Grade 6

SRPSD Math Common Assessment

Saskatchewan Rivers Public School Division

Excellence for Every Learner

Name: _____

Instructions

Administering the Assessments

1. This assessment has been developed with the intention of being split up into individual outcomes and given upon completion of instruction/units throughout the year and **not** as a comprehensive test in June.

2. The division expectation is for the assessment to be given as **both** a pre (formative) and post (summative) assessment which will be entered into SRPSD database.

3. Use professional judgment on whether this assessment is given orally or in written form. The intent is to assess mathematical understanding.

4. Refer to the last few pages for any paper manipulatives needed to administer certain questions. Teachers will have to print off a copy for their class.

5. Calculator use is only allowed where indicated.

6. In the case that a student answers a level 4 question correctly but misses the level 2 or 3, the teacher will need to:

   a) reassess
   b) use professional judgment (teacher knows student best).

7. This assessment is not intended to assess ELA reading or writing outcomes therefore questions can be read to students and answers can be scribed when needed.

8. The corrected pre-tests are not to be showed to the students as it will affect post-test results.

Name: _____

Part A: Number Strand

N6.1a Demonstrate understanding of place value greater than one million with and without technology.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance with creating a place value chart to represent quantities greater than 1 000 000.	Student can represent quantities over 1000000 in a place value chart.	Student is able to represent a quantity greater than 1 000 000 in more than one way.	Student is able to solve problems that explore the quantity of numbers greater than 1 000 000.

1. Label the following place value chart. Place 3 423 192 in it.

2. a) Say it or write the following number in words.

3 423 192

b) Write the number in expanded form.

3 423 192

3. How would you explain the student's error? A student read 5 000 264 as "five thousand two hundred sixty-four".

Name: _____

Part A: Number Strand

N6.1b Demonstrate understanding of place value less than one thousandth with and without technology.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance making a place value chart to represent less than one thousandth.	Student can represent quantities less than one thousandth in a place value chart.	Students are able to represent numbers less than one thousandth in more than one way.	Student is able to solve problems that explore the quantity of less than one thousandth.

1. Place 0.2657 in the following place value chart.

2. a) Say it or write the following number in words.

0.2657

b) Write in expanded form.

0.2657

3. Write a number between 2.153 and 2.154.

Name: _____

Part A: Number Strand

N6.2a Demonstrate understanding of factors (concretely, pictorially, and symbolically) by determining factors of numbers less than 100, relating factors to multiplication and division, and determining and relating prime and composite numbers.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student is able to explain what a factor is.	Student is able to make a partial list of factors for a given number.	Student is able to determine a set of factors for a number less than one hundred and identify prime and composite numbers.	Student is able to solve a problem involving common factors.

1. Fill in the missing factors.

40 1 x 40

2 x ☐

☐ x ☐

☐ x 8

2. a) Write the set of factors for **36**.

b) Write the prime numbers from the above set of factors.

3. How many students signed up for the chess club? There are between 20 and 28 students signed up for the chess club. The students could not be divided exactly into groups of 2, 3, 4, or 5. Show your work.

Name: _____

Part A: Number Strand

N6.2b Demonstrate understanding of multiples (concretely, pictorially, and symbolically) by, determining factors and multiples of numbers less than 100 and relating multiples to multiplication and division.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student is able to skip count.	Student is able to make a partial list of multiples.	Student is able to determine multiples for a given number less than 100.	Student is able to solve a problem involving common multiples.

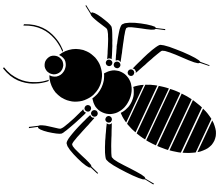
1. Fill in the missing multiples of 7.

   7, _____, 21, _____, _____, 42, _____.

2. List the first ten multiples of 12.

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____

3. A spider has 8 legs. An ant has 6 legs. There is a group of spiders and a group of ants. The groups have equal numbers of legs. What is the least number of spiders and ants in each group? Show your work.



Name: _____

Part A: Number Strand

N6.3 Demonstrate understanding of the order of operations on whole numbers (excluding exponents) with and without technology.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student is able to do individual basic operations.	Student can list the order of operations.	Student applies the rules of order of operations with and without technology.	Student is able to solve questions involving multiple operations. (can include error analysis)

1. Consider the following expression **18 x [4 + 2]**

   a) What step would you do first?

   b) What step would you do second?

