

# The Brain



*Let us take a five-dimensional journey into our miraculous brain to better understand, appreciate and use it to the best of our ability.*

Suppose your brain suddenly stopped functioning, but somehow you were given the chance to run your brain like you would a computer. How would you do it? Imagine the millions of messages sent from all over your body that would need an instant reply from your brain so that you would be able to walk or run. Would you be able to handle them? Suppose you were actually able to reply to all of those messages at the same speed as the original speed of your brain. Would you be able to do anything else other than trying to process these multiple requests? How do you think life would be for you?

## First Dimension : Analytical Thinking

### SCIENTIFIC UNDERSTANDING OF THE BRAIN

**Y**our brain is the most complicated organ of your body. It is located in your head inside the protective skull. The brain looks like a giant walnut. It is a jelly-like clump of protein and fat that weighs about as much as a large grapefruit in adulthood, about 3 pounds ( or 1.4 kg). It is made up of about 86 billion nerve cells (also called **neurons**) that are interconnected in a vast network. This network of interconnected neurons is connected with the management of all the processes in your body such as movement, breathing, digestion, sleeping and speaking. Yes, you don't 'use' your brain only when you are thinking, but also when seeing, smelling, and even feeling. Did you know that your brain is 'plastic' meaning that it can develop with effort and practice?



“THE BRAIN ACTUALLY  
LOOKS LIKE A GIANT  
WALNUT”





-1-

### The Right Hemisphere

The right hemisphere operates in connection to the left side of your body. It is associated with abstract things such as colors and shapes.



-2-

### The Left Hemisphere

The left hemisphere operates in connection to the right side of the body. It is associated with things like math and speech.

Your brain is made up of three parts: the **cerebrum (forebrain)**, **cerebellum (hindbrain)**, and the **brain stem**, which is also known as the **medulla**. The **cerebrum** is the largest part of the brain. Your senses, memories, imagination, temperature regulation, speech and ability to eat, drink and think, are all processed in this part. When you are solving math problems, or drawing pictures, you are using your cerebrum. It is also a crucial place for your sleep regulation. If the cerebrum is damaged, your sleep gets interrupted. The cerebrum is divided into two halves called the left and right hemispheres. The **right hemisphere** operates in connection to the left side

of your body. It is associated with abstract things such as colors and shapes. The **left hemisphere** operates in connection to the right side of the body. It is associated with things like math and speech. The **cerebral cortex** is the outer part of the cerebrum.

The **cerebellum** or 'little brain' is located right behind the cerebrum. It is designed to coordinate balance, movement and the coordination of muscles during activities such as walking, running, cycling and even standing still. The **brainstem** or **medulla** is comprised of the **midbrain**, the **pons** and the **medulla oblongata**. Your involuntary muscles, the ones that work automatically like the muscles



-3-

### The Cerebellum

The cerebellum is design to coordinate balance, movement, and the coordination of muscles during cycling.



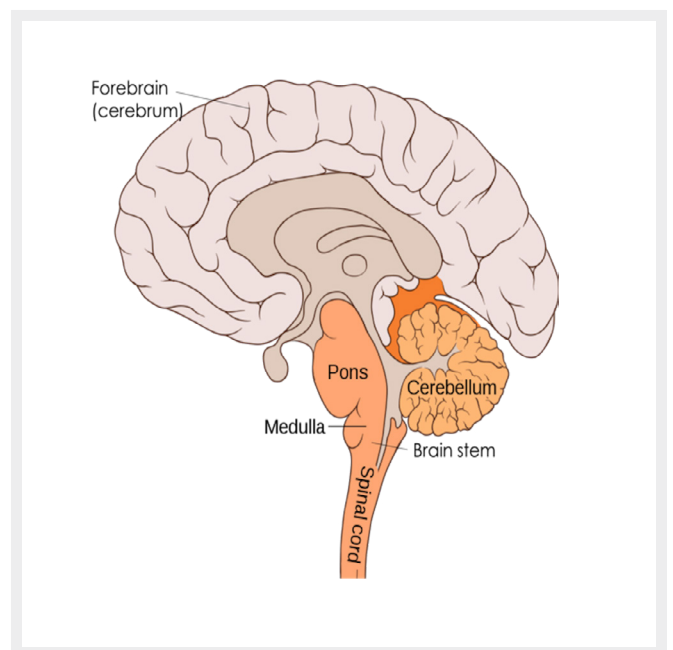
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### The Cerebrum

When you are solving math problems, or drawing pictures, you are using your cerebrum.

in your heart and stomach, are controlled through the brainstem. For example, your heart pumps more blood when you are running, and your stomach muscles automatically begin to contract when you eat food. The **brainstem** serves as a pathway between the **cerebrum** and the **cerebellum**.

Can you spot the **pons**? The pons is the message center of the brain. These millions of messages from the upper to the lower parts of the brain are connected and sorted out in the pons. It is also an important center related to our sleep and dreaming. The brainstem serves as a pathway between the cerebrum and the cerebellum.



# -AMAZING SCIENTIFIC FACTS- HUMAN BRAIN

The human brain weighs 3 pounds (nearly 1.4 kg)

It is made of 100 billion neurons (brain cells).

It is mainly composed of water (75-78%), fats (10-12%), and protein (8%).

It can survive for 5 to 6 minutes only if it doesn't get oxygen.

It has highways of blood vessels that stretch over 100,000 miles (160,000 km).

