MATATAG K to 10 Curriculum Weekly Lesson Log	School:	DepEdClub.com	Grade Level:	7
	Name of Teacher		Learning Area:	MATHEMATICS
	Teaching Dates and Time:	OCTOBER 14 - 18, 2024 (WEEK 3)	Quarter:	Second

I. CURRICULUM CONTENT, STANDARDS, AND LESSON COMPETENCIES	
A. Content Standards	The learners should have knowledge and understanding of conversion of units of measure.
B. Performance Standards	By the end of the quarter, the learners are able to convert units of measure from different systems of measure. (MG)
C. Learning Competencies and Objectives	***The learners convert units of measure within International System of Units (SI) and across different systems of measure.*** 1. The learners convert units of measurement within the metric system and across other systems of measure. 2. The learners solve word problems involving the conversion of units.
D. Content	Conversion of Units

E. Integration	

II. LEARNING RESOURCES
Learning Resource Portal. (2022, July 5). Self-Learning Module- Quarter 2-Mathematics: Grade 7, Module 1: Approximating Measurement. https://lrmds.deped.gov.ph/detail/21723 Learning Resource Portal. (2022, July 5). Self-Learning Module- Quarter 2-Mathematics: Grade 7, Module 2: Solving Problems Involving Conversion of Units. https://lrmds.deped.gov.ph/detail/21723

III. TEACHING AND LEARNING PROCEDURE		**NOTES TO TEACHERS**
A. Activating Prior Knowledge	**DAY 1** **1. Short Review MKW Chart** Begin by discussing the role of measurement in everyday life and how it helps us understand and quantify the world around us. Explain that students will fill out an MKW chart to reflect on their experiences with measurement.	**(10 minutes)** The MKW Chart activity is an effective way to activate prior knowledge by encouraging students to reflect on their experiences with measurement, express what they already know, and identify areas they are
	Instruct students to: a. In the "What I Measure" column, list objects, quantities, or situations in their daily lives that require measurement. Encourage them to think about different aspects, such as length, weight, volume, time, etc. b. In the "What I Know About Measurement" column, write down what they already know about measurement concepts, units, or tools. c. In the "What I Want to Learn About Measurement" column, identify any specific questions or topics related to measurement that they are curious about or would like to explore. **2. Feedback (Optional)** Conclude the activity by discussing the importance of measurement in various contexts and how understanding measurement concepts can help them in their daily lives and future studies.	curious about. It sets the stage for your measurement lesson and ensures that you address their questions and interests. If you wish to not give the MKW Chart activity, you can just discuss the importance of measurement in various contexts and how understanding measurement concepts can help them in their daily lives and future studies. (This will reduce the time allotted to 5 minutes)

B. Establishing Lesson Purpose	**1. Lesson Purpose** **Measurement Situation Analysis** Ask students to recall experiences where they needed to measure or convert units to solve a problem or make a decision. Explain that students will participate in a Measurement Situation Analysis, where they'll analyze real-life scenarios that involve measurements. Provide each student with a handout containing different measurement situations. You can create these scenarios or use the following examples: ● A recipe that calls for ingredients in both cups and grams. ● A road trip where you need to convert miles to kilometers for better planning. A home improvement project where you must measure areas in square meters and square feet. ● A classroom experiment that requires converting temperature from Celsius to Fahrenheit. Instruct students to: a. Choose one scenario from the handout. b. Analyze the situation and identify the measurement concepts involved. c. Describe how measurement and unit conversion would be essential to solving the problem or making an informed decision in that scenario.	**(10 minutes)** You can provide scenarios that are more meaningful or more contextualized based on students' backgrounds and cultures or communities. Have some students share their analyses with the class. Encourage them to discuss the importance of measurement and unit conversions in their selected scenarios.

	State the lesson purpose: "Today and in the succeeding days, we will learn how to convert units of measurement within the metric system and across other systems. This will help us solve real-life problems and make informed decisions. **2. Unlocking Content Area Vocabulary** ● **Metric system** is a system used for measurement based on common units such as meters, grams, and liters. ● **English system** is a system used for measurement using common units such as inch, foot, yard, and mile.	Conclude the activity by asking students to reflect on the importance of understanding measurement concepts and unit conversions. Have them consider how this knowledge can be applied to solve real-life problems and make informed decisions.