2. Solve

   6 x 2 + 8 ÷ 4 =

3. Bianca did this question 4 x (7 – 2 + 1). She got the answer 16. Is this right? Why or why not?

Name: _____

Part A: Number Strand

N6.4a Extend understanding of multiplication to decimals (1-digit whole number multipliers and 1-digit natural number divisors).

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance to identify a situation where you would use multiplication and decimal numbers.	Student is able to estimate and place the decimal correctly.	Student can estimate and multiply decimals (1-digit whole number multipliers).	Student is able to solve situational problems and/or is able to critique statements involving multiplication.

1. Place the decimal in the product.

   8.25 x 4 = 330

2. a) Estimate

   4.85 x 5 = _____

   b) Solve 4.85 x 5

3. Tianna has saved $9.75 each week for 7 weeks. She wants to buy a snowboard that costs $80.45, including tax.

   a) Does Tianna have enough money? How do you know?

   b) If your answer to part a is no, how much more money does Tianna need?

Name: _____

Part A: Number Strand

N6.4b Extend understanding of division to decimals (1-digit whole number multipliers and 1-digit natural number divisors).

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance to identify a situation where you would use division and decimal numbers.	Student is able to estimate and place the decimal correctly.	Student can estimate and divide decimals (1-digit whole number divisors).	Student is able to solve situational problems and/or is able to critique statements involving division.

1. Place the decimal in the quotient.

$$3.81 \div 3 = 127$$

2. a) Estimate

$$27.\ 25 \div 5 = \_\_\_\_\_$$

b) Solve

$$27.25 \div 5$$

3. A student divided 1.374 by 4 and got 3.435.

a) Without dividing, how do you know the answer is incorrect?

b) What do you think the student did wrong?

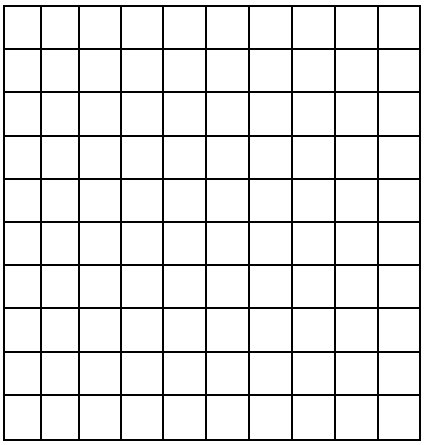
Name: _____

Part A: Number Strand

N6.5 Demonstrate understanding of percent (limited to whole numbers to 100) concretely, pictorially, and symbolically.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student is able to describe a situation involving percent.	Student is able to write the percent modelled concretely or pictorially.	Student is able to convert between decimals, fractions (denominator=100), and percent.	Student is able to convert between decimals, fractions and/or percent in a situational problem.

1. a) Colour the hundred's grid, 20% red, 58% blue, 16% green, and 6% yellow.



b) Write a fraction to describe the part of the grid that is each colour.

Red_____ Blue _____ Green _____ Yellow _____

2. Sam got 18 out of 20 on a math quiz. Joe got 85% on the quiz. Whose mark was greater? How do you know?

Name: _____

Part A: Number Strand

N6.6 Demonstrate understanding of integers concretely, pictorially, and symbolically.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student is able to describe a situation where integers are used.	Student is able to represent integers symbolically.	Student is able to order a set of integers – pictorially.	Student is able to find and explain the pattern on each side of the zero.

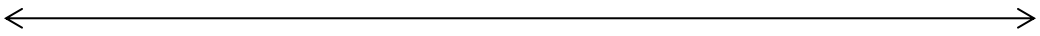
1. Write an integer to represent each situation.

   a) 12^{o} below zero

   b) 10 m above sea level

2. Order these integers on a number line.

   0, +4, -7, +2, -9, -1, +6



3. You know that 8 is greater than 3. Explain why -8 is less than -3.

Name: _____

Part A: Number Strand

N6.7 Extend understanding of fractions to improper fractions and mixed numbers.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student identifies the difference between a mixed number and an improper fraction.	Student is able to represent an improper fraction and a mixed number.	Student is able to express improper fractions as mixed numbers and vice versa.	Student is able to order a set of fractions, including whole numbers and improper fractions.

