JANUARY
Makugihon

FEBRUARY
Mahigugmaon

MARCH
Matinabangon

APRIL
Matinahuron

MAY
Mahapsay og Malinpyo

JUNE
Maabtik og Musunod sa Ihsaktong Oras

JULY
Mauntigo og Maabilidad

AUGUST
Maginhunahunaon para sa Uban

SEPTEMBER
Madaginoton

OCTOBER
Matinud-anon

NOVEMBER
Masaligan

DECEMBER
Maalampuon

Republic of the Philippines
Department of Education
Regional Office IX, Zamboanga Peninsula

5

$\mathcal{Z}$est for $\mathcal{P}$rogress
$\mathcal{Z}$eal of $\mathcal{P}$artnership
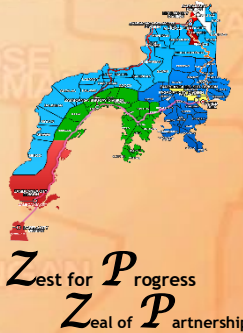
MATHEMATICS
4th QUARTER – Module 5:
TEMPERATURE

Name of Learner: _____

Grade & Section: _____

Name of School: _____

Mathematics – Grade 5
Alternative Delivery Mode
Quarter 4 - Module 5: TEMPERATURE

First Edition, 2020

Development Team of the Module	
Writer:	**Marichel A. Garcia**
Editors:	**Emily Jean F. Alpuerto**
	Jasmin A. San Luis
Illustrator:	**Erwin G. Deloria**
Layout Artist:	**Kirk Arvy A. Mendoza**
Reviewers: EPS Mathematics	Vilma A. Brown, Ed. D.
Principal	**Ryan M. Rubio**
SST	**Angelica J. Mañalac**
Management Team: SDS	**Roy C. Tuballa, EMD, JD, CESO VI**
ASDS	**Jay S. Montealto, CESO VI**
ASDS	**Norma T. Francisco, DM, CESE**
EPS Mathematics	Vilma A. Brown, Ed.D
EPS LRMS	**Aida F. Coyme, Ed. D.**

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 of 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 a 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 with 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 instruction carefully before performing each task.

If you have any questions 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

This module is written as an aid in Mathematics 5, a fourth-quarter module number 5. The module tells us how to read and measure temperature using a thermometer and solve routine and non-routine problems.

This module was designed to cater to diverse learners' academic needs in achieving and improving the twin goals of mathematics in basic education levels, which are critical thinking and problem-solving. The lessons followed developmentally sequenced teaching and learning processes to meet the curriculum requirement.

After going through the module, you are expected to:
● read and measure temperature using a thermometer (alcohol and/or digital) in degree Celsius. (M5ME-IVf-85); and
● solve routine and non-routine problems involving a temperature in a real-life situation. (M5ME-IVf-87)

Believe that learning can continue amidst the health crisis. Good luck, stay safe, and God bless.
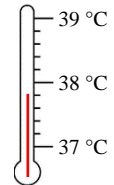
What I Know

Directions: Choose the letter that corresponds to your answer. Write on a separate sheet.

1. What is the temperature reading in the given thermometer?
   A. 37.8°C   B. 37°C   C. 37.7°C   D. 38°C

ELEMENT	MELTING POINT
Gold	1064.43°C
Lead	327.5°C

2. What is the reading temperature of gold shown in the table above?
   A. 1064.43°C   C. 1064.43°C, 327.5°C
   B. 327.5°C   D. 327°C

3. If the temperature yesterday was 40°C and today is 13 degrees colder, what is today's temperature?
   A. 55°C   B. 43°C   C. 27°C   D. 40°C

4. Michaela's body temperature reading is 2°C higher than the normal temperature. What is Michaela's body temperature?
   A. 35 °C   B. 37 °C   C. 39 °C   D. 41 °C

5. The temperature at 7: 00 AM is 25 °C. By noon, it had risen by 5 °C. Then a storm blew in, causing it to drop by 11.5 °C by 6 PM. What was the temperature at 6 PM?
   A. 24. 4 °C   B. 26.3 °C   C. 28.5 °C   D. 30 °C

LESSON 1

READING AND MEASURING TEMPERATURE USING A THERMOMETER

What's In

Directions: Which one of the thermometers below shows the temperature given in each situation? Write the letter of the correct answer on a separate sheet.