C. Developing and Deepening Understanding	**SUB-TOPIC 1: Metric System to Metric System Conversion** **1. Explicitation** Explain the concept of the metric system and its common units (e.g., meters, grams, liters). Show students how to convert between metric units using multiplication or division by powers of 10. Unit fractions may be used to convert from one unit to another. Another method is by moving the decimal point. Since all units in the metric system are powers of 10, converting from one unit to another is as simple as moving the decimal point. To change from a smaller unit to a larger unit (for example, from meters to kilometers), move the decimal point in the original quantity one place to the left of each larger unit of measurement until you obtain the desired unit of measurement. To change from a larger unit to a smaller unit (for example, from kilometers to meters), move the decimal point in the original quantity one place to the right for each smaller unit of measurement until you obtain the desired unit of measurement. **2. Worked Example** *For Units of Length* Convert 2.3 m to centimeters. Solution: a. conversion using a unit fraction $$2.3\ \text{m} = \frac{2.3\ \cancel{\text{m}}}{1} \cdot \overbrace{\frac{100\ \text{cm}}{1\ \cancel{\text{m}}}}^{\text{Unit fraction}} = 230\ \text{cm}$$	**(30 minutes)** Remind students that they can choose one method that they think is easier to use when converting units within the metric system.

	b. conversion by moving the decimal point km hm dam m dm cm mm 2 units to the right 2.30 m = 230. cm 2 places to the right *For Units of Mass/Weight* Convert 3.2 kg to grams. Solution: a. conversion using a unit fraction $3.2\ \text{kg} = 3.2\ \text{kg} \cdot 1 = 3.2\ \cancel{\text{kg}} \cdot \overbrace{\frac{1000\ \text{g}}{1\ \cancel{\text{kg}}}}^{\text{Unit fraction}} = 3200\ \text{g}$ b. conversion by moving the decimal point kg hg dag g dg cg mg 3 units to the right 3.200 kg = 3200. g 3 places to the right *For units of Capacity/Volume* Convert 0.185 dl to milliliters Solution: a. conversion using a unit fraction $0.185\ dl = 0.185 \cdot 1 = 0.185\ dl \cdot \frac{100\ ml}{1\ dl} = 18.5\ ml$ b. conversion by moving the decimal point	Add more illustrative examples if needed. You can get examples from the suggested learning resources.

	kl hl dal L dl cl ml 2 units to the right 0.185 dl = 18.5 ml 2 places to the right	

	DAY 2 **3. Lesson Activity** **Activity 1: Metric Conversion Practice** Distribute the Metric Conversion Practice worksheet to each student. Explain the activity: Students are required to solve the conversion problems on the worksheet by applying their knowledge of metric units and conversions. Review the worksheet problems with the class. Ask students to share their solutions and work through any problems that caused confusion. Conclude the activity by discussing the importance of unit conversion skills, both within the metric system and in real-life situations. Highlight the practicality of these skills in various contexts, such as science, engineering, and everyday measurement. The "Metric Conversion Practice Worksheet" activity provides students with hands-on practice in applying their understanding of metric-to-metric conversions. It allows them to work through conversion problems and deepen their knowledge of metric units and prefixes. This activity is particularly effective in reinforcing the concept through practical exercises. **SUB-TOPIC 2: English System Conversion** **1. Explicitation** The English System or U.S. system of measurement uses the inch, foot, yard, and mile to measure length. The following is a summary of equivalencies between units of length: **U.S. Units of Length** 12 inches (in.) = 1 foot (ft) 3 feet = 1 yard (yd) 36 inches = 1 yard 5280 feet = 1 mile (mi) To convert from one unit to another, use unit fractions. Examples of unit fractions: **Unit Fractions** $\frac{12\text{ in.}}{1\text{ ft}} = 1$ or $\frac{1\text{ ft}}{12\text{ in.}} = 1$ (since 12 in. = 1 ft) $\frac{3\text{ ft}}{1\text{ yd}} = 1$ or $\frac{1\text{ yd}}{3\text{ ft}} = 1$ (since 3 ft = 1 yd) $\frac{5280\text{ ft}}{1\text{ mi}} = 1$ or $\frac{1\text{ mi}}{5280\text{ ft}} = 1$ (since 5280 ft = 1 mi)	Begin Day 2 with recalling of concepts covered in the previous day. **(20 minutes)** Allow students to work independently or collaboratively in pairs to solve the problems on their worksheets. Length: a. 550 cm b. 420 mm c. 28,000 mm Mass: a. 3,500 g b. 2,250,000 mg c. 0.06 kg Volume: a. 1,500 mL b. 0.75 L c. 30 L Circulate the classroom to offer assistance and guidance as needed. Encourage students to think critically and check their solutions. **(15 minutes)**

2. Worked Example

Convert 8 feet to inches.

