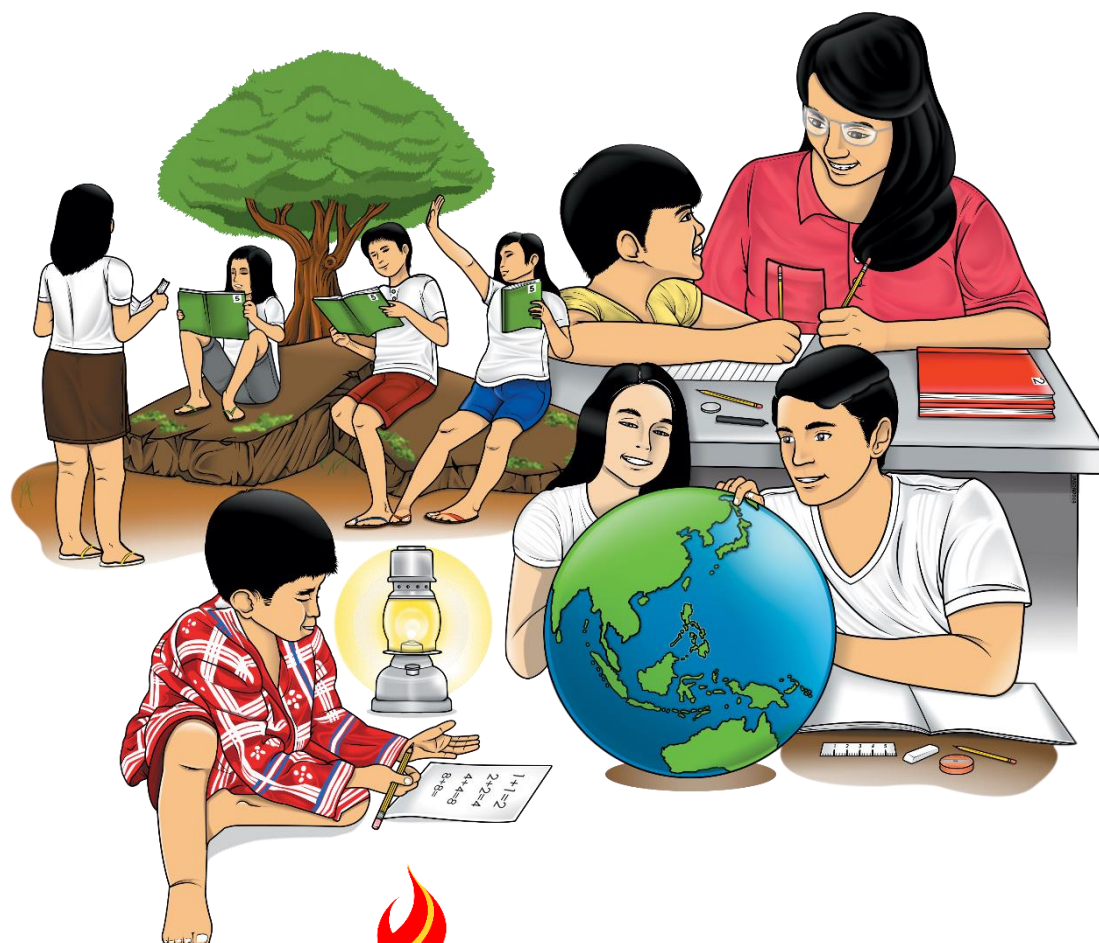


Personal Development

Quarter 1 – Module 11: Brain: Parts, Processes and Functions



Personal Development
Alternative Delivery Mode
Quarter 1 – Module 11: Brain: Parts, Processes and Functions
First Edition, 2021

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Secretary: Leonor Magtolis Briones
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Development Team of the Module

Writers: Cristine G. Bajo

Editors: Gorgenia C. Japa

Reviewers: Sherelyn N. Mijares, Jean L. Reyes, Jerome C. Hilario, Jesusa L. Partosa,
Aira Myr T. Marbibí, Priscilla V. Salo

