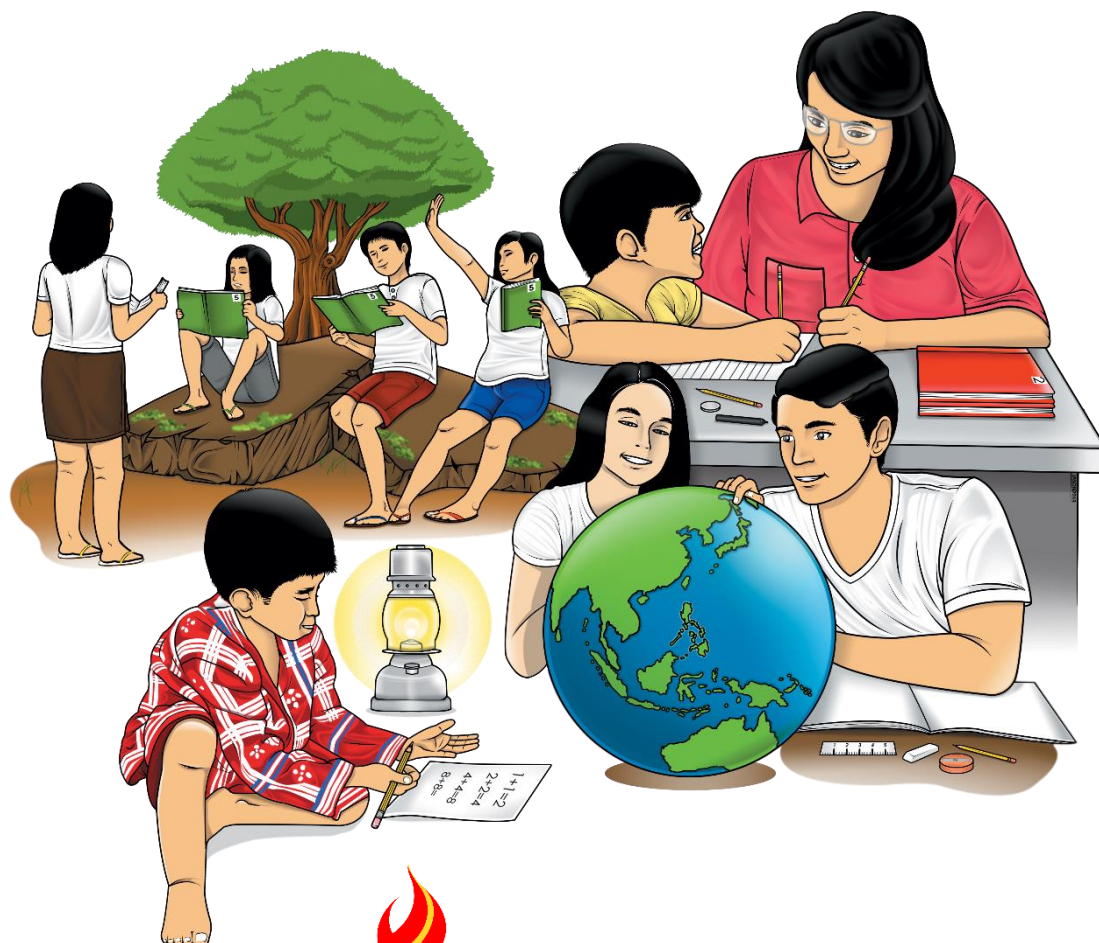


# English

## Quarter 1 – Module 2: Determining the Effect of Textual Aids on the Understanding of a Text



**English – Grade 10**

**Alternative Delivery Mode**

**Quarter 1 – Module 2: Determining the Effect of Textual Aids on the Understanding of a Text**  
**First Edition, 2021**

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Published by the Department of Education

Secretary: Leonor Magtolis Briones

Undersecretary: Diosdado M. San Antonio

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**Printed in the Philippines by \_\_\_\_\_**

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# English

## **Quarter 1 – Module 2: Determining the Effect of Textual Aids on the Understanding of a Text**

# 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.

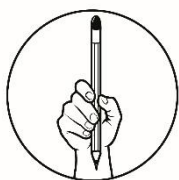


## ***What I Need to Know***

This module was designed and written with you in mind. Primarily, its scope is to teach you how to use textual aids and realize its effect in your understanding of a certain text.

While going through this module, you are expected to have:

1. use various textual aids in understanding a text; and
2. determine the effect of these textual aids in understanding a text.