Solution: Multiply 8 by a unit fraction that uses the equality 12 inches = 1 foot. The unit fraction should be in the form:

$$\frac{\textit{units to convert to}}{\textit{original unit}} \qquad \frac{12\ \textit{inches}}{1\ \textit{foot}}$$

$$\begin{aligned} 8\text{ ft} &= \frac{8\text{ ft}}{1} \cdot 1 \\ &= \frac{8\ \cancel{\text{ft}}}{1} \cdot \frac{12\text{ in.}}{1\ \cancel{\text{ft}}} && \text{Multiply by 1 in the form of } \frac{12\text{ in.}}{1\text{ ft}}. \\ &= 8 \cdot 12\text{ in.} \\ &= 96\text{ in.} && \text{Multiply.} \end{aligned}$$

Here are other equivalences within the English system:

U.S. Units of Weight

16 ounces (oz) = 1 pound (lb)

2000 pounds = 1 ton

Unit Fractions

$$\frac{16\text{ oz}}{1\text{ lb}} = \frac{1\text{ lb}}{16\text{ oz}} = 1$$

$$\frac{2000\text{ lb}}{1\text{ ton}} = \frac{1\text{ ton}}{2000\text{ lb}} = 1$$

U.S. Units of Capacity

8 fluid ounces (fl oz) = 1 cup (c)
2 cups = 1 pint (pt)
2 pints = 1 quart (qt)
4 quarts = 1 gallon (gal)

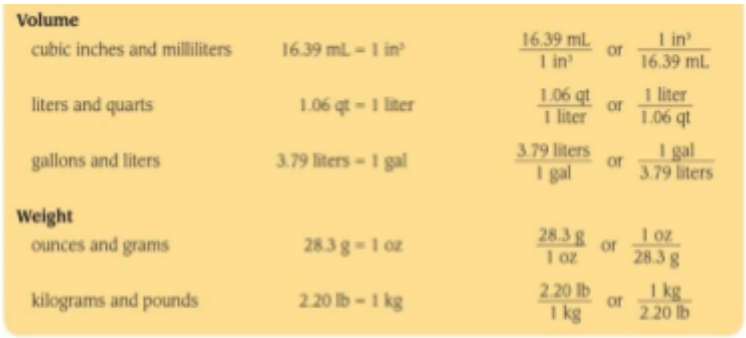
In making conversions between the English system and the metric system, the following unit fractions are used. These unit fractions are approximations.

You can add more examples if needed. You can find more examples from the suggested learning resource.

TABLE 1

ACTUAL CONVERSION FACTORS BETWEEN THE METRIC AND U.S. SYSTEMS OF MEASUREMENT

The Relationship Between	Is	To Convert From One To The Other, Multiply By
Length		
inches and centimeters	2.54 cm = 1 in.	$\frac{2.54\text{ cm}}{1\text{ in.}}$ or $\frac{1\text{ in.}}{2.54\text{ cm}}$
feet and meters	1 m = 3.28 ft	$\frac{3.28\text{ ft}}{1\text{ m}}$ or $\frac{1\text{ m}}{3.28\text{ ft}}$
miles and kilometers	1.61 km = 1 mi	$\frac{1.61\text{ km}}{1\text{ mi}}$ or $\frac{1\text{ mi}}{1.61\text{ km}}$



Volume		
cubic inches and milliliters	16.39 mL = 1 in³	$\frac{16.39\text{ mL}}{1\text{ in}^3}$ or $\frac{1\text{ in}^3}{16.39\text{ mL}}$
liters and quarts	1.06 qt = 1 liter	$\frac{1.06\text{ qt}}{1\text{ liter}}$ or $\frac{1\text{ liter}}{1.06\text{ qt}}$
gallons and liters	3.79 liters = 1 gal	$\frac{3.79\text{ liters}}{1\text{ gal}}$ or $\frac{1\text{ gal}}{3.79\text{ liters}}$
Weight		
ounces and grams	28.3 g = 1 oz	$\frac{28.3\text{ g}}{1\text{ oz}}$ or $\frac{1\text{ oz}}{28.3\text{ g}}$
kilograms and pounds	2.20 lb = 1 kg	$\frac{2.20\text{ lb}}{1\text{ kg}}$ or $\frac{1\text{ kg}}{2.20\text{ lb}}$

For example:
Convert 5 inches to centimeters. Solution:

$$5\text{ in.} = (5\text{ in.})\left(\frac{2.54\text{ cm}}{1\text{ in.}}\right)$$
$$= 5(2.54)\text{ cm}$$
$$= 12.7\text{ cm}$$

Add more illustrative examples if needed. Please refer to the suggested learning resources to get more illustrative examples.

