MATATAG

Bansang Makabata | Batang Makabansa | BAGONG PILIPINAS
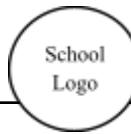
School Logo

Name of School:		Quarter:	4th Quarter
Grade Level & Section:	Grade 7	Week:	Week 8 Day 1
Subject:	TLE	Date and Time:	
Topic:		Teacher:	

I. CONTENT, STANDARDS AND LEARNING COMPETENCIES		ANNOTATIONS
A. CONTENT STANDARDS	Demonstrate an understanding of the concepts and principles in performing mensuration and calculation.	
B. PERFORMANCE STANDARDS	The learners perform mensuration and calculations following safety precautions.	
C. LEARNING COMPETENCIES	Learning Competency: Demonstrate mensuration and calculations following safety precautions.	
D. LEARNING OBJECTIVES	Lesson Objectives: 1. Familiarize the different systems of measurement. 2. Convert decimal numbers to fractions/ fractions to decimals. 3. Convert Metric System measurements. 4. Convert English System measurements. 5. Convert Metric System measurements to English System and vice versa. 6. Solve circuit problems using Ohm's Law and Power Law.	

I. CONTENT

• Mensuration and Calculation
• Systems of Measurement
• Conversions of Fraction to Decimal and Decimal to Fraction

	• Conversion of System Measurement • Ohm's Law • Power Law

II.   LEARNING RESOURCES

A. REFERENCES	
B. OTHER LEARNING RESOURCES	Definition of fraction. (2024, February 19). Merriam-Webster: America's Most Trusted Dictionary. https://www.merriam-webster.com/dictionary/fraction Electric power. (2019, March 21). BYJUS. https://byjus.com/physics/electric-power/ Math skills - Dimensional analysis. (n.d.). Department of Chemistry | Texas A&M University. https://www.chem.tamu.edu/class/fyp/mathrev/mr-da.html Measurement | Definition, types, instruments, & facts. (1998, July 20). Encyclopedia Britannica. https://www.britannica.com/technology/measurement System of measurement. (n.d.). Cuemath. https://www.cuemath.com/measurement/system-of-measurement/

III.   TEACHING AND LEARNING PROCEDURE

BEFORE/PRE-LESSON PROPER

ACTIVATING PRIOR KNOWLEDGE	**Short Review** Identify the following measuring tools and state their function. 	The teacher may also employ comparing and contrasting.

https://www.istockphoto.com/photo/electronic-circuit-testing-gm485815316-73621921

| LESSON PURPOSE/INTENTION | Lesson Purpose

Units of measurement \| Why measurements matter? \| The Dr Binocs show \| Peekaboo Kidz. (2022, August 16). YouTube. https://youtu.be/AVC-426M6V0?si=Rxhfc6sHAWB68uyB | The teacher could play the video about the importance of measurement and ask the students their personal life situations that involve measurement. |

LESSON LANGUAGE PRACTICE	Unlocking Content Vocabulary	The teacher may add other words that would help unlock unfamiliar words.
	1. Measurement is the process of associating numbers with physical quantities and phenomena. It is fundamental to the sciences; to engineering construction, and other technical fields; and to almost all everyday activities.	

Unlocking Content Vocabulary

1. Measurement is the process of associating numbers with physical quantities and phenomena. It is fundamental to the sciences; to engineering construction, and other technical fields; and to almost all everyday activities.

2. Circuit path for transmitting electric current. An electric circuit includes a device that gives energy to the charged particles constituting the current, such as a battery or a generator; devices that use current, such as lamps, electric motors, or computers; and the connecting wires or transmission lines.

3. Current is the rate at which electric charge flows through a surface or a circuit. Current is measured in Amperes.

4. Voltage is the pressure from an electric source that pushes the electrons to flow. Voltage is measured in Volts.

5. Resistance is the opposition to the flow of current in an electrical circuit. The unit of measurement of resistance is Ohms (Ω).

