplication 2^4 and evaluate 3. Evaluate 5^0 , and $(-5)^0$ 4. Evaluate $(-2)^3$, and $(-2)^4$
2. Demonstrate an understanding of operations on powers with integral bases (excluding base 0) and whole number exponents.	1. Express as a power: $2^3 \times 2^5$ 2. Express as a power: $3^7 \div 3^3$ 3. Express as a power: $(4^3)^2$
3. Demonstrate an understanding of rational numbers	For work with fractions, use only fractions with denominators, 2,3, 4, 6, 8, 12 1. Convert to a decimal a) $\frac{7}{8}$, b) $-\frac{1}{4}$ 2. List in order from smallest to largest: $\frac{-1}{2}$, $\frac{3}{4}$, $\frac{-3}{4}$, $\frac{1}{8}$ 3. Add, subtract, multiply, divide integers between -10 and 10 4. Add and simplify a) $\frac{-1}{2} + \frac{1}{4}$ b) $2\frac{1}{4} + 3\frac{1}{2}$ 5. Subtract and simplify a) $\frac{-1}{3} - \frac{1}{6}$ b) $1\frac{1}{4} - 3\frac{1}{2}$ 6. Multiply $\frac{3}{2} \times \left(-\frac{1}{6}\right)$ 7. Divide $\left(-\frac{1}{4}\right) \div \left(\frac{1}{2}\right)$ 8. Add, subtract, multiply, and divide rational numbers in decimal form using a calculator.
4. Order of operations	1. Simplify a) $2.5 - 4.2 \times 1.5$ b) $2^3 + 4 \times 5$
5. Square roots of perfect squares	1. Complete the sentences: a) $\sqrt{25} = 5$ because _____ b) $\sqrt{\frac{1}{4}} = \frac{1}{2}$ because _____
6. Approximate square roots	1. Use a calculator to estimate $\sqrt{40}$ 2. Solve for the hypotenuse of a right triangle, given the two other sides.

Prerequisites for Patterns and Relations Strand

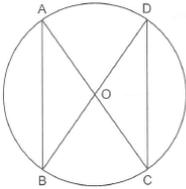
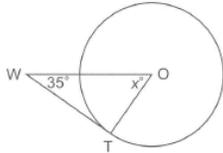
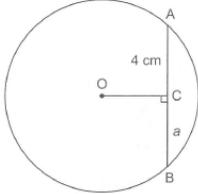
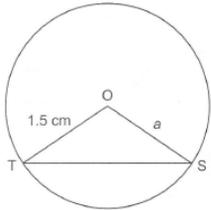
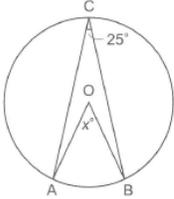
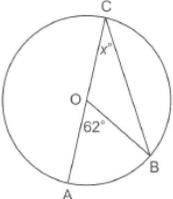
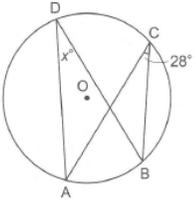
1. Simple substitution
2. Plotting points on a grid
3. Solving simple equations of the form $x + a = b$, $ax = b$, $ax + b = c$, $\frac{x}{a} = b$
4. Placing the $<$ sign or the $>$ sign between two given integers

