PASIG CATHOLIC COLLEGE
Grade School Department
School Year 2015-2016

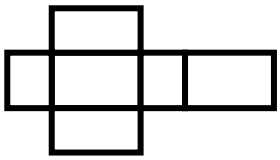
MATHEMATICS 6
FOURTH QUARTER
Activity Sheet No. 1
TYPE OF ACTIVITY: Concept Development

TOPIC : Surface Area
LEARNING OBJECTIVES : Compute for the surface area of solid/space figures.
REFERENCES : Number Smart 6, Riel, Teodora A.
Math for Life 6, Wright, Adelaida C., Villamayor, Adela C.
CONCEPT NOTES :

Surface area is the total area of all the faces of a solid or space figure. That is, get the area of each face of the solid or space figure then get the sum.

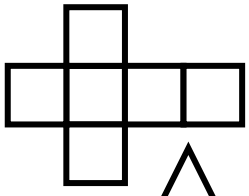
PRISMS

Rectangular Prism – since a rectagular prism has six (6) faces, then the area of each face must be added together to get its surface area.



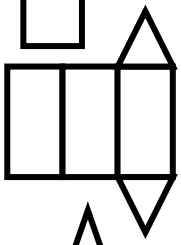
$SA_{rectangular\ prism} = 2lw + 2wh + 2lh$

Cube – a cube has six (6) identical faces, therefore its surface area is six times the area of one face.

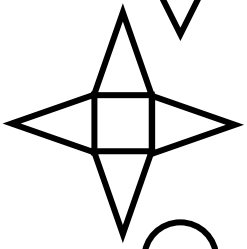


$SA_{cube} = 6A$ or $6s^2$

Triangular Prism – a triangular prism has five (5) faces; 2 triangular bases and 3 lateral faces.

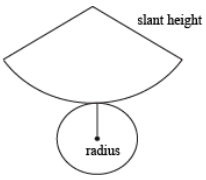


PYRAMID
Square or rectangular pyramid has 5 faces, thus
SA = A1 + A2 + A3 + A4 + A5.



CYLINDER
The surface area of a cylinder is calculated through the formula
$SA_{cylinder} = 2\pi r^2 + 2\pi rh$

CONE
The surface area of a cone is computed by **$SA_{cone} = \pi rs + \pi r^2$**



SPHERE
The surface area of a sphere is computed by **$SA_{sphere} = 4\pi r^2$**

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MATHEMATICS 6
FOURTH QUARTER
Activity Sheet No. 2
TYPE OF ACTIVITY: Concept Development

TOPIC : Metric Measurement
LEARNING OBJECTIVES : Identify appropriate units of measurement to be used for certain objects.
Convert one metric unit to another.
REFERENCE : Number Smart 6, Riel, Teodora A.
Math for Life 6, Wright, Adelaida C., Villamayor, Adela C.
CONCEPT NOTES :

The Metric System

Kilo- **(k)**	**Hecto-** **(h)**	**Deka-** **(da)**	**Unit** meter **(m)** gram **(g)** litre **(L)**	**Deci-** **(d)**	**Centi-** **(c)**	**Milli-** **(m)**

Meter is used in measuring length of objects or distance.
Gram is used in measuring mass of non-liquid substances.
Litre is used in measuring volume of liquid substances.

To convert to a smaller unit, move the decimal point to the right as many places as you reach the desired unit.
Example:
4.32kilometers = ___ decimeters
kilo- hecto- deka- (unit) deci- centi- milli-

decimeter is 4 steps away from the right of kilometer. Therefore, you will move the decimal point 4 places to the right.

4.32kilometers = **43,200** decimeters

To convert to a larger unit, move the decimal point to the left as many places as you reach the desired unit.
Example:
598 centigrams = ___ dekagrams
kilo- hecto- deka- (unit) deci- centi- milli-

dekagram is 3 steps away from the left of centigram. Therefore, you will move the decimal point 3 places to the left.

