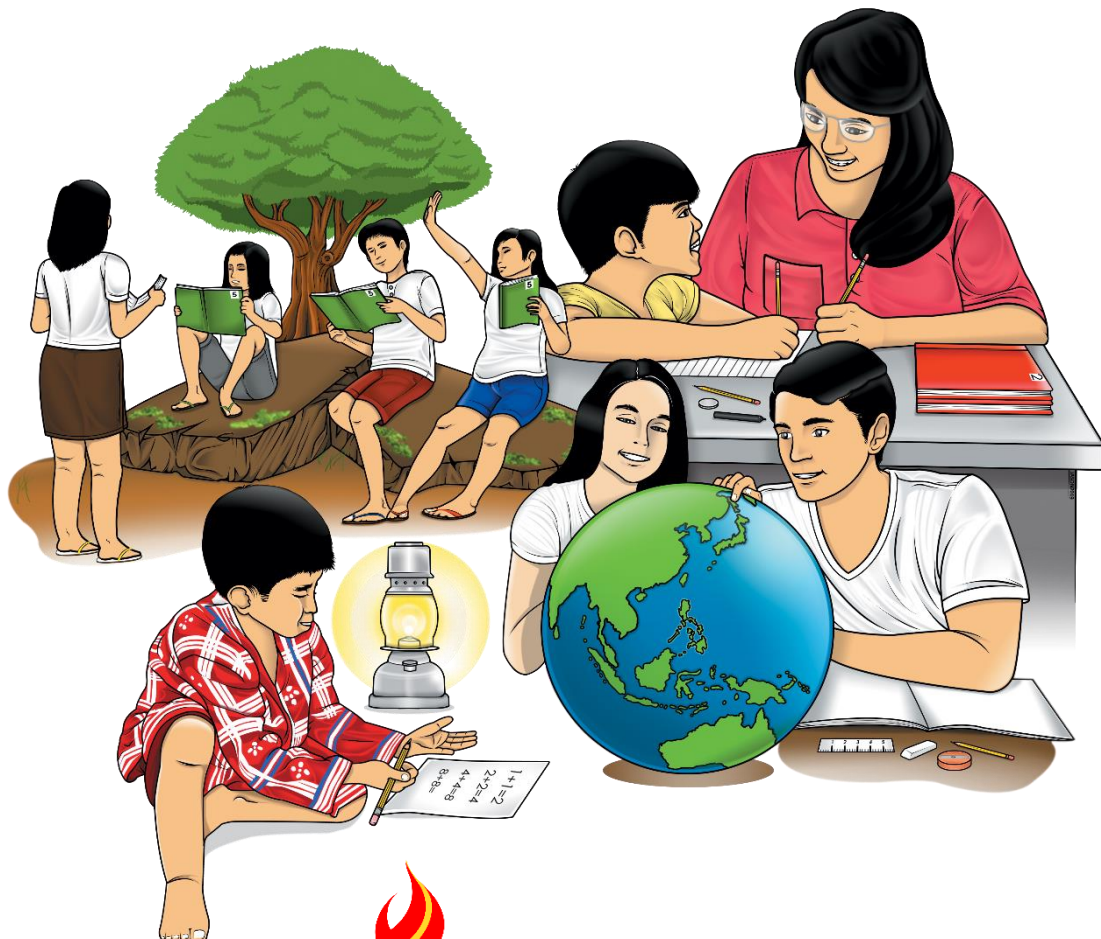


Mathematics

Quarter 4 – Module 9: Reading and Measuring Temperature Using Thermometer in Degree Celsius



Mathematics – Grade 5

Alternative Delivery Mode

Quarter 4 – Module 9: Reading and Measuring Temperature Using Thermometer in Degree Celsius.

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Mathematics

**Quarter 4 – Module 9:
Reading and Measuring
Temperature Using
Thermometer in Degree Celsius**

Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.



What I Need to Know

Good day, Mathletes! This module was designed and written to help you gain understanding on how to read and measure temperature using a thermometer in degree Celsius. Have fun! You will learn a lot in this module.

At the end of this module, you are expected to be able to:

- read and measure temperature using a thermometer (alcohol and/or digital) in degree Celsius; and
- appreciate the importance of reading and measuring temperature in our daily life.

Before going any further, let us check your understanding about reading and measuring temperature.