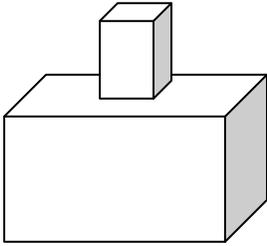
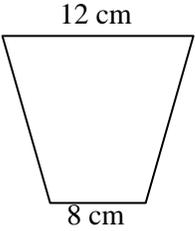
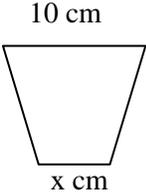
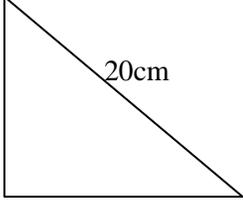
Strand: Patterns and Relations (Patterns)											
Specific Outcome	Limiting Example										
1. Generalize a pattern using linear equations	<p>1. For each equation, find the value of T when $n = 5$ a) $T = 7 + n$ b) $T = 4n$ c) $T = 2n - 3$</p> <p>2. David gets paid \$10 an hour Write an equation to show how David's pay P relates to his hours worked n.</p> <p>3. The cost to set up for a banquet is \$300. Each dinner costs \$20. Write an equation to show how the total cost of the banquet relates to the number of dinners sold n.</p>										
2. Graph linear relations, analyze the graph and interpolate or extrapolate to solve problems.	<p>1. A DVD club sells DVDs according to the table of values.</p> <table border="1"> <thead> <tr> <th># DVDs bought</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>5</td> </tr> <tr> <td>2</td> <td>10</td> </tr> <tr> <td>3</td> <td>15</td> </tr> <tr> <td>4</td> <td>20</td> </tr> </tbody> </table> <p>a) Graph the table for up to 6 DVDs bought. b) What is the cost for 6 DVDs? c) What is the cost for 10 DVDs?</p> <p>2. Create a table for each equation. Use 0, 1, 2, 3, for the values of x. Graph the points on a grid. a) $y = x + 3$ b) $y = 2x$ c) $y = -2x + 1$</p>	# DVDs bought	Cost	1	5	2	10	3	15	4	20
# DVDs bought	Cost										
1	5										
2	10										
3	15										
4	20										

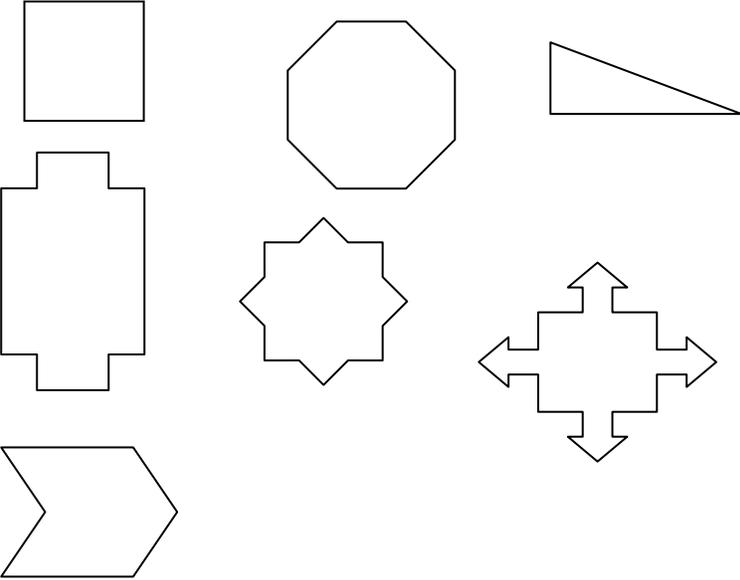
Strand: Patterns and Relations (Variables and Equations)	
Specific Outcome	Limiting Example
3. Model and solve problems using linear equations	<p>1. Solve: a) $3x = 4$ b) $3x + 5 = 17$ c) $2x - 3 = 7$ d) $3x = 2x + 8$ e) $5x - 1 = 3x + 7$</p> <p>2. Solve: a) $\frac{x}{4} = 7$ b) $\frac{x}{3} = \frac{10}{2}$</p>
4. Linear inequalities	<p>1. Plot each on a number line: a) $x < 4$ b) $x \leq -2$ c) $x > -4$ d) $x \geq 5$</p> <p>2. Solve and plot on the number line: a) $x + 5 < 8$ b) $x - 2 \geq 5$ c) $-2x < 8$ d) $5 - 2x > 7$</p>
5. Demonstrate an understanding of polynomials	<p>1. Represent the polynomials using algebra tiles: a) $-8 + 4x$ b) $3x^2 - 4x + 5$</p>
6. Polynomials: adding and subtracting	<p>1. Add using algebra tiles or otherwise: a) $(3x - 2) + (4 - 2x)$ b) $(x^2 + 5x + 2) + (3x - 2x^2 - 3)$</p> <p>2. Subtract using algebra tiles or otherwise: a) $(5x^2 + 3x - 4) - (3x^2 + x + 2)$ b) $(2x^2 + 3x + 7) - (5x^2 - 6x - 4)$</p>
7. Polynomials: multiplying and dividing	<p>1. Multiply using algebra tiles or otherwise a) $(2x)(3x)$ b) $3(4x)$ c) $4(2x + 3)$</p> <p>2. Divide using algebra tiles or otherwise a) $(4x) \div 2$ b) $(6x^2) \div (3x)$</p>

