

Human Memory



Let us take a journey into our miraculous brain to understand how our memory works.

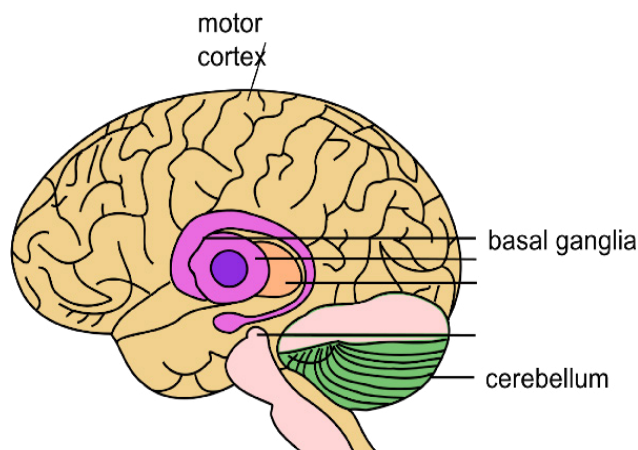
You are standing in line at the checkout counter. Suddenly, you lose all memory of why you are there. People behind you are getting annoyed, muttering amongst themselves. An older gentleman gently taps you on the shoulder, motioning for you to move ahead. You see the checkout lady on your left making odd hand movements and looking at you strangely, but you don't understand what she means. What would you do?

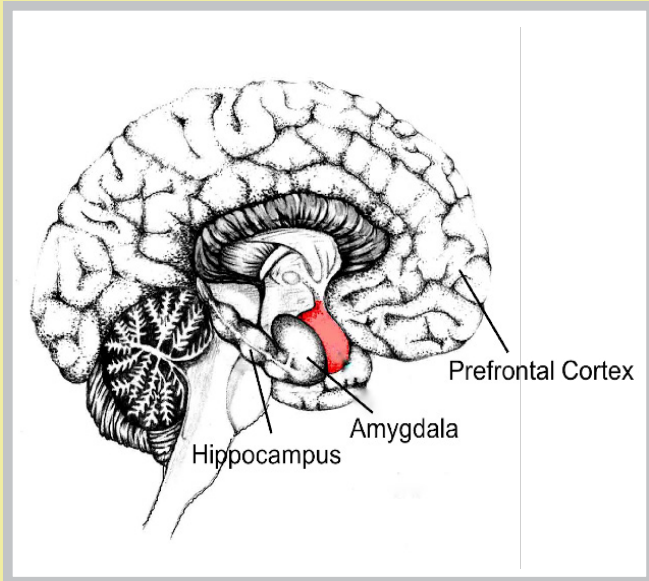
The above scenario describes what would happen if you suddenly forgot what a checkout counter was for. In other words, if you were suddenly unable to tap into the part of your brain that normally processes this information. Have you ever considered how your brain is designed to allow you to do this? Have you thought about how you remember the meaning of the words on this page? Quite simply, the very act of reading requires the involvement of the parts of your brain that are responsible for memory.

First Dimension : Analytical Thinking

SCIENTIFIC UNDERSTANDING OF THE HUMAN MEMORY

Scientists divide our memory into two types: **Implicit** and **Explicit** memory. Implicit memories are based on past experiences that you remember without having to think about them. These are the memories of behaviours you have learned. An example of this is remembering how to tie your shoelaces. Although this is something that is quite difficult to learn at first, once you learn how to do it, you never forget how. Another example of an implicit memory is remembering how to button a shirt. You do this almost automatically every morning. This type of 'automatic' or unconscious memory includes remembering how to perform physical activities such as walking, cycling or swimming. These activities do not need conscious effort on your part because you do not need to think about doing them after you learn how to do them. Since many implicit memories involve learning motor skills, they are somehow connected to the **cerebellum**, **basal ganglia** and the **motor cortex**. Damage to any of these vital tissues can have terrible consequences. For example, if the basal ganglia were damaged, you would not remember how to move your body!





Explicit memories are related to facts and events that can be consciously recalled. For instance, an explicit memory could be of the day you won first place in a swimming competition. You are able to recall what happened, who was there and what you saw and heard. The memory of that day, that event, is explicit. Other examples of explicit memories are of facts (how many planets there are in the solar system for example) or of locations (how to get to your neighbour's house across the street).

The parts of the brain that are involved in the forming explicit memories are the **prefrontal cortex**, the **hippocampus**, and the **amygdala**.