What I Know

Directions: Read each statement carefully. Choose the letter that corresponds to the correct answer. Write your answers on a separate sheet of paper.

1. Which of the following means the degree or intensity of heat present in a thing?
(A) circumference (B) temperature (C) volume (D) area
2. Which of the following is **not** an example of unit of measure for temperature?
(A) Degrees Celsius (°C) (C) Degrees Fahrenheit (°F)
(B) Kelvin (K) (D) Degrees Latitude (°L)
3. Which of the following instruments is **not** used in measuring temperature?
(A) alcohol thermometer (C) digital thermometer
(B) thermal scanner (D) scanner radio

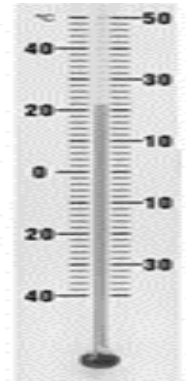
4. What temperature is shown in the digital thermometer below?



- (A) 3.7°C
- (B) 27°C
- (C) 37°C
- (D) 370°C

5. What temperature is shown in the analog thermometer on the right?

- (A) 11°C
- (B) 15°C
- (C) 21°C
- (D) 34°C



6. Chef Marlon always inserts a meat thermometer in the thickest part of roasted chicken. His restaurant has a rule that a meat is considered fully cooked when the temperature is 75 degrees Celsius or higher. Which of the following thermometer shows that the meat is fully cooked?



7. According to a weather forecast, the entire province of Samar will be experiencing cold weather in the coming weeks. Nestor is planning to make and sell special ice candies in the coming weeks. What do you think should Nestor do best to earn a living?

- (A) Nestor should stop selling ice candies.
- (B) Nestor should prepare more special ice candies.
- (C) Nestor should cook “lugaw” or porridge. He will sell it in their locality since it is good for cold weather condition.
- (D) Nestor should continue to make ice candies for next week even if the temperature is not suitable for everyone to eat cold foods.

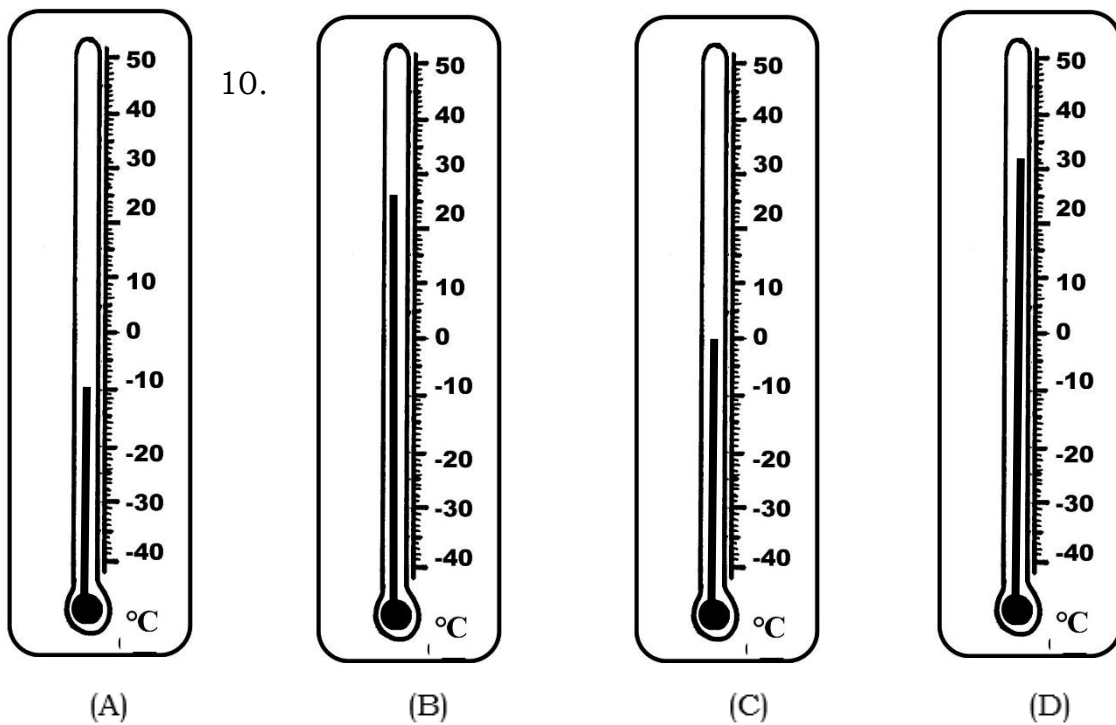
8. Below are the steps in reading and measuring temperatures in degree Celsius. Which of the following are the correct steps in reading and writing temperatures?