Prerequisites for the Shape and Space Strand

1. Sum of angles of a triangle = 180°
2. Pythagoras' Theorem
3. Isosceles triangles
4. Radii are equal. Diameter = $2 \times$ radius
5. Surface area of a rectangular prism.

Strand: Shape and Space Measurement	
Specific Outcome	Limiting Example
1. Circle properties	<p>1. </p> <p>Radii: _____ Chords: _____ Diameters: _____</p> <p>2. Determine the value of x </p> <p>3. Determine the value of a </p> <p>4. Determine the value of a </p> <p>5. Determine each value of x</p> <p>a) </p> <p>b) </p> <p>c) </p>

<p>Strand: Shape and Space Measurement</p>	
<p>Specific Outcome</p>	<p>Limiting Example</p>
<p>2. Surface area of composite objects</p>	<p>1. The dimensions of the large box are length = 10 cm width = 8 cm height = 6 cm</p> <p>The dimensions of the small box are length = 5 cm width = 4 cm height = 2 cm</p> <p>Determine the surface area of the composite object</p> <div style="text-align: center;">  </div>
<p>3. Similar polygons</p>	<p>1. The two polygons are similar. Determine the length, x, of the indicated side.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <p>2. The two triangles are similar. Determine the length, x, of the indicated side.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div>

<p>Strand: Shape and Space Measurement</p>	
<p>Specific Outcome</p>	<p>Limiting Example</p>
<p>4. Draw and interpret scale diagrams of 2-D shapes.</p>	<p>1. Given the rectangle below:</p>  <p>a) Draw a scale enlargement by a factor of 3 b) Draw a scale reduction by a factor of $\frac{1}{2}$</p>
<p>5. Demonstrate an understanding of line and rotation symmetry</p>	<p>1. Draw in any lines of symmetry for each figure.</p>  <p>2. Which of the figures above have rotational symmetry State the order of rotation</p>

Strand: Shape and Space Measurement	
Specific Outcome	Limiting Example
1. Describe the effect of: bias, use of language, ethics, cost, time and timing, privacy cultural sensitivity on the collection of data.	<p>1. Which of the questions are biased? For each biased question, write a better question.</p> <p>a) Do you like cute little puppies or mean scratching cats?</p> <p>b) What is your favourite dessert?</p> <p>c) Which do you prefer, boring newscasts or exciting reality shows?</p> <p>2. What is a potential problem with each survey?</p> <p>a) Students are asked to fill out a 50 question survey on their computer use.</p> <p>b) A survey is to be mailed to every household in Vancouver.</p> <p>c) A survey is conducted to find out students' family incomes</p>
2. Select and defend the choice of using either a population or a sample of a population to answer a question.	<p>1. Which would you use for each survey, a <i>sample</i> or a <i>population</i>? Explain your answer.</p> <p>a) The city council of Prince George wants to find out how many households would like to have a waste food recycling pick up program.</p> <p>b) Your teacher wants to find out how many students in your math class have an older sister or brother.</p>
3. Develop and implement a project plan for the collection, display and analysis of data	This outcome is best evaluated by assigning a project, where students develop and administer their own survey.
4. Demonstrate an understanding of the role of probability in society	This outcome is best assessed by having students bring in samples of surveys from newspapers, magazines, the internet, or elsewhere.