Look at the diagram at the top left. Can you spot the **amygdala**? The amygdala is an organ in the brain where emotions such as fear and anger are processed. Consequently, responses associated with fear are controlled through the amygdala, where our fear memories are encoded and stored. Scientists tested this interesting fact when they removed the amygdala of rats in a lab. After the procedure, the rats were fearless! They were not even afraid of cats!

YOUTUBE CORNER



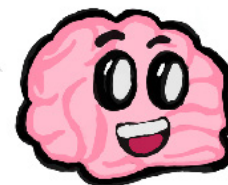
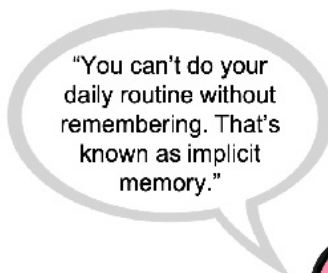
<https://youtu.be/yepwx67UkM>

Watch this clip to learn where memory is located in the brain according to modern science



<https://youtu.be/TUoJc0NPajQ?t=1>

Watch this clip to learn how information is stored and retrieved in the memory according to modern science



-AMAZING SCIENTIFIC FACTS- -MEMORY-

1

Half of your brain could be surgically removed without substantial effects on personality or memory.

2

Scientific research has shown that the human brain starts working long before birth.

3

Your memory can associate a scent with a particular occurrence or event.

4

A good night's rest helps you better store information and recall it later on.

5

You can sometimes re-edit traumatic memories. This is known as memory re-consolidation.

6

Memory works like a muscle- you will lose it if you do not exercise it regularly.

7

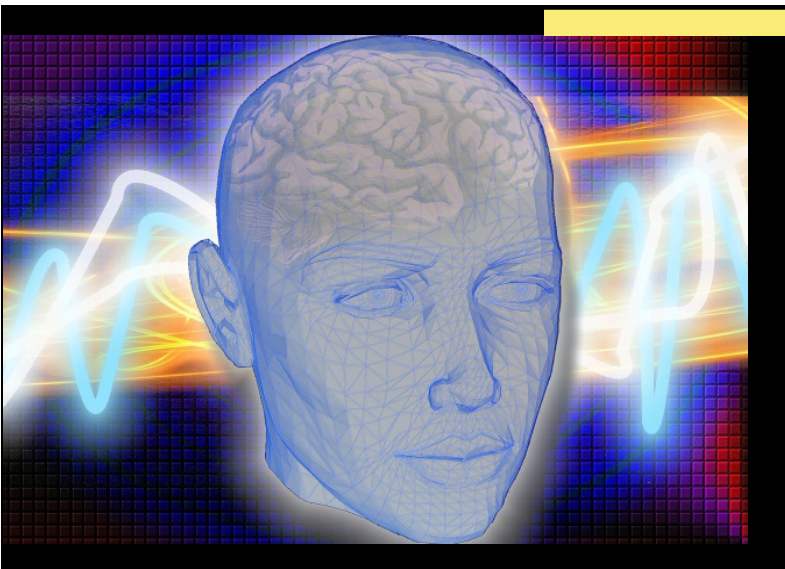
Guinness World Record on memorizing the most digits in one minute belongs to someone who memorized 132 digits.

8

Fusiform Face Area is the dedicated part of the brain to recognize faces.

9

Forgetting is good psychologically and biologically; deleting unnecessary information helps the nervous system retain its plasticity.



In your amygdala, certain situations are associated with a fearful response. So, for example, if you learned to associate written exams with a frightening experience, you would feel anxious and fearful every single time an examination paper is placed in front of you. Other examples of situations that could put your amygdala into overdrive are a fear of heights, the fear of public speaking, or even the fear of spiders! Having an overactive amygdala means you feel very anxious. This does not mean that feeling this way is irreversible. With the right support, you can learn to overcome your fears.

Memories can be short-term or long-term. Remember the hippocampus? In the hippocampus, short-term memories are stored and, if necessary, are converted into long-term memories.