- 1. Affix the symbol °C next to the number based on the number scale where the end of the mercury is located.

2. Locate the position of the end of the liquid mercury or alcohol in the number scale.
3. Take the temperature by noting the number where the liquid mercury end is located in the number scale.

- (A) 2-3-1 (B) 2-1-3 (C) 1-2-3 (D) 3-2-1

9. The Grade 5- Amethyst class in Nijaga Elementary School experienced hot air temperature in the classroom. Their teacher used a room thermometer and discovered that the room temperature was 35°C . Which of the following thermometers is showing the temperature?



10. Which of the following is **not** showing the importance of knowing how to read and measure temperature?
- (A) It helps us reduce the fever of sick persons.
 - (B) It helps us decide the suited activities to do.
 - (C) It helps us decide the types of clothes to wear.
 - (D) It gives us an idea of how hot or cold the places are.

Compare your answers with the Answer Key at the end of this module. If you got 9 or 10 correct answers, you may skip this module and proceed to the next. Otherwise, go to the next page to gain a better understanding of the concept of reading and measuring temperatures using a thermometer in degrees Celsius! Let's go!

Lesson

1

Reading and Measuring Temperature Using a Thermometer in Degree Celsius

Have you touched your neck, forehead or armpit recently? Do you feel hot or cold? You probably ate halo-halo or cold fruit shakes during a hot weather. How did it feel? All of these have something to do with our new lesson.

In this module, you will learn how to read and measure temperature using a thermometer in degrees Celsius.

Are you excited to learn new things about our topic? Keep going!



What's In

In the previous lessons, you were able to learn the concept of reading and measuring time. How is time measured? What devices are used to measure time? What units of measure are used in expressing time? What is the importance of understanding and learning time measurement to our daily life?

Let us first check your understanding about our past lesson by answering this short activity.

Directions: Match the items in Column A with the items in Column B. Write the letter of your answer on the space before the number on a separate sheet of paper.

COLUMN A

1. another word for a clock
2. the standard unit of time
3. a clock with moving hands
4. a clock with digital display
5. a particular point in the day

COLUMN B

- A. second
- B. digital watch
- C. watch
- D. analog clock/watch
- E. time



What's New

Temperature may be defined as the degree or intensity of heat present in a body, place or thing. We may use a thermometer to measure temperature. Temperature is often expressed in degree Celsius (Centigrade) or °C in symbols.

Imagine if someone in your family is having symptoms of fever. Will you be able to use a thermometer to know the body temperature?

Suppose you are planning to have a vacation in Baguio or Tagaytay. It can be cold there during Christmas season. What should you plan to bring or wear when your family plans to visit there during Christmas vacation?

In the said situations, we can say that learning about temperature is important to us. Now, consider this situation.

Rowan Jennika is a Grade 5 pupil in a public elementary school in Calbayog City. Her teacher asked their class to record the temperature of the different places that they may visit during their Christmas vacation. Knowing Calbayog City as “City of Waterfalls,” her family plans to visit some of the beautiful falls in the city: the Pan-as, Tabokno, Bangon-Bugtong, Ton-ok and Tarangban falls. However, she does not know the tool to use to measure temperature. She also does not know how to read and measure the temperature.



If you were Rowan Jennika, what instrument will you use or bring for you to be able to measure the temperature of the places that you will visit?

Do you know how to read and measure temperature? Do you know what unit of measure is used for temperature? For you to know all the answers to these questions, it is time for you to focus on the following discussions.



What Is It

We may need a thermometer to measure the temperature of a body, place or thing. Did you know that it was only in the 16th century that the first thermometer was invented? With the advancement of technology, people can now use digital thermometers. Some even use mobile phones for knowing temperature.

Temperature is expressed in degrees units. These are the commonly used temperature scales: the Fahrenheit, Celsius and the Kelvin scales. In this module, we will focus on reading thermometers in degree Celsius or $^{\circ}\text{C}$.