## ***What I Know***

**Activity 1: Multiple Choice:** Choose the letter of the best answer. Write the chosen letter on your answer sheet.

1. What do we call the tools that come in different forms and their main objective is to help readers have a clearer meaning of the given text?
  - a. textual aids
  - b. guide questions
  - c. textual explanations
  - d. reader's interpretations
2. Which of the following does NOT belong to the tools that can help readers have a clearer meaning?
  - a. graphs
  - b. diagrams
  - c. animations
  - d. illustrations
3. If the sensory images help readers understand literary texts such as poems and short stories, then which type of texts do textual aids help readers understand?
  - i. fictional texts
  - ii. scientific texts
  - iii. nonfiction texts
  - iv. journalistic texts
  - a. i and ii
  - b. iii and iv
  - c. ii, iii and iv
  - d. i, ii, iii and iv

4. If the text has the following lines: “From Session Road, head south on Upper Session Road, slight right onto Kalaw Street...”, what kind of textual aid will be best fitted to match the text?
  - a. title
  - b. map
  - c. graph
  - d. illustration
5. Why do writers include titles, subtitles, graphs, maps, images and tables in their articles?
  - a. to serve as a guide for the readers’ eyes in reading the text
  - b. to help readers better understand the content
  - c. to provide an interpretation of the text
  - d. to fill the spaces of the paper
6. What type of textual aid is used when data are presented in rows and columns of words and numbers?
  - a. title and illustration
  - b. subtitle and graph
  - c. table
  - d. map
7. Which is the main use of a table as a textual aid?
  - a. show trends or patterns
  - b. show relationships of data
  - c. for interpreting numerical data
  - d. for comparison of characteristics
8. What type of textual aid is used if data is presented through dots, lines and curves?
  - a. illustration
  - b. graph
  - c. table
  - d. map
9. What do we want to show when we use graphs?
  - a. get a better idea on trends and patterns
  - b. show more detailed information
  - c. compare and contrast qualities
  - d. record precise data
10. Which is NOT an example of a graph?
  - a. pie
  - b. bar
  - c. line
  - d. cycle
11. Which textual aid is a visual representation of selected characteristics of a place, usually drawn on a flat surface?
  - a. compass
  - b. direction
  - c. globe
  - d. map
12. What type of map shows water and land formations in a specific area?
  - a. political map
  - b. physical map
  - c. geographical map
  - d. demographical map

13. Which type of map shows the cities, towns, provinces and bodies of water?
- a. political map
  - b. physical map
  - c. geographical map
  - d. demographical map
14. Which of the following statements is true about maps as textual aids?
- i. Maps show specific directions to a destination.
  - ii. Maps can show landmarks that may be in a place.
  - iii. Maps can provide an image of the place being discussed.
  - iv. Maps can give a clearer picture of where the boundaries of each town, city, province and country lies.
- a. i and ii
  - b. iii and iv
  - c. i, ii and iii
  - d. i, ii, iii and iv
15. Which of the following is NOT a function of textual aids?
- a. They help catch the readers' attention.
  - b. They can provide clarity to the textual element.
  - c. They are also useful tools in summarizing information.
  - d. They are used to make the paper lighter by breaking the texts.



## ***What's In***

Your previous module taught you to incorporate the information you take from various sources like the news and informative talks in your everyday conversation. The information from these sources may be delivered orally or written.

Both delivery methods leave clues so their audience can fully understand the message and interpret it correctly. For information delivered orally, non-verbal clues such as the tone of the voice and the facial expression of the speaker can help the audience decipher exactly what the message is. For written information such as news, the clues are called textual aids.

For you to be able to continue holding a meaningful conversation using the information you see in different sources, this learning material will help you enhance your information-seeking skills from written sources.



“A REBUS is a picture representation of a name, work, or phrase” (National Institute of Environmental Health Sciences, 2017). Each rebus puzzle below represents a word and your task is to guess what each word is. Write your answers on your answer sheet.

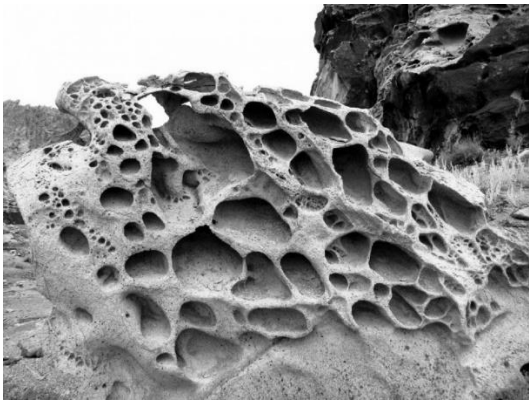
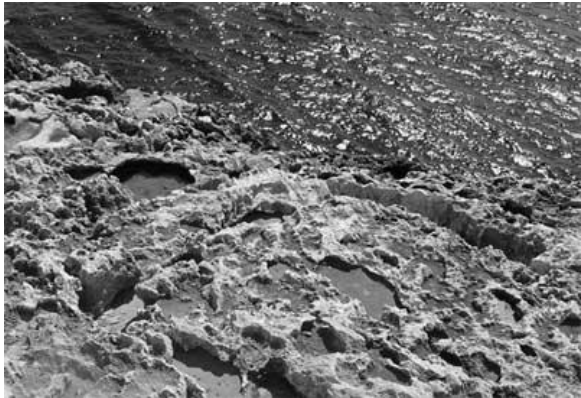
What helped you answer these puzzles? \_\_\_\_\_



## What is It

These aids have two main functions, namely: first, to direct the readers' attention to important ideas in the text and second, to provide more information as a supplement to what is already written.



