

Mathematics

Quarter 2 – Module 1: Approximating Measurement



CO_Q2_Math 7_Module 1



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Mathematics – Grade 7
Alternative Delivery Mode
Quarter 2 – Module 1: Approximating Measurement
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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

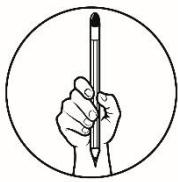
This module was designed and written with you in mind. It is here to help you master Approximating Measurement. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using.

The module is comprised of only one lesson:

- Approximating Measurement

After going through this module, you are expected to:

- approximate the measures of quantities particularly length, weight/mass, volume, time, angle and temperature and rate (M7ME-IIa-3)



What I Know

Let us check what you already know about this lesson!

Multiple choice. Read each item carefully. Choose the letter of the best answer and write it on a separate sheet of paper.

1. What unit of measure do medicines in capsule usually have?
 - A. milliliter
 - B. hectogram
 - C. milligram
 - D. nanometer

2. I planned to enter a business of making calamansi juice. What unit of measure should I use to be indicated in the label of my product?
 - A. millimeter
 - B. milliliter
 - C. milligram
 - D. gram

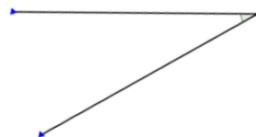
3. In measuring the mass of sack of rice, which of the following units of measure should you use?
 - A. milligram
 - B. gram
 - C. pound
 - D. kilogram

4. In the early system of units, the forearm length was called cubit. The palm is considered what part of a cubit?
 - A. $\frac{2}{3}$
 - B. $\frac{1}{2}$
 - C. $\frac{1}{3}$
 - D. $\frac{1}{6}$

5. Julie is baking a cake. What unit of measure should she use for the time duration of baking?
 - A. radian
 - B. second
 - C. minute
 - D. hour

6. To measure small objects like microchip, what unit should you use?
 - A. millimeter
 - B. centimeter
 - C. meter
 - D. kilometer

7. Which of the following affects the accuracy of measurements?
- A. the unit of measure
 - B. the part of the body used in measurement
 - C. the skill of the person doing the measurement
 - D. the length of the instrument used in measuring
8. What is the appropriate unit of measure for the mass of a steel cabinet?
- A. zeptogram
 - B. milligram
 - C. kilogram
 - D. exa-gram
9. Which is the best estimate of temperature of cold glass of fruit juice in degree Celsius?
- A. 0
 - B. 10
 - C. 32
 - D. 100
10. Estimate the given angle on the right.
- A. 10°
 - B. 30°
 - C. 45°
 - D. 60°
11. If your forearm length is 40cm and you are about to measure a plywood to be used as the wall of your bedroom, how long is the plywood if you measured 6 forearm length?
- A. 46 cm
 - B. 92 cm
 - C. 200 cm
 - D. 240cm
12. From school, Rosa lives three times as far as Cyndi. If Rosa's house is 4.726 kilometers away from the school, how far is Cyndi's house?
- A. 1.25
 - B. 1.58
 - C. 12.53
 - D. 12.83
13. How many meters of wood are needed to completely surround a square whose side is 0.427 meter?
- A. 1 meter
 - B. 2 meters
 - C. 3 meters
 - D. 4 meters



14. A school bus left a house and travelled at an average speed of 50 kph. How many minutes will it take for the bus to reach the school which is 8 km away from the house?
- A. 0.12 h
 - B. 0.16 h
 - C. 6.22 h
 - D. 6.25 h
15. A baby weighs 3.35 kilograms at birth. Suppose the baby's weight constantly increases every two months by 1.2 kilograms, what is his weight, in the same unit, on the 5th month?
- A. 5.33
 - B. 5.35
 - C. 6.33
 - D. 6.35

Lesson 1

Approximating Measurement

Have you ever wondered what the world would be when we use our palm, handspan, and forearm length instead of rulers, measuring tapes, and meter sticks? This module connects us to the history where we don't have to worry about our physical differences such as sizes of our palm and forearm because the standards are already set. To appreciate more, let us learn together this module.