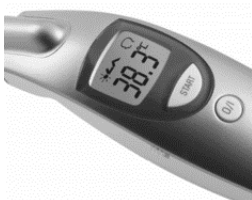
We should take into consideration that thermometers come in different types, sizes and materials. There are two main types of thermometer based on its structure: the **analog** and **digital thermometers**. An analog thermometer can be a thermometer with liquid inside a tube that moves when heat is applied like mercuric thermometer and alcohol thermometer. A digital thermometer is battery-operated or solar thermometer with digital display.

There are different thermometers for different uses. The following are some examples.

The digital **room thermometer** on the right shows time, temperature, and humidity. The temperature shown is 24.5°C .



Clinical thermometers are used to check a person's body temperature. The thermometer A below shows 38.3°C . The thermometer B shows 36.5°C . Thermometer C is an example of noncontact digital thermometer that uses infrared.



Thermometer A



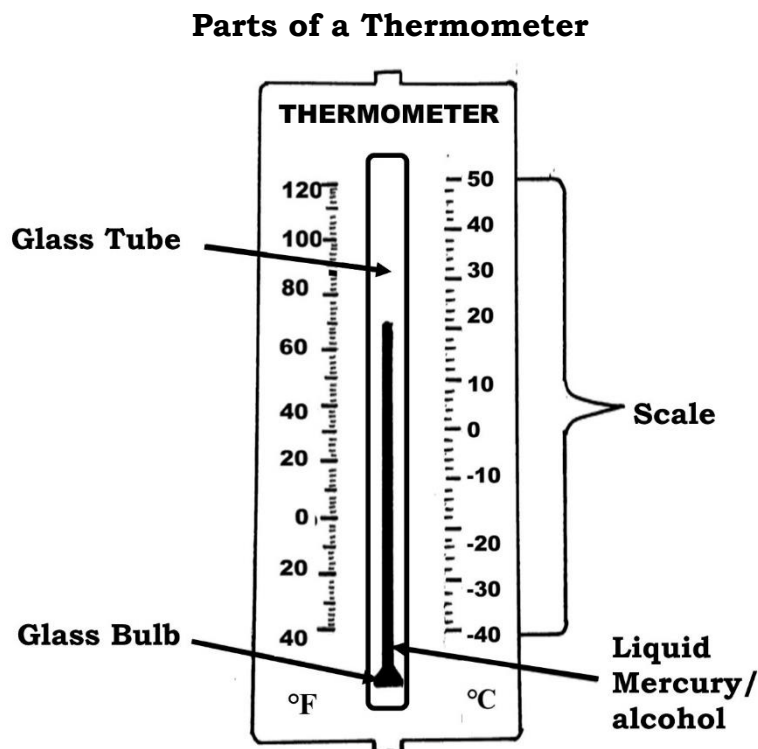
Thermometer B



Thermometer C

There are also thermometers for cooking. They can be digital or analog thermometers.

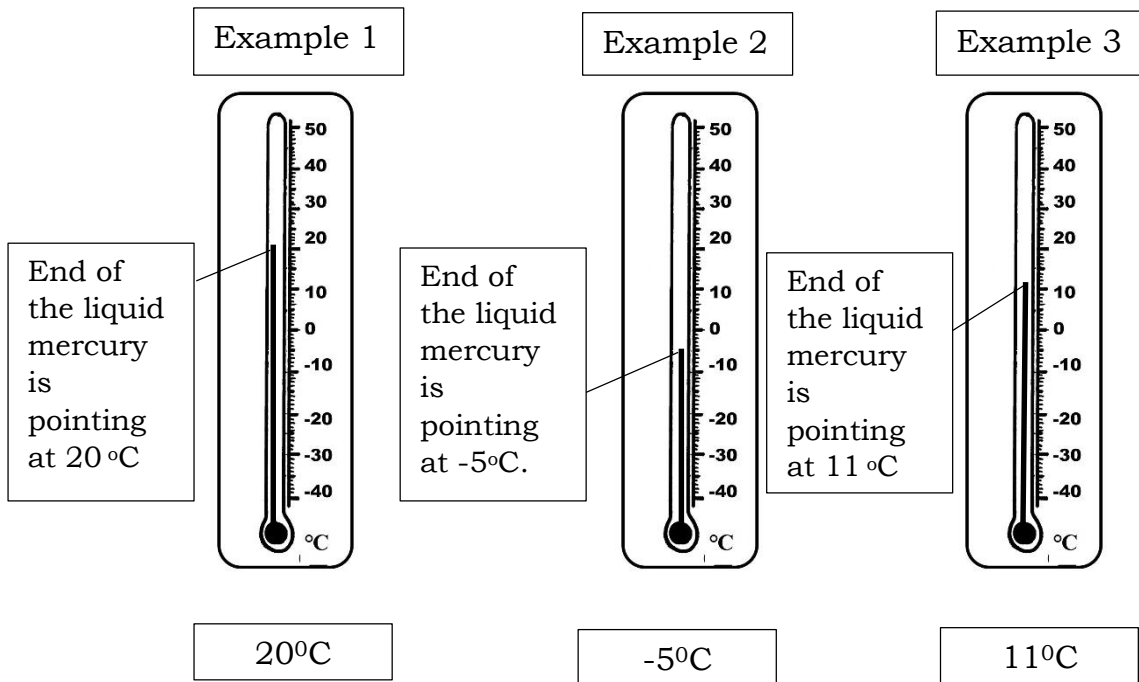
Below is an illustration of the parts of an analog thermometer.



