GRADE 6

Mathematics Assignment

Concept Map: Year-In-Review

Your Mission:
As we discussed in class, concept mapping includes selecting terms, ranking concepts, arranging concepts in groups, and linking concepts according to an understanding procedure.

Resource Tool To Complete the Task:

- You can draw your concept map by hand, or use "**bubbl.us**", Excel, or other diagramming software.

Just Remember:

- Your concept map should include nodes for each of the terms, appropriate connectors, and labels for each connector.

*In this activity, you will create a concept map that diagrams **the relationships within each individual unit** using the following ideas:*

Unit: **Number**

(Textbook Chapter Reference: 2,3,6,7, and 9**)**

1. Place value
2. Solve problems involving whole numbers and decimal numbers
3. Common factors [CF] and Common multiples [CM]
4. Solve problems involving prime and composite numbers
5. Relate improper fractions to mixed numbers and mixed numbers to improper fractions
6. Give an example using concretely, pictorially and symbolically of: Ratio, percent, and integers
7. Order of operations

Unit: **Patterns and Relations**

(Textbook Chapter Reference: 1**)**

1. Describe patterns and relationships, using graphs and tables
2. Relationships within tables of values to solve problems
3. Express a given problem as an equation in which a letter variable

Unit: **Shape and Space**

(Textbook Chapter Reference: 5,11, and 8**)**

1. An understanding of angles by:
• classifying angles according to their measure;
• estimating the measure of angles, using 45°, 90° and 180° as reference angles;
• drawing and labelling angles when the measure is specified.
2. The sum of interior angles is:
• 180° in a triangle;
• 360° in a quadrilateral.
3. Apply a formula for determining the:
• perimeter of polygons;
• area of rectangles;
• volume of right rectangular prisms.
4. Compare triangles, including:
• scalene, isosceles, equilateral, right, obtuse and acute in different orientations.

5. Compare the sides and angles of regular and irregular polygons.
6. Draw and describe the combination image of translations, rotations and/or reflections on a single 2-D shape
7. Plot points in the first quadrant of a Cartesian plane, using whole number ordered pairs

Unit: **Statistics and Probability**

(Textbook Chapter Reference: 4 and 10**)**

1. Create, label and interpret line graphs to draw conclusions.
2. **Justify and use appropriate methods of collecting data, including**:

• questionnaires, experiments, databases and electronic media

3. **An understanding of probability by:**

• identifying all possible outcomes of a probability experiment
• differentiating between experimental and theoretical probability
• determining the theoretical probability of outcomes in a probability experiment
• determining the experimental probability of outcomes in a probability experiment
• comparing experimental results with the theoretical probability for an experiment.

Enjoy the process and see where it takes you!

Grade 6

RUBRICS FOR CONCEPT MAP

Date: _ _/_ _/_ _ _ _(dd/mm/yyyy)

Subject: Math// Unit: All Strands; Term: • 2

Name: _ _ _ _ _ _ _ _ _ _ _ Assessment type: Il D • F Il S Overall: Mark//Level:_ _ _ j_I_ _; Class Average:_ _ _ Parent Signature:_ _ _ _ _ _ _ _

Level / Criteria	Excellent Level4	Proficient Leve13 79% 72% 65%	Adequate Level2	Limited* Level 1	Insufficient/ Blank*
Organization (_/2)	• Well organized • Logical format • Contains main concepts • Contains an appropriate number of concepts • Follows standard map conventions	• **Thoughtfully organized** • **Easy to follow most of the time** • **Contains most of the main concepts** • **Contains an adequate number of concepts** • **Follows the standard map conventions**	• Somewhat organized • Somewhat incoherent • Contains only a few of the main concepts	• Choppy and confusing • Contains a limited number of concepts	No score is awarded because there is insufficient evidence of student performance based on the requirements of the assessment task.
Content (_/2)	• Linking words demonstrate superior conceptual understanding • Links are precisely labeled	• **Linking words easy to follow but at times ideas unclear** • **Links are not precisely labeled**	• Linking words are clear but present a flawed rationale • Links are not labeled	1 • Difficult to follow • No links	
Days Late (_/1)	0 I	1 I	2 I	3++	--Not Hand In

Teacher's Comments - Area for Growth and Action Plans (if below "level 2"):

□ Please use the given time in the classroom wisely by *asking questions to further clarify the assignment or focus on the task at hand.* Also, you need to follow the sample work shown in the class *(if applicable)* as a guideline to achieve *level 3* in this rubric.