598 centigrams = **0.598** dekagrams

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MATHEMATICS 6
FOURTH QUARTER
Activity Sheet No. 3

TYPE OF ACTIVITY: Concept Development

TOPIC : Time Measure
LEARNING OBJECTIVES : Convert measures of time from one unit to another.
Compute time measures in years, months and days.
REFERENCE : Number Smart 6, Riel, Teodora A.
Math for Life 6, Wright, Adelaida C., Villamayor, Adela C.
CONCEPT NOTES :

Time is measured using the units second *(sec)*, minute *(min)*, hour *(hr)*, day *(da)*, week *(wk)*, year *(yr)*, decade *(dec)*, century *(c)* and millenium *(mil)*.

These units can be converted and can be expressed in several units. *(Please see Time Conversion)*

Time Conversion

1 minute	= 60 seconds
1 hour	= 60 minutes
1 day	= 24 hours
1 week	= 7 days
1 month	= ~30 days
1 year	= 365.25 days
1 year	= 12 months
1 leap year	= 366 days
1 decade	= 10 years
1 score	= 20 years
1 century	= 100 years
1 millenium	= 1000 years

Time Measure (Years, Months, Days)

To compute for the number of years, months, days that had passed from a given date up to the present or certain date, subtract the numbers starting from the smallest unit.

Example:

Pedro Calungsod was beatified on March 5, 2000 and canonized on October 21, 2012. How many years, months and days were there from his beatification to canonization?

Ocotber 12, 2012 → 2012(year) 10(month) 21(day)

March 5, 2000 → 2000(year) 3(month) 5(day)

12 7 16

Pedro Calungsod's road to canonization from his beatification happened in 12 years, 7 months and 16 days.

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MATHEMATICS 6
FOURTH QUARTER
Activity Sheet No. 4

TYPE OF ACTIVITY: Concept Development

TOPIC : Temperature
LEARNING OBJECTIVES : Convert Fahrenheit to Celsius and vice versa
REFERENCE : Number Smart 6, Riel, Teodora A.
CONCEPT NOTES :

Temperature is the degree or intensity of heat present in a substance or object and is measured using a thermometer. Temperature uses two units, Celsius **(°C)** *(metric system)* and Fahrenheit **(°F)** *(English system)*.

To convert a temperature in °C to °F; use $°\text{F} = °\text{C} \times \frac{9}{5} + 32$

To convert a temperature in °F to °C; use $°\text{C} = (°\text{F} - 32) \times \frac{5}{9}$

Example:

Fahrenheit to Celsius

Convert 45°F to °C

$°\text{C} = (45 - 32) \times \frac{5}{9}$

$°\text{C} = 13 \times \frac{5}{9}$

$°\text{C} = \frac{65}{9} = 7.22$

That means, 45°F = 7.22°C

Celsius to Fahrenheit

Convert 90°C to °F

$°\text{F} = 90 \times \frac{9}{5} + 32$

$°\text{F} = \frac{810}{5} + 32$

$°\text{F} = 162 + 32 = 194$

That means, 90°C = 194°F

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MATHEMATICS 6
FOURTH QUARTER
Activity Sheet No. 7
TYPE OF ACTIVITY: Concept Development

TOPIC : Electric and Water Meter Reading
LEARNING OBJECTIVES : Read electric and water meter precisely.

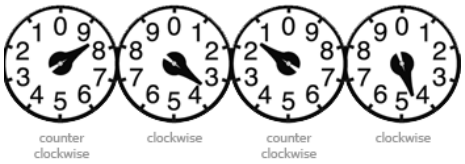
REFERENCE :Math for Life 6, Wright, Adelaida C., Villamayor, Adela C.
How to Read Your Electric Meter http://www.city.medicine-hat.ab.ca

CONCEPT NOTES :

Electric meters have four or five dials. Each dial is labeled with numbers from 0 to 9 and has one hand or pointer (moving in a clockwise or counter clockwise direction) that indicates the current reading of that dial.

Starting from the left, determine the reading of each dial.

- If the dial hand is between two numbers, record the lower number. For example, if the hand is between 5 and 6, this dial is reading 5.
- If the dial hand is pointing directly at a number, look at the dial to right. If the dial on the right has not yet passed 0, record the lower number for the dial in question.
- Read out the numbers from left to right.