An **analog thermometer** may consist of a temperature sensor and a scale. The temperature sensor is the bulb. The scale shows the measurement of temperature. The glass bulb is attached to a glass tube with a number scale. *Alcohol and liquid mercury* are the common liquids found inside a scale that rises or lowers in a scale. Each space in the number scale represents 1°C . The number below zero (0) is written with a minus (-) sign.

Carefully read the instructions before using a thermometer. If instructions are not available, ask a trusted grown up to help you. In reading temperature using an alcohol thermometer, you need to locate the top end of the liquid. The top end is the dark red, blue or silver line. Then take the reading of the temperature by looking at the number scale where end of the liquid is located.

Example 1 shows that the temperature reading is 20°C or read as “twenty degree Celsius.” In Example 2, temperature is -5°C or read as “negative 5 degrees Celsius” since the thermometer reading is 5°C below zero. In Example 3, the temperature reading is 11°C or read as “11 degree Celsius.”



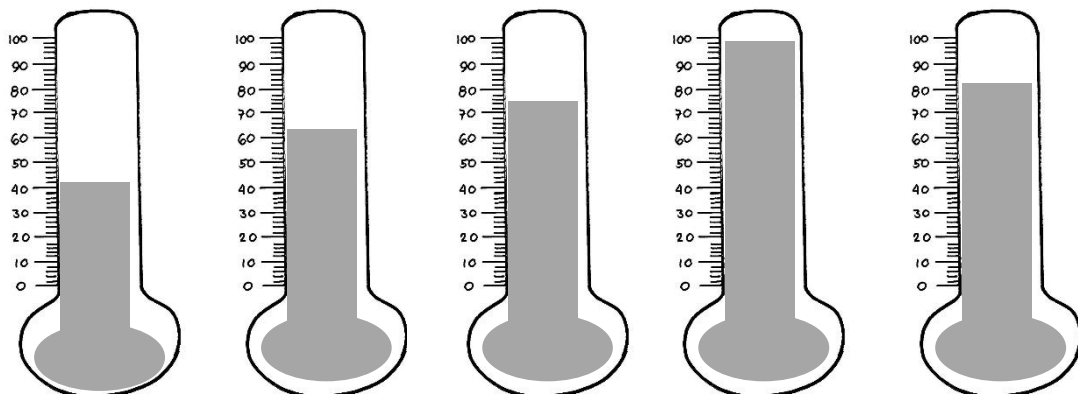
What's More

Activity 1: Read the Temperature

Directions: Read the temperatures below. Match the temperatures with the thermometers below. Write your answers on a separate sheet of paper.