Illustrator: Gilbert R. Esguerra

Layout Artist: Diana F. delos Santos, Carla D. Español, Rosanito S. Paras

Management Team: Francis Cesar B. Bringas

Job S. Zape Jr.
Ramonito Elumbaring
Reicon C. Condes
Elaine T. Balaogan
Fe M. Ong-ongowan
Christopher R. Diaz
Juan R. Araojo Jr.
Cristina C. Salazar
Priscilla V. Salo
Bernadette B. Patag
Rosanito S. Paras
Rochene I. Garcia

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Department of Education – Region 4A CALABARZON

Office Address: Gate 2 Karangalan Village, Brgy. San Isidro, Cainta, Rizal
Telefax: 02-8682-5773/8684-4914/8647-7487
E-mail Address: lrmd.calabarzon@deped.gov.ph

Personal Development

Quarter 1 – Module 11:

Brain: Parts, Processes and Functions

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

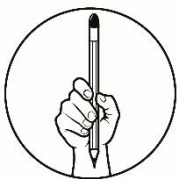
This module is designed and written to help you understand the brain, its parts, processes, and functions. The scope of this module is used in different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence 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 focuses on the brain parts, its processes and functions. For you to be able to discuss that understanding the different parts of the brain, processes and functions may help in improving thoughts, behavior, and feelings

(EsP-PD11/12PM-Ig-6.1)

After going through this module, you are expected to:

1. Summarize the different parts of the brain, its processes and functions.
2. Respond meaningfully to effects of challenges in one's life
3. Show and tell one's favorite part of the brain and its functions



What I Know

Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.

1. It is the largest part of the brain that regulates senses, memory, emotions, intellectual activities, and body movement.
 - A. Midbrain
 - B. Cerebrum
 - C. Hindbrain
 - D. Cerebellum
2. It covers the cerebrum and regulates the processing of information.
 - A. Cerebrum
 - B. Brainstem
 - C. Cerebellum
 - D. Cerebral Cortex
3. It is within the forebrain that regulates various types of emotions.
 - A. Thalamus
 - B. Hypothalamus
 - C. Limbic System
 - D. Cerebral Cortex

4. It is located in the hindbrain that regulates balance, postures, and coordinates movement.
 - A. Cerebrum
 - B. Brainstem
 - C. Cerebellum
 - D. Limbic System
5. It connects the cerebrum and cerebellum to the spinal cord that carries signals to and from all parts of the body.
 - A. Thalamus
 - B. Brainstem
 - C. Limbic System
 - D. Hypothalamus
6. It is connected to the cerebral cortex that sends, receives, and organizes information.
 - A. Cerebrum
 - B. Thalamus
 - C. Cerebellum
 - D. Hypothalamus
7. It is located below the thalamus and above the brainstem that regulates the digestive process and is also responsible for growth and development.
 - A. Thalamus
 - B. Cerebellum
 - C. Hypothalamus
 - D. Limbic System
8. The cerebral lobe that controls memory, emotion, stress response, speech, decision-making, and planning.
 - A. Frontal Lobe
 - B. Parietal Lobe
 - C. Occipital Lobe
 - D. Temporal Lobe
9. The cerebral lobe that regulates sensory perception.
 - A. Frontal Lobe
 - B. Parietal Lobe
 - C. Occipital Lobe
 - D. Temporal Lobe
10. The cerebral lobe that regulates memory, hearing, and comprehension.
 - A. Frontal Lobe
 - B. Parietal Lobe
 - C. Occipital Lobe
 - D. Temporal Lobe
11. The cerebral lobe situated at the back of the head which regulates sight.
 - A. Frontal Lobe
 - B. Parietal Lobe
 - C. Occipital Lobe
 - D. Temporal Lobe
12. It includes the cerebrum, thalamus, hypothalamus, and limbic system.
 - A. Midbrain
 - B. Forebrain
 - C. Hindbrain
 - D. Brainstem
13. It is responsible for motor movements, particularly visual and auditory processing.
 - A. Midbrain
 - B. Forebrain