The meter reading is 8314

Kilowatt-hour is the unit used for measuring electric energy.

The water meter odometer records water use in cubic meter and displays as follows:

0	**5**	**1**	**3**	**5**	**6**

Read the numbers on the meter from left to right. The units are usually printed on the meter next to the reading, and are usually in m^3

The meter reading is 513.56 m^3.

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MATHEMATICS 6
FOURTH QUARTER
Activity Sheet No. 6

TYPE OF ACTIVITY: Concept Development

TOPIC : Electric and Water Meter Consumption
LEARNING OBJECTIVES : Compute for the amount of electricity and water consumption accurately.
REFERENCE :Math for Life 6, Wright, Adelaida C., Villamayor, Adela C.
CONCEPT NOTES :

To compute for the amount of electricity or water consumed within a period, subtract the previous meter reading from the present meter reading.

Electricity			**Water Consumption**		
Present Reading	:	7982	Present Reading	:	729.90
Previous Reading	:	7603	Previous Reading	:	703.70
Electricity used	**:**	**379 kwh**	**Electricity used**	**:**	**27.20 cubic meters**

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MATHEMATICS 6
FOURTH QUARTER
Activity Sheet No. 8

TYPE OF ACTIVITY: Concept Development

TOPIC : Frequency Table
LEARNING OBJECTIVES : Construct a frequency table precisely from a collection of data.
REFERENCE : Soaring 21st Century Mathematics, Kotah M., et al.

CONCEPT NOTES :

The **frequency** of a particular data is the number of times the data was recorded.

A **frequency table** is constructed by arranging collected data values in ascending order with their corresponding frequencies.

Example:

Students' Age in a Grade 6 Class					
12	11	11	12	13	12
12	12	13	14	12	11
11	12	12	11	10	10
10	11	11	13	14	12

Step 1

Construct a table with three columns. Then in the first column, write down all of the data values in ascending order.

Age	**Tally**	**Frequency**
10	|||	3
11	𝍸 ||	7
12	𝍸 ||||	9
13	|||	3
14	||	2

Step 2:

To complete the second column, go through the list of data values and place one tally mark at the appropriate place in the second column for every data value. When the fifth tally is reached for a mark, draw a horizontal line through the first four tally marks as shown for 11 and 12 in the above frequency table. We continue this process until all data values in the list are tallied.

Step 3:

Count the number of tally marks for each data value and write it in the third column.

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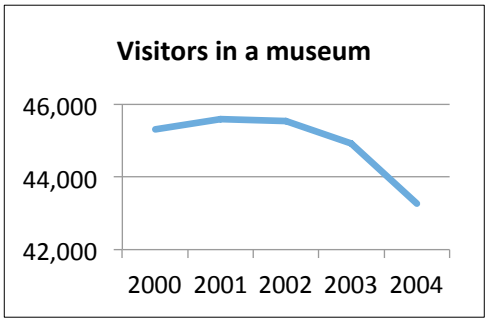
MATHEMATICS 6
FOURTH QUARTER
Activity Sheet No. 9

TYPE OF ACTIVITY: Concept Development/Project Making

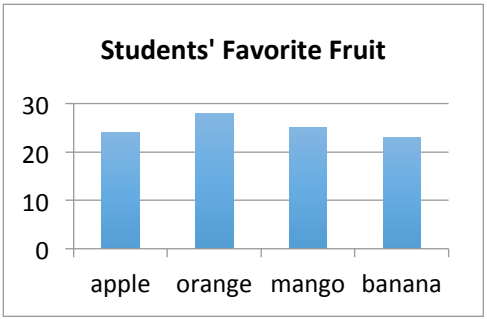
TOPIC : Kinds of Graphs
LEARNING OBJECTIVES : Enumerate the classification of graphs and its use.
Determine which graph is suited to a certain set of data.
Recognize different kinds of graphs used in real life.
REFERENCE : Math for Life 6, Wright, Adelaida C., Villamayor, Adela C.
Soaring 21st Century Mathematics, Kotah M., et al.