1. Write an improper fraction and a mixed number.

2. a) Write the mixed number as an improper fraction.

$$1\frac{1}{6}$$

b) Write the improper fraction as a mixed number.

$$\frac{17}{5}$$

3. Order these numbers $2\frac{1}{4}, \frac{5}{2}, \frac{6}{3}$. **Show your work.**

Name: _____

Part A: Number Strand

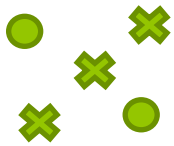
N6.8 Demonstrate an understanding of ratio concretely, pictorially, and symbolically.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student identifies or writes a ratio with assistance.	Student is able to express a ratio in colon and word form.	Student is able to represent ratios in colon, word, or fractional form and compare part/whole and part/part ratios.	Student is able to solve situational problems involving ratios.

1. a) Write a ratio for the following picture in word form:

b) Write the above ratio in number form:

2. Write **4** different ratios for this picture. Explain what each ratio compares.



3. When are ratios and fractions the same thing? Give an example.

Name: _____

Part A: Number Strand

N6.9 Research and present how First Nations and Métis peoples, past and present, envision, represent, and use quantity in their lifestyles and worldviews.

Beginning	Approaching	Proficiency	Mastery
Student needs assistance to research one FN & M group's understanding of quantity but is not able to explain in their own words.	Student is able to find research on one FN & M group's understanding of quantity but is not able to explain in their own words or represent.	Student is able to research and present one First Nation or Metis peoples understanding of quantity.	Student is able to research, present, and compare (similarities/differences) between FN & M group and their own understanding of quantity.

Still under construction.

This is an outcome that is suited more to a project and not a paper pencil test.

Name: _____

Part B: Pattern & Relations Strand

P6.1 Extend understanding of patterns and relationships in tables of values and graphs.

Beginning	Approaching	Proficiency	Mastery
Student is able to determine missing values in a table of values.	Student is able to determine the input rule, and the output rule.	Student is able to determine the input to output rule and graph the pattern.	Student is able to describe the relationship between a table of values and a graph.

P6.3 Extend understanding of patterns and relationships by using expressions and equations involving variables.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance in determining the pattern rule.	Student is able write the pattern rule as an expression.	Student is able to write an equation and expression using variables to represent a table of values.	Student is able to use the equation or expression with a variable to extend a table of values.

1. This table shows the input and output from a machine with two operations.

Input	Output
1	2
2	7
3	12
4	17

a) Write the pattern rule for the input.

b) Write the pattern rule for the output.

c) Write a pattern rule that relates the input to the output.

d) Write an expression to represent the pattern.

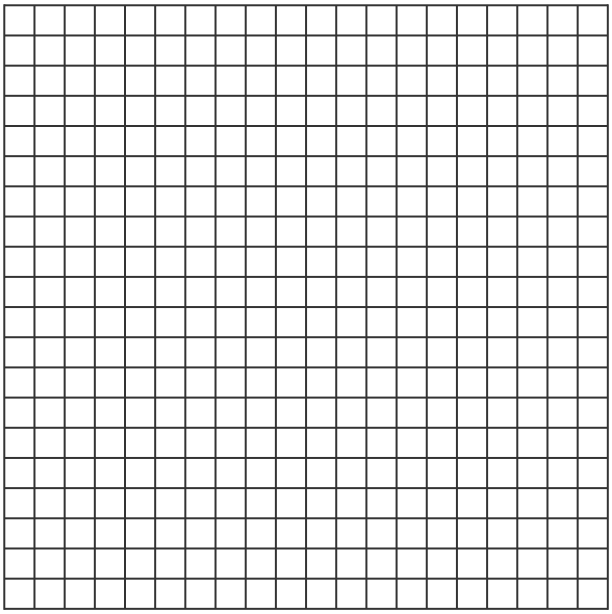
e) Use the expression to find the output when the input is 20.

f) If the output is 32 what is the equation?

g) Graph the data from the table.

_____

_____



_____

h) Describe the relationship shown on the graph.

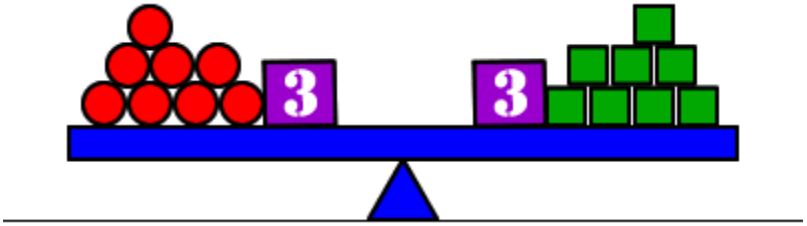
Name: _____

Part B: Pattern & Relations Strand

P6.2 Extend understanding of preservation of equality concretely, pictorially, physically, and symbolically.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student is able to explain what equal means.	Student is able to explain equivalent forms pictorially or concretely.	Student is able to create and record symbolically equivalent forms of an equation.	Student is able to create and record symbolically equivalent forms of an equation using a variable.