- C. Hindbrain
- D. Brainstem

14. It controls the left side of the body.

- A. Brainstem
- B. Cerebellum
- C. Left hemisphere
- D. Right hemisphere

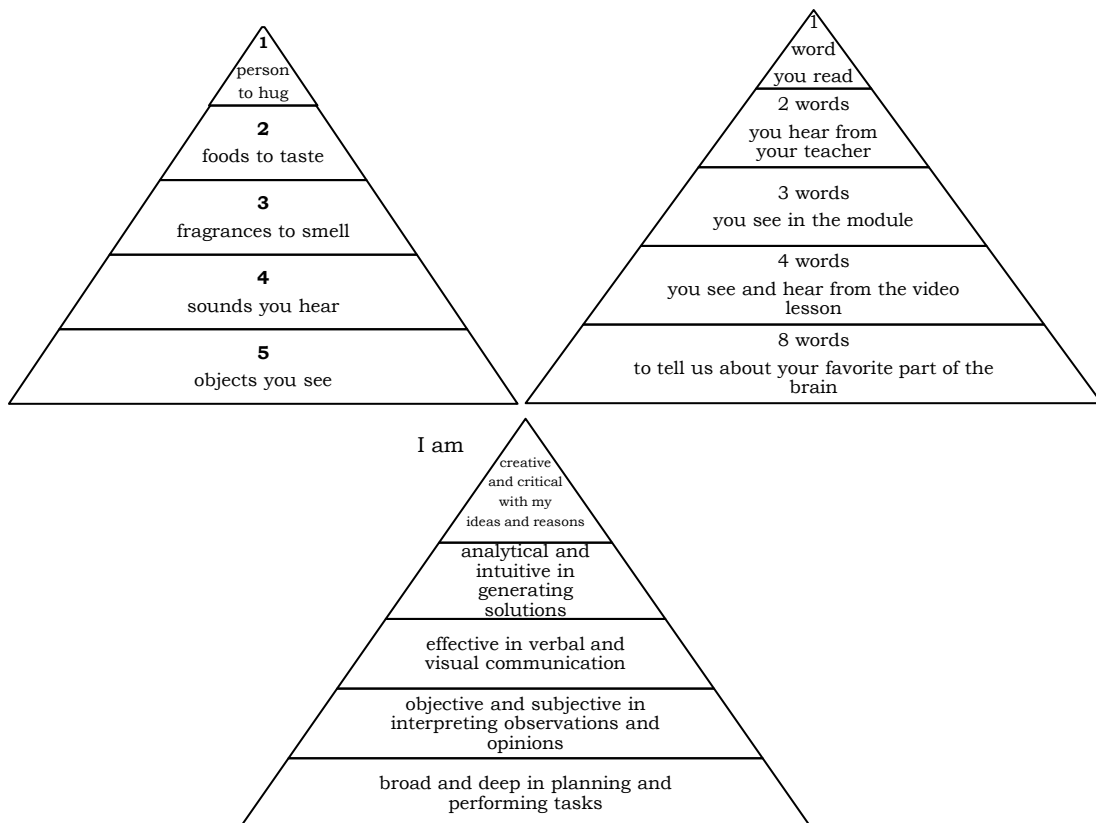
15. It controls the right side of the body.

- A. Brainstem
- B. Cerebellum
- C. Left hemisphere
- D. Right hemisphere



Notes to the Teacher

Encourage the learners to study the content and accomplish the following activities in What's In, What I Have Learned, and Additional Activities. These may be presented in the form of infographic as illustrated below.



Lesson

11

Brain: Parts, Processes and Functions

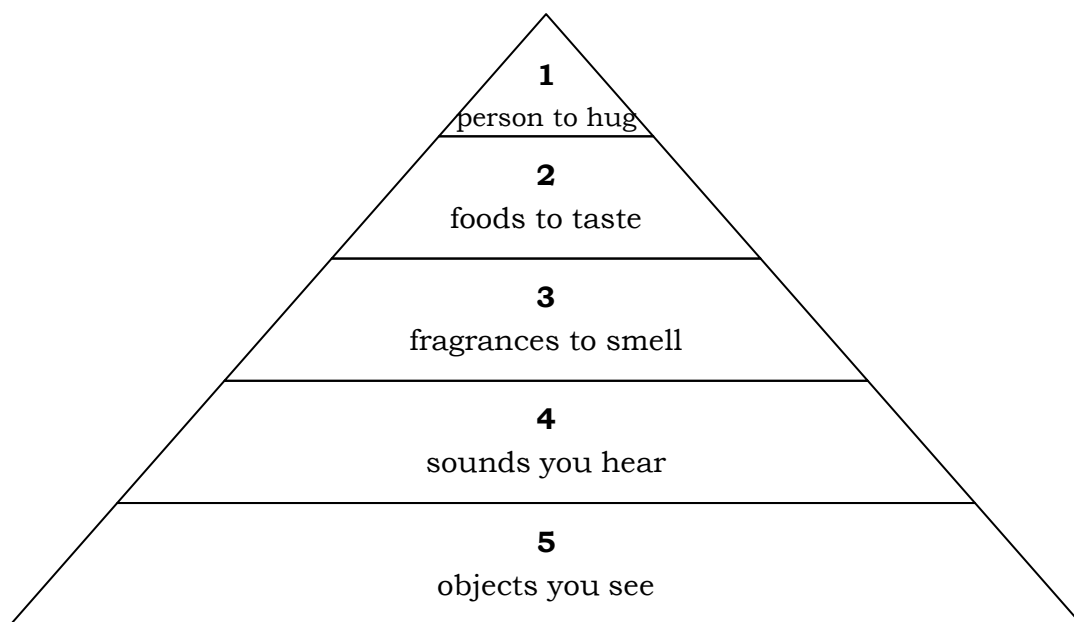
This lesson focuses on the different parts of the brain, processes and functions that may help you in improving your thoughts, behavior and feelings.