What's In

Let us recall first some important terms of measurement. Rearrange the letters the following highlighted terms and fill in the blanks provided to complete the sentences.

1. To **EURSEAM** _____ means to give a particular number to a particular characteristic of a person, an object, or a concept. When measurements are made, they are expressed quantitatively as numbers.
2. The **THLEGN** _____ is the term used for identifying the size of an object by the distance from end to end or commonly referred to as the longest dimension of an object.
3. **SAMS** _____ refers to the amount of matter an object has while
4. **HTIWEG** _____ is the gravitational force acting on an object.
5. **MVOEUL** _____ is the amount of space an object occupies. In a container, it is considered to be the capacity of the container.
6. **ETIM** _____ is the ongoing and continuous sequence of events taking place in succession, from past to the present to the future.
7. **LENAG** _____ was derived from the Latin word *angulus*, which means corner. It is a figure formed when two rays share a common endpoint called the *vertex*.
8. **ERATEMUPTER** _____ is the measurement of the degree of hotness or coldness of an object or a substance.
9. **ERTA** _____ is the ratio between two related quantities in different units.



What's New

Activity 1. Let's do this TOGETHER!

Determine the dimension of the following objects at home using only the parts of your arms. Indicate the appropriate part of the arm used for each object. Do this activity with your parent, guardian or sibling. Record the results in the given table below. The first two columns were accomplished as your example.

	envelop		notebook		table		house	
	Length	Width	Length	Width	Length	Width	Length	Width
What arm part is used? <ul style="list-style-type: none">▪ Palm▪ Handspan▪ Forearm length	palm	palm						
YOU	6	4						
Parent/ Guardian/ Sibling	5	3						

Note: Palm – the width of one's hand excluding the thumb

Handspan – the distance from the tip of the thumb to the tip of the little finger of one's hand with fingers spread apart

Forearm length – the length of one's forearm; the distance from the elbow to the tip of the middle finger



What is It

How was your experience with the previous activity? Did you find it hard to do actual measurement? Were there any differences in your data and your other family member's data? What do you think is the cause of those differences? These could explain everything!

HISTORY OF MEASUREMENT

One of the earliest inventions of human beings was the unit of measurement. In ancient times, people needed measurement to determine how long or wide things are. They need to measure things to build their houses or make their clothes. Later, units of measurement were used in trade and commerce. In the 3rd century BC in Egypt, people used their body parts to determine the measurements of things; the same body parts that you used to measure the assigned things to you in Activity 1.

The forearm length was called a cubit. The handspan was considered a half cubit, while the palm was considered $\frac{1}{6}$ of a cubit. The Egyptians came up with these units to be more accurate in measuring different lengths.

However, using these units of measurement had a disadvantage. Not everyone had the same forearm length. Discrepancies arose when the people started comparing their measurements to one another because measurements of the same thing differed, depending on who was measuring it. Because of this, these units of measurement are called non-standard units of measurement which later on evolved into what is now the **inch**, **foot** and **yard**, the basic units of length in the English system of measurement.

The results of measuring are merely approximations since measurements are not always exact. Oftentimes, there is a relative error involved.

Accuracy of measurements depends on two factors:

1. **The skill of the person doing the measurement.** This can be developed through constant practice.
2. **The precision of the instrument used in measuring.** This is totally dependent to the measuring device.

The **English System of Measurement** was widely used until the 1800s and the 1900s when the **Metric System of Measurement** started to gain ground and became the most used system of measurement worldwide. First described by Belgian Mathematician Simon Stevin in his booklet, *De Thiende* (The Art of Tenth) and proposed by English philosopher, John Wilkins, the Metric System of Measurement was first adopted by France in 1799. In 1875, the General Conference on Weights and Measures (*Conférence générale des poids et mesures* or *CGPM*) was tasked to

define the different measurements. By 1960, CGPM released the **International System of Units (SI)** which is now being used by majority of the countries with the biggest exception being the United States of America. Since Philippines used to be a colony of the United States, earlier Filipinos were taught in the use of the English instead of the Metric System of Measurement. Thus, they preferred English System rather than the Metric System although the Philippines have already adopted the Metric System as its official system of measurement.