In early pregnancy, the neurons develop at a rate of 250,000 per minute. It continues to grow until the age of 18.

It consumes 20% of the body's oxygen and food (energy).

It can't feel pain but make you to feel pain signals from the body.

It only requires 20 Watts of energy to operate hundreds of times faster than the fastest computer.

Every second, there are 100,000 chemical reactions happening in the human brain.

*Did you know that your brain can hold one petabyte (one million terabytes) of data- almost as much data as the entire World Wide Web?*

# Does the brain have some hidden superpower?

In order to stay alive, your body needs to coordinate many functions such as breathing, digestion, blood circulation, and the beating of your heart. These unconscious tasks are regulated through the **medulla oblongata**, which is located at the base of the brain, right above your spinal cord. Can you imagine what would happen if the brain stopped working? Many vital functions would be affected. Thankfully, our brain is always working—even in our sleep.

Think for a moment. How is your brain capable of performing such incredible tasks? After all, the brain is nothing, but tiny cells made out of what you eat and drink. How can they perform such remarkable jobs? Does the brain have some hidden superpower? Before exploring the answer to these questions, let us first reflect on a man-made invention, the processor (or Central Processing Unit) of a computer that attempts to mimic the human brain.

PLEASE WATCH THIS VIDEO TO GET BASIC SCIENTIFIC UNDERSTANDING OF HOW THE BRAIN WORKS.



How Your Brain Works

<https://youtu.be/-nH4MRvO-10?t=8>

YOUTUBE

WATCH THE ACTUAL BRAIN EXPERIMENT AT THE LAB TO LEARN ABOUT SOME AMAZING SCIENTIFIC FACTS.



#OperationOuch #ScienceForKids  
Science for kids | Body Parts - THE HUMAN BRAIN | Experiments for kids | Operation Ouch

<https://youtu.be/4Dcj6nYcbLI>

# Second Dimension : Analogical Thinking

Did you know it takes 82,000 processors to mimic a one-minute activity of the human brain?