6. Power is the rate at which electrical energy is transferred or transformed by an electric circuit. It is a measure of how much work is done or energy is used in a span of time. Power is measured in Watts.

Conversion Of Fraction and Decimal

1. **Fraction** – A number that represents a part of a whole, written in the form **a/b**, where **a** is the numerator and **b** is the denominator.
   o Example: **3/4, 1/2, 5/8**
2. **Decimal** – A way of representing fractions or parts of a whole using a decimal point.
   o Example: **0.75, 0.5, 0.625**
3. **Numerator** – The top number in a fraction that represents the part being considered.
   o Example: In **3/5**, the numerator is **3**.
4. **Denominator** – The bottom number in a fraction that represents the total number of equal parts.
   o Example: In **3/5**, the denominator is **5**.
5. **Terminating Decimal** – A decimal that has a definite number of digits and does not go on forever.
   o Example: **0.25, 0.5, 0.75**

The teacher may add other words that would help unlock unfamiliar words.

6. **Repeating Decimal** – A decimal in which a digit or group of digits repeats endlessly.
   - Example: **0.333...** (which is **1/3**) or **0.666...** (which is **2/3**)
7. **Long Division** – A mathematical method used to divide numbers, often used to convert fractions into decimals.
8. **Simplest Form** – A fraction is in its simplest form when the numerator and denominator have no common factors other than 1.
   - Example: **4/8** simplified is **1/2**.
9. **Equivalent Fraction** – A fraction that has the same value as another fraction but is written differently.
   - Example: **1/2** is equivalent to **2/4** and **3/6**.
10. **Mixed Number** – A number that includes both a whole number and a fraction.

- Example: **2 1/2** (which is equivalent to **2.5**)

11. **Improper Fraction** – A fraction where the numerator is greater than or equal to the denominator.

- Example: **5/3**, **7/4**

12. **Percent (%)** – A ratio expressed as a fraction of 100, often related to decimals and fractions.

- Example: **50% = 0.5 = 1/2**

13. **Ratio** – A comparison of two numbers, which can be written as a fraction, decimal, or percentage.

- Example: **3:4**, **3/4**, **0.75**

14. **Place Value** – The numerical value that a digit has based on its position in a number.

- Example: In **0.75**, 7 is in the tenths place, and 5 is in the hundredths place.

15. **Rounding** – The process of adjusting a decimal to a specific place value for simplicity.

	● Example: **0.678** rounded to two decimal places is **0.68**.

|	

READING THE KEY IDEA/STEM	**I. Introduction to Systems of Measurement**
	
	Measurement is an essential part of daily life. It allows us to quantify physical quantities such as length, mass, volume, and time. Different cultures and scientific fields have developed systems of measurement to ensure consistency and accuracy in various applications, including construction, science, engineering, and everyday activities.
	
	II. Two Main Systems of Measurement
	
	There are two primary systems of measurement used worldwide:
	
	1. **Metric System (International System of Units or SI)**
	   o The metric system is based on units of ten, making it easy to convert between units.
	   o It is widely used in science, engineering, and most countries worldwide.
	   o Examples of metric units:
	      ▪ **Length:** meter (m), centimeter (cm), kilometer (km)
	      ▪ **Mass:** gram (g), kilogram (kg)
	      ▪ **Volume:** liter (L), milliliter (mL)
	      ▪ **Temperature:** degrees Celsius (°C)
	      ▪ **Time:** seconds (s)
	2. **Imperial System (US Customary System)**
	   o This system is primarily used in the United States, Liberia, and Myanmar.
	   o It includes units that do not follow a base-10 system, making conversions more complex.
	   o Examples of imperial units:
	      ▪ **Length:** inch (in), foot (ft), yard (yd), mile (mi)
	      ▪ **Mass:** ounce (oz), pound (lb), ton
	      ▪ **Volume:** fluid ounce (fl oz), cup, pint, gallon
	      ▪ **Temperature:** degrees Fahrenheit (°F)	

III. Importance of Using the Right Measurement System

- **Standardization:** Ensures consistency in trade, science, and technology.
- **Accuracy:** Avoids errors in calculations, construction, medicine, and other fields.
- **Global Communication:** The metric system is widely used, making international collaboration easier.