Number

By Neer Elsayed.

6C

1: Place Value

1) The value given to a digit based on its position in a number.

2) The number 2 in the number 327 represents 2 tens, whilst in the number 5.2, it represents 2 tenths.

Hundreds	Tens	Ones	Ones	Tenths	Hundredths	Thousandths
3	2	7	5	2	0	0
ooo	oo	ooo ooo o	o o o o o	o o		

2: Solving problems including whole & decimal numbers

1) Georgia & her friends are making costumes for a neighbourhood street festival. They divided 11.3 m of fabric among 3 people. About how much fabric did each person get?

A: 12÷3=4 and 15÷3=5. 11.3 is closer to 12 so 11.3÷3 is about 4.00, each person got about 4m of fabric.

2) Which products are between 35 & 50?

a) $8.8 \times 3.97 = 50.66$ No, this is not between 35 & 50.

b) $13.89 \times 4 = 55.56$ No, this is not between 35 & 50.

3) How do you know this statement is true? 9×4.23 is more than 36 but less than 45.

$9 \times 4.23 = 38.07$, the above statement is true.

3: Common Factors (CF) and Common Multiples (CM)

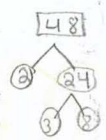
1) Identify all the factors of 29.

A: 1, 29

2) What are the first 4 multiples of 3?

A: 3, 6, 9, 12 (3×4=12)

3) What factors of 48 can you identify from the factor tree at the right?



A: 2, 3, 8, 24, 48

4) List the first 5 multiples of each number:

a) 7: 7, 14, 21, 28, 35

b) 6: 6, 12, 18, 24, 30

c) 9: 9, 18, 27, 36, 45

d) 40: 40, 80, 120, 160, 200

4: Solve problems including prime & composite numbers

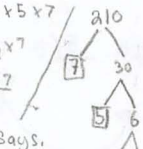
1) Carrie says, "I can multiply the factors 2, 3, 5, & 7 to make any number from 2 to 21." Is Carrie correct?

A: $2 \times 3 \times 5 \times 7$

$6 \times 5 \times 7$

30×7

210



oo, Carrie is not correct since the sum of 2, 3, 5 & 7 multiplied together is more than 21.

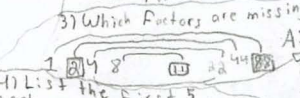
2) Ali says, "I can multiply the factors 2 & 3 to make 72, if I use both factors more than once." Is Ali correct?

A: 72

$2 \times 3 \times 2 \times 3 \times 2 = 72$

oo, Ali is correct because $2 \times 3 \times 2 \times 3 \times 2 = 72$.

3) Which factors are missing from the factor rainbow?



A: $4 \times 22 = 88$, so we can use this info to fill in the rest.

4) List the first 5 multiples of each number.

a) 25: 25, 50, 75, 100, 125

b) 12: 12, 24, 36, 48, 60

5: Relate improper fractions to mixed numbers & vice versa

1) Sonja chews $\frac{1}{3}$ of a pack of gum every week. Can you sketch a model to show how much gum Sonja chews in 4 weeks? Write your answer as an improper fraction and a mixed number.

A:  Improper Fraction: $\frac{4}{3}$ Mixed number: $1\frac{1}{3}$

2) Why is an improper fraction greater than 1?

A: An improper fraction has a numerator that is greater than the denominator. A fraction that has the same numerator & denominator, like $\frac{3}{3}$ or $\frac{7}{7}$, is equal to 1. If the numerator is greater than the denominator, then the fraction is greater than 1. For example, $\frac{5}{4} > \frac{4}{4}$, so $\frac{5}{4} > 1$.