Textual Aid	Description	Example
1. Titles and Subtitles	<ul style="list-style-type: none"> <li>&gt; Provide initial idea on what the text is all about</li> <li>&gt; Activate prior knowledge on the topic</li> <li>&gt; “Represent the key concepts (title) and supporting ideas (subtitles) in the paper” (Elite Editing, 2015)</li> <li>&gt; Layering or positioning of these aids convey the ideas’ level of importance</li> </ul>	<p>Article excerpted from:  <a href="https://www.ecdc.europa.eu/en/2019-ncov-background-disease">https://www.ecdc.europa.eu/en/2019-ncov-background-disease</a></p> <div> <p><b>Coronaviruses</b> → Title 1</p> <p>(Coronaviruses (CoV)...) </p> <p><b>SARS-CoV-2 virus</b> → Title 2</p> <p><b>Virus evolution</b> → Subtitle 1</p> <p>(There is...) </p> <p><b>Virus seasonality</b> → Subtitle 2</p> <p>(The four coronaviruses...) </p> </div>
2. Illustration	<ul style="list-style-type: none"> <li>&gt; Visual representation of a subject</li> <li>&gt; Facilitates better retention of the information presented</li> </ul>	<p>Mechanical weathering physically breaks up rock. One example is called frost action or frost shattering. Water gets into cracks and joints in bedrock. When the water freezes it expands and the cracks are opened a little wider. Over time pieces of rock can split off a rock face and big boulders are broken into smaller rocks and gravel.</p>  

		Lower photo taken from <a href="https://www.geographyrealm.com/physical-chemical-of-weathering-of-rocks/">https://www.geographyrealm.com/physical-chemical-of-weathering-of-rocks/</a>																																
3. Tables	<p>&gt; Information (facts and figures) that are organized and arranged in columns and rows</p> <p>&gt; Used to show patterns and relationships that still appeals to the readers' verbal system, meaning tables are supposed to be read like a text (Nussbaumer, 2011)</p> <p>&gt; <b>Column headings</b> - found on top of the columns; used to identify the contents of a specific column</p> <p>&gt; <b>Row headings</b> - used to define or identify the contents of a specific row</p>	<p><u>Percentages of mobile phone owners using various mobile phone features</u></p> <table><tr><th></th><th>2006</th><th>2008</th><th>2010</th></tr><tr><td>Make calls</td><td>100</td><td>100</td><td>99</td></tr><tr><td>Take photos</td><td>66</td><td>71</td><td>76</td></tr><tr><td>Send &amp; receive text messages</td><td>73</td><td>75</td><td>79</td></tr><tr><td>Play games</td><td>17</td><td>42</td><td>41</td></tr><tr><td>Search the Internet</td><td>no data</td><td>41</td><td>73</td></tr><tr><td>Play music</td><td>12</td><td>18</td><td>26</td></tr><tr><td>Record video</td><td>no data</td><td>9</td><td>35</td></tr></table> <p>Table and excerpt taken from <a href="https://www.ieltsonlinepractice.com/ielts-academic-writing-task-1-model-answer-table-chart-percentage-of-mobile-phone-owners/">https://www.ieltsonlinepractice.com/ielts-academic-writing-task-1-model-answer-table-chart-percentage-of-mobile-phone-owners/</a>.</p>		2006	2008	2010	Make calls	100	100	99	Take photos	66	71	76	Send & receive text messages	73	75	79	Play games	17	42	41	Search the Internet	no data	41	73	Play music	12	18	26	Record video	no data	9	35
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4. Graphs	<p>&gt; Used “when a simple table cannot adequately demonstrate important relationships” of and within data (Mind Tools Content Team, 2020)</p> <p>&gt; 4 types:</p> <p>A. <b>bar graph</b> - uses either vertical or horizontal bars to show the data it represents but SkillsYouNeed.com (2020) emphasized that these bars do not touch each other; height of the bar indicates the value it represents: the longer the bar, the higher the value it represents, the shorter the bar, the lower the value it represents</p> <p>B. <b>line graph</b> – used to show how numerical data have changed over time and it is best used to show trends</p>	<p><b>Chart Title</b></p> <p><i>Bar graph</i></p> <p><a href="https://www.bbc.com/news/entertainment-arts-50642141">https://www.bbc.com/news/entertainment-arts-50642141</a></p> <p><b>Daily Chance of Precipitation</b></p> <p>The percentage of days in which various types of precipitation are observed, excluding trace quantities: rain alone, snow alone, and mixed (both rain and snow fell in the same day).</p>																																