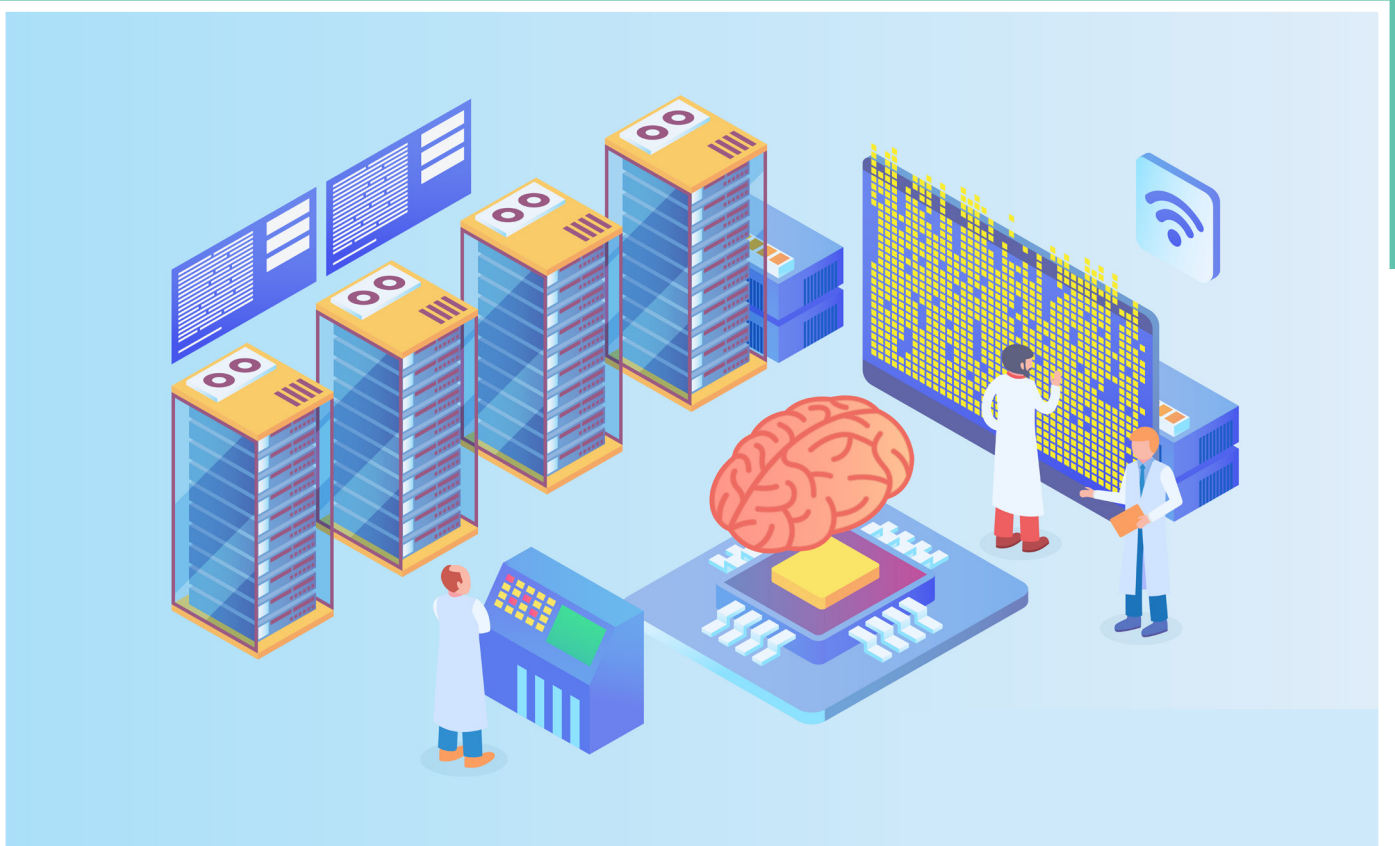
## COMPARING THE BRAIN TO CPU

You have now learned that all body functions such as the senses, memory and understanding, sleeping, eating and dreaming are controlled through the brain. The brain has been designed as the control center of your body. In a similar way, the processor of a computer coordinates the computer's functions by sending and receiving signals to its various components. Reflect on the differences between the control center of our body, i.e. the brain, and the control center of a computer, i.e. the processor or Central Processing Unit (CPU). Although modern computers can be highly sophisticated and efficient, they cannot compete with the amazing performance of our brains.

Let us first understand how the CPU works. The CPU manages and processes every single operation you complete using your computer. The speed at which your CPU can complete mathematical operations is linked to the performance of your computer. If we were to compare the processing speed of the human brain with that of an advanced



computer processor, the human brain would prove to be exceedingly superior. A few years ago, scientists attempted to simulate the processing power of a human brain by allowing 82,000 processors to run on one of the world's fastest supercomputers. The result? Only one minute of human brain activity. In other words, it takes 82,000 processors to mimic a one-minute activity of the human brain. The brain works very efficiently in terms of using energy to generate power. Indeed, in terms of power generation, our brain produces only enough power to light

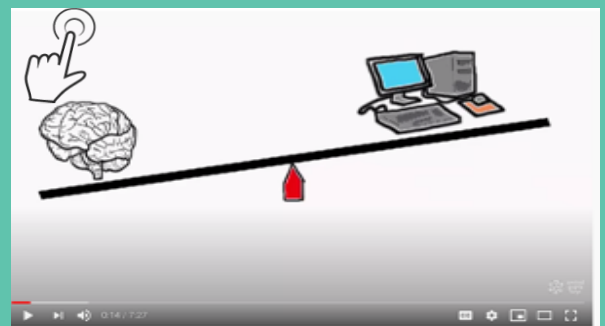


a dim light bulb; yet this power seems to be sufficient to complete a remarkably diverse range of tasks. Supercomputers that consume enormous amounts of electricity are simply incapable of achieving the same range and diversity of tasks as the human brain.

In short, the most sophisticated computer or even an interconnected network of a thousand such computers are no match to the human brain. Indeed, we are far away from having a full understanding of the brain despite the work of thousands of scientists. What does this tell us? This makes us realize that there must be a power behind the magnificent functioning of our brains that is greater than the combined efforts of the entire human race. of using energy to generate power.

**WATCH THIS VIDEO TO BETTER UNDERSTAND SIMILARITIES AND DIFFERENCES BETWEEN THE HUMAN BRAIN AND COMPUTER.**

**YOUTUBE**



<https://youtu.be/XqG6iOfwlqc>



# Third Dimension : Critical Thinking

Do you think it's possible for the components of the brain to come together and create the brain out of thin air?