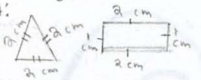
3) How can you write a mixed number that is equivalent to an improper fraction?

A: You can break up the improper fraction into wholes & parts. For example, $\frac{8}{3} = 3$ thirds + 3 thirds + 2 thirds. $\frac{8}{3} = 1 + 1 + 2$ thirds.

$\frac{8}{3} = 2\frac{2}{3}$.

6: Give an example using concretely, pictorially, symbolically) of Ratio, percents, & integers

1) Ratio: The ratio of the length of a polygon to its perimeter is 2:6. Draw 2 possible polygons with this length-to-perimeter ratio. Make sure they have different numbers of sides and label the lengths.

A: 

2) Percentage: The land area of Nunavut is 21% the area of Canada. Do you think the population of Nunavut is 21% the population of Canada?

A: No, because the land area of Nunavut is bigger than it's population, and the same goes for Canada. oo, I don't think that the population of Nunavut is 21% the population of Canada.

3) Fraction: Brodan coloured more than $\frac{2}{5}$ of a hundredths grid, but less than 0.47 of the grid. About what percent of the grid is covered?

A: Since $\frac{2}{5}$ can translate to $\frac{20}{50}$ you can double that to get $\frac{40}{100}$. And since 0.47 can translate into 47, that means that a percentage between 40 & 47 percent of the hundredths grid is covered.

7: Order of Operation:

1) Tom, Ahmed and Josette calculated $(6-2) \times 1 + 4 \div 1$. Tom's answer is 3. Ahmed's answer is 9. Josette's answer is 6. Who is correct?

A: $(6-2) \times 2 + 4 \div (3+1)$

$4 \times 2 + 4 \div 4$

$8 + 1 = 9$

oo, Ahmed is correct the answer is 9.

2) Is this calculation correct? If not, correct it: $12 \times 9 + 3 = 111$

A: $12 \times 9 + 3 = 111$

$108 + 3 = 111$

oo, this calculation is correct.

3) Each expression has 4 wholes & equals to 1. Show that each expression equals to 1: $4+4 \div 4 - 4$, $(4+4) \div (4+4)$, $44 \div 44$.

A: $4+4 \div 4 - 4$

$4 + 1 = 5 - 4 = 1$

$(4+4) \div (4+4)$

$8 \div 8 = 1$

$44 \div 44$

-44

0

By Neev Elsayed

Patterns and Relationships

1:

Describe patterns & relationships using graphs & tables

1) Which expressions can be used to create the numbers in the second column of the table below? ($2n+2$, $2+n+1$, $2n$, $n+n+2$)

Table of Values	
n	?
1	4
2	6
3	8
4	10

A: $2n=4$, so $4+2=6$. $2+n=2+4+1=7$. $2n=4$. $n+n+2=2+2+2=6$. 2 expressions ($2n+2$ & $n+n+2$) can be used to create the numbers in the second column of the table at the left.

2) a) Li made this card pattern by adding the same number of cards to each row.

Row 1

Row 2 

Row 3 

Fill in the first 3 rows of the table of values to show Li's pattern.

Row Number	Number of cards in each row
1	1
2	4
3	7
4	10
5	13

(b) Write a pattern rule for each column in the table.

A: 1st column: 1 card
2nd column: Add 3 cards

c) Predict the number of cards in row 8.

A: Row 5 = 13. 13+3=16 = Row 6. 16+3=19 = Row 7. 19+3=22 = Row 8. So, I predict there will be 22 cards in row 8.

2:

Relationships within tables of values to solve problems

1) Sherri's movie discount card cost $10. With the card, each movie cost $6. To figure out how much money she spends on movies, Sherri used this rule: Multiply the number of movies by $6 & add $10. Use Sherri's rule to fill out this table.

Number of movies	0	1	2	3	4	5	6
cost ($)	10	16	22	28	34	40	46

a) How much money will it cost to go to 5 movies?
A: $40

2) Manuel is going to a comic book show. The entrance fee is $15, & each comic cost $2. Manuel made a table to show how much money he should bring if he also buys comics.