3. Lesson Activity

Activity 2: Unit Conversion Relay

Prepare a set of index cards or small pieces of paper. Write measurements on them in either the English system or the metric system. Include units of length (inches, feet, centimeters, meters), weight (ounces, pounds, grams, kilograms), and volume (fluid ounces, cups, milliliters, liters). Make sure to mix both systems on the cards.

Explain the rules: Each team will take turns racing to the halfway point, where they will pick a card, read the measurement and unit on the card, and then convert it to the specified system. For example, if the card reads "12 inches convert to centimeters," the student must convert it to centimeters ("30.48 cm"). They then write the converted value on the back of the card and return it to their team.

The next team member in line will take the card, check the conversion, and run to the halfway point to pick up a new card. Continue this relay until all cards have been correctly converted. Each team must work together to ensure the conversions are accurate. Time the relay race to see which team completes the conversions the fastest.

Here are the 10 measurements:

a. 12 inches to centimeters
b. 2 feet to meters
c. 500 grams to ounces
f. 250 milliliters to fluid ounces
g. 5 liters to gallon
h. 30 centimeters to inches

(15 minutes)

Divide the class into teams of 3- 4 students each. Set up a relay race course in your classroom or outdoors, designating a start and finish line.

Position a table or chair at the halfway point of the course, where each team will find a stack of index cards.

A variation to the rule is that the game will end after 5 minutes.
The team with the most number of correct answers will be the winner.

Answer Key:

a. 30.48 cm
b. 0.6096 m
c. 17.64 ounces

	d. 3 pounds to kilograms e. 24 ounces to pounds i. 1.5 cups to liters j. 10 fluid ounces to milliliters After the relay race, gather the students for a discussion. Review the conversions and discuss any challenges they encountered. Ask students to share strategies for converting between the two systems. Emphasize the importance of understanding and using both systems in various contexts. **DAY 3** **SUB-TOPIC 3: Solving Word Problems Involving Conversion of Units** **1. Explicitation** Welcome to today's lesson on solving problems involving unit conversion! In this lesson, we'll dive into the fascinating world of converting units, a skill that is not only essential for mathematics but is also a powerful tool in our daily lives. Unit conversion is the art of translating measurements from one system to another, making it possible for us to understand and communicate measurements globally. Whether you're in the Philippines using the metric system or exploring international recipes, road trips, scientific experiments, or more, unit conversion empowers you to navigate a world with diverse measurement systems. By the end of this lesson, you'll have the knowledge and confidence to tackle word problems that require converting measurements, bringing us closer to real- world applications and a deeper appreciation for the beauty of mathematics. **2. Worked Example** **Illustrative Example 1.** Scenario: You're discussing travel plans for a family vacation. You want to calculate the distance in both kilometers (used in the metric system) and miles (commonly used in the English system) to plan your road trips. You will demonstrate: Convert a distance from kilometers to miles. Steps: 1. Write "300 kilometers" on the board or presentation slide. 2. Explain that distances on road signs and maps in the Philippines are often given in kilometers (km), but when you're planning a road trip, you might find travel guides or GPS devices using miles (mi).	d. 1.36 kg e. 1.5 pounds f. 8.45 fluid ounces g. 1.32 gallons h. 11.81 in i. 0.35 liters j. 295.74 mL **(20 minutes)** Teacher-Led Demonstration: present a practical example that involves a unit conversion relevant to the Philippines. For instance, discuss a scenario where you need to convert a distance from meters (m) to feet (ft) or vice versa, or a volume from liters (L) to gallons (gal) or vice versa. Use a ruler or measuring tape for a visual demonstration. **(20 minutes)** Feel free to create your scenario or problem if you think the examples are inappropriate for your local context. Provide each group with a worksheet containing word problems. Ensure that the scenarios are relevant to the Philippines and involve practical situations.