IV. Converting Between Systems

Since different countries and fields use different measurement systems, it is essential to know how to convert between units. Some common conversions include:

- 1 inch = 2.54 cm
- 1 foot = 0.3048 m
- 1 mile = 1.609 km
- 1 pound = 0.4536 kg
- 1 liter = 0.2642 gallons

V. Real-Life Applications

- **Science and Medicine:** Scientists and medical professionals use the metric system for precise measurements.
- **Engineering and Construction:** Accurate measurements are crucial in designing buildings and structures.
- **Cooking and Baking:** Recipes often require conversions between metric and imperial units.
- **Travel and Trade:** Countries using different systems need accurate conversions for international transactions.

Measurement systems are a collection of units of measurement and rules relating them to each other. The word "measurement" is derived from the Greek word "metron," which means a limited proportion. It is used to associate physical quantities and phenomena.

Worked Example

The Metric system is a decimal-based system of measurement. The current international standard for the metric system is the

The teacher will discuss the two systems of measurement and their linear units of measurement and abbreviations.

The teacher let the students bring

International System of Units (Système international d'unités or SI), in which all units can be expressed in terms of seven base units: the meter, kilogram, second, ampere, kelvin, mole, and

UNITS OF LINEAR MEASUREMENTS

Symbol	Unit
mm	Millimeter
cm	Centimeter
dm	Decimeter
m	Meter
dam	Decameter
hm	Hectometer
km	Kilometer

candela.

their own ruler to personally identify the different linear measurements.
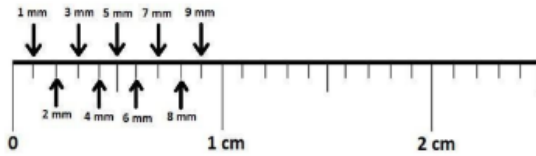
The English system of measurement is used in medieval England which evolved from the Anglo-Saxon and Roman systems. The basic units for length or distance measurements in the English system are the inch, foot, yard, and mile.

Symbol	Unit
in	Inch
ft	Foot
yd	Yard
mi	Mile

In English system, the inch is divided into 16 graduations and the smallest graduation is read as 1/16 inch.
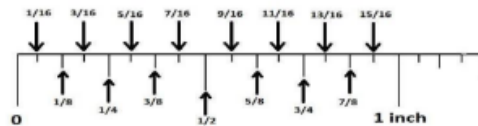
Lesson 2: Conversion of Fractions and Decimals

Fraction is a numerical representation that indicates the quotient of two numbers. It represents a part of a whole or, more generally, any number of equal parts. A fraction has two parts:

a. Numerator: It is the top part of the fraction, that represents the sections of the fraction.

b. Denominator: It is the bottom part that represents the total parts in which the fraction is divided.

Decimal is a type of of number that consists of a whole number and a fractional part separated by a decimal point.

Fractions and decimals are two different ways of representing parts of a whole. Understanding how to convert between them

is essential in mathematics and real-life applications such as measurement, finance, and science.

What is a Fraction?

A **fraction** is a way of expressing a part of a whole. It consists of two numbers:

- **Numerator** (the top number) → represents the number of parts being considered.
- **Denominator** (the bottom number) → represents the total number of equal parts in the whole.

📌 Example:

- **1/2** means "one out of two parts."
- **3/4** means "three out of four parts."

B. What is a Decimal?

A **decimal** is another way of writing a fraction, but instead of a numerator and denominator, it uses a **decimal point**.