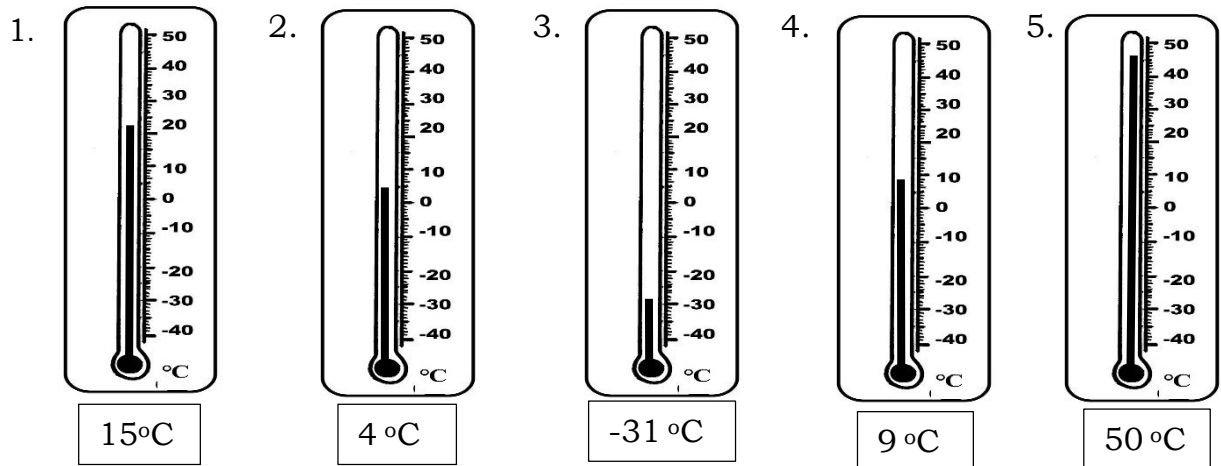
- | | | |
|---------|---------|---------|
| 1. 75°C | 3. 43°C | 5. 63°C |
| 2. 99°C | 4. 81°C | |

A B C D E



Activity 2: Correct Me if I'm Wrong!

Directions: Determine if the following readings of temperature are correct or not. On your answer sheet, put a check mark if the given is correct. Otherwise, put an x mark .



What I Have Learned

A. Directions: On a separate sheet of paper, copy and complete the following sentences by supplying a word or words that will make the sentence correct.

A device used in measuring temperature is called a (1)_____ .

There are two types of thermometer. The (2) _____ is a thermometer that contains liquid mercury or alcohol. , and a The (3) _____ is a thermometer with display screen to flash the temperature reading.

A (4) _____ thermometer is used to get the temperature of the air in a room or place while a (5) _____ thermometer is used to check body temperature.

B. Directions: Using your own words, explain how to read and measure temperature using a thermometer. Write your explanations on your answer sheet.



What I Can Do

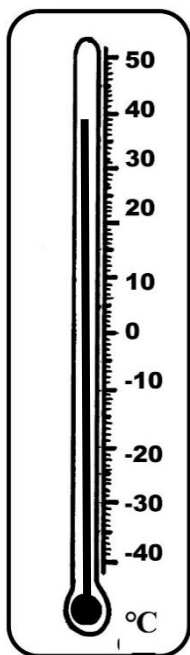
Activity 1

Directions: With the use of a thermometer measure the temperature of the following in degrees Celsius. Write your answer on a separate sheet of paper.

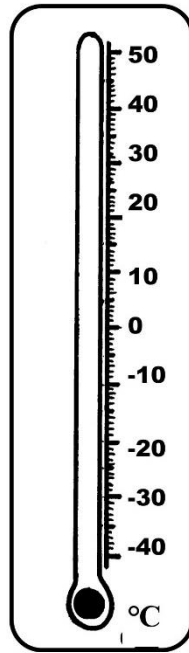
1. tap water
2. ice water
3. hot coffee
4. your neck
5. ice candy

Activity 2

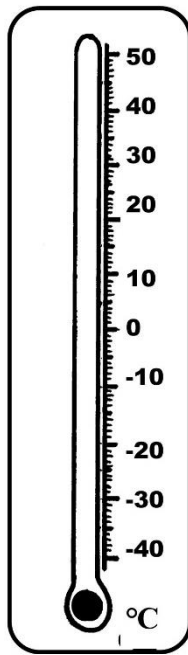
Directions: Copy the following on your answer sheet. Shade and plot the temperature reading in your paper. The first one is done for you.