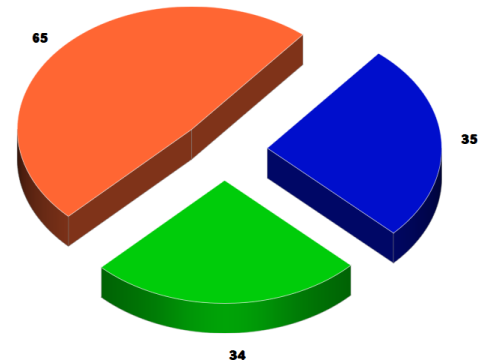
C. **pie graphs** - show “how a whole is divided into different parts” (SkillsYouNeed.com, 2020)

D. **pictograph** - “similar to bar chart but use pictures to symbolize a countable unit of items” (Google Sites, n.d.).

*Line graph*

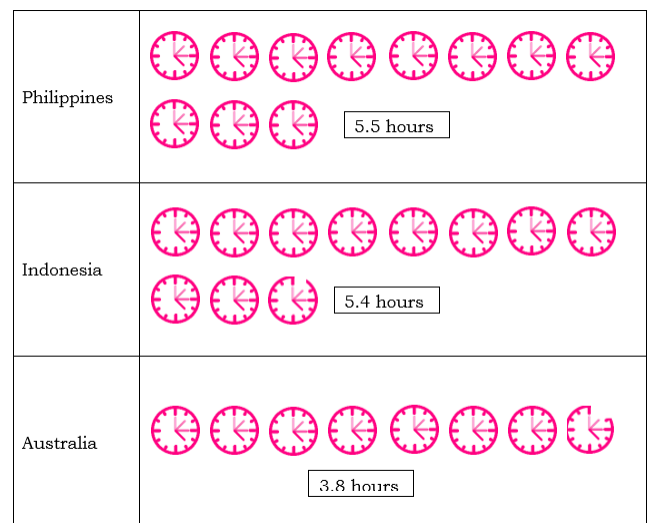
<https://weatherspark.com/y/134588/Average-Weather-in-Manila-Philippines-Year-Round>

■ PAYMENT CARD ■ CASH-ON-DELIVERY ■ BANK TRANSFER



*Pie graph*

<https://outragemag.com/filipinos-shopping-online-theyre-buying/#:~:text=Filipino%20consumers%20are%20seeing%20value,top%20reasons%20for%20online%20shopping>



*Pictograph*

## 5. Maps

> Visual representations of selected characteristics of a place, usually drawn on a flat surface  
> 2 types

A. **physical map** - includes labels for features such as mountain ranges and bodies of water

B. **political map** - usually includes labels for features such as cities and major towns, units such as states or provinces, and bodies of water



*Physical*

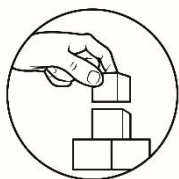
*map*

<https://www.freeworldmaps.net/asia/philippines/map.html>



*Political map*

<http://www.maps-of-the-world.net/maps-of-asia/maps-of-philippines/>



## ***What's More***

### **Activity 3: Aids for Use**

Demonstrate your understanding of the text by answering the questions that follow. Use the textual aids presented in the article.

#### **HIDILYN DIAZ: A VICTOR'S CROWN**

December 6, 2016 by Department of Education Region IX – Stories



Character indeed is far more important than reputation. Unwavering commitment and dedication can move towards the path of destiny which is success. This is precisely the story of a true champion whose standard of excellence is her perseverance and steadfastness in what she does and whose choice may not be easy, but despite of all the stumbling blocks along the way, she made herself counted and stood out.

Hidilyn Diaz who is fondly called “Heidy” by family and friends was not born with a silver spoon in her mouth. She is the fifth child of a family of six by her parents Eduardo and Emelita Diaz on February 20, 1991. She was raised in Mampang, Zamboanga City. And as a child, just like an ordinary one, used to carry containers of water from the village to their home. That was when she started her weightlifting dream when she was yet 11 years old under the tutelage of her cousin Allen Jayfrus Diaz who taught her the basics of weightlifting.

She somehow managed to pursue a degree in college at Unibersidad de Zamboanga taking up Computer Science. However, Diaz ultimately decided to stop attending university but later determined to continue with a degree related to sports in Manila.

#### **2008 | Summer Olympics**

Diaz was selected as a wild card entry to the Summer Olympics by the Philippine Weightlifting Association in early 2008. She is the first female weightlifter to compete for the Philippines in the Olympics, and the second weightlifter overall. She placed second to last in a field of 12 weightlifters, her performance was praised and considered promising for her age. Philippine Sports Commission Chairman William Ramirez once commented that she competed there to gain valuable experience and predicted that she would be a strong contender in future competitions.

