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Detailed Lesson Plan in Mathematics X
'Measuring Temperature'

DETAILED LESSON PLAN IN MATHEMATICS X

I. OBJECTIVES

During and after the 120-minute discussion, at least 75% of the students are expected to:

1. Give the formal definition of temperature;
2. Cite some significant examples of reading temperature in determining appropriate systems of clothing and food; and
3. Convert degrees Celsius to degrees Fahrenheit and vice versa.

II. SUBJECT MATTER

A. **TOPIC:** Measuring Temperature
B. **TIME FRAME:** 120 Minutes
C. REFERENCES:
- Tarepe, Zara Evelyn., *Practical Mathematics*, 2012 K-12 Edition p. 313-319
- https://study.com/academy/lesson/measuring-temperature-lesson-for-kids.html

D. **MATERIALS:** LCD projector, Laptop, Power Point presentation, Visual aids, Sheet of Paper, Calculator, Pieces of Chalk and Chalkboard
E. **CONCEPT:** Temperature is the measure of how hot or how cold a substance is.
F. SKILLS:
1. Thinking Skills
   a. Reading and Observing
   b. Explaining and Analyzing
2. Manipulative Skills
   a. Solving Problem

G. **VALUES INTEGRATION:** Self-awareness, Self-actualization, decision making, culture preservation, Respect
H. **METHODOLOGY:** 4A's (Activity, Analysis, Abstraction, Application)

III. TEACHING PROCEDURE

TIME FRAME	TEACHING HINTS	TEACHER'S ACTIVITY	STUDENT'S ACTIVITY	IM's
2 minutes	**A. Preliminary Activity** **1. Greetings** **2. Opening Prayer**	Good afternoon class! Please stand for an opening prayer.	Good afternoon sir. (Students will do what is said)	

		(Praise be the name… Amen.)		
3 minutes	**3. Securing the Cleanliness and Orderliness of the Classroom**	Before you take your seats, kindly arrange your chairs and pick up the pieces of papers/plastics that you may see on the floor.	(Students will do what is said)	
2 minutes	**4. Checking of Attendance**	Beadle, kindly list down the names of those who are absents for today. Please hand it to me later. Thank you very much.	Yes, Sir!	
2 minutes	**5. Checking of Assignment**	Did I gave you an assignment? Kindly, exchange your notebooks with your seatmate and write C to the upper right corner of the notebook if the assignment is Complete and INC if not.	Yes, Sir! (Students will do what is said)	
5 minutes	**B. RECALL**	Class! Class! Class! Before we proceed to the next topic for today, let us have a short recall of what we have discussed last meeting. Okay? So, who among you still remember our last topic? Yes, _____? Yes, that's right! Thank you. So let us challenge your understanding. I need two volunteers to convert the following time. Yes ____ and ___? 1. 30 minutes = _____ seconds 2. 2 hours = ___ minutes	Yes! Yes! Yes! Yes, sir. Sir! Our last topic is about converting one unit of time to another. Students' expected answers: 1. 30 minutes = 1,800 seconds	LCD projector, Laptop, Power Point presentation, Calculator, Pieces of Chalk and Chalkboard

		Very good class. Well done.	2. 2 hours = 120 minutes	
10 minutes	**C. MOTIVATION**	For today, I'll going to discuss a new topic. But before that I want you to first watch this video. Is that okay to you class? (The teacher will play the video) What do you feel about the video? Great! What do you observed about the video? Very good! Any other observation? Excellent! Any other answers? Very good class.	Yes, Sir! (The students will watch the video) Sir, I feel so fun and energized. Sir, I observed that the video focuses on the weather if it is hot or cold. Sir, I observed that the blue character used thermometer. (the students may try to answer)	LCD projector, Laptop, Power Point presentation, Speaker
1 minute	**D. Presentation of Lesson**	Class! Class! Class! What do you think is our topic for today? Yes, _____? Exactly! Our lesson for today is about measuring temperature.	Yes! Yes! Yes! Sir, I think our topic for today is all about temperature or measuring temperature.	LCD projector, Laptop, Power Point presentation
2 minutes	**E. Presentation of the Objectives**	These are the things that you will learn as we proceed to our lesson this morning. Kindly		LCD projector, Laptop, Power Point presentation