Number of comics I buy	0	1	2	3	4	5
Cost ($)	15	17	19	21	23	25

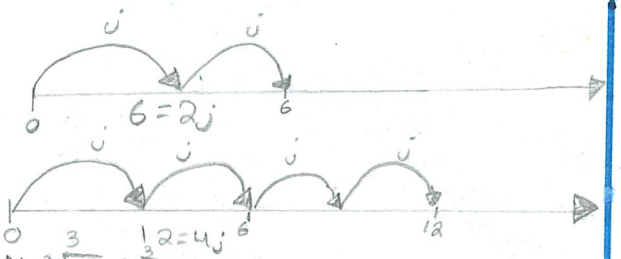
Write a rule that shows how the number of comics he buys can be used to figure out the total cost.

A: Multiply the number of comics by 2 & add $15.

3:

Express a given problem as an equation in which a letter variable

1) Grace says that these number lines show that $6=2j$ is equivalent to $12=4j$. Is she correct?



A: $2\overline{)6}$ $4\overline{)12}$ $\frac{-6}{0}$ $\frac{-12}{0}=0$, yes she is, as j is 3 and $2j$, or $2\times3=6$, & $4j$, or $4\times3=12$.

2) Ravi put the same number of linking cubes in each of 4 paper bags. He wrote c on each bag to show that the number of cubes was the same. Ravi wrote the equation $4c=8$ to show that he needed 8 cubes to balance the 4 bags on balance scales.

a) Sketch another bag on the left side of Ravi's scale.

b) Draw enough cubes on the right side of the scale to keep it balanced. How many cubes did you draw?

A: 2

c) Write a new expression to represent the number of bags & cubes.

A: $bc=10$.

Shapes and Space

By Neer Elsayed 6G

The Sum Of Interior Angles:
1) Determine the measure of each unknown interior angle without a protractor:

QUADRILATERAL 1:	QUADRILATERAL 2:
Angle A: 108 degrees	Angle A: 65 degrees
Angle B: 72 degrees	Angle B: 35 degrees
Angle C: 72 degrees	Angle C: 35 degrees
Angle D: ?	Angle D: ?

A: (QUADRILATERAL 1) 360 - (108 +72 + 72)
= 360- 252
=108
A: (QUADRILATERAL 2) 360 - (65 +35 +35)
=360 - 135
=225
2) Determine the measure of this unknown interior angle without a protractor.
Angle A: 117 degrees
Angle B: 28 degrees
Angle C: ?
A: 180 - (117 +28)
=180 - 145
=35

An Understanding Of Angles:
1) Name the time when the minute and hour hand on a clock would form a reflex angle.
A:1:50
2)Identify each number as degrees as a right, acute, obtuse, straight, or reflex angle: 60 degrees, 90 degrees, 200 degrees, 110 degrees, and 180 degrees.
A: Acute, Right, Reflex, Obtuse, and Straight.
3)What would a 60 degree angle look like on a clock?
A: The clock would be at about 3:03.

Apply Formulas:
1) A farmer's field measures 19 m by 43 m. What is the area of the field?
A: 19 x 43 = 817. Therefore, the are of the field is 817 m2.
2) Roy's backyard is in the shape of a regular hexagon. Roy measured one side of the backyard. It is 8 m. What is the perimeter of the backyard?
A: R= Equal Sides
H= 6 Sides
8 x 6=48. Therefore, the perimeter of Roy's backyard is 8m.
3) Laila's backyard is in the shape of a rectangle. She measured one side of the backyard. It is 12 m. Can Laila use this measurement to calculate the perimeter of her backyard?
A: No. Since a rectangle is not a shape with equal sides, Laila cannot use this measurement to figure out the perimeter of her backyard.
4) If a cake is 8 cm high, 30 cm wide, and 30 cm long, what is its volume?
A: 30 x 8 x 30 = 7200. Therefore, its volume is 7200 m3.

Describe the combo image of translations, rotations and reflections!
1) If a shape is at the coordinates 6,3 on a grid and the translation rule is R4, D2, what coordinates will the translated shape be at?
A: 10,1.