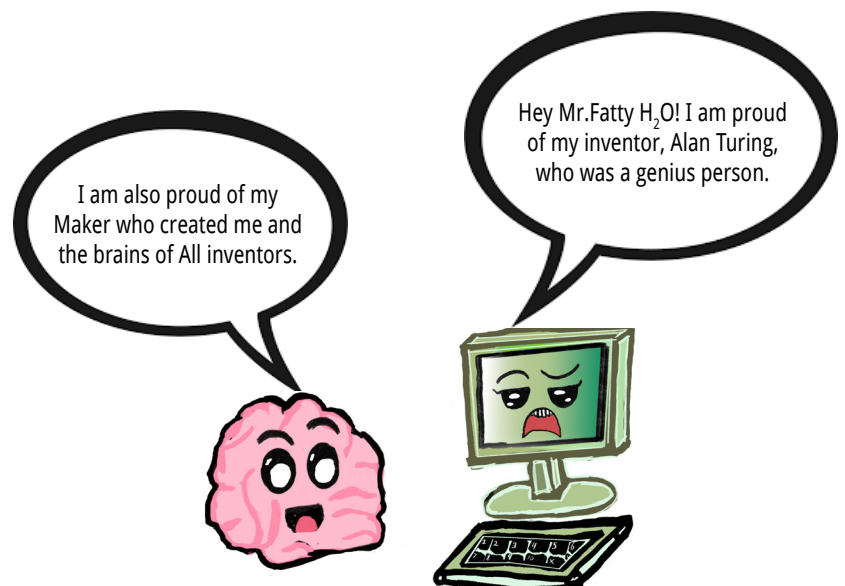
## EXPLORING THE MAKER OF THE BRAIN

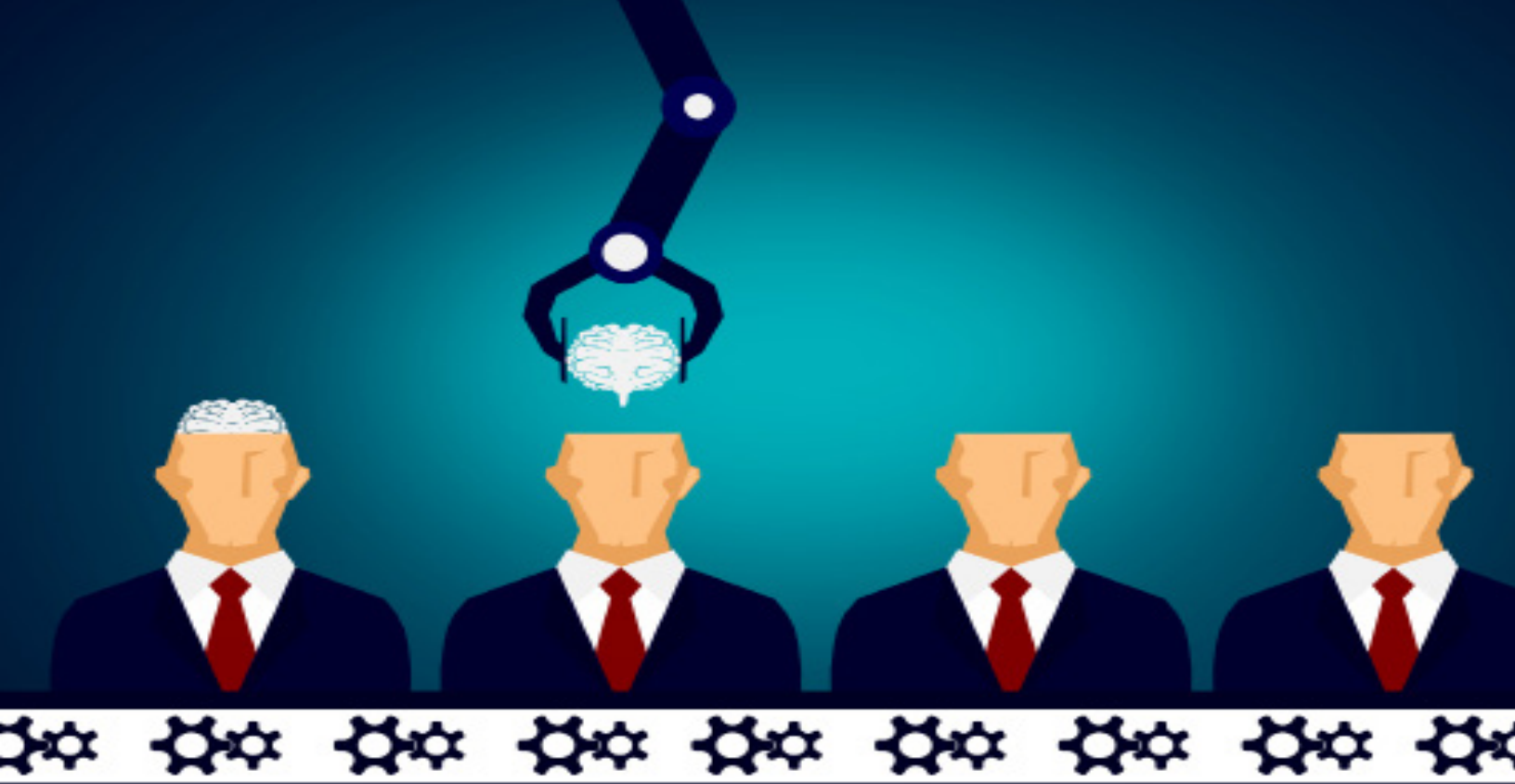
Let us reflect on the existence of computer processors. How did they come to be? Even if you know nothing about their history, you can still tell that they must be the product of intelligent people with scientific knowledge. Think about it- could an ignorant person with no education possibly make a computer processor? Clearly, the answer is no. The odds of a computer processor being made by someone without deep and sophisticated knowledge and ability related to the subject are zero.

Now think about the much more amazing 'processor' of your body, i.e. your brain. Using your brain, think about the eight billion human 'processors' around the world. Think about the incredibly complex and elegant mechanisms of your brain and its coordinated circuitry that allows you to process the information received by your senses from the environment, without you having to make any effort! Do you think it is possible for the components of the brain to come together and create the brain out of thin air? Is it possible that the brain just happened to emerge through the random bonding of atoms and molecules?

Can all the scientists in the world collectively build a human brain when they cannot even make a computer processor similar to the brain? Even if they were given an intact but non-living human brain, the scientists would not be able to restore it to life. Let us not forget the remarkable fact that this miraculous brain, that has mystified the world's most esteemed scientists, has been built out of the most basic ingredients- our food and drink!

Let us now again compare the computer processor to the human brain, an infinitely more incredible creation. We know that it





is not possible to produce processors without those who possess great knowledge, will and power. In the same way, it is also not possible to create a human brain without a Maker who possesses will, knowledge, wisdom and power. Indeed, the creation of the human brain is a marvel of knowledge, power, beauty and wisdom.

We also recognize, appreciate and reward inventors of important and useful inventions such as processors. How about the Originator and Maker of the brain? As we have learned, the brain is a very precious gift because it is linked to so many of our bodily functions. As a result, if the brain is injured and brain tissue is damaged, many serious things can occur such as memory loss, loss of function of arms or legs, loss of vision, etc. Doesn't the Maker of this precious gift of the brain deserve a high degree of recognition? Doesn't its Maker and Sustainer in life and

health deserve much appreciation? The least we can do is to acknowledge His generosity, wisdom, knowledge and power in creating the brain.