		read ____? Thank you, _____.	During and after the 120-minute discussion, at least 75% of the students are expected to: 1. Give the formal definition of temperature; 2. Cite some significant examples of reading temperature in determining appropriate systems of clothing and food; and 3. Convert degrees Celsius to degrees Fahrenheit and vice versa.	
3 minutes	**F. Unlocking of Difficulties**	To better understand our lesson for today we must first clear these following key words. • **Boiling point**-the temperature at which a liquid begins to boil. • **Convert**- to change from one form or use to another; to transform. • **Mercury**- the chemical element of atomic number 80, a heavy-silvery-white metal which is liquid in ordinary temperatures. • **Freezing point** -the temperature at which a liquid freezes. Are these terms already clear class?	Yes, Sir!	LCD projector, Laptop, Power Point presentation
20 minutes	**G. Lesson Proper** **1. ACTIVITY**	This time, let's have an activity. I will divide the class in to 2 groups. (the teacher will divide the class into 2 groups)		LCD projector, Laptop, Power Point presentation, Calculator, Sheet of Paper

		Okay, please group yourselves without making any noise. This activity is called **"Cause I'm hot and you're cold",** the mechanics is simply as follows: I'll be giving each group a sheet of paper that contains the problem that you need to answer. Then, you need to choose a leader to present your output and defend your answer. You only have 10 minutes to do the activity and 5 minutes to present your answer. Group leaders please get now your activity sheet. Your group will be graded using this rubrics. (the rubrics is flashed on the board) Okay, work now with your groups. ACTIVITY SHEET: Siti, a resident of Banda Aceh was packing her suitcase for her trip to South Korea next day for a two-week' vacation and to watch the concert of BLACKPINK. She googled South Korea weather and found out the average temperature there is 59°F. Siti	(The students will form circle according to their groups. They will read the question and answer it, then select one representative to discuss their activity in front of the class.)	

		is having a hard time thinking if she would bring sweater or not. She only knows how to read degrees Celsius but not degrees Fahrenheit. Note: The average temperature in Banda Aceh is 32°C. Guide Questions: 1. Should Siti bring sweater? 2. What data should Siti must consider before making a decision? 3. Convert degrees Fahrenheit to degrees Celsius using this formula °C=5/9(°F-32) 4. (Arrange the jumbled letters) **CLUE:** It is the measure of how hot or how cold a substance is? (the teacher will roam around while the students are doing the activity)		
10 minutes	**2. ANALYSIS**	Time's up! Kindly post your output on the board. (group 1 and group 2 will have their presenter to present their output)	Expected answers of each Group: 1. Should Siti bring a sweater? She should bring sweater since the temperature in South Korea is colder than Banda Aceh. 2. What data should Siti must consider before making a decision? She should compare the temperature of the two places. **3.** Convert degrees Fahrenheit to degrees Celsius using this	LCD projector, Laptop, Power Point presentation, Calculator, Sheet of Paper

			formula °C=5/9(°F-32) =5/9(59-32) =5/9(28) °C=15 4. It is the measure of how hot or how cold a substance is? - TEMPERATURE	
30 minutes	**3. ABSTRACTION**	Excellent Class! You did a great job. (The teacher will write his ratings for each group on the prepared manila paper posted on the board and discussed his reasons to it) Group 1 got ___ points Group 2 got ___ points Congratulations! You all deserve a round of applause For you to understand well our lesson for today, I'll discuss it one-by-one. Kindly listen. Temperature is the measure of how hot or how cold a substance is. The specific device that measures temperature is **THERMOMETER** **There are two main types of thermometer.** **1. CLINICAL THERMOMETER** - used to measure body temperature. **2. OUTDOOR THERMOMETER** - used to measure outside air temperature.	(Clap! Clap! Clap!)	LCD projector, Laptop, Power Point presentation, Calculator

		The measuring units of Temperature can be measured in **degrees Fahrenheit** or **degrees Celsius** or **Kelvin**. For most Scientific work, temperature is measured on the Celsius scale. On this Scale, the freezing point of water is zero degrees and the boiling point is 100 degrees. What we are to discuss today is just the common scales. Those are Celsius and Fahrenheit. **But the question is,** "How to convert the measuring units of temperature from one to another?" Very good! The formula for converting degrees Celsius to degrees Fahrenheit is °F=(9/5)(°C)+32 Use the Formula to convert the given unit to another. Example: Convert 10°C to Fahrenheit. By using a formula. °F=(9/5)(°C)+32 °F=9/5(10°)+32 °F=90/5+32 °F=18+32 °F=50° Thus, 10°C is equal to 50°F. To convert degrees Fahrenheit to degrees Celsius use the formula °C=(5/9)(°F-32) Example: Convert 54°F to °C.	Sir, there is a formula for that like what we used a while ago. (Students are answering he problem.)	