2) If a shape is at the bottom of a page, how much will you have to rotate it to get it to the top?
A: One half.
3) If a shape in the form of an L is rotated across a vertical line of rotation, how will it look?
A: Like somebody flipped it to the other side; backwards.

Comparing Sides And Angles Of Regular And Irregular Polygons
1) A triangle has 3 equal sides. What type of triangle is it?
A: An equilateral triangle.
2) A triangle has 2 equal sides. What type of triangle is it?
A: An isosceles triangle.
3) A triangle has an interior angle of 210 degrees. What type of triangle is it?
A: An obtuse triangle.

Comparing Triangles:
1) Classify the types of triangles: One with 3 equal sides, one with no equal sides, and one with 2 equal sides.
A: Equilateral, Scalene, and Isosceles.
2) Classify the following triangles using side lengths and interior angles: One with all sides equal and an interior angle of 90 degrees, one with no equal sides and three interior angles of 60, and one with 2 equal sides and an interior angle of 195 degrees.
A: An equilateral right triangle, a scalene acute triangle, and an isosceles obtuse triangle.

Concept Map!

By Noor Elrayed 6C

Statistics and Probability!

Justify And Use Appropriate Methods Of Collecting Data:

1) Write a question you could use in a questionnaire for each topic and explain why you'd use it in a questionnaire: How much TV students watch, and types of pets that your classmates have.
A: How much TV do you watch every week?and What type of pet do you have? I would use these in a questionnaire because these are both personal questions about the person I am asking that they can answer.
2) Would you use a questionnaire to gather data to answer each of these questions?: 1: Do Grade 6 students like to play video games? If so, what video games? 2: What was the highest and lowest in your community each year since 2000?
A: 1: Yes, I would, because this is about the person themselves, something about their interests that they already know since it's about them and can answer immediately. 2: No, I would not, because this is not about the person being asked the question themselves, and it is about the year 2000, which, since they are a 6th grader, is a year they probably were not born in.
3) Jackson wondered how the temperature of water affects the time it takes sugar to dissolve. He measured how long it took to dissolve one sugar cube to dissolve in 125 mL of water in each of 3 glasses while stirring and repeated the experiment. Was an experiment an appropriate method for collecting data?
A: Yes. Because this was not personal or something most people would immediately know, you cannot use a questionnaire. And since not many chances will occur where somebody will conduct this experiment and you can watch, which means the only option left is conducting an experiment.

Create, Label, And Interpret Line Graphs:

1) Sherri used a line graph to show how much sugar and cold tea she should mix to make ice tea. The graph goes up by 2 spoonfuls of sugar for each cup. How many spoonfuls of sugar would be needed for 10 cups of tea?
A: 18 spoonfuls,
2) You have been asked to construct a graph displaying the sales of a T-shirt sale last week. On the vertical axis, it names the amount raised($) and on the horizontal, the amount of T-Shirts sold. Would you connect the points with a line?
A: No, because while you can have half a dollar, 2,3, and so on, you cannot have half a T-Shirt.

An Understanding Of Probability

1) Sara put 2 red and 4 green marbles in a bag. She reached in and took one out without looking. How many possible outcomes are there? What is the theoretical probability that Sara picked a green marble? What is the theoretical probability Sara picked a red marble?
A: There are 6 outcomes. P(picking a green marble)=2 over 3. P(picking a red marble)= 1 over 3.
2) Aimee has 5 T-Shirts in her drawer. She reaches in and takes one without looking. She records her choice, and then puts the T-Shirt back. She repeats her experiment 20 times and does 3 trials. Her experimental probability to get a flowered shirt is 0.6 for each trial. What is the theoretical probability Aimee will get a flowered T-Shirt? How does her experimental probability compare with her theoretical probability?
A: P(getting a flowered shirt) = 3 over 5. Her experimental probability was 0.6, which equals into 6 over 10. 6 over 10 divided by 2 is 3 over 5, meaning that her experimental probability and her theoretical probability were the same.