- **Terminating decimal** → A decimal that stops after a few digits (e.g., **0.75, 0.5, 0.125**).
- **Repeating decimal** → A decimal that continues infinitely with a repeating pattern (e.g., **0.333..., 0.666...**).

📌 Example:

- **1/2 = 0.5**
- **3/4 = 0.75**
- **1/3 = 0.333...** (repeating)

How to Convert Fractions to Decimals
To convert a fraction to a decimal, you can use **division**:

$$\text{Fraction} = \text{Numerator} \div \text{Denominator}$$

Converting Fractions to Decimals Using Long Division

Steps:

1. Divide the numerator by the denominator.
2. If the division ends, the decimal is **terminating**.

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3. If the decimal repeats, use a bar (‾) over the repeating digits.

📌 **Example 1: Convert 3/4 to a decimal**
3÷4=0.753 ÷ 4 = 0.753÷4=0.75 ✅ (terminating decimal)

📌 **Example 2: Convert 2/3 to a decimal**
2÷3=0.666...2 ÷ 3 = 0.666...2÷3=0.666... ✅ (repeating decimal, written as **0.6‾**)

Special Cases of Fraction to Decimal Conversion

- **Fractions with denominators of 10, 100, 1000** can be easily converted by placing the numerator accordingly.
  - 3/10 = 0.3
  - 25/100 = 0.25
  - 125/1000 = 0.125

How to Convert Decimals to Fractions
To convert a decimal into a fraction:

Converting Terminating Decimals to Fractions

Steps:

1. Identify the place value of the last decimal digit.
2. Write the decimal as a fraction with the denominator being a power of 10.
3. Simplify the fraction if possible.

📌 **Example 1: Convert 0.75 to a fraction**

- 0.75 = 75/100
- Simplify: **75 ÷ 25 / 100 ÷ 25 = 3/4** ✅

📌 **Example 2: Convert 0.5 to a fraction**

- 0.5 = 5/10
- Simplify: **5 ÷ 5 / 10 ÷ 5 = 1/2** ✅

B. Converting Repeating Decimals to Fractions

For repeating decimals, we use algebra:

📌 **Example: Convert 0.666... to a fraction**

1. Let **x = 0.666...**

2. Multiply by 10: **10x = 6.666...**
3. Subtract: **(10x - x) = (6.666... - 0.666...)**
   - 9x = 6
   - x = 6/9 → Simplify to 2/3 ✅

Why is Converting Fractions and Decimals Important?
- Used in money and measurements (e.g., $0.50 = 1/2 dollar).
- Helps in understanding percentages and ratios.
- Essential in engineering, physics, and data analysis.

Worked Example
Changing Fractions to Decimals
Any rational number can be changed from fraction to decimal. This is done by simply dividing the numerator by the denominator.
Example:

Changing Decimal to Fraction

A decimal is changed to fraction by using 10 or any power of 10 as denominator of the given decimal. Then reduce to lowest term if possible.
Examples:

| DEVELOPING and DEEPENING | Let the students accomplish Worksheet No. 1 | |

UNDERSTANDING OF THE KEY IDEA/STEM	**Directions:** Color the balloons with Metric System units YELLOW and ORANGE for English System units.	
	LEARNING ACTIVITY SHEET	

Learning Area:	TLE 7	Quarter:	4
Lesson No.:	8	Date:	
Lesson Title/ Topic:	System of Measurement		
Name:		Grade & Section:	

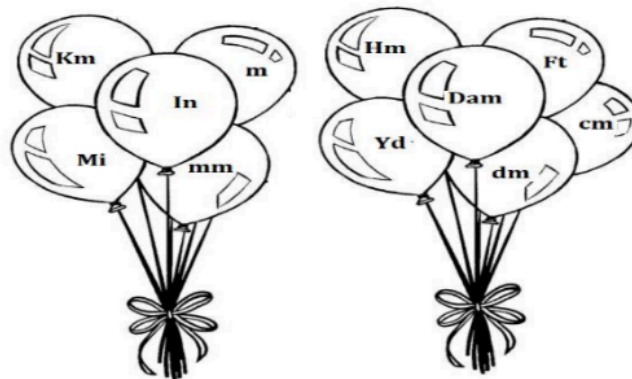I. **Activity No.1: Color It (1 Day)**
II. **Objective(s):**
　　1. Classify units according to the System of Measurement.