		By using a formula. °C=5/9(°F-32) °C=5/9(54-32) °C=5/9(22) °C=110/9 or 12.22 Therefore, 54°F=12.22°C Any question?	None Sir.	
10 minutes	**4. APPLICATION**	To fully understand the topic, let's have an activity about converting one degree measurement to another using word problem. This time you need to work with a pair. So, kindly find your partner. The mechanics of the activity is simply answer the question as soon as possible. The 1st pair with a correct answer will present their work. Are you ready? Get a piece of paper and answer the question being flashed. You can start now. Here is the question 1. Putri is preparing the oven to bake Adee cake. The recipe's direction was to pre-heat the oven to 350°F but her oven thermometer was in °C. What should be the thermometer reading before Putri puts the baking pan full of the Adee cake mix in the oven? Okay, there is a pair who already finished. Present your work.	(students will find a partner) Yes, Sir! (Students will do what is said) (One pair had finished the problem ahead of time.) **Given:** 350°F **Solution:** °C=5/9(°F-32) °C=5/9(350-32)	LCD projector, Laptop, Power Point presentation, Calculator, Sheet of Paper

			°C=5/9(318) °C=1590/9 or 176.7 Therefore, 176.7°C must be the reading of Putri's oven to bake the Adee cake.	
		Excellent!		
5 minutes	**H. Generalization**	For the generalization, anyone from the class who could summarized everything we had discussed this afternoon?	Sir we had discussed the definition of temperature, it's measuring devised, measuring units or scales and how to convert one unit to another. To convert degree Fahrenheit to degrees Celsius use the formula °C=5/9(°F-32) The formula for converting Celsius to Fahrenheit is °F=(9/5)(°C)+32	LCD projector, Laptop, Power Point presentation
		Thank you very much!		
10 minutes	**I. Values Integration?**	Why do we need to measure temperature? Does it essential in determining appropriate systems of clothing and food in such temperature? Why or why not?	Yes because through determining temperature in outdoor and even indoors, we can cope for something appropriate in regards for our body to be comfortable or in way to avoid burdens and sufferings from some changes of moods and faculty	LCD projector, Laptop, Power Point presentation

		Very well said. Thus, if the temperature is Hot, What should we wear? Great! Also, look what the ethnic group of the Philippines wear? (the ethnic attire of our ethnic or tribe Filipino citizen is flashed) What should we eat? Very good! In the Philippines, we eat Halo-halo, Sorbetes, Ice Candy, etc. If the temperature is Cold, What should we wear? Very good! What should we eat? Very good! In the Philippines, we eat champorado, tinola, log-log, sinigang, macaroni soup and etc. Just like in our life, in every situations that we are dealing in upwards and downwards of our life, we should always wear of the decisions which is right and will carry us	dysfunctions. Sir, we should wear dresses that will make us comfortable and carry us all throughout the day. Like shorts, sando, shirts made of cotton, hat etc. Sir, we should eat foods or desserts like the popular Cincau papaya, tehbotol, etc. Sir, we should wear sweaters and even layers of dresses. Sir, we should eat food like Bakso, soto and other hot soup and drinks like coffee.	

		throughout the day. Any questions? Clarifications? Violent reactions? Thank you very much. I think you are all ready for a quiz.	None Sir.	

IV. EVALUATION (5 minutes)

1. Define temperature.
2. Give at least one significant examples of reading temperature in determining appropriate systems of clothing and food.
3. Convert units of temperature from one to the other.
   a. 45ºC convert to ºF
   b. 96ºF convert to ºC

V. ASSIGNMENT (30 seconds)

I. Solve the given word problem. Show your solution.

1. For one week, from April 22-28, 2017, the lowest temperature recorded in Manila is 20°C on April 25 at 5:00 am while the highest temperature is recorded on April 25 at 2:00 pm at 35°C. Convert these temperatures to Fahrenheit.

II. Give the formula of Kelvin

III. Convert 37°C to Kelvin

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