CONCEPT NOTES :

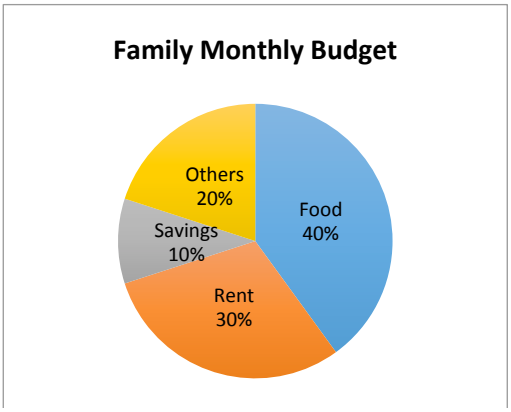
Graphs are used to visually present a certain set of information and show relationships between quantities.



Line graphs are used to show data that changes over time and the over all trend of the data.



Bar graphs are used to show comparison between data.



Circle graph/Pie chart shows how a whole (100%) is divided into parts or components.

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MATHEMATICS 6
FOURTH QUARTER
Activity Sheet No. 10

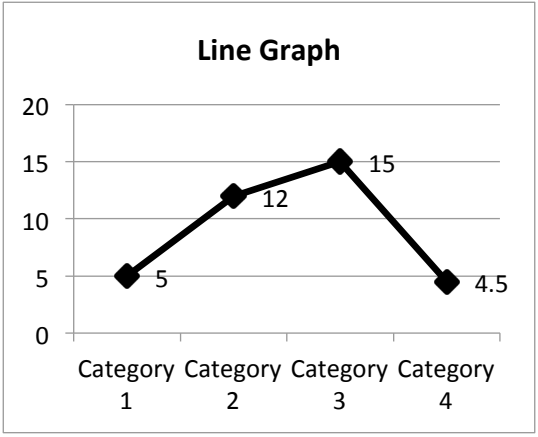
TYPE OF ACTIVITY: Concept Development

TOPIC : Constructing, Reading, Interpreting Graphs
LEARNING OBJECTIVES : Construct a line, bar and circle graph.
Interpret and analyze the data based on a graph.
REFERENCE : Math for Life 6, Wright, Adelaida C., Villamayor, Adela C.
Soaring 21st Century Mathematics, Kotah M., et al.

CONCEPT NOTES :

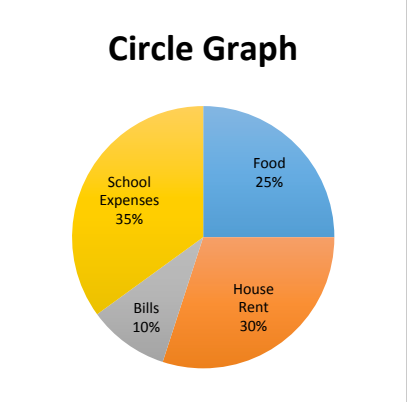
Line graph is constructed by connecting the dots plotted based on the x-axis (vertical line) and y-axis (horizontal line).

Constructing a **bar graph** is similar to a line graph, however instead of using lines, bars are drawn to indicate numerical values of the data.



In a **circle graph**, instead of having a coordinated grid, a circle is to be divided into sectors. Each sector corresponds to a category depending on the set of information.

To determine the angle of each sector, get the percentage of the rate from 360^{O}. Use a protractor to indicate the angle for each sector.



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School Year 2015-2016

MATHEMATICS 6
FOURTH QUARTER
Activity Sheet No. 13

TYPE OF ACTIVITY: Concept Development

TOPIC : Simple Probability
LEARNING OBJECTIVES : Predict an outcome through probability.
Quantify the chances of an event to happen.
REFERENCE : Number Smart 6, Riel, T. A., Torres, H. D.