## **2012**

Diaz became the first Filipina weightlifter to compete in consecutive Olympics, by qualifying in the women's weightlifting under 58 kg through the Continental and World Qualifying Tournaments. She was ranked ninth in her event heading to the Olympics. During the 2012 London Olympics, Diaz was chosen to be the flag bearer during the Opening Ceremony.

## **2015**

Trying to improve her chances of landing a podium finish at the 2016 Rio Olympics, Diaz decided to drop weight from under 58 kg to under 53 kg. This proved to be effective as she recently snatched the Gold Medal in the 1st Southeast Asian Weightlifting Championship in Bangkok. She managed to lift a 98 kg snatch and a 115 kg clean and jerk for a 213 kg total. Diaz also earned three bronze medals for the clean, jerk and snatch events in the 53 kg division of the IWF World Weightlifting Championship held in Houston, Texas on November 22, 2015 to claim a spot in the 2016 Rio Olympics.

## **2016**

In the 2016 Summer Olympic Games in Rio de Janeiro, Diaz competed in the women's 53kg weightlifting category with the intention of at least winning a bronze medal. Diaz surpassed her own personal target and won the silver medal at the event. This was the first medal for the Philippines in the Summer Olympics after 20 years. This was also the first non-boxing medal for the nation since 1936. Aside from being the first Filipina weightlifter to compete in three consecutive Olympics, she also became the first Filipino woman and first Mindanaoan to win an Olympic medal.

On August 8, 2016, she returned to her hometown, Zamboanga City and was welcomed as a Hero of the City. She also received numerous incentives from Philippine President Rodrigo Duterte, Philippine Sports Commission and her local city.

### **Military career**

Diaz was recruited into the Philippine Air Force (PAF) through the military arm's Direct Enlistment Program in 2013. She was initially assigned to the Air Force Special Service Group. She was also given an Air Force Specialty Code skill in recreation in weightlifting. In 2014, she was given a promotion from the rank of Airwoman to Airwoman Second Class. Diaz was also a recipient of a Military Merit Medal for organizing PAF events and a Presidential Citation Unit Badge. When Diaz was training for her stint at the 2016 Summer Olympics, she was assigned to PAF Personnel Management Center on a temporary basis. For her achievement at the Olympics, she was given a promotion by the PAF. The extent of the promotion was initially not disclosed but it was later reported that Diaz was promoted to the rank of Airwoman First Class.

These are the glimpses of the journey of our hero and still counting. The best is yet to come! Mabuhay ka Hidilyn! *(Profile Source: Wikipedia, Photo courtesy by: Philippine Primer)*



### COMPREHENSION QUESTIONS:

1. In one or two word/s/phrase/s, how will you characterize Hidilyn Diaz?
2. In one or two word/s/phrase/, how will you describe her career?
3. In one or two sentences, summarize the article about Hidilyn Diaz.



## *What I Have Learned*

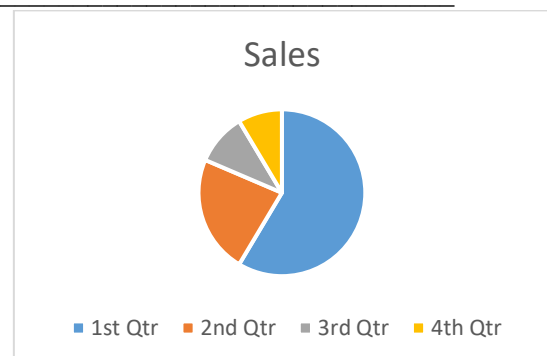
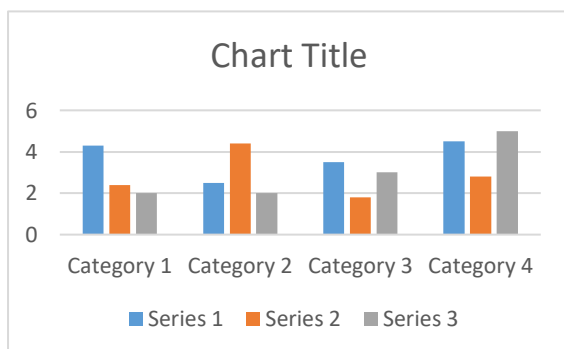
### Activity #4: In 4, 3, 2, and 1...

Below are examples and or templates of the textual aids previously learned. Above each sample/template, give words that best summarize/encapsulate that textual aid.