1. Temperature at which water boils.
2. A temperature at which water freezes.
3. An ideal room temperature.
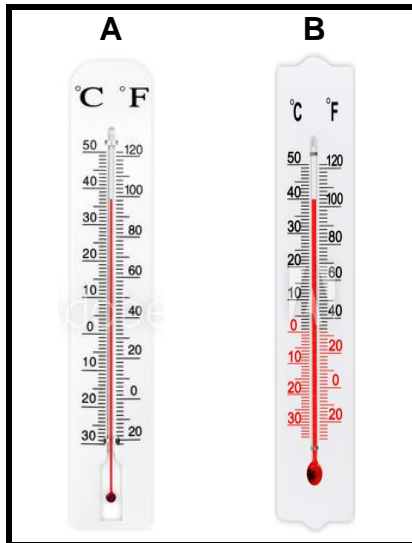4. A normal body temperature.
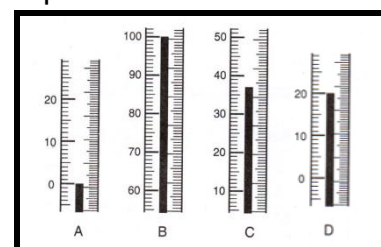
What's New

Directions: Study the given thermometer readings below and answer the questions that follow.
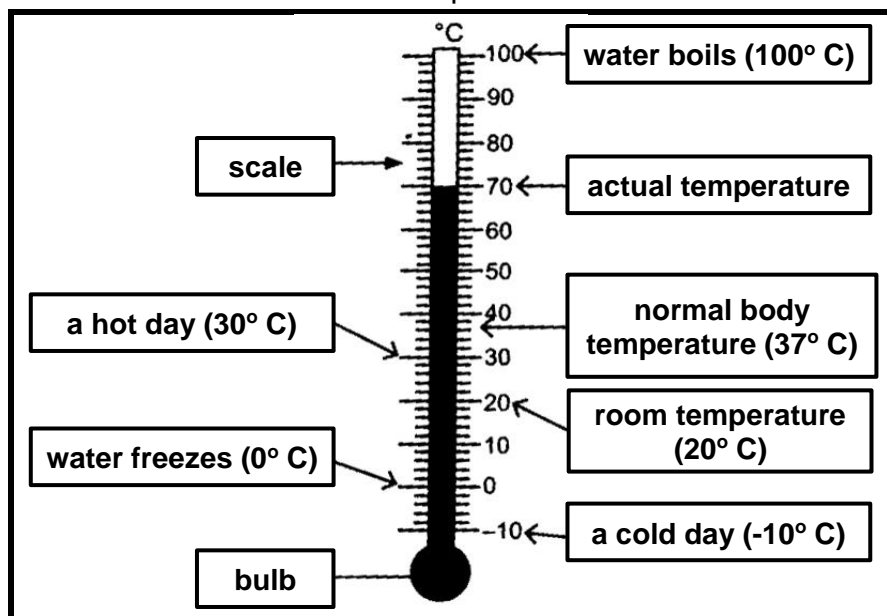
A	B
°C °F	°C °F

QUESTIONS:
1. What is the reading temperature of thermometer A?
2. What is the reading temperature of thermometer B?
3. What is the difference in the reading temperatures of the two thermometers?

What is It

Temperature is the hotness or coldness of an object. It can be expressed in "degree Celsius °C and Farenheit °F. The instrument used in measuring is the thermometer. A thermometer has two important elements:

- **Temperature** sensor is the **bulb.**
- **Scale** shows the temperature.

°C

water boils (100° C)

scale

actual temperature

a hot day (30° C)

normal body temperature (37° C)

room temperature (20° C)

water freezes (0° C)

a cold day (-10° C)

bulb

The two common liquids inside the scale that goes up and down as the temperature changes are alcohol and mercury.