The Metric System of Measurement is easier to use than the English System of Measurement since its conversion factors would consistently be in the decimal system, unlike the English System of Measurement where units of lengths have different conversion factors. The base unit for length is the meter and units longer or shorter than the meter would be achieved by adding prefixes to the base unit. These prefixes may also be used for the base units for mass, volume, time and other measurements.

Here are the common prefixes used in the Metric System:

PREFIX	SYMBOL	FACTOR
yyotta-	Y	$\times 1\ 000\ 000\ 000\ 000\ 000\ 000\ 000\ 000$ or 10^{24}
zeta-	Z	$\times 1\ 000\ 000\ 000\ 000\ 000\ 000\ 000\ 000$ or 10^{21}
exa-	E	$\times 1\ 000\ 000\ 000\ 000\ 000\ 000\ 000\ 000$ or 10^{18}
peta-	P	$\times 1\ 000\ 000\ 000\ 000\ 000\ 000\ 000$ or 10^{15}
tera-	T	$\times 1\ 000\ 000\ 000\ 000$ or 10^{12}
giga-	G	$\times 1\ 000\ 000\ 000$ or 10^9
mega-	M	$\times 1\ 000\ 000$ or 10^6
kilo-	k	$\times 1\ 000$ or 10^3
hecto-	h	$\times 100$ or 10^2
deka-	da	$\times 10$ or 10^1
deci-	d	$\times 1/10$ or 10^{-1}
centi-	c	$\times 1/100$ or 10^{-2}
milli-	m	$\times 1/1\ 000$ or 10^{-3}
micro-	μ	$\times 1/1\ 000\ 000$ or 10^{-6}
nano-	n	$\times 1/1\ 000\ 000\ 000$ or 10^{-9}
pico-	p	$\times 1/1\ 000\ 000\ 000\ 000$ or 10^{-12}
femto-	f	$\times 1/1\ 000\ 000\ 000\ 000\ 000$ or 10^{-15}
atto-	a	$\times 1/1\ 000\ 000\ 000\ 000\ 000\ 000$ or 10^{-18}
zepto-	z	$\times 1/1\ 000\ 000\ 000\ 000\ 000\ 000\ 000$ or 10^{-21}
yocto-	y	$\times 1/1\ 000\ 000\ 000\ 000\ 000\ 000\ 000\ 000$ or 10^{-24}

The seven SI base units are comprised of:

QUANTITY	BASE UNIT
Length	meter (m)
Time	second (s)
Amount of Substance	mole (mol)
Electric current	ampere (A)
Temperature	
Luminous Intensity	candela (cd)
Mass	kilogram (kg)

In both English and Metric system, there is a basic unit for length, mass, volume, time, temperature and angle. Though these basic units are still widely used, the adoption of the International System of Units will serve its purpose which is to provide the same values of measurements wherever it is performed.

Questions to ponder:

1. When a Filipina is described as 1.7 meters tall, would she be considered tall or short? How about if she is described as 5 ft and 7 in tall, would she be considered tall or short?
 - *Chances are, you will find it difficult to answer the first question. For the second question, a Filipina with a height 5 ft and 7 in would be considered tall by Filipino standards.*
2. Which particular unit of height were you more familiar with? Why?
 - *Possibly, in measuring height, the use of feet and inches is more familiar to you than that of meters because the English system is still being widely used in the Philippines for this quantity.*

Example 1. Estimate your Non-Standard Units.

Use a measuring tool (tape measure or ruler) to measure your Non-Standard Units to Metric Units. Note your answer for the next activity.