What's In

As you fully demonstrate your ways to stay stress-free, this module may help you improve the way you think, feel, and behave. One way to de-stress yourself is by doing this technique. Focus on your surroundings for you to be able to make a personal list.

Write your answer in each level of the graphic organizer. Identify the name of the words being asked in each statement.





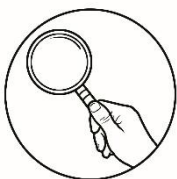
What's New

Read and differentiate the following concepts. Based on the given sets of words below, encircle the appropriate word that suits your personal preferences in dealing with your daily life situations.

Which likely describes you more?	
Critical	Creative
Logical	Random
Objective	Subjective
Specific	General
Sequential	Simultaneous
Analytical	Intuitive
Verbal	Visual

Are you more likely creative, critical, or both? In this 21st century, it is most likely favorable for everyone, including you, to share those characteristics and functions of the brain.

Brain, Brain, Brain! What have you realized with your answers? How well do you understand after checking the result of your self-assessment? Which column describes you more? Did you get more from the right column or the left column? This simple activity will lead you in understanding the brain parts, processes, and functions.



What is It

Before going through the rest of the module, take time to relax. Close your eyes and take a deep breath. Inhale through your nose and exhale through your mouth. Inhale. Exhale. Do this exercise in eight intervals, then slowly breathe normally.

Breathing is one of the survival functions of the brain. Proper breathing helps your brain to regulate your thoughts, feelings, and behavior for you to become thoughtful, tactful, sensitive, compassionate, and respectful.

Understanding the Brain Parts, its Processes, and its Functions

Touch your head. Yes, it is hard, and it is commonly called the skull. It protects the brain. The brain is the most complex organ in the human body.

It is part of the central nervous system including the spinal cord. The brain consists of three main parts such as the Cerebrum, Cerebellum, and Brainstem.

Cerebrum is situated in the uppermost part of the brain. The cerebrum is the largest part of the brain and on its outermost surface area is called the cerebral cortex. Cerebrum is divided into two hemispheres: the right cerebral hemisphere controls the left side of the body while the left cerebral hemisphere controls the right side of the body. The main function of cerebrum is to regulate senses, memory, emotions, intellectual activities, and body movement like deciding on your career and curriculum exits.

The cerebrum receives sensory information from the thalamus. Thalamus is connected to all major parts of the brain including the cerebral cortex. The thalamus receives information, organizes and then sends information to the cerebrum. Hypothalamus is located below the thalamus and above the brainstem which links the nervous system with the endocrine system that regulates the digestive processes and is also responsible for growth and development. The Limbic System composes parts of the cerebral cortex and hypothalamus, that regulate various types of emotions that affect blood temperature and blood pressure facilitated by the hypothalamus like eating behavior.

Cerebellum is located below the cerebrum at the back of the head. The cerebellum functions directly with the cerebrum to receive information from the sensory system and the spinal cord to regulate balance, postures, and coordinate movement like riding a bike and walking upright.