1. Explain why the following teeter totter is balanced:



2. Solve each equation.

a) 9 x 3 = 3 x _____

b) 12 + 9 = _____ + 3

c) 52 - _____ = 35 – 4

3 How do you know the equality has been preserved?.

3b = 7

3b + 2 = 7 +2

Name: _____

Part C: Shape and Space Strand

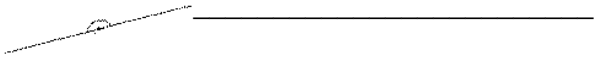
SS6.1 Demonstrate understanding of angles including:

- identifying examples classifying angles
- estimating the measure
- determining angle measures in degrees
- drawing angles
- applying angle relationships in triangles and quadrilaterals.

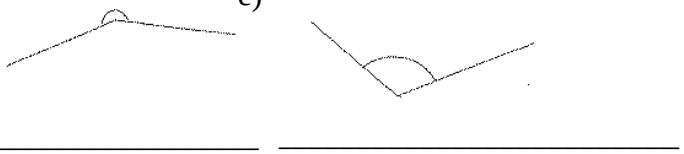
Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance in identifying examples of angles.	Student is able to classify angles.	Student is able to estimate and determine angle measures in degrees and draw angles.	Student can apply angle relationships in triangles and quadrilaterals.

1. Name each angle as an acute angle, straight angle, reflex angle, obtuse angle or right angle.

a) 

b) 

e)

c) 

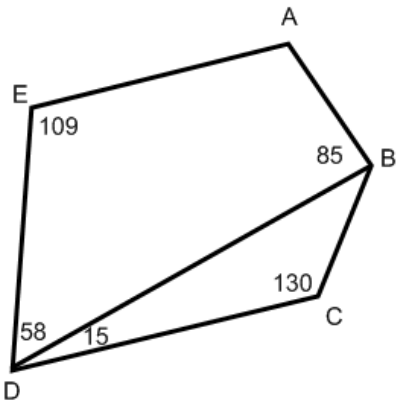
d) 

2. a) Sketch a 35^{o} angle. Measure your sketch. How close are you?

b) Take your protractor and draw an exact 35^{o} angle.

Name: _____

3. Look at this pentagon.



a) Find the measure of $\angle A$.

b) Find the measure of $\angle DBC$. Show your work. Explain your thinking.

Name: _____

Part C: Shape & Space Strand

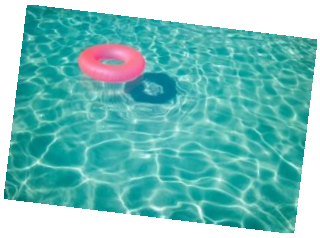
SS 6.2 Extend and apply understanding of perimeter of polygons, area of rectangles, and volume of right rectangular prisms (concretely, pictorially, and symbolically) including:

- relating area to volume
- comparing perimeter and area
- comparing area and volume
- generalizing strategies and formulae
- analyzing the effect of orientation
- solving situational questions.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance relating perimeter to area.	Student can relate perimeter to area.	Student can relate area to volume.	Student can solve situational questions.

1. Matt's dog has a rectangular dog run. The length of the dog run is 5 m. The total area enclosed is 20 m^2. How wide is the dog run? Draw a diagram. What is the perimeter of the dog run?

2. a) Swimming pool has a base area of 50m^2 with a depth of 2m. What is its volume?



b) What are the possible dimensions of the pool? Sketch it.