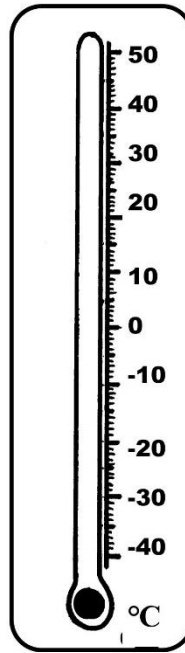
1. 37°C



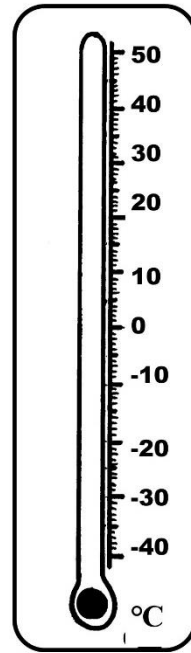
2. -20°C



3. 15°C



4. 45°C



5. -35°C



Assessment

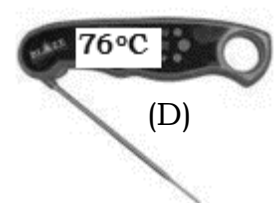
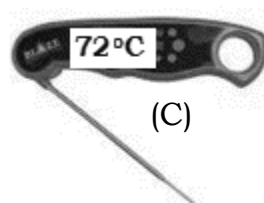
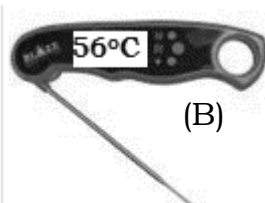
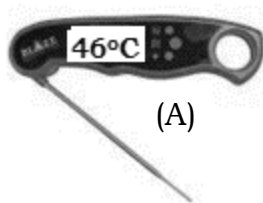
Directions: Read each statement carefully. Choose the letter that corresponds to the best answer. Write the chosen letter on a separate sheet of paper.

1. Which of the following is **not** a tool for measuring temperature?
(A) alcohol thermometer (C) digital thermometer
(B) thermal scanner (D) barcode scanner
2. Which of the following means temperature?
(A) freezing point of ice
(B) boiling point of water
(C) rise and fall of alcohol levels
(D) hotness or coldness of an object

3. Which of the following is the temperature shown in the digital meat thermometer?
(A) 0.234°C (C) 23.4°C
(B) 2.34 °C (D) 234°C



4. Which of the following devices is used in measuring temperature?
(A) wind vane (C) barometer
(B) anemometer (D) thermometer
5. Which of the following is temperature shown in the digital room thermometer?
(A) 8.29 °C (C) 61°C
(B) 17.1 °C (D) 171°C
6. A restaurant has a rule that a meat is considered fully cooked when the temperature is 75 degrees Celsius or higher. Which of the following thermometer shows that the meat is fully cooked?



7. Which of the following is the temperature shown in the thermometer?

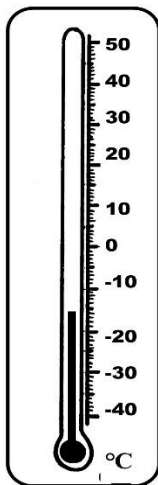
- (A) 23°C
- (B) 65 °C
- (C) 30°C
- (D) 72°C

8. Below are the steps in reading and measuring temperature in degree Celsius using an alcohol thermometer. Which of the following is the correct series of steps in reading and writing temperature?

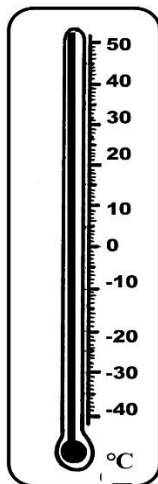
1. Affix the symbol °C next to the number based on the number scale where the end of the mercury is located.
2. Locate the position of the end of the liquid mercury or alcohol in the number scale.
3. Take the temperature by noting the number in the scale where the liquid mercury end is located.

- (A) 1-3-2
- (B) 2-3-1
- (C) 3-2-1
- (D) 2-1-3

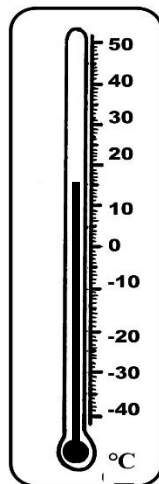
9. Alex measured his body temperature. His thermometer showed 38 degrees Celsius. Which of the following shows the temperature?



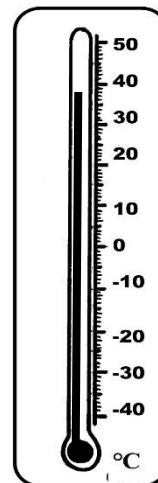
(A)



(B)



(C)



(D)

10. Which of the following shows the importance of knowing how to read and measure temperature?

- (A) It gives us an idea on how hot or cold the places are.
- (B) It helps us decide the types of clothes to wear.
- (C) It helps us decide the suited activities to do.
- (D) All of the above.