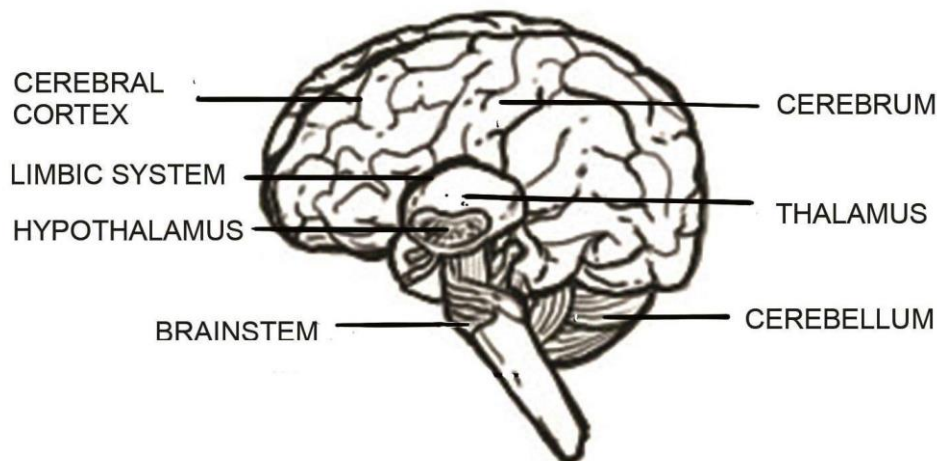


Figure 1. Parts of the Brain

Illustrated by: Gilbert R. Esguerra

The brainstem is located at the lower part of the brain, which leads to the spinal cord. The brainstem connects the cerebrum and cerebellum to the spinal cord. It composes nerve fibers that carry signals to and from all parts of the body. Its functions are for safety and survival such as breathing, consciousness, heart rate, body temperature, blood pressure, digestion, and wake and sleep cycles.

The Cerebral Cortex in the outermost layer of the cerebrum is responsible for receiving and processing information also in initiating a response from the processed information in the brain. The cerebral cortex contains four lobes that share complex relationships to function. These are the Frontal Lobe, Parietal Lobe, Temporal Lobe, and Occipital Lobe.

The Frontal Lobe is situated at the front part of the brain which controls memory, emotion, stress response, speech, decision making, and planning. The Parietal lobe is situated near the back of the frontal lobe which regulates sensory perception. The Temporal Lobe is located at the side of the head which regulates memory, hearing, and comprehension. The Occipital Lobe is situated at the back of the head which regulates sight.

Let's have another simple exercise. Using your right hand, touch your forehead or the top front of your head – that is where the frontal lobe is located. While, use your left hand to touch the back of your head – that is the occipital lobe. Again, using your right hand, touch the top middle part of your head – that is where the parietal lobe is situated. Last, using both hands, touch your head right above your ears – and there is the temporal lobe located.

On the previous task, you were asked to identify things you see, hear, smell, taste and feel. As humans, we have five basic sense organs such as eyes for sense of sight, ears for sense of sound, nose for sense of smell, tongue for sense of taste, and skin for sense of touch. The brain receives sensory information from these five senses. This sensory information was received, processed, and interpreted by the brain resulting for you to give a response in alternative manner such as to react assertively or aggressively, to act impulsively or carefully, to respond positively or negatively to the daily changes and challenges of your life.

The eyes see objects, people and places that usually you need to remember while; there are also experiences that you want to forget occasionally. The brain processes this information through the visual system via thalamus to Visual Cortex located in the Occipital Lobe.

The ears hear sound from television, music from your phone, and the voices of significant people that might be helpful or hurtful that may give you calmness or discomfort. The brain processes these signals and information through the auditory system via thalamus to the Auditory Cortex located in the Temporal Lobe.

The nose smells pleasant fragrance and unpleasant odor that reminds you of either positive or negative memories. The brain processes these signals from the olfactory system then to the olfactory cortex located in the Frontal and Temporal Lobe.

The taste buds located on the upper surface of your tongue perceive taste wherein you determine if it has a savory taste or lacking in flavors which may help you to decide if you want to eat and drink more. This information is processed from the gustatory system via brainstem to Gustatory Cortex located in the Parietal Lobe.

The skin layers of the body detect tactile sensations. For instance, hugging your parent gives you a sense of comfort or holding the hands of a trusted person gives you a strong sense of confidence. These sensations were directed to the somatosensory system via the brainstem to the primary somatic sensory cortex located in the Parietal Lobe.