Do you remember what we learned about neurons? Neurons act like a platform through which messages are transferred using a combination of electrical impulses and chemical signals. So, for example, if you are

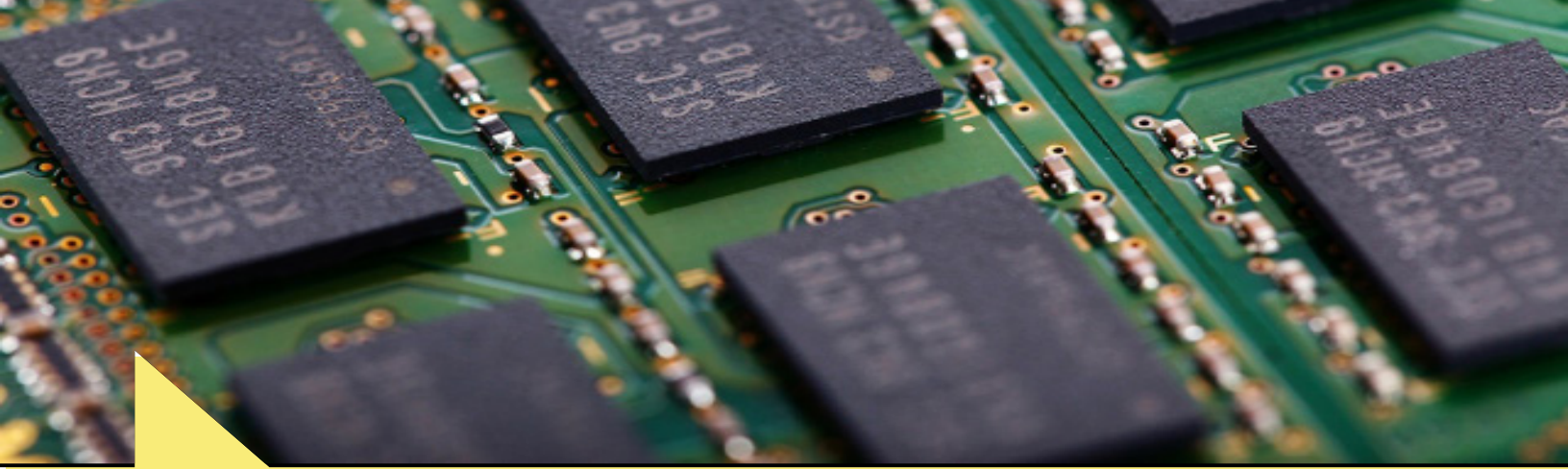


looking at a cute, fluffy kitten, the image of that kitten is recorded onto your retina (at the back of your eye). Then, a message is sent along your optic nerve to a specific destination (let's call this destination A) in your brain. That message is processed in your brain so that you are able to distinguish that what you are looking at is a kitten (versus a puppy for example).

How do the messages get transferred through your brain again? By means of electrical and chemical signals.

What if you were looking at a puppy instead of a kitten? How would your brain differentiate between the two of them? Hypothetically, if you were looking at a kitten, destination A in your brain would 'light up' or become active. If you were looking at a puppy, another destination (let's call this destination B) becomes active. The electrical signals in our brains can follow as many possible paths as there are neurons and connections between neurons. And remember- there are billions of neurons that make up the human brain! So, you can only imagine the huge number of possibilities.

No one really grasps how certain sequences of electrical signals in our brains are understood. There is only so much that scientists, with their limited knowledge and capabilities, can comprehend or discover. The little that has been discovered is tremendously impressive.



Second Dimension : Analogical Thinking

HUMAN MEMORY VS. DIGITAL MEMORY

Let us try to compare our short-term memory (or working memory of our brain), to a computer's working memory, or RAM. RAM can function and 'remember' things only when the computer is powered on.

Our working memory is extraordinary. Its role is to store small pieces of very recent experiences in order to decide which course of action to take. If short-term memory does not work the way it is supposed to, our daily experiences would remain meaningless to us.

For argument's sake, let us suppose that computers are superior to humans in their memory- that whereas humans often forget things, computers are able to 'remember' everything they are programmed to do.

For the sake of argument again, let us compare our long-term memory to a computer's RAM, which stands for read-only-memory. RAM 'remembers' things i.e. it retains its contents

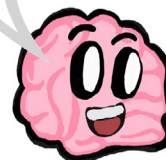
whether the power of your computer is on or off. It is the part of the computer that is pre-programmed with information from the factory. For instance, RAM is used to store the pre-programmed start up instructions for a computer.

How is our long-term memory mechanism superior to a computer's RAM?