Name: _____

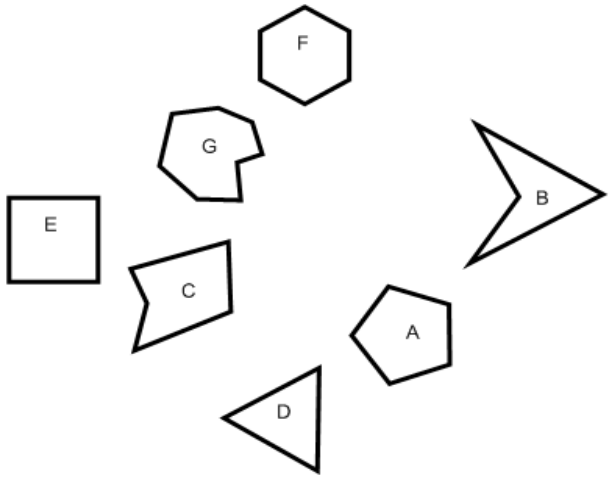
Part C: Shape & Space Strand

SS6.3 Demonstrate understanding of regular and irregular polygons including:

- classifying types of triangles
- comparing side lengths
- comparing angle measures
- differentiating between regular and irregular polygons
- analyzing for congruence.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance describing regular and irregular polygons.	Student can differentiate between regular and irregular polygons.	Student can classify types of triangles.	Student can analyze polygons for congruency.

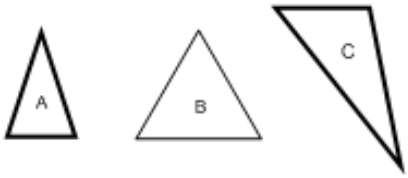
1. Sort the following shapes into regular and irregular polygons.



Regular	Irregular

2.

a) Name each triangle as scalene, isosceles or equilateral.



_____ _____ _____

b) Describe each triangle.

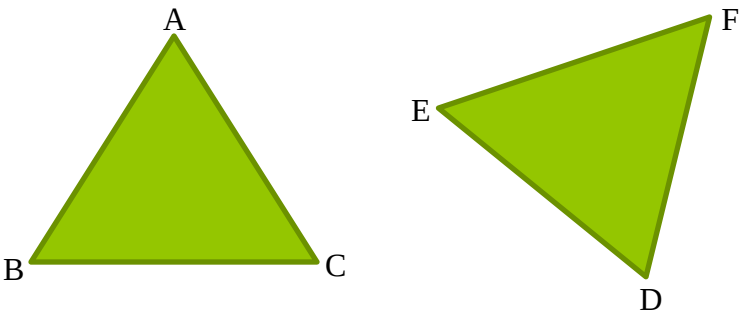
A_____

B_____

C_____

Name: _____

3. Are these two triangles congruent? If so, prove their congruency.



Name: _____

Part C: Shape & Space Strand

SS6.4 Demonstrate understanding of the first quadrant of the Cartesian plane and ordered pairs with whole number coordinates.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance explaining each number in an ordered pair.	Student can explain each number in an ordered pair.	Student can plot points on a Cartesian plane.	Student can determine what scale to use on a Cartesian plane.

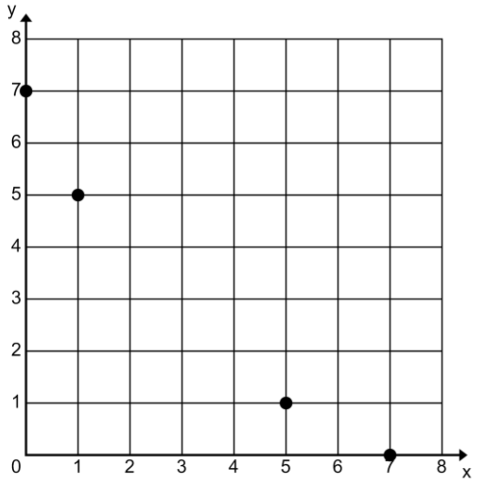
1. Match each ordered pair with a letter on the coordinate grid.

a) (1,5)

b) (5,1)

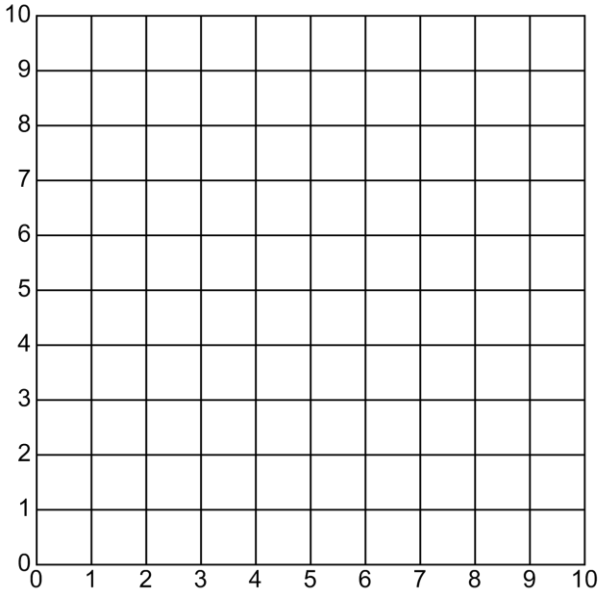
c) (0,7)

d) (7,0)