Table 1

	palm	handspan	forearm length
centimeters			
meters			

Using the data in Table 1, estimate the lengths of the following objects in Table 2 without using any measuring tool.

Table 2

	ballpen	length of window pane	length of your foot (from the tip of your heel to the tip of your toes)	length of your dining table
Non-Standard Unit				
Metric Unit				

Example 2. Mass / Weight

Anna plans to buy plants and vermi cast at nearby garden shop but has a vehicle with limited weight capacity of 800 kilograms for the items to be bought. If the sacks of vermi cast weigh 250 kilograms and each plant weighs approximately 4.5 kilograms, what is the maximum number of plants that Anna can buy and transport regardless of the size?

Solution. Step 1: Find the available capacity the vehicle can hold.

$$\text{capacity} - \text{weight of vermi cast}$$

$$800 \text{ kg} - 250 \text{ kg} = 550 \text{ kg}$$

$$\text{Step 2: } \frac{550 \text{ kg}}{4.5 \text{ kg}} = 122.22 \approx 122$$

Therefore, 122 is the maximum number of plants that Anna can buy and transport.

Example 3. Volume

A rectangular container van needs to be filled with identical cubical balikbayan boxes. If the container van's length, width and height are 16 ft, 4 ft and 6ft, respectively, while each balikbayan box has an edge of 2 ft, what is the maximum number of balikbayan boxes that can be placed inside the van?

$$\begin{aligned} \text{Step 1: } V_{\text{van}} &= lwh \\ &= (16 \text{ ft})(4 \text{ ft})(6 \text{ ft}) \\ &= 384 \text{ ft}^3 \end{aligned}$$

$$\begin{aligned} \text{Step 2: } V_{\text{box}} &= e^3 \\ &= (2 \text{ ft})^3 \\ &= 8 \text{ ft}^3 \end{aligned}$$

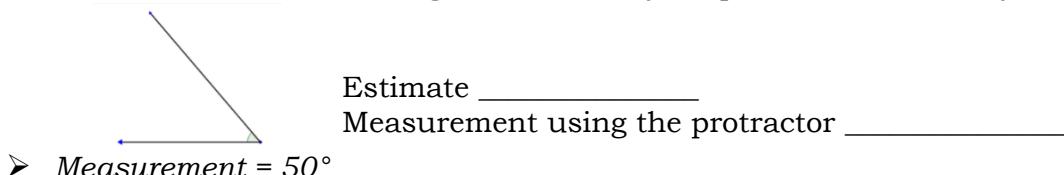
$$\begin{aligned} \text{Step 3: } \text{Number of boxes} &= \frac{V_{\text{van}}}{V_{\text{box}}} \\ &= \frac{384 \text{ ft}^3}{8 \text{ ft}^3} \\ &= 48 \text{ boxes} \end{aligned}$$

Example 4. Angle

In estimating measurement of angle, we need to recall the different kinds of angles such as:

1. Acute angle – angle whose measure is less than 90°
2. Right angle – angle whose measure is exactly 90°
3. Obtuse angle - angle whose measure is more than 90°

1. Estimate the measurement of the angle below. Use your protractor to check your estimate.



2. What difficulties did you meet in using your protractor to measure the angles?
 - One of the difficulties you may encounter would be on the use of the protractor and the angle orientation. Aligning the cross bar and base line of the protractor with the vertex and an angle leg, respectively, might prove to be confusing at first, especially if the angle opens in the clockwise orientation. Another difficulty arises if the length of the leg is too short such that it won't reach the tick marks on the protractor. This can be remedied by extending the leg.
3. What can be done to improve your skill in estimating angle measurements?
 - You may familiarize yourself with the measurements of the common angles like the angles in the first activity, and use these angles in estimating the measurement of other angles.

Example 5. Temperature

Zale, a Cebu resident, was packing his suitcase for his trip to New York City the next day for a 2-week vacation. He googled New York weather and found out the average temperature there is 15°C . Should he bring a sweater? What data should Zale consider before making a decision?