As you reflect on the brain, you will hopefully start to realize that there are things that we can feel and understand even though they cannot be seen with our eyes. For instance, we can understand that the miraculous way the human brain functions points to a hidden reality that is open for us to discover.

**WATCH THIS VIDEO TO LEARN ABOUT THE INVENTION OF COMPUTER PROGRAMMING LANGUAGE.**



It is important to remember that the CPU is just a platform. In order to do the actual work of computing you need electrical power. Likewise, the brain is just a platform through which the Hidden Power does the actual work of the brain. Just as a CPU is necessary but not sufficient to get computing jobs done, the human brain is necessary but not sufficient for the remarkable activities to occur via the brain. Without life or the 'electricity' of the brain, nothing would work. We also need to breathe, drink and eat for the brain to function. It is clear that the incredible work of the brain cannot be attributed to its ignorant and blind cells, nor to the unconscious atoms found in its molecules.

How could the brain cells -that are made of nutrients- possibly be responsible for the astonishing number of activities associated with the brain? These activities can only be the work of someone with enormous knowledge and wisdom- someone with the power to control your brain and body and their various connections with the rest of the world. Recall- the brain is made of a coordinated network of nerve cells that connect seamlessly to every part of our body via the spinal cord. It is designed to manage, process and regulate all of our bodily functions. This organ needs to be intact for you to be self-aware. Your awareness enables you to acknowledge that you are a living, breathing, feeling human being. Without awareness, you would not be able to comprehend the physical activities of your soul. It is essentially the door to the experience of this world and everything in it.



***“Let us not forget the remarkable fact that this miraculous brain, that has mystified the world’s most esteemed scientists, has been built out of the most basic ingredients- our food and drink!”***



## Fourth Dimension : Meditative Thinking



### REFLECTING ON THE ATTRIBUTES OF THE MAKER

*The fact that the control of our bodies is connected to our complex brain in very delicate and clever ways is clear evidence for much intelligence, knowledge, and purpose. It can neither be the result of 'chance' nor can it happen on its own. Then how did it happen? What is the Hidden Hand behind the carefully interconnected and organized activities in our brain?*

What is important to keep in mind is that the eye is required for seeing but it is not the eye that sees. Likewise, the brain also is required for being aware, yet it is not the unconscious, ignorant and blind brain that thinks, understands, feels, or senses. Another important fact is that your brain does not work in isolation. It is connected to your internal environment as well as your external one.

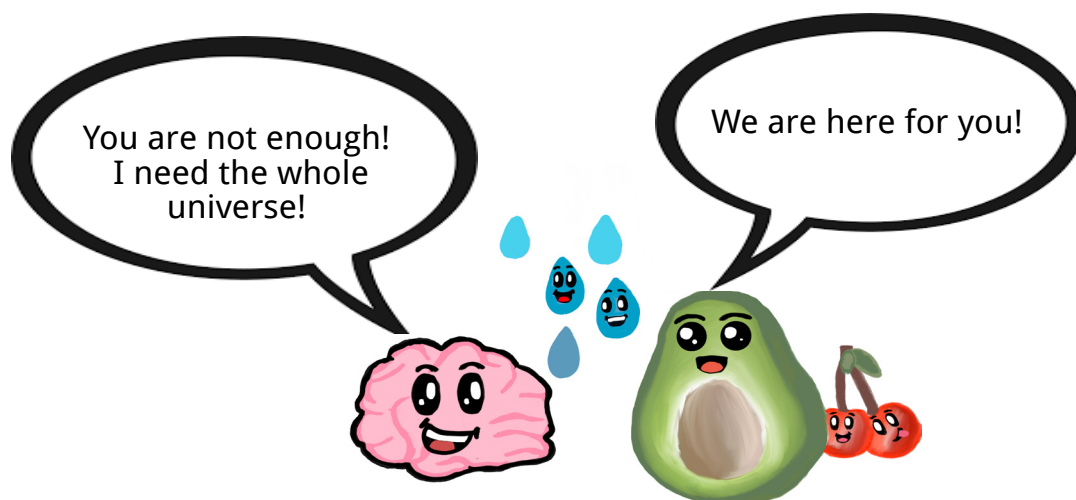
# -CONNECTION OF BRAIN AND UNIVERSE-

The brain, like all living organisms, needs oxygen, water and nutrients via the food that you eat and the air that you breathe. Oxygen is produced by plants and preserved by gravity and the atmosphere. Food is produced by plants and animals using stored energy from the Sun. Water is provided through a well-established water supply system (known as the Water Cycle). Thus, the human brain is connected to plants, animals, oceans, the atmosphere and the Sun. Actually, if we further reflect on the brain's connections, we will realize that it is connected to the entire universe.

As shown in the third dimension, the perfect creation of the brain within the human body and within the world could not have happened by chance, nor could it be attributed to material causes or nature. The brain is concrete evidence of both

Hidden knowledge, power, and wisdom. If someone had a form of supernatural knowledge and power and could make a human brain without wisdom, he could not possibly integrate it into the system where it exists. It is a mark of wisdom that the brain exists and interacts in perfect order and harmony with its surroundings.