In the given illustration, the temperature reading is 70 degrees celsius and is written as 70 ° C.
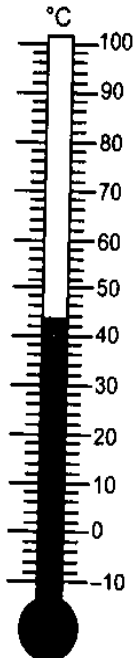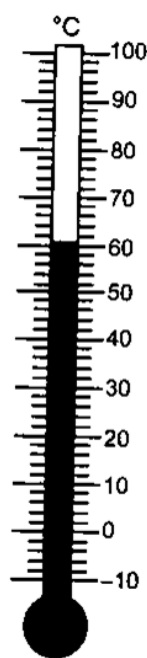
What's More

Directions: Record the given temperature in degree Celsius. Write your answer on the separate sheet.
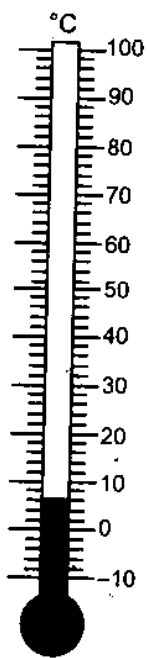
1. _____ 2. _____ 3. _____ 4. _____ 5. _____

What I Have Learned

Directions: Fill in the blanks with the correct word to form the concept that you have learned today.

- Temperature is the hotness or coldness of an object and is often expressed in degrees Celsius (°C) and Fahrenheit °F. A 1. _____ is used to measure temperature. The parts of the thermometer are mercury, glass tube, glass bulb, and scale. The degree Celsius (°C) is the 2. _____ being used to measure the hotness or coldness of an object.

- Our body 3. _____ can be measured in different parts of our body. The most common ones are the mouth, ear, armpit and rectum. Temperature can also be measured on the forehead. Thermometers show body temperature in either 4. _____ or 5. _____.

LESSON 2	SOLVING ROUTINE AND NON-ROUTINE PROBLEMS INVOLVING TEMPERATURE IN REAL LIFE SITUATIONS

What is It

- **The routine problem** concerns solving problems that are useful for daily living in the present and future.
- **Non-routine problem** is mostly concerned with developing pupils' mathematical reasoning power and fostering the understanding that mathematics is a creative endeavor. Some strategies used in this kind of problem are guessed and check drawing diagrams, using patterns, and working backward.

PROBLEM A

> The weather report in one newspaper predicted the lowest temperature for the day is 24°C and the highest at 32°C. What is the difference in the predicted temperature for the day?

Analyze the problem:
1. What is asked in the problem?
   - *What is the difference in the predicted temperature for the day?*
2. What are the given facts?
     24°C – lowest temperature
     32°C – highest temperature
3. What operation to be used?
   - subtraction
4. Write the number sentence.
     32°C - 24°C = N
5. Show the solution.
   - Subtract the given data.

   2 12
   3̶2̶°C   - Regroup the tens place because we cannot subtract from 4.
 - 24°C
     8 °C

8°C is the difference in the predicted temperature for the day.

PROBLEM B

> Marina has a fever. At noon, her temperature increased by 1.8°C from her temperature at 7 A.M. Then her temperature went down by 1.3°C at 5 P.M, at 11 A.M her temperature rose again by 1.1°C. If her temperature at 11 P.M was 39.7°C. What was her temperature at 7 A.M?

Follow the four-step plan to solve the problem.

FOUR – STEP PLAN	ILLUSTRATIVE EXAMPLE
UNDERSTAND	
• Identify the question	Marina's temperature at 7 A.M.
• Identify the relevant facts	At 12 noon, her temperature increased by 1.8°C from her temperature at 7 A.M. Then her temperature went down by 1.3°C at 5 P.M., at 11 A.M her temperature rose again by 1.1°C. If her temperature at 11 P.M. was 39.7°C.
PLAN	
• Choose the strategy	Drawing a diagram and working backward.
SOLVE	
• Perform the strategies	Illustrate the problem by using a diagram. +1.8° C −1.3° C +1.1° C [?] → [?] → [?] → [39.7°C] 7 A.M. 12 noon 5 P.M. 11 P.M. Work backward by starting with the last fact. Remember that addition and subtraction are inverse operations. −1.8° C +1.3° C −1.1° C [38.1°C] → [39.9°C] → [38.6°C] → [39.7°C] 7 A.M. 12 noon 5 P.M. 11 P.M. At 5 P.M.: 39.7°C – 1.1°C = 38.6°C At 12 noon: 38.6°C + 1.3°C = 39.9°C At 7 A.M.: 39.9°C – 1.8°C = 38.1°C
• ANSWER	**Marina's temperature at 7 A.M. was 38.1°C**.
CHECK AND LOOK BACK	
• Verify if the answer is correct.	Substitute the values for each of the boxes in the First diagram above and perform the indicated operations. 38.1°C + 1.8°C = 39.9°C 39.9°C - 1.3°C = 38.6°C 38.6°C + 1.1°C = 39.7°C **The answer is correct.**

What's More

Directions: Read and answer the problem. Write your answer on the separate sheet.