Solution.

1. What data should Zale consider before making a decision?
 - In order to determine whether he should bring a sweater or not, Zale needs to compare the average temperature in New York City to the temperature he is used to which is the average temperature in Cebu. Compared average temperatures should always be expressed in same units and be converted if it differs.
2. Should Zale bring a sweater?
 - The average temperature in Cebu is between $24 - 32^{\circ}\text{C}$. Since the average temperature in New York City is 15°C , Zale should probably bring a sweater since the latter's temperature is way below the temperature he is used to. Better yet, he should bring a jacket just to be safe.

Example 6. Time/ Rate

The concept of time is very basic and is integral in the discussion of other concepts such as speed. Currently, there are two types of notation in stating time, the 12-hr notation (standard time) or the 24-hr notation (military or astronomical time). Standard time makes use of a.m. and p.m. to distinguish between the time from 12midnight to 12 noon (a.m. or ante meridiem) and from 12 noon to 12 midnight (p.m. or post meridiem). This sometimes leads to ambiguity when the suffix of a.m. and p.m. are left out. Military time prevents this ambiguity by using the 24-hour notation where the counting of the time continues all the way to 24. In this notation, 1:00 p.m. is expressed as 1300 hours and 5:30 p.m. is expressed as 1730 hours.

Consider the given situation:

An airplane bound for Beijing took off from the Ninoy Aquino International Airport at 11:15 a.m. Its estimated time of arrival in Beijing is at 1555 hrs. The distance from Manila to Beijing is 2839 km.

Questions:

1. What time (in standard time) is the plane supposed to arrive in Beijing?
2. How long is the flight?
3. What is the plane's average speed?

Solution.

1. What time (in standard time) is the plane supposed to arrive in Beijing?
➤ 3:55 P.M.
2. How long is the flight?
➤ $1555 \text{ hrs} - 1115 \text{ hrs} = 4 \text{ hrs, } 40 \text{ minutes or } 4.67 \text{ hours}$
3. What is the plane's average speed?
➤
$$S = \frac{d}{t}$$
$$= \frac{2839 \text{ km}}{4.67 \text{ hrs}}$$
$$= 607.92 \text{ kph}$$

Example 7. Determine a practical SI unit for each of the following:

1. Length of the provincial road
2. Total area of a farm
3. The mass of a baby
4. The volume of a small pail of water
5. The mass of a 24k gold bracelet
6. A bottle of juice drink
7. The length of wire of a phone charger
8. A squash bought at the market
9. An extension wire
10. A small bottle of alcohol

Answer: kilometer

Answer: square meter

Answer: kilogram

Answer: liter

Answer: gram

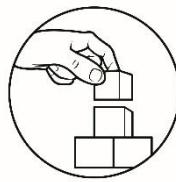
Answer: milliliter

Answer: meter

Answer: kilogram

Answer: meter

Answer: milliliter



What's More

Activity 2.

Using the data from *Example 1, Table 1*, convert the dimensions of the sheet of paper, teacher's table, and the classroom into Metric units. Recall past lessons on perimeter and area and fill in the appropriate columns:

	sheet of intermediate paper				dining table				house			
	Length	Width	Perimeter	Area	Length	Width	Perimeter	Area	Length	Width	Perimeter	Area
Non-Standard Unit												
Metric Unit												

Activity 3.

Estimate the measurement of the given angles, then check your estimates by measuring the same angles using your protractor.

angle			
estimate			
measurement			

Activity 4.

Choose an appropriate SI unit of measure for each of the following:

Length:

1. A pencil
2. A flagpole
3. A highway

Mass:

4. A sack of rice
5. A 10-year old boy

Liquid measure:

6. A jug of water
7. A tank of gasoline
8. A dose of medicine

Area:

9. The area of the front cover of a book
10. The surface area of a microchip

Activity 5.