**Challenge: the number of words you can write is limited to 4 words, 3 words, 2 words and 1 word. Since there are already four textual aids learned, you can only choose one textual aid to use the number of words indicated.**

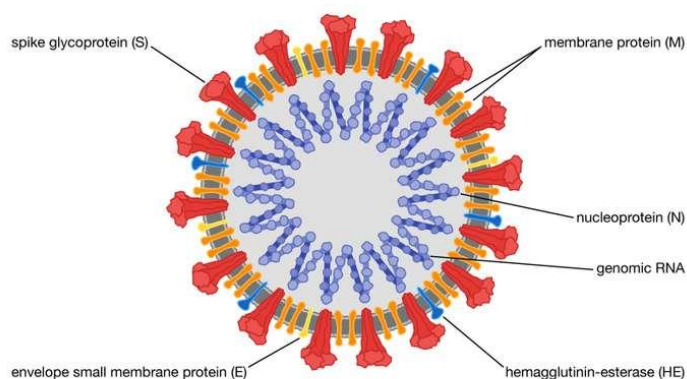
For example, you will give four (4) words that summarize the textual aid Titles and Subtitles, one (1) word for Illustration, three (3) words for Graphs and two (2) words for Table.

A. \_\_\_\_\_



B. \_\_\_\_\_

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)



/ © Encyclopædia Britannica, Inc.

Photo taken from <https://www.britannica.com/science/coronavirus-virus-group>

C. \_\_\_\_\_

## Senior High School

### Curriculum

*Core Curriculum Subjects*

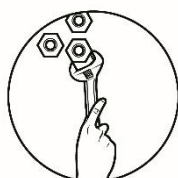
*Applied Track Subjects*

*Specialized Subjects*

### Tracks

*Strands*

D. \_\_\_\_\_

## ***What I Can Do***

### **Activity #5: Textual Aids and Its Effect on Me**

How much do all of these textual aids help you in understanding a text?  
Represent your ideas using any of the appropriate visual representations (graph or table) that you learned from this learning material. Be guided by the rubrics below.

	<b>5 (Excellent)</b>	<b>4 (Very Satisfactory)</b>	<b>3 (Satisfactory)</b>	<b>2 (Needs Improvement)</b>
Table/Graph	The table/graph correctly depicts all the figures accurately and done in a creative manner. It provides a very informative visual representation of the message being portrayed and makes it easier for the reader to understand the data presented.	The table/graph shows the figures correctly and done neatly. It provides a visual support so that readers get an idea what the message is.	The table/graph created tried to show an accurate data but it may not be done as neatly as needed to help readers understand the message of the material. The table/chart does little help in portraying the message.	There was an attempt to create a table/graph.
Labels	The table/chart is correctly and properly labeled. All labels accurately describe or capture or summarize the idea of the	The table/graph is labeled but there are one or two spelling errors but still able to describe or capture or summarize the	Labels were written but there are more precise terms that may be used to better capture the essence of the message.	There was also an attempt to label the table/graph made but the terms used missed the essential ideas that best



	information presented.	idea of the information presented.		describe the message or send the message of the material across clearly.
Accuracy of Figures	All figures are correct in size, are easy to see and are very accurate. It is obviously done carefully to ensure that data is interpreted correctly and accurately. The figures are equally spaced and made creatively.	The bars are created neatly and there was an attempt to make all bars accurate but missed to do so for one (1) or two (2) bars. The bars are spaced and colored.	The bars are created and there was an attempt to make all the bars accurate but missed to do so for more than three (3) bars. The bars are sketched rather than drawn.	There was an attempt to make all the bars of the graph accurate but was not able to do it as correctly and accurately as needed for the graph to support the textual data that will help readers understand the material.

Rubrics adopted and adapted from

[http://rubistar.4teachers.org/index.php?screen=ShowRubric&rubric\\_id=1500439;](http://rubistar.4teachers.org/index.php?screen=ShowRubric&rubric_id=1500439;)

<https://www.mesacc.edu/~paoih30491/RubricNameEssay.html>



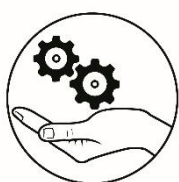
## Assessment

Activity 6: Choose the letter of the correct answer. Write the chosen letter on a separate sheet of paper.