III. **Materials Needed:**
　　1. coloring materials
IV. **Instructions:**
　　Color the balloons with Metric System units YELLOW and ORANGE for English System units.

Source: www.gettyimages.com/detail/illustration/bunch-of-balloons-drawing-royalty-free-illustration/1367144445

V. **Synthesis/Extended Practice/Differentiation:**
　　▪ List down 10 life situations that measurement are applied.

Directions: Write down how many parts of the following pizza is left unconsumed in fraction and in decimal.

LEARNING ACTIVITY SHEET

Learning Area:	TLE 7	Quarter:	4
Lesson No.:	8	Date:	
Lesson Title/ Topic:	Fraction and Decimal Conversion		
Name:		Grade & Section:	

MAKING GENERALIZATIONS AND ABSTRACTIONS	Worksheet Synthesis/Extended What you have learned In a one sheet of paper write something you understand about the lesson we discussed today.	
EVALUATING LEARNING	Directions: Read each question carefully and choose the correct answer. Write the letter of the correct answer. 1. Which of the following is NOT a unit in the metric system? a) Meter (m) b) Inch (in) c) Gram (g) d) Liter (L) 2. How many centimeters are in 1 meter? a) 10 cm b) 100 cm c) 1,000 cm d) 10,000 cm 3. Which metric unit is used to measure mass? a) Meter b) Gram c) Liter d) Yard 4. What is the equivalent of 1 foot in inches? a) 10 inches b) 12 inches c) 24 inches d) 36 inches 5. If a container holds 3.785 liters of water, what is its approximate equivalent in gallons? a) 1 gallon b) 2 gallons c) 3 gallons d) 4 gallons	ANSWER 1.B 2.B 3.B 4.B 5.A 6.B 7.C 8.A 9.A 10.B 11.C 12.A 13.A 14.B 15.C

6. How many kilometers are in 1 mile?
a) 0.5 km
b) 1.609 km
c) 2.5 km
d) 3.14 km

7. What is the approximate equivalent of 1 kilogram in pounds?
a) 0.45 lbs
b) 1.5 lbs
c) 2.2 lbs
d) 3.0 lbs

8. Convert 25 inches to centimeters. (1 inch = 2.54 cm)
a) 50.8 cm
b) 63.5 cm
c) 71.2 cm
d) 75.5 cm

9. What is the equivalent of 5 quarts in liters? (1 quart ≈ 0.946 L)
a) 4.73 L
b) 5.5 L
c) 6.2 L
d) 7.8 L

10. A race is 10 kilometers long. About how many miles is this race? (1 mile ≈ 1.609 km)
a) 3.5 miles
b) 6.2 miles
c) 7.8 miles
d) 10.5 miles

11. Convert ¾ to a decimal.
a) 0.25
b) 0.50
c) 0.75
d) 1.25

12. Which of the following fractions is equal to 0.2?
a) 1/5
b) 1/4
c) 2/3
d) 3/8

13. Convert 0.875 to a fraction in simplest form.
a) 7/8

	b) 3/5 c) 5/6 d) 4/7 14. Convert 2 ½ to a decimal. a) 2.25 b) 2.50 c) 2.75 d) 3.25 15. Which decimal is equivalent to 5/8? a) 0.4 b) 0.5 c) 0.625 d) 0.75	
ADDITIONAL ACTIVITIES FOR APPLICATION OR REMEDIATION (IF APPLICABLE)		
REMARKS		
REFLECTION		

Prepared by: **Reviewed by:**

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Subject Teacher   *Master Teacher/Head*
Teacher