1. Enzo's temperature lowered by 1.75°C after he was given a sponge bath. Before the bath, his body temperature was 40.25°C. What is his body temperature now?
2. If the temperature at 10:00 a.m. is 25 °C. What is the temperature at 12 noon if the temperature increases by 4°C?

What I Have Learned

Directions: Briefly answer the questions below.

1. What are the steps in solving routine problems involving a temperature in real-life situations? List the steps in solving routine word problems.

2. How do we solve non-routine word problems?

What I Can Do

A. Directions: Choose the letter that corresponds to your answer. Write on the separate sheet.

1. In the morning, the temperature was -10°C, and it increased 3 degrees by the evening. What was the temperature in the evening?
   A. -7°C   B. -23°C   C. -13°C   D. -12°C
2. Look at the thermometer. Select the activities that you can do at this the temperature in °C.
   A. Beach and Swimming   C. Staycation
   B. Kite flying   D. hiking/ mountaineering

3. The school nurse advised Joshua to go home because his body temperature was 39.7°C. How much more was it from the normal body temperature?
   A. 1.7°C   B. 3.7°C   C. 2.7°C   D. 4.7°C
4. On a summer day, the temperature rose from 23°C to 31°C. How many degrees did it rise?
   A. 6°C   B. 9°C   C. 5°C   D. 8°C

5. Which of the following temperature is the coldest?

A. -5°C   B. 0°C   C. -9°C   D. 5°C

B. Directions: Read and analyze the problem. Choose the letter of the correct answer and write on a separate sheet.

> The temperature reading is 42°C. If it changed to 53.5°C, by how much temperature was increased?

1. What is asked in the problem?
   A. How much temperature was increased?
   B. Why did the temperature change?
   C. How much temperature was decreased?
   D. Why did the temperature increase?
2. What are the given facts?
   A. 42°C   B. 53.5°C   C. 42°C, 53.5°C   D. 41°C, 52.5°C
3. What operation did we use to solve the problem?
   A. addition   B. subtraction   C. multiplication   D. division
4. What is the mathematical sentence?
   A. 53.5°C - 42°C = N   C. 42°C X 53.5°C = N
   B. 42°C + 53.5°C = N   D. 42°C ÷ 53.5°C = N
5. What is the complete answer?
   A. The temperature increased by 11.5°C.
   B. The temperature decreased by 11.5°C.
   C. The temperature increased by 10.5°C.
   D. The average temperature is 95.5°C.

Assessment

Directions: Read and answer the following. Write the correct answer on a separate sheet of paper.

1. It is a device used in measuring temperature.
   A. ruler   B. thermometer   C. meter stick   D. tape measure
2. What is the temperature of the hottest cup of coffee.
   A. 30°C   B. 85°C   C. 70°C   D. 50°C
3. What is the temperature of the boiling water?
   A. 0°C   B. 25°C   C. 50°C   D. 100°C
4. The temperature of a liquid in a thermometer is 26.52 °C lower than the boiling point of water. What is the thermometer reading?
   A. 70.35 °C   B. 71.36 °C   C. 72.56°C   D. 73.48°C
5. Dr. Gregorio went to his laboratory at 7:00 a.m. and recorded that the room temperature was at 11.07°C. At lunchtime, the temperature rose by 27.9 °C but dropped by 8.05 °C at 5:00 p.m. What was the temperature at 5:00 p.m.?
   A. 30.92 °C   B. 31.92 °C   C. 32.92 °C   D. 33.92 °C
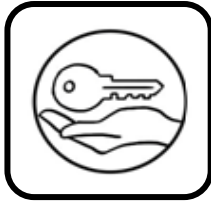
Answer Key

What I Know:

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

What's In:

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

What's More:

1. 38.5 °C
2. 29 °C

What's New:

1. 37 °C
2. 39 °C
3. 2 °C

What's More:

1. 19°C	2. 43°C	3. 60°C
4. 80°C	5. 7°C	

What I have learned:

1. Thermometer
2. Unit of measurement
3. Temperature
4. Degree celsius
5. Degree farenheit

What I can Do:

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

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

Assessment:

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

References:

Alvin C. Ursua et al., 21st Century Mathletes 5, ed. Mercurio T. Elenzano, Pasig: Vibal Group, Inc. 2016, 318-323.