Clearly, the brain, which is purposely connected to the entire universe, can only be the work of the One who has the knowledge, wisdom and power to control the whole cosmos. The One who has the will to create perfection in every living thing. The One who makes millions of specialized nerve cells come together in perfect unity to create orderly connections that relay millions of messages back and forth from the brain to the body. The One who has made it possi-





ble for unconscious and ignorant cells to have intricate built-in plans and specifications that allow them to be the platforms for the miraculous works of His Power.

We can neither make nor sustain the brain. Our inability and powerlessness to control the inner functioning of our brain tell us that there is a hidden message behind this wonderful organ. The message is plain to those who think: it tells us that all these activities are the work of an All-Powerful and Wise Creator who knows how to run all types of brains. But how do we find this hidden message? Who is the Maker of our brain? What can we know about the Maker? It seems like He speaks through His actions. The truth is, actions speak louder than words. Why did He grant us a brain? Remember that our brains are a portal through which we can experience life. Our brain is like a tool that we can use to reflect on the miracles given

and gifted to us by our Maker. The brain acts as a window to the workings of our soul.

As we discussed above, it is clear that the Maker of our brain has the wisdom, knowledge, as well as the ability and power to make it. It is way beyond our knowledge and power to create our own brain and to also control it. We can use our brain to perform advanced tasks, but we have no control over its functions. We have to work hard just to try to understand our brain and how it works; and there are still so many things that we do not know about our brain. The Maker of the brain must have infinite knowledge and power in order to create the living brain and its range of activities that are- directly or indirectly- connected to the entire universe. The Maker must be aware of everything that we experience using our brains.

The Maker of the brain must know our needs for thinking, reasoning and logic; our needs for seeing, smelling, feeling; our needs for eating, drinking, and walking, etc. So, in order to fulfill all these needs, He grants us this priceless, miraculous organ. He must be very generous to give us such a precious gift, at no charge. It is not like He is forced to make such a perfect brain and give it to us. He has infinite power; He controls all beings and all things. So, we can understand that since there is no power above His infinite power, the Maker of the brain willingly creates the brain and maintains its activities. He creates living beings with brains purely out of His mercy, just as He creates all the things those beings need for their lives. He must be very wise because He uses a complex system that allows

us to experience our internal and external worlds so smoothly- with so much ease that we can easily take them for granted unless we pause and reflect. The Creator knows our innate needs for a brain. He knows how to create an incredible brain. And He is the One directly controlling our body through the brain. Clearly, our brain is evidence that our Maker is All-Seeing, All-Knowing, All-Powerful, All-Wise, Most-Merciful, Most Loving, Most Caring, and Most-Kind. These then must be some of the hidden messages contained within the wonders of the brain's vital activities. The brain and its activities speak of their Maker and make Him known to us by glorifying Him with His beautiful attributes. That is why, as we study the brain, we will learn more about its Maker.

# The Most Merciful



# Fifth Dimension : Moral Thinking

## RESPONDING WITH BETTER CHARACTER



**R**eflect on the value of your brain. Think about what takes to have a healthy brain. What does a healthy brain mean to you? Think of a newborn baby girl who is born with a healthy, well-developed brain. She can use her brain to coordinate her movements effectively. She yawns and cries when she is hungry, cold or wet. She opens and closes her eyes, curls her little fingers around her father or mother's finger. She does those instinctively, i.e. without conscious thought, and easily and flawlessly. This is how she was born.

She opens her eyes and blinks when an object suddenly appears in her field of vision. Her brain processes all the information it receives through her senses from her external and internal environment. It regulates her body functions according to her needs. How does her brain know what her optimal body temperature is? How does her brain keep her body temperature at 37 degrees Celsius, by coordinating the

processes of sweating and shivering depending on the temperature of her surroundings? How does her brain send a distress signal as she cries when she is in pain? How can the brain understand the signal sent by the distressed body organ and alert her mother that something is wrong? The unconscious and blind brain does not know and cannot know. However, it shows us that its Maker knows both the baby and her mother. Indeed, the Maker creates our brain as a miraculous, perfect platform through which He controls our body.

What would happen if your brain was damaged in a car accident? Imagine what your life would be like if you lost the part of your brain that is responsible for processing signals and coordinating your responses to these signals. What if you were born without the ability to process the information you received through your senses effectively?





- **Remembrance** is understanding that there is a Creator of the brain;
- **Reflection** is reflecting on this miraculous organ as a gift of our Creator's mercy and acknowledging it as a priceless wonder of art.
- **Gratitude** is appreciating our brain and other blessings and being thankful to the Creator for giving us such good blessings;

What could you do about it? A healthy brain is essential for us to be able to navigate our way in the world. Indeed, the human species would be extinct if they were unable to complete the most basic of tasks or if they were unable to process the information in their environment effectively to keep them safe, secure and well fed. Where did you buy your brain? How much did you pay for it? Actually, you would not even be aware that you were missing a brain if you didn't have one, because it is your brain that is designed to make you aware of its existence. Of course, brains are not available for sale. Even if all the scientists in the world pooled their resources and knowledge together, they would not be able to create the human brain in its glorious perfection. For the time being, they cannot even repair an existing brain if it is damaged. If they eventually succeed in making one, it would surely cost a fortune to buy.

If it were possible to transplant the brain, you would not sell your brain for billions of dollars. What would you do with billions if you did not have a

brain? You cannot even live without a brain. Even people who live in a vegetative state have some brainstem function for them to breathe. When the brain stops functioning all together, it means that person is dead. You received your brain as a gift before starting your journey on Planet Earth. The One who created you gave you a healthy brain to experience the wonders of the world. Each one of us has been given a unique brain. Indeed, no two brains in the world are identical. This means that your brain has been especially made for you by the Most-Generous and the Most-Merciful.