2. Plot the coordinates of my vertices:

P (7,3)
Q (6,4)
R (6,5)
S (7,6)
T (8,6)
U (9,5)
V (9,4)
W (8,3)

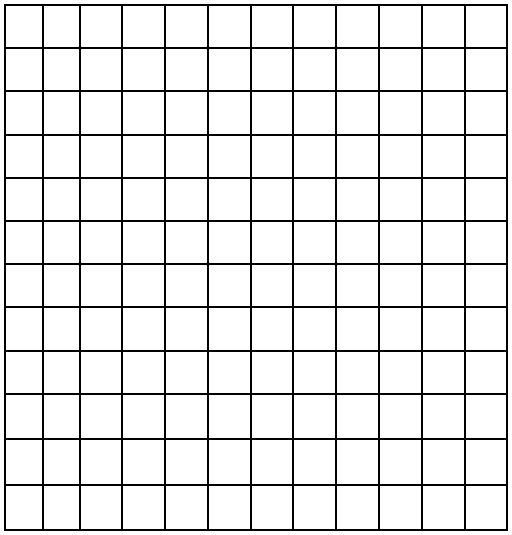


What am I? _____

Name: _____

3. Draw and label a coordinate grid. Plot each point on the grid. How did you decide which scale to use on the axes?

a) J (14, 20)
b) K (6, 12)
c) L (0, 18)
d) M (8, 4)
e) N (16, 0)



Name: _____

Part C: Shape & Space Strand

SS.6.5 Demonstrate understanding of single, and combinations of, transformations of 2-D shapes (with and without the use of technology) including:

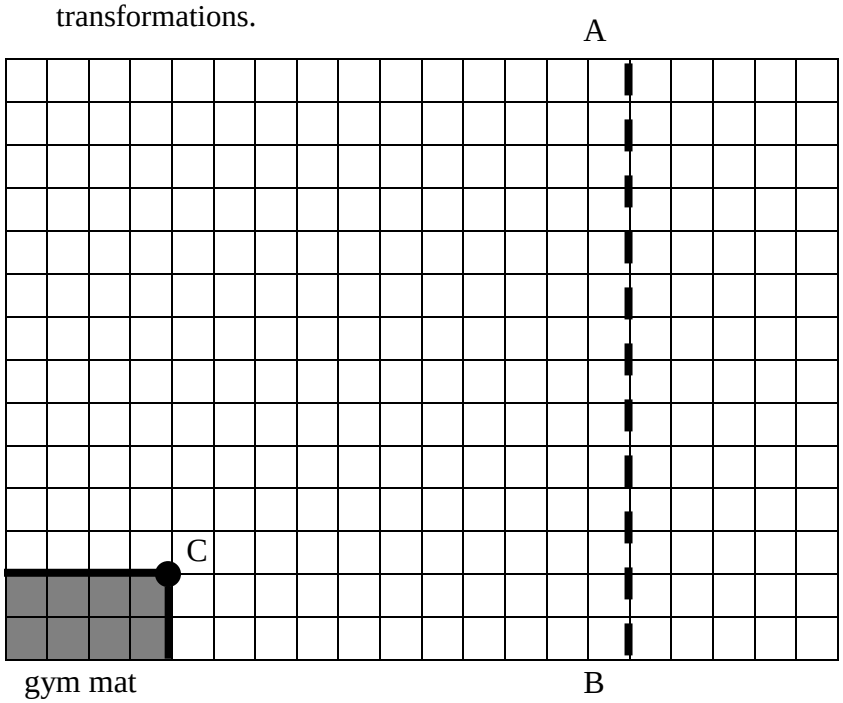
- identifying
- describing
- performing.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance in performing a single transformation of 2D shapes.	Student can perform a single transformation of 2D shapes.	Student can perform a combination of transformations of 2D shapes.	Student can interpret a combination of successive transformations of 2D shapes.