Carmelita C. Coronel et al., Mathematics for Better Life 5 SD Publications, Inc. Quezon City Philippines, 2010, 268-269.

I AM A FILIPINO
by Carlos P. Romulo

I am a Filipino – inheritor of a glorious past, hostage to the uncertain future. As such, I must prove equal to a two-fold task – the task of meeting my responsibility to the past, and the task of performing my obligation to the future.

I am sprung from a hardy race – child many generations removed of ancient Malayan pioneers. Across the centuries, the memory comes rushing back to me: of brown-skinned men putting out to sea in ships that were as frail as their hearts were stout. Over the sea I see them come, borne upon the billowing wave and the whistling wind, carried upon the mighty swell of hope – hope in the free abundance of the new land that was to be their home and their children's forever.

This is the land they sought and found. Every inch of shore that their eyes first set upon, every hill and mountain that beckoned to them with a green and purple invitation, every mile of rolling plain that their view encompassed, every river and lake that promised a plentiful living and the fruitfulness of commerce, is a hollowed spot to me.

By the strength of their hearts and hands, by every right of law, human and divine, this land and all the appurtenances thereof – the black and fertile soil, the seas and lakes and rivers teeming with fish, the forests with their inexhaustible wealth in wild and timber, the mountains with their bowels swollen with minerals – the whole of this rich and happy land has been for centuries without number, the land of my fathers. This land I received in trust from them, and in trust will pass it to my children, and so on until the world is no more.

I am a Filipino. In my blood runs the immortal seed of heroes – seed that flowered down the centuries in deeds of courage and defiance. In my veins yet pulses the same hot blood that sent Lapulapu to battle against the alien foe, that drove Diego Silang and Dagohoy into rebellion against the foreign oppressor.

That seed is immortal. It is the self-same seed that flowered in the heart of Jose Rizal that morning in Bagumbayan when a volley of shots put an end to all that was mortal of him and made his spirit deathless forever; the same that flowered in the hearts of Bonifacio in Balintawak, of Gregorio del Pilar at Tirad Pass, of Antonio Luna at Calumpit, that bloomed in flowers of frustration in the sad heart of Emilio Aguinaldo at Palanan, and yet burst forth royally again in the proud heart of Manuel L. Quezon when he stood at last on the threshold of ancient Malacanang Palace, in the symbolic act of possession and racial vindication. The seed I bear within me is an immortal seed.

It is the mark of my manhood, the symbol of my dignity as a human being. Like the seeds that were once buried in the tomb of Tutankhamen many thousands of years ago, it shall grow and flower and bear fruit again. It is the insigne of my race, and my generation is but a stage in the unending search of my people for freedom and happiness.

I am a Filipino, child of the marriage of the East and the West. The East, with its languor and mysticism, its passivity and endurance, was my mother, and my sire was the West that came thundering across the seas with the Cross and Sword and the Machine. I am of the East, an eager participant in its struggles for liberation from the imperialist yoke. But I know also that the East must awake from its centuried sleep, shake off the lethargy that has bound its limbs, and start moving where destiny awaits.

For I, too, am of the West, and the vigorous peoples of the West have destroyed forever the peace and quiet that once were ours. I can no longer live, a being apart from those whose world now trembles to the roar of bomb and cannon shot. For no man and no nation is an island, but a part of the main, and there is no longer any East and West – only individuals and nations making those momentous choices that are the hinges upon which history revolves. At the vanguard of progress in this part of the world I stand – a forlorn figure in the eyes of some, but not one defeated and lost. For through the thick, interlacing branches of habit and custom above me I have seen the light of the sun, and I know that it is good. I have seen the light of justice and equality and freedom, my heart has been lifted by the vision of democracy, and I shall not rest until my land and my people shall have been blessed by these, beyond the power of any man or nation to subvert or destroy.

I am a Filipino, and this is my inheritance. What pledge shall I give that I may prove worthy of my inheritance? I shall give the pledge that has come ringing down the corridors of the centuries, and it shall be compounded of the joyous cries of my Malayan forebears when first they saw the contours of this land loom before their eyes, of the battle cries that have resounded in every field of combat from Mactan to Tirad Pass, of the voices of my people when they sing:

"I am a Filipino born to freedom, and I shall not rest until freedom shall have been added unto my inheritance—for myself and my children and my children's children—forever."