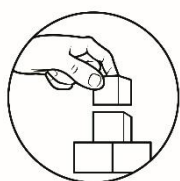
This is a partial view of how the brain works for you. Again, the cerebrum and cortex have something to do with your ability to think. The limbic system has something to do with your feelings, while the brainstem has something to do with you behaving safely to survive. These are all important for the personal development of how you think, feel, and do.

Think of this scenario, you are watching your favorite teleserye on your favorite channel. Suddenly, there was an interruption. There's no audio and video, resulting in dead air – meaning no signal. Your initial reaction may be to scream. Then as you become anxious, you are now thinking that you live in a rough location and feel sad, angry, and ashamed. Then you intentionally slam the door.

However, if you choose to pause for a while and exercise proper breathing, you may realize that you will be able to watch the replay the following day. As you calm yourself and accept the situation, you can decide to do household chores or homework, which are the best choices you may ever make that night which will give you fulfillment.

The brain makes you think, feel, and behave. Its complex interrelationship enables you to think critically, creatively, and carefully in various situations. Those experiences you gain develop certain reactions towards yourself and with others which determine who you are as a person having the right and acceptable thought process, feeling of calmness, and self-control.

What do you think? Can you look around? What do you see, smell, feel, and hear? Is it nice or not? Try to look at your face, is there any dirt that needs to be cleaned? How did you feel after you see it? What will you do about it? Then, after you take care of it, tell yourself how it changed your mood. Aha!



What's More

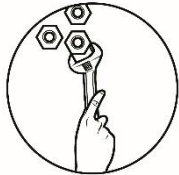
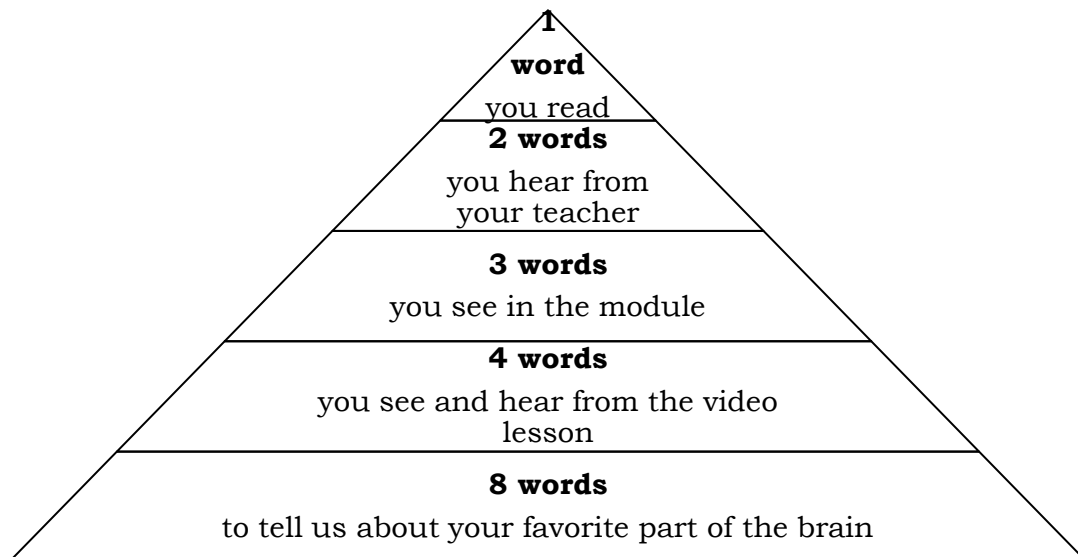
Complete the paragraph on the right column using the correct words on the left column.

Cerebrum	<p>Brain is one of the most complex organs in the human body which is part of the central nervous system. The <u> (1) </u> is the largest part of the brain which regulates senses, memory, emotions, intellectual activities, and body movement. The <u> (2) </u> is responsible for processing information that is divided into two hemispheres. The <u> (3) </u> composes parts of cerebral cortex and hypothalamus which regulates various types of emotions. The <u> (4) </u> regulates balance, postures, and coordinates movement. The <u> (5) </u> connects the cerebrum and cerebellum to the spinal cord that carry signals to and from all parts of the body.</p>
Limbic Sytem	
Cerebral Cortex	
Cerebellum	
Brainstem	



What I Have Learned

List down words you remember about the parts of the brain, its functions and processes. Complete the organizer by also explaining your favorite part of the brain.