Now that we have learnt the value of our brain, should not we remember its Maker? Should not we be grateful for such an amazing gift? Yes, indeed, we shall offer our sincere appreciation after remembering Him and reflecting on the greatness of His gift. As we practice remembrance, reflection, and appreciation, we will be able to use our beautiful brain in accordance with its beautiful and lasting purposes. Only then, will we be able to fulfill the purpose of our existence. Otherwise, the value of



our brain diminish year after year until we die. In order to appreciate the value of our brain, we should reflect on why we were blessed with one.

What should we do in response to this extremely valuable gift? How should we respond to the Gift Giver? How can we express our appreciation through words and actions? Just as we pay the price of purchasing high speed computers and other electronic devices, we need to pay our dues to the One who has created our brain and senses so that we may experience life in all of its glory. We need to pay our dues to the One who gives life and take cares of our most vital needs so generously. He does not need anything from us. Everything belongs to Him. We should offer our appreciation through good words and actions. We should reflect on the fact that our very existence is dependent on having a functioning, healthy brain. We should remember that Our Creator is the One who blesses us with a healthy brain and allows it to work in incredible ways.

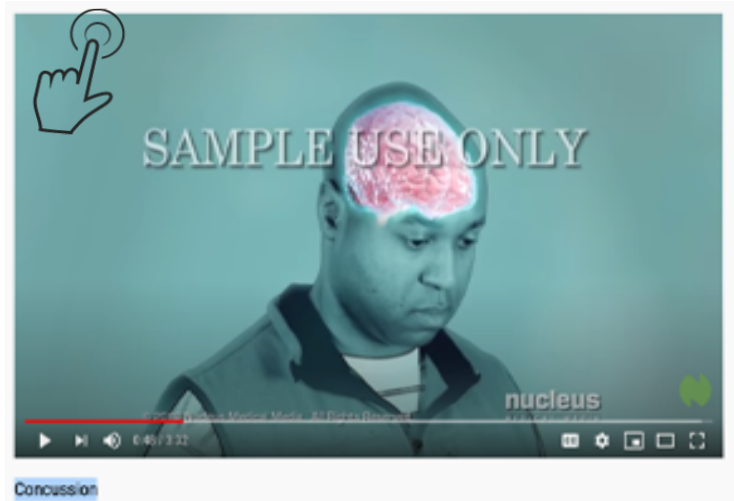
We should appreciate the gifts given to us, not because He needs our appreciation, but because WE need it. Yes, we need to appreciate our brain in order to use it in the best, most optimal way so that it benefits us and others in this world and in the hereafter.

In short, we should be mindful of the Bestower of the brain when using it. Since He grants us the brain out of His pure goodness, we should use it for performing good deeds. We should not use it for evil. We should know that He sees everything we choose to do with our brain. Indeed, He is aware of every thought, intention and action. Thus, we should feel great appreciation every day when we wake up for having such a healthy brain that permits us to enjoy our beautiful life. We should use our brain to become better people. We should use our brain to wonder about the Maker of the universe.

When we read the meaningful messages in the book of the universe, we should keep in mind that our brain is processing what we read. We should acknowledge the Maker who has given us such a miraculous custom-made processor. We should use our brain to strive towards excellence. We should not let our brain wither away

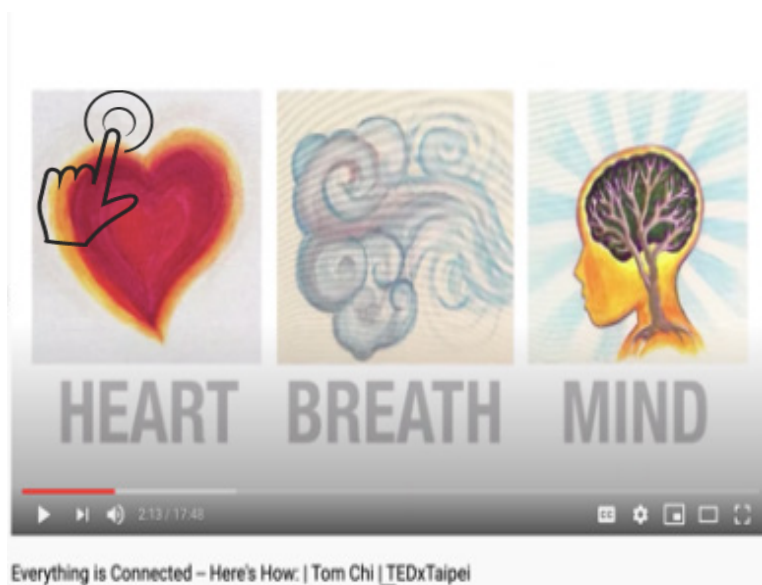
by wasting our time on meaningless activities. If we use our brain in good ways to become a better human being, we can expect that its Maker will grant us this precious gift once again after this earthly life to enjoy the splendid bounties of eternal paradise. What a great reward!

WATCH THIS VIDEO TO LEARN WHAT HAPPENS WHEN YOU HAVE A BRAIN INJURY. IT WILL HELP YOU TO APPRECIATE THE FACT THAT YOU HAVE A FUNCTIONING BRAIN.