Choose the best approximation of temperature for the following:

- | | |
|---------------------------------|---------------------|
| 1. A good day to go swimming: | 15°C, 32°C, 55°C |
| 2. A feverish condition: | 29°C, 33°C, 38°C |
| 3. A moderate oven temperature: | 300°F, 400°F, 450°F |
| 4. A good night to sleep: | 15°C, 34°C, 58°C |
| 5. A glass of hot milk: | 10°C, 15°C, 40°C |

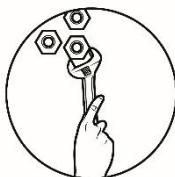


What I Have Learned

Let's recap! Fill in the blanks to complete the following sentences.

1. At around 3rd century BC in _____, people use their body parts to determine the measurement of things.
2. In 1800s, the _____ is widely used and later in 1900s, _____ started to gain ground.

3. The International System of Units (SI) has seven (7) base units comprised of: _____, _____, _____, _____, _____, _____ and _____.
4. Accuracy of measurements depends on two factors: _____ and _____.
5. In estimating measurement, a person should consider the _____ unit of measure for the object.



What I Can Do

This section involves real-life application of approximating the measures of quantity. Read and understand the given situation and solve the given problem by showing your complete solution.

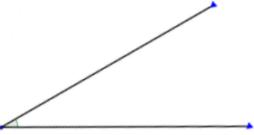
1. A car left the house and travelled at an average speed of 60 kph. How many minutes will it take for the car to reach the school which is 8 km away from the house?
2. Your mother is very fond of collecting rare *philodendron* (*an ornamental and indoor plant*). If she has a garden which measures 100 m^2 (10 m by 10 m) and each philodendron will occupy an estimated area of 0.6 by 0.6 m of the garden, what is the maximum number of philodendron plants that will occupy the whole area?
3. A cylindrical water tank has a diameter of 4 m and a height of 3 m, while a water tank shaped like a rectangular prism has a length of 7 m, a width of 2 meters and a height of 2 meters. Which of the two tanks can hold more water? By how many cubic meters?



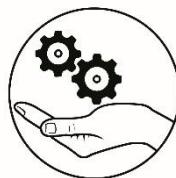
Assessment

Multiple choice. Read each item carefully. Choose the letter of the best answer and write it on a separate sheet of paper.

1. Johnny is a runner. What unit of time he should use in a practice for an athletic game?
 - A. nanosecond
 - B. second
 - C. minutes
 - D. hour
2. In the new normal, fast food chains are always checking temperatures of customers. What unit of measure are they using?
 - A. degrees
 - B. degrees Fahrenheit
 - C. degrees Celsius
 - D. 36°C
3. In the early system of units, the forearm length was called cubit. The handspan is considered what part of a cubit?
 - A. $\frac{2}{3}$
 - B. $\frac{1}{2}$
 - C. $\frac{1}{3}$
 - D. $\frac{1}{6}$
4. Which unit of measurement are we going to use if we are measuring the time spent in using the web for a research?
 - A. microsecond
 - B. millisecond
 - C. second
 - D. hour
5. In measuring the mass of sack of loam soil, which of the following units of measure should you use?
 - A. milligram
 - B. gram
 - C. pound
 - D. kilogram
6. To measure small objects like microchip, what unit is the best to use?
 - A. millimeter
 - B. centimeter
 - C. meter
 - D. kilometer

7. Which of the following affects the accuracy of measurements?
- The unit of measure
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 - The skill of the person doing the measurement
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 - milligram
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 - exa-gram
9. Which is the best estimate of temperature of a boiling water in degree Celsius?
- 0
 - 10
 - 32
 - 100
10. Estimate the given angle on the right.
- 10°
 - 30°
 - 45°
 - 60°
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11. How many meters of wood are needed to completely surround a square whose side is 0.427 meter?
- 1 meter
 - 2 meters
 - 3 meters
 - 4 meters
12. From school, Cyndi lives five times as far as Dianne. If Dianne's house is 1.53 kilometers away from the school, how far is Cyndi's house?
- 7.65
 - 7.25
 - 0.316
 - 0.306
13. If your forearm length is 30cm and you are about to measure a plywood to be used as the wall of your bedroom, how long is the plywood if you measured 7 forearm length?
- 46 cm
 - 92 cm
 - 200 cm
 - 210cm