What I Can Do

Visualize yourself on these distressing situations. How are you going to think, feel, and behave at your worst and at your best? Provide an explanation to complete the chart.

Distressing Situations	Deadline	Dead spot	Dead-end
What will be your initial reaction?			
How does it affect your thoughts, feelings, and behavior?			
If you are going to think first before you act, how are you going to react?			
How does it improve your thoughts, feelings, and behavior?			

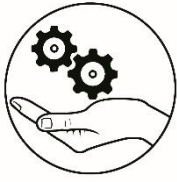


Assessment

Multiple Choices. Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.

1. Which of the following is the largest part of the brain that regulates senses, memory, emotions, intellectual activities, and body movement?
 - A. Cerebellum
 - B. Hindbrain
 - C. Cerebrum
 - D. Midbrain
2. Which of the following covers the cerebrum and regulates the processing of information?
 - A. Cerebral Cortex
 - B. Cerebellum
 - C. Cerebrum
 - D. Brainstem
3. Which of the following is within the forebrain that regulates various types of emotions?
 - A. Cerebral Cortex
 - B. Hypothalamus
 - C. Limbic System
 - D. Thalamus
4. Which of the following is located in the hindbrain that regulates balance, postures, and coordinates movement?
 - A. Limbic System
 - B. Cerebellum
 - C. Cerebrum
 - D. Brainstem
5. Which of the following connects the cerebrum and cerebellum to the spinal cord that carry signals to and from all parts of the body?
 - A. Hypothalamus
 - B. Limbic System
 - C. Thalamus
 - D. Brainstem
6. Which of the following is connected to the cerebral cortex that sends, receives, and organizes information?
 - A. Hypothalamus
 - B. Cerebellum
 - C. Cerebrum
 - D. Thalamus
7. Which of the following is located below the thalamus and above the brainstem that regulates digestive process and is also responsible for growth and development?
 - A. Hypothalamus
 - B. Limbic System
 - C. Cerebellum
 - D. Thalamus