CONCEPT NOTES :

Probability (P) is the ratio of favorable outcomes to all possible outcomes in an experiment.

$$\text{Probability} = \frac{\text{Number of favorable outcomes}}{\text{Number of possible outcomes}}$$

Example 1: What is the probability of getting an ace card in a regular deck of playing cards?

$$P(\text{ace card}) = \frac{4 \rightarrow \text{total number of ace cards}}{52 \rightarrow \text{total number of cards}}$$

Therefore, the probability of getting an ace card is $\frac{4}{52}$ ***or 0.08***

Example 2: In a box that contains 4 red marbles and 6 green marbles, what is the probability of getting a green marble?

$$P(\text{green}) = \frac{6 \rightarrow \text{total number of green marbles}}{10 \rightarrow \text{total number of marbles}}$$

Therefore, the probability of getting a green marble is $\frac{6}{10}$ ***or 0.6***

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MATHEMATICS 6
FOURTH QUARTER
Activity Sheet No. 14

TYPE OF ACTIVITY: Concept Development

TOPIC : Algebraic Expressions
LEARNING OBJECTIVES : Evaluate algebraic expressions.
Identify the basic terms in Algebra.
REFERENCE : Number Smart 6, Riel, T. A., Torres, H. D.

CONCEPT NOTES :

In Algebra, we use letters of the English alphabet to represent a number with unknown values and are called **variables.**

An algebraic expression is a collection of numbers, variables, operations and grouping symbols.

Examples: 7, x + 9, 5x – 4, x^2 + 1, 5(x + 9) + 4, $\frac{x+4}{5}$

The **term** in an algebraic expression is a numbers, a variable or a product or quotient of numbers and variables raised to a power being added or subtracted.

In 5x + 3y – 7, there are three terms: 5x, 3y and -7
x^2 – 3xy + 4(x + y) has three terms: x^2, –3xy, 4(x + y)

A term is consisted of two coefficients: the **numerical** and **literal coefficient**. In 39x, 39 is the numerical coefficient and x as the literal coefficient (variable). If a term doesn't have a numerical coefficient, that means the numerical coefficient is 1.
A term without a variable is called a **constant.** Thus, the value doesn't change.

Terms are said to be **like terms** if they exactly have the same variable and exponents. Otherwise, they are called unlike terms.

Like terms:	Unlike terms:
4x and 5x	2x and $4x^2$
-10xy and 5xy	-4x and -4y
5(x+y) and 6(x+y)	4(x+y) and 6(x-y)

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MATHEMATICS 6
FOURTH QUARTER
Activity Sheet No. 15

TYPE OF ACTIVITY: Concept Development

TOPIC : Mathematical Phrases
LEARNING OBJECTIVES : Translate mathematical phrases into algebraic expressions and vice versa.
REFERENCE : Number Smart 6, Riel, T. A., Torres, H. D.
CONCEPT NOTES :

A mathematical phrase is a group of words that can be written into a number phrase or algebraic expression.

Mathematical Phrase	**Algebraic Expression**
a number increased by 8	x + 8
m more than n	m + n
x diminished by y	x − y
the difference of a and b	a − b
the product of a and b	ab
thrice a number	3x
the quotient of x and y	x/y
twice the sum of a and b	2(a + b)
half the difference of x and y	(x − y)/2

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MATHEMATICS 6
FOURTH QUARTER
Activity Sheet No. 16

TYPE OF ACTIVITY: Concept Development

TOPIC : Simplifying Algebraic Expressions
LEARNING OBJECTIVES : Recall basic concepts of algebra.
Simplify and evaluate algebraic expressions.
REFERENCE : Number Smart 6, Riel, T. A., Torres, H. D.
CONCEPT NOTES :

To simplify algebraic expressions, we may perform the following procedures:

1. Combine like terms

a. $8x + 7x = 15x$
b. $y + 4y + 9y = 14y$
c. $3x^2 - x^2 + 5x^2 = 7x^2$ (If an expression contains more than one operation, use the rules for order of operation)
d. $5x + 4y - 2x = 3x + 4y$

2. Distributive property

a. $32y + 5(2 - 4y)$
$32y + (5 \times 2) + (5 \times -4y)$
$32y + 10 - 20y =$ **$12y + 10$**

b. $-(5 + 2x) + x$
$-1(5) + -1(2x) + x$
$-5x - 2x + x =$ **$4x$**