<https://youtu.be/tgChTeALF7g?t=10>

WATCH THIS VIDEO TO LEARN HOW OUR HEART, BRAIN, AND STARS ARE ALL INTERCONNECTED.



<https://youtu.be/rPh3c8Sa37M?t=133>

# TEST YOUR KNOWLEDGE

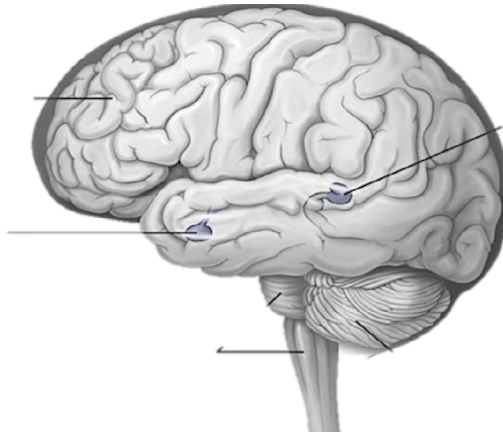
## I. UNDERSTANDING SCIENCE TERMS

Complete the following sentences with a word or words from the Science Terms that will make the sentence correct.

*Cerebrum      Cerebellum      Medulla Oblongata      Pons      Midbrain      Hemispheres*

1. The \_\_\_\_\_ appears to manage unconscious processes like heart rate, blood pressure and breathing.
2. The brain is divided into two \_\_\_\_\_.
3. The \_\_\_\_\_ is the message center of the brain.
4. The \_\_\_\_\_ is a pathway between the cerebrum and the cerebellum.
5. The \_\_\_\_\_ appears to manage movement.
6. The \_\_\_\_\_ appears to manage balance and coordination.

Label the following diagram:



## II. CHECKING FACTS

Determine whether each of the following is true or false.

1. The brain emerged by accident through the random coming together of atoms and molecules.
2. You can hold your breath up to ten minutes without harming your brain.
3. It is not the brain, but the Hidden Force that controls the body through the brain.
4. Reasoning is necessary for us to survive.
5. The brain has no connection with the sun.
6. The brain resembles not only one computer, but thousands of connected computers.

### III. UNDERSTANDING CONCEPTS

Write a short answer for each question or statement.

1. Which part of the brain do you use when running a marathon?

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2. Which part of the brain appears to control your breathing?

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3. List two things which make your brain better than any computer.

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4. How do you know that there is a Hidden Hand behind the well-connected and organized activities in your body?

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5. List two hidden messages in the brain from its Maker.

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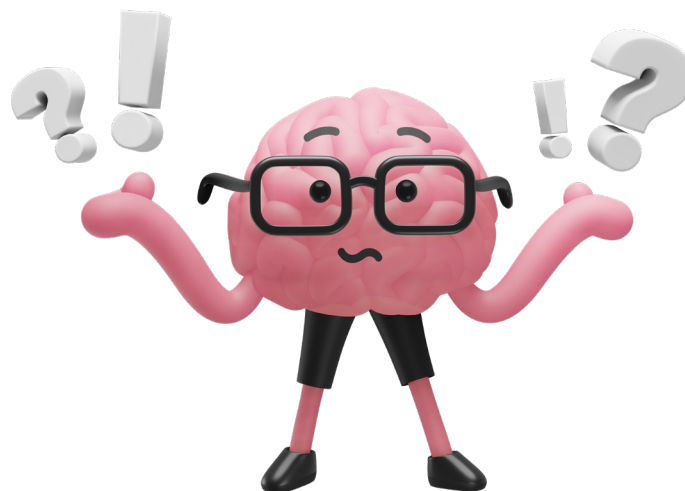
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6. Why is it an offense to deny the Maker of the brain?

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#### IV. APPLYING CONCEPTS

Write a paragraph to answer each question.

1. How is the memory stored by our brain different from that stored by a computer?

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2. Describe how your daily life would be different if your brain could not control its response to pain.

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3. Why do you think nature or material causes such as molecules and cells could not create the brain and its activities?

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4. The One who creates the brain has to be the Creator of the universe. Why?

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5. Why do you think the brain is an extremely valuable gift? Describe two things which make you appreciate the value of this gift.

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6. How can you show your gratitude to the One who granted you the gift of thinking, memory and logic?

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## V. THINK-THANK GAME

In this “think-thank” game, we want you to think about the brain and give thanks to its Maker. We also call it the “play to praise” game. The goal of this game is to think of at least five things about the brain that you are thankful for.

**Number of players:** At least two.

### Directions:

Player 1 repeats an appreciation phrase loudly and quickly. Player 2 responds, without pausing, with something to be thankful for. This is repeated five times.

### To win:

Player 2 needs to respond five times (without pausing) with different things about the brain to be thankful for in order to win the game.

### Here is an example of two rounds of this game:

1. Player 1 repeats the appreciation phrase loudly and quickly. For example: “Thanks to the Maker of the brain”
2. Player 2 responds, without pausing, with something about the brain to be thankful for. For example: “For making our brain faster than any computer!”
3. Player 1 repeats the appreciation phrase again loudly and quickly. For example: “Thanks to the Maker of the brain!”
4. Player 2 responds, without pausing, with another thing about the brain to be thankful for. For example: “For protecting our brain in a strong case!”

This should be continued for another three rounds until Player 2 wins or loses.