	3. Discuss the conversion factor: 1 kilometer is equal to approximately 0.621371 miles (or simply 1 km ≈ 0.621 mi). 4. Perform the conversion: 300 kilometers * 0.621371 miles/kilometer ≈ 186.41 miles. 5. Write the converted value on the board: "300 kilometers is approximately equal to 186.41 miles." 6. Explain that when planning road trips, understanding both kilometers and miles is essential for navigation and distance estimation, especially if you're using maps or GPS systems that display distances in miles. **Illustrative Example 2.** Scenario: You're planning a family barbecue, and you need to know how to convert cooking measurements from the metric system (used in the Philippines) to the English system (commonly used in recipes). You will demonstrate: Convert 500 grams (g) of chicken into ounces (oz) for your barbecue recipe. Steps: 1. Start by writing "500 grams" on the board or presentation slide. 2. Explain that in the Philippines, you often see food items measured in grams, but many international recipes, including those from the United States, use ounces for measuring ingredients. 3. Discuss the conversion factor: 1 gram is approximately equal to 0.03527396 ounces (or simply 1 g ≈ 0.035 oz). 4. Perform the conversion: 500 grams * 0.03527396 ounces/gram ≈ 17.64 ounces. 5. Write the converted value on the board: "500 grams is approximately equal to 17.64 ounces." 6. Explain that when using international recipes, you might need to convert ingredients from grams to ounces or vice versa. It's important to understand how to do this to follow the recipe accurately. **3. Lesson Activity** **Activity 3: Conversion Challenge: Real-world Problems** Divide the class into small groups. Each group should consist of 3-4 students. Assign a leader or a recorder for each group to document their solutions. Have each group read through the word problems together. Encourage group members to discuss and clarify any unfamiliar terms or concepts related to the scenarios.	You may accompany the scenarios with pictures. Answer key: 1. 5,600 m 2. 3,000 mL 3. 2,500 g 4. 96.56 km/h 5. 1.134 kg 6. 473.176 mL 7. 293.33 ft/s This group activity fosters collaboration and critical thinking as students apply their knowledge of unit conversion to solve real-world scenarios. It also

	In their groups, students should work collaboratively to solve the word problems. Emphasize the following steps: ● Identify the given information in the problem. ● Determine the desired unit for the answer. ● Select and apply the appropriate conversion factor based on the given and desired units. ● Perform the calculations, showing all steps. The assigned leader or recorder for each group should document the solutions to the word problems. They should clearly show the calculations and conversions performed for each problem. After working on the problems, encourage groups to discuss their solutions and thought processes. Emphasize the importance of verifying that the converted measurements make sense in the given context. Depending on the available time, you can invite a representative from each group to present one of the word problems and their solution to the class. This allows for a brief sharing of different approaches and solutions.	allows them to discuss their solutions and learn from one another's approaches. Summarize the group activity by highlighting the significance of unit conversion in practical scenarios. Reinforce the idea that these skills are valuable in real-life situations, especially in the context of the Philippines.

D. Making Generalizations	**DAY 4** **1. Learners' Takeaways** In our lesson on unit conversion, we've embarked on a journey to unravel the art of translating measurements from one system to another. We've delved into the world of unit conversion within the metric system and across other systems, recognizing the practicality and versatility of this essential mathematical skill. Throughout this lesson, we've discovered that unit conversion is not just a mathematical exercise; it's a tool that empowers us in various aspects of our lives. Ask students to give their key takeaways from their explorations on unit conversion. **Key takeaways:**	**(15 minutes)** Accept learners' key takeaways which may vary from those given here. But you may present to them the sample takeaways here.

The Language of Measurement	Measurements serve as a universal language, allowing us to communicate and understand quantities worldwide.
	Unit conversion enables us to bridge the gap between different measurement systems, such as the metric

	system and the English system, ensuring seamless communication and understanding.
Practical Applications	We've seen how unit conversion plays a crucial role in real-life scenarios, from cooking and construction to scientific experiments and road trips.
	It is especially relevant in the Philippines, where the metric system is commonly used, but international contexts may require familiarity with the English system.
The Conversion Process	We've learned the step-by-step process of converting units, from identifying the given information and the desired unit to using appropriate conversion factors.
	Conversion factors act as bridges, allowing us to shift seamlessly between measurement systems.
Reasoning and Precision	Unit conversion demands reasoning and critical thinking. Students must verify that their conversions make sense in the given context.
	Precision in unit conversion is essential to ensure accuracy in practical applications.
A Versatile Skill	Unit conversion is not confined to the classroom; it's a versatile skill that is indispensable in our everyday lives. It empowers us to navigate a world where measurements transcend borders.