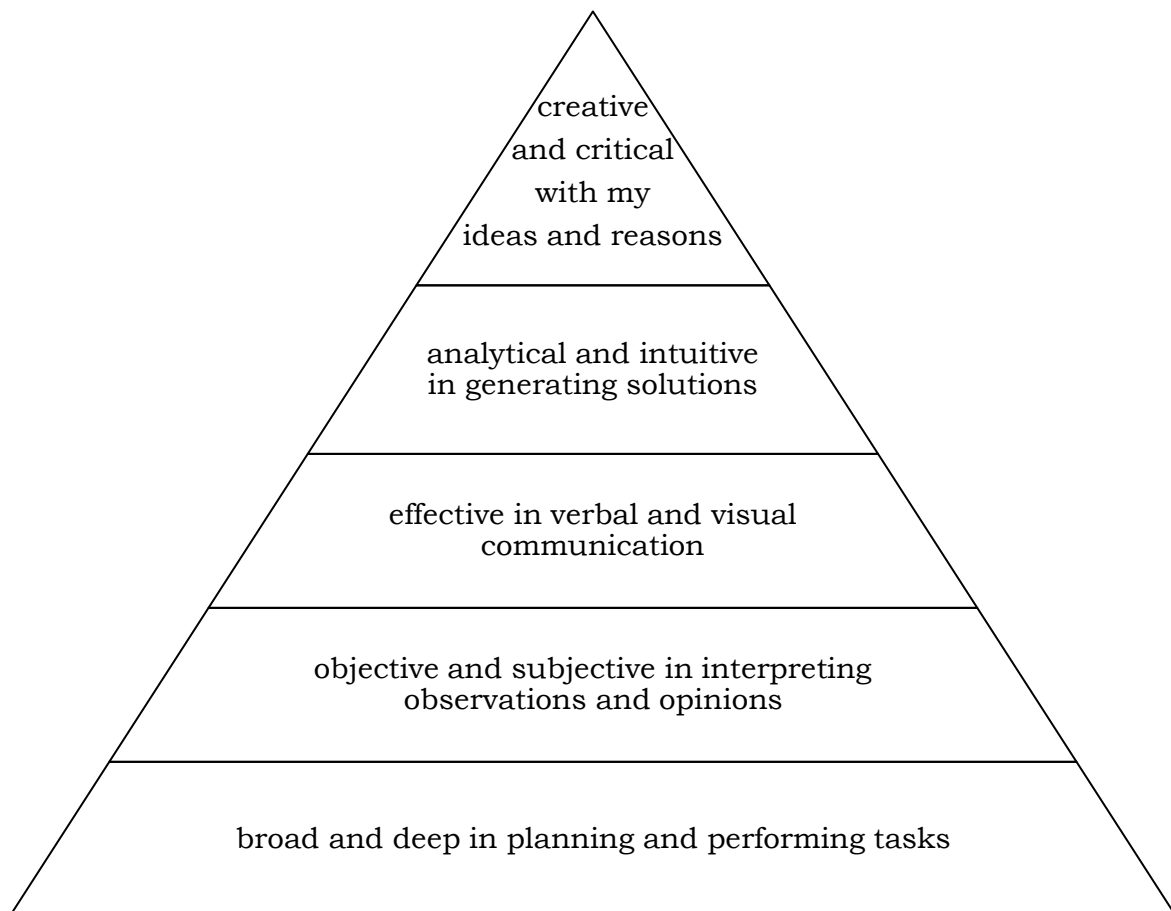
8. Which of the following cerebral lobe controls memory, emotion, stress response, speech, decision-making, and planning?
 - A. Temporal Lobe
 - B. Occipital Lobe
 - C. Frontal Lobe
 - D. Parietal Lobe
9. Which of the following cerebral lobe regulates sensory perception?
 - A. Temporal Lobe
 - B. Occipital Lobe
 - C. Frontal Lobe
 - D. Parietal Lobe
10. Which of the following cerebral lobe regulates memory, hearing, and comprehension?
 - A. Temporal Lobe
 - B. Occipital Lobe
 - C. Frontal Lobe
 - D. Parietal Lobe
11. Which of the following cerebral lobe is situated at the back of the head that regulates sight?
 - A. Temporal Lobe
 - B. Occipital Lobe
 - C. Frontal Lobe
 - D. Parietal Lobe
12. Which of the following includes the cerebrum, thalamus, hypothalamus, and the limbic system?
 - A. Brainstem
 - B. Hindbrain
 - C. Forebrain
 - D. Midbrain
13. Which of the following is responsible for motor movements particularly the visual and auditory processing?
 - A. Brainstem
 - B. Hindbrain
 - C. Forebrain
 - D. Midbrain
14. Which cerebral hemisphere controls the left side of the body?
 - A. Right hemisphere
 - B. Left hemisphere
 - C. Cerebellum
 - D. Brainstem
15. Which cerebral hemisphere controls the right side of the body?
 - A. Right hemisphere
 - B. Left hemisphere
 - C. Cerebellum
 - D. Brainstem

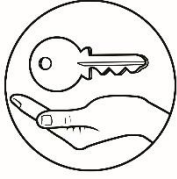


Additional Activities

Rank 1 to 5 the following characteristics that best describe you, where 1 is the highest and 5 is the lowest. Reflect on your experiences and practices as a person in improving your thoughts, feelings, and behavior. Below the diagram, identify 3 ways to improve your thoughts, feelings, and behavior.

I am...





Answer Key

Assessment	What's More	What I Know
1. C 2. A 3. C 4. B 5. D 6. D 7. A 8. C 9. D 10. A 11. B 12. C 13. D 14. A 15. B	1. Cerebrum 2. Cerebral Cortex 3. Limbic System 4. Cerebellum 5. Brainstem	1. A 2. B 3. C 4. D 5. A 6. B 7. C 8. A 9. B 10. D 11. C 12. B 13. A 14. D 15. C

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For inquiries or feedback, please write or call:

Department of Education - Bureau of Learning Resources (DepEd-BLR)

Ground Floor, Bonifacio Bldg., DepEd Complex
Meralco Avenue, Pasig City, Philippines 1600

Telefax: (632) 8634-1072; 8634-1054; 8631-4985

Email Address: blr.lrqad@deped.gov.ph * blr.lrpd@deped.gov.ph