- What do we call the tools that come in different forms and their main objective is to help readers have a clearer meaning of the text?
  - guide questions
  - reader's interpretations
  - textual aids
  - textual explanations
- Which of the following belongs to the tools that can help readers have a clearer meaning?
  - animations
  - boxes
  - charts
  - directions

3. If the sensory images help readers understand literary texts such as poems and short stories, then which type of texts do textual aids help readers understand?
  - i. journalistic texts
  - ii. nonfiction texts
  - iii. scientific texts
  - iv. fictional texts
  - a. i, ii, iii, iv
  - b. i, ii, iii
  - c. i and ii only
  - d. iii and iv only
  
4. If the text has the following lines: "From Session Road, head south on Upper Session Road, slight right onto Kalaw Street...", what kind of textual aid will be best fitted to match the text?
  - a. graph
  - b. illustration
  - c. title
  - d. map
  
5. Which of the following statements is the best reason why writers include titles, subtitles, graphs, maps, images and tables in their articles?
  - a. to fill the spaces of the paper
  - b. to provide an interpretation of the text
  - c. to help readers better understand the content
  - d. to serve as a guide for the readers' eyes in reading the text
  
6. What type of textual aid is used when data are presented in rows and columns of words and numbers?
  - a. table
  - b. map
  - c. illustration and title
  - d. graph and subtitle
  
7. Which is the main use of a table as a textual aid?
  - a. for comparison of characteristics
  - b. for interpreting numerical data
  - c. show relationships of data
  - d. show trends or patterns
  
8. What type of textual aid is used if data is presented through dots, lines and curves?
  - a. table
  - b. map
  - c. illustration
  - d. graph
  
9. What do we want to show when we use graphs?
  - a. record precise data
  - b. compare and contrast qualities
  - c. show more detailed information
  - d. get a better idea on trends and patterns
  
10. Which is not an example of a graph?
  - a. bar
  - b. cycle
  - c. line
  - d. pie

11. Which textual aid is a visual representation of selected characteristics of a place, usually drawn on a flat surface?
- a. compass
  - b. globe
  - c. map
  - d. direction
12. What type of map shows water and land formations in a specific area?
- a. demographical map
  - b. geographical map
  - c. political map
  - d. physical map
13. Which type of map shows the cities, towns, provinces and bodies of water?
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14. Which is NOT the function of a map as a textual aid?
- a. Maps can give a clearer picture of where the boundaries of each town, city, province and country lies.
  - b. Maps can provide an image of the place being discussed.
  - c. Maps can show landmarks that may be in a place.
  - d. Maps show specific directions to a destination.
15. Which of the following is a function of textual aids?
- a. Textual aids provide clarity to the textual element of the material.
  - b. Writers use them to distract the readers from the textual element.
  - c. These are tools that activate prior knowledge on the topic of the article.
  - d. Textual aids are used to make the paper lighter by breaking the texts.



## ***Additional Activity***

### **Activity 7: Combo Mods**

Your previous module developed your skill in choosing information and using this information during every day conversation. This module, on the other hand, helped you in fully understanding the written information. This activity will culminate what you have learned from both modules.

Demonstrate your understanding of the article below by creating a very short script of your conversation about the reading material.

## The different types of COVID-19 vaccines

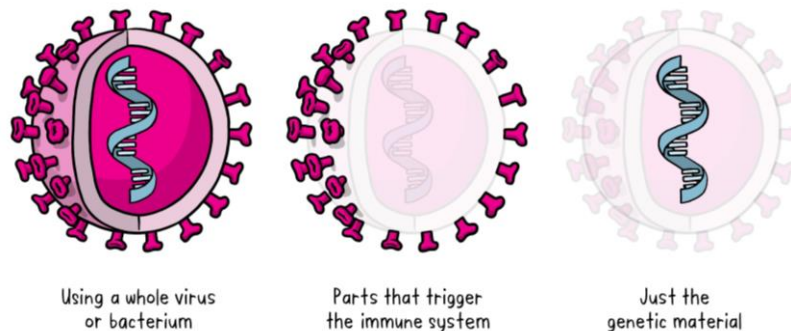
12 January 2021 – World Health Organization 2021

As of December 2020, there are over 200 vaccine candidates for COVID-19 being developed. Of these, at least 52 candidate vaccines are in human trials. There are several others currently in phase I/II, which will enter phase III in the coming months (for more information on the clinical trial phases, see part three of our Vaccine Explained series).

### Why are there so many vaccines in development?

Typically, many vaccine candidates will be evaluated before any are found to be both safe and effective. For example, of all the vaccines that are studied in the lab and laboratory animals, roughly 7 out of every 100 will be considered good enough to move into clinical trials in humans. Of the vaccines that do make it to clinical trials, just one in five is successful. Having lots of different vaccines in development increases the chances that there will be one or more successful vaccines that will be shown to be safe and efficacious for the intended prioritized populations.

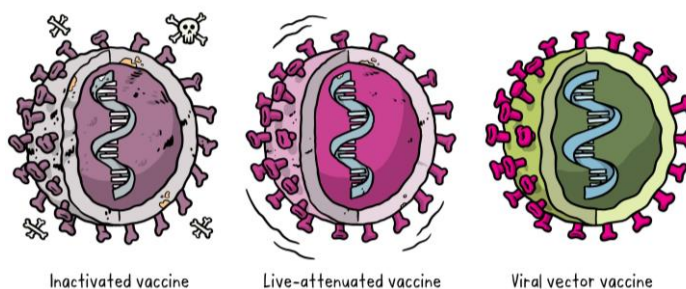
There are three main approaches to making a vaccine:



### The different types of vaccines

There are three main approaches to designing a vaccine. Their differences lie in whether they use a **whole** virus or bacterium; just the **parts** of the germ that triggers the immune system; or just the **genetic material** that provides the instructions for making specific proteins and not the whole virus.