Additional Activities

You made it! Finally, you're on the last activity. Hurray!

Activity 1 Thermometer Around Me

Directions: Do any of the following. Make sure to ask help from your parents or trusted grown up.

1. Check if you have a thermometer at home. Ask a grown up to teach you how to use it.
2. Visit a restaurant. Ask if they have a thermometer for cooking. If possible, request the restaurant personnel to show you on how to use their food thermometer.
3. Visit a hospital or a medical clinic. If possible, request the medical staff to show you on how to use their thermometer.
4. Use the internet to know the recent temperature and the predicted highest and lowest temperatures of your favorite town for the next 7 days.

Activity 2 Word Search

Directions: Copy the following on a separate sheet of paper. Search and encircle the following words.

1. THERMOMETER
2. CELSIUS
3. KELVIN
4. FAHRENHEIT
5. ANDERS CELSIUS
6. LORD KELVIN
7. DANIEL FAHRENHEIT
8. SCALE
9. GLASS TUBE
10. MERCURY

X	D	F	A	H	R	E	N	H	E	I	T	K	W	T
G	O	J	W	N	I	V	L	E	K	D	R	O	L	B
A	I	H	R	A	K	W	T	H	Z	H	P	A	C	M
K	N	T	E	M	P	E	R	A	T	U	R	E	W	I
U	P	D	T	M	F	W	L	G	Q	N	L	H	G	X
Q	O	S	E	E	J	A	H	V	J	S	W	B	W	B
V	G	T	M	R	M	I	J	S	I	T	A	M	L	K
C	H	I	O	C	S	X	M	U	B	N	L	U	R	M
Y	G	B	M	U	J	C	S	P	K	H	B	A	V	K
S	A	C	R	R	Q	V	E	F	X	S	R	P	W	J
F	M	P	E	Y	O	W	Z	L	S	E	Z	H	D	U
X	D	I	H	C	X	S	R	A	S	K	L	C	S	K
J	P	W	T	F	Q	U	L	U	N	I	T	A	Q	O
Z	C	B	V	C	J	G	F	X	S	O	U	R	C	L
W	Y	N	G	L	A	S	S	T	U	B	E	S	T	S

Congratulations! You made it! Give yourself a pat on your shoulder.



Answer Key

What I Know

6. D	1. B
7. C	2. D
8. A	3. D
9. D	4. C
10. A	5. C

What's In

1. C	2. A
3. D	4. B
5. E	

What I Can Do

Activity 1
(Varied Answers)

Activity 2

What's More

Activity 1. Read the temperature

1. C	1. <input checked="" type="checkbox"/>
2. D	2. <input checked="" type="checkbox"/>
3. A	3. <input checked="" type="checkbox"/>
4. E	4. <input checked="" type="checkbox"/>
5. B	5. <input checked="" type="checkbox"/>

Wrong!

Activity 2: Correct Me if I'm

What I Have Learned

A.

1. thermometer
2. analog thermometer
3. digital thermometer
4. room thermometer
5. clinical

B. Explanations vary.

Additional Activities

Answers vary.

Assessment

6. D	1. D
7. A	2. D
8. B	3. C
9. D	4. D
10. D	5. B

X	D	F	A	H	R	E	N	H	E	I	T	K	W	T
G	O	J	W	N	I	V	L	E	K	D	R	O	L	B
A	I	H	R	A	K	W	T	H	Z	H	P	A	C	M
K	N	T	E	M	P	E	R	A	T	U	R	E	W	I
U	P	D	T	M	F	W	L	G	Q	N	L	H	G	X
Q	O	S	E	J	A	H	V	J	S	W	B	B	W	B
V	G	T	M	R	M	I	J	S	I	T	A	M	L	K
C	H	I	O	C	S	X	M	U	B	N	L	U	R	M
Y	G	B	M	U	J	C	S	P	K	H	B	A	V	K
S	A	C	R	R	Q	V	E	F	X	S	R	P	W	J
F	M	P	E	Y	O	W	Z	L	S	E	Z	H	D	U
X	D	I	H	C	X	S	R	A	S	K	L	C	S	K
J	P	W	T	F	Q	U	L	U	N	I	T	A	Q	O
Z	C	B	V	C	J	G	F	X	S	O	U	R	C	L
W	Y	N	G	L	A	S	S	T	U	B	E	S	T	S

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