14. A baby weighs 3.05 kilograms at birth. Suppose the baby's weight constantly increases by 1.4 kilograms every two months, what is his weight, in the same unit, on the 6th month?
- 4.25
 - 5.25
 - 6.25
 - 7.25
15. A school bus left a house and travelled at an average speed of 55 kph. How many minutes will it take for the bus to reach the school which is 17 km away from the house?
- 0.30 h
 - 0.31 h
 - 3.23 h
 - 3.24 h



Additional Activities

Approximating measure of quantities can be done while staying at home. This task will give you more of real-life experience in which you can apply what you have learned in this module.

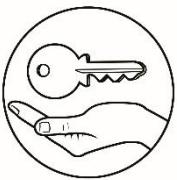
Task: Select at least 5 objects in your house and estimate the measure of: a) length, b) width and c) mass. After you estimate the measurement of each object, measure using a measuring tool. You may use the table below for the task and answer the questions that follow.

	Estimated measurement			Measurement of object using a measuring tool		
	length	width	mass	length	width	mass
Object 1 _____						
Object 2 _____						
Object 3 _____						
Object 4 _____						
Object 5 _____						

Questions:

1. In estimating the length of the selected objects, what difficulties did you encounter? Explain.
2. In estimating the width of the selected objects, what difficulties did you encounter? Explain.
3. In estimating the mass of the selected objects, what difficulties did you encounter? Explain.
4. Which is easier to do between estimation and measurement using a measuring tool? Discuss the advantages and disadvantages of each.

Congratulations! You are now ready for the next module. Keep it up!



Answer Key

Answers may vary depending on the objects selected at home and the difficulty encountered in doing the task.

Additional Activities

1. cm
 2. m
 3. km
 4. kg
 5. kg
 6. L
 7. L
 8. mL
 9. cm²
 10. mm²
- Activity 4
- A. 20°
 - B. 70°
 - C. 110°
- Activity 3
- Measurement
1. A
 2. C
 3. B
 4. D
 5. D
 6. A
 7. C
 8. C
 9. D
 10. B
 11. B
 12. A
 13. D
 14. D
 15. B

Activity 2 (Answers vary based on data of Table 1)

Activity 1 (Answers vary)
What's More

- What I can do
1. 0.13 h or 7.8 minutes
 2. 277 plants
 3. $V_{\text{cylinder}} = 37.68 \text{ m}^3$
 4. $V_{\text{cylinder}} = 28 \text{ m}^3$
 5. Thus, the cylindrical tank can hold more water.

- What I know
1. Egypt
 2. English System of Measurement, Metric System
 3. meter – for length,
 4. second – for time,
 5. mole – for amount of substance,
 6. candela – for luminous intensity,
 7. kelvin – for temperature,
 8. ampere – for electric current,
 9. watt – for power,
 10. newton – for force,
 11. pascal – for pressure,
 12. joule – for energy,
 13. coulomb – for charge,
 14. farad – for capacitance,
 15. ohm – for resistance,

- What I have learned
1. Measure
 2. Length
 3. Weight
 4. Mass
 5. Volume
 6. Time
 7. Angle
 8. Temperature
 9. Rate

Activity 5

What's in	10. mm ²
Activity 1 (Answers vary)	9. cm ²
Activity 2 (Answers vary based on data of Table 1)	8. mL
Activity 3	7. L
Activity 4	6. kg
Additional Activities	5. kg
Answers may vary depending on the objects selected at home and the difficulty encountered in doing the task.	4. km
	3. mL
	2. cm
	1. mm

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