The whole-microbe approach



### The whole-microbe approach

#### Inactivated vaccine

The first way to make a vaccine is to take the disease-carrying virus or bacterium, or one very similar to it, and inactivate or kill it using chemicals, heat or radiation. This approach uses technology that's been proven to work in people – this is the way the flu and polio vaccines are made – and vaccines can be manufactured on a reasonable scale.

However, it requires special laboratory facilities to grow the virus or bacterium safely, can have a relatively long production time, and will likely require two or three doses to be administered.

### **Live-attenuated vaccine**

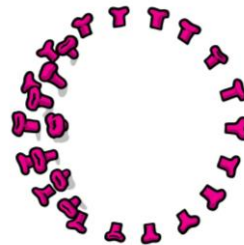
A live-attenuated vaccine uses a living but weakened version of the virus or one that's very similar. The measles, mumps and rubella (MMR) vaccine and the chickenpox and shingles vaccine are examples of this type of vaccine. This approach uses similar technology to the inactivated vaccine and can be manufactured at scale. However, vaccines like this may not be suitable for people with compromised immune systems.

### **Viral vector vaccine**

This type of vaccine uses a safe virus to deliver specific sub-parts – called proteins – of the germ of interest so that it can trigger an immune response without causing disease. To do this, the instructions for making particular parts of the pathogen of interest are inserted into a safe virus. The safe virus then serves as a platform or vector to deliver the protein into the body. The protein triggers the immune response. The Ebola vaccine is a viral vector vaccine and this type can be developed rapidly.

### **The subunit approach**

The subunit approach



Only uses the very specific parts (the subunits) of a virus or bacterium that the immune system needs to recognize.

A subunit vaccine is one that only uses the very specific parts (the subunits) of a virus or bacterium that the immune system needs to recognize. It doesn't contain the whole microbe or use a safe virus as a vector. The subunits may be proteins or sugars. Most of the vaccines on the childhood schedule are subunit vaccines, protecting people from diseases such as whooping cough, tetanus, diphtheria and meningococcal meningitis.

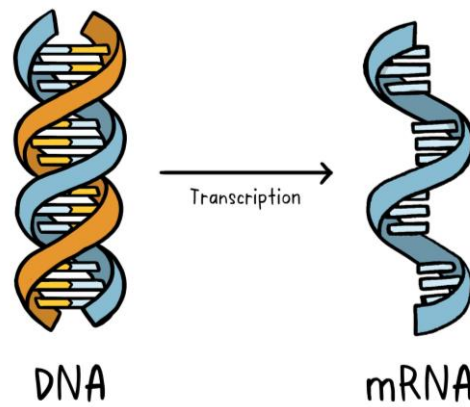
The genetic approach (nucleic acid vaccine)



Uses the genetic material for specific proteins – the DNA or RNA.

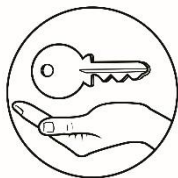
### **The genetic approach (nucleic acid vaccine)**

Unlike vaccine approaches that use either a weakened or dead whole microbe or parts of one, a nucleic acid vaccine just uses a section of genetic material that provides the instructions for specific proteins, not the whole microbe. DNA and RNA are the instructions our cells use to make proteins. In our cells, DNA is first turned into messenger RNA, which is then used as the blueprint to make specific proteins.



A nucleic acid vaccine delivers a specific set of instructions to our cells, either as DNA or mRNA, for them to make the specific protein that we want our immune system to recognize and respond to.

The nucleic acid approach is a new way of developing vaccines. Before the COVID-19 pandemic, none had yet been through the full approvals process for use in humans, though some DNA vaccines, including for particular cancers, were undergoing human trials. Because of the pandemic, research in this area has progressed very fast and some mRNA vaccines for COVID-19 are getting emergency use authorization, which means they can now be given to people beyond using them only in clinical trials.



## Answer Key

**What's New**

1. Lazy afternoon
2. 6 Feet underground
3. Misunderstanding between friends
4. Just between you and me
5. Big deal
6. Excuse me

**Assessment**

1. C
2. C
3. B
4. D
5. C
6. A
7. A
8. D
9. D
10. B
11. C
12. D
13. A
14. D
15. A

**What I Know**

1. A
2. C
3. C
4. B
5. C
6. C
7. D
8. B
9. A
10. D
11. D
12. B
13. A
14. D
15. D

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