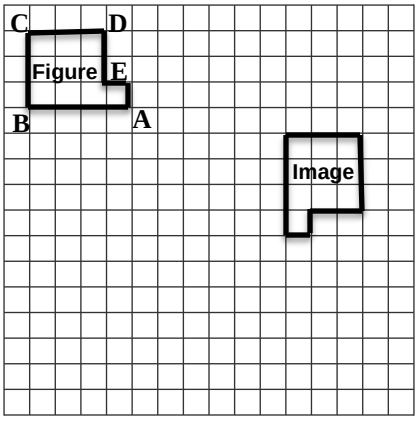
1. Mr. Lee moves a gym mat using the following four transformations.

    1. Rotate the gym mat 90_o clockwise ($\frac{1}{4}$ turn) about Point C.
    2. Translate the gym mat 8 units to the right.
    3. Reflect the gym mat over line AB.

    On the grid below, show the new location of the gym mat after Mr. Lee makes the four transformations.



2. Describe 2 successive transformations that move the shape to its image.



Name: _____

Part D: Statistics & Probability Strand

SP6.1 Extend understanding of data analysis to include:

- line graphs
- graphs of discrete data
- data collection through questionnaires, experiments, databases, and electronic media
- interpolation and extrapolation.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance to determine the best way to collect data.	Student can determine the best way to collect data.	Student is able to use data to create a line graph.	Student can interpolate and/or extrapolate the line graph or graphs of discrete data.

1. What is the most appropriate method of collecting data in the following situations?

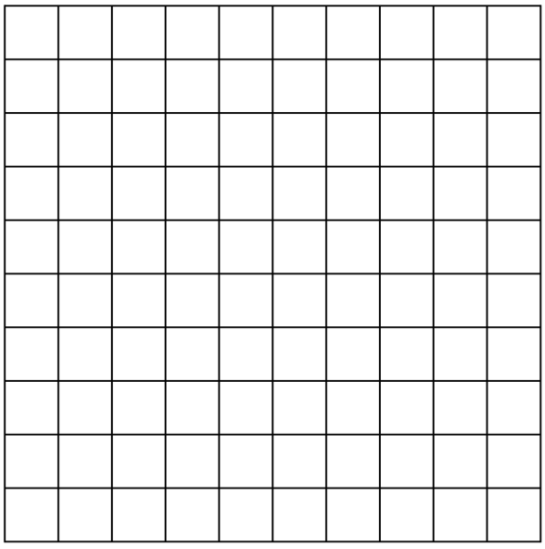
A. Experiment B. Database C. Interview D. Questionnaire E. Electronic

How many people in your school chew gum? _____
How long does it take for bread to mold on the counter? _____
What is the most watched video on U-tube? ____
How could you see if a book you wanted is in the library? _____

2. Josh weighs his new kitten at the end of each month for 8 months.

a) Use the provided grid paper to draw a line graph to show this data.

Month	Mass (kg)
1	1.0
2	1.5
3	2.0
4	2.5
5	3.0
6	3.5
7	4.0
8	4.5



b) Is this graph a line (continuous) graph or a discrete graph?

c) What is one conclusion you can make from this graph?

Name: _____

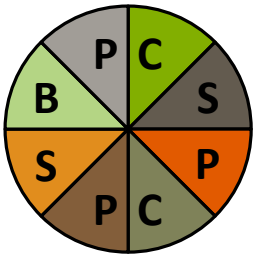
Part D: Statistics & Probability Strand

SP6.2 Demonstrate understanding of probability by:

- determining sample space
- differentiating between experimental and theoretical probability
- determining the theoretical probability
- determining the experimental probability
- comparing experimental and theoretical probabilities.

Beginning (1)	Approaching (2)	Proficiency (3)	Mastery (4)
Student needs assistance determining outcomes for a given event.	Student can determine outcomes for a given event.	Student can determine theoretical and experimental probability.	Student can differentiate between experimental and theoretical probability.

1. Ryan uses a spinner to choose a flavour of chewing gum.



P=Peppermint **S=Spearmint**
B=Bubblegum **C=Cherry**

a) What is the theoretical probability that Ryan will choose Spearmint?

b) Which flavours have an equal chance of being chosen?

c) Ryan spun the spinner 40 times. Here are his results:

Peppermint 17, Cherry 8, Spearmint 13, and Bubblegum 2

What is the experimental probability that Ryan will choose Spearmint?

d) How does this compare to the theoretical probability of Spearmint? Explain.