In conclusion, the lesson on unit conversion within the metric system and across other systems has equipped us with the knowledge and confidence to tackle many scenarios where unit conversion is essential. It's a reminder that mathematics is not just numbers on paper; it's a dynamic tool that enriches our understanding of the world around us. As we move forward, let's continue to embrace the power of unit conversion, making measurements our allies in the global language of mathematics.

2. Reflection on Learning

Are there any challenges and misconceptions you encountered while studying the lesson?

IV. EVALUATING LEARNING: FORMATIVE ASSESSMENT AND TEACHER'S REFLECTION		NOTES TO TEACHERS
A. Evaluating Learning	**1. Formative Assessment** **A. Multiple-Choice Test** 1. What is the approximate conversion factor for converting kilometers to miles? a. 0.621 miles per kilometer b. 1.609 miles per kilometer c. 2.54 miles per kilometer d. 100 miles per kilometer 2. If you're measuring the weight of rice in the English system using pounds (lb) and want to convert it to the metric system in grams (g), which conversion factor should you use? a. 0.001 g per lb b. 16 g per lb c. 454 g per lb d. 1000 g per lb 3. Which of the following scenarios involves a conversion within the same system (metric to metric)? a. Converting 500 mL to quarts b. Converting 2 kilometers to miles c. Converting 3 liters to milliliters d. Converting 4 pounds to kilograms 4. To convert 50 miles per hour (mph) to kilometers per hour (km/h), which of the following expressions represents the correct conversion factor? a. (50 mph / 1) * (1.609 km/h per mph) b. (50 mph / 1) * (0.621 km/h per mph) c. (50 km/h / 1) * (1.609 mph per km/h) d. (50 km/h / 1) * (0.621 mph per km/h)	**(35 minutes) Answer Key for A:** 1. a 2. c 3. c 4. a 5. a

	5. If you're converting 500 milliliters (mL) of a liquid to liters (L), which of the following statements is true? a. The result will be 0.5 L. c. The result will be 500 L. b. The result will be 5 L. d. The result will be 0.05 L.	

	B. Problem Solving 6. Solve the following word problem: You have a recipe that calls for 750 milliliters of water, but your measuring cup is marked in fluid ounces. Convert 750 mL to fluid ounces. 7. A construction project requires a piece of lumber that is 12 feet long. Convert this length to meters for compatibility with metric measurements. 8. You need to purchase 2.5 pounds of coffee beans from a local supplier in the Philippines, but your scale measures in kilograms. Convert 2.5 pounds to kilograms. 9. Explain how you would convert a speed of 100 km/h to mph for a travel plan in the United States. **C. Short-Answer Question** 10. Provide an example of a practical situation where unit conversion is necessary. Explain the steps to perform the conversion. **2. Homework (Optional)**	**Answer Key for B:** 6. Approximately 25.36 fluid ounces 7. Approximately 3.66 meters 8. Approximately 1.13 kilograms 9. Divide 100 km/h by 1.61 mph to obtain approximately 62.11 mph **A possible answer for C:** Practical situations could include converting recipe measurements from the metric system to the English system or converting distances and speeds when traveling. The steps involve identifying the given unit and desired unit and applying the appropriate conversion factor. The teacher may give homework for mastery.

B. Teacher's Remarks	*Note observations on any of the following areas:*	**Effective Practices**	**Problems Encountered**	The teacher may take note of some observations related to the effective practices and problems encountered after utilizing the different strategies, materials used, learner engagement, and other related stuff. Teachers may also suggest ways to improve the different
	strategies explored			
	materials used			
	learner engagement/ interaction			
	others			activities explored/lesson exemplar.
C. Teacher's Reflection	*Reflection guide or prompt can be on:* • *principles behind the teaching* *What principles and beliefs informed my lesson? Why did I teach the lesson the way I did?* • *students* *What roles did my students play in my lesson? What did my students learn? How did they learn?* • *ways forward* *What could I have done differently? What can I explore in the next lesson?*			Teacher's reflection in every lesson conducted/facilitated is essential and necessary to improve practice. You may also consider this as an input for the LAC/Collab sessions.