The role of our long-term memory is more than simply remembering yesterday's events or random facts and figures. We take in so much more information from our environment

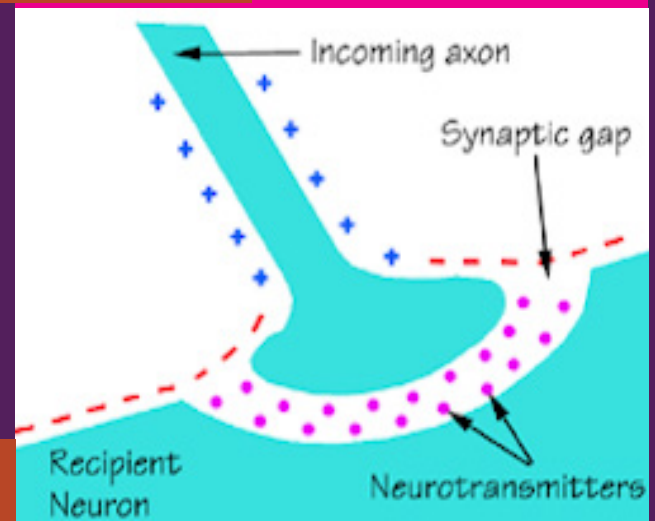
Brain: "I can hold 2.5 PB, which is enough to record TV shows running for 300 years!"

RAM: "I can hold up to 128 GB of data. How about you Mr.H₂O?"



Synapse Diagram

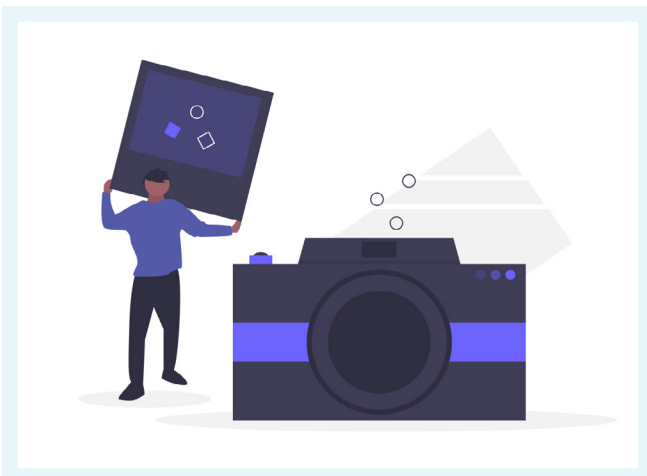
Chemicals are required to send a message from neuron to neuron, but there is also a need for electricity to transmit that message from the receiving neuron's dendrites to its own axon terminals.



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than we can count. Our memory holds information about our emotions, how to speak, how to move and so much more.

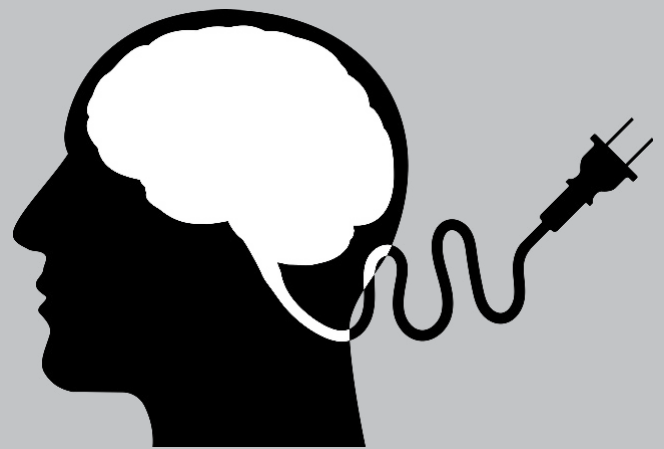
The human memory can be compared to a video camera in terms of recording life experience. However, it is quite different in the way it works. It is always 'live'. It edits and reframes your life stories to fit your current experience. The recording and editing of information in the human memory is much more elegant than digital recording of a video camera. The human memory is not a digital recording. It is the outcome of electrical and chemical communications of billions of neurons within the nervous system.



You may think of your nervous system as a type of sophisticated computer network or electrical system that passes nerve impulses around. But in reality, your nervous system is a miraculous living system. The journey of a signal inside your neurons is an astonishing achievement that involves cell biology, chemistry and even physics. Your nervous system passes messages with amazing speed and accuracy. Neurons have branch-like dendrites for receiving signals and a long axon branching out into multiple terminals for sending signals. These axon terminals are located close to the dendrites of another neuron to form a connection called a 'synapse'. Chemicals are required to send a message from neuron to neuron, but there is also a need for electricity to transmit that message from the receiving neuron's dendrites to its own axon terminals. This very sophisticated transmission process involves many steps and it is repeated for each neuron in the chain of transmission- yet it occurs very quickly. A neuron has about a thousand synapses with neighboring neurons, connecting the cells and allowing them to send messages from neuron to neuron without



The paths made by the electrical signals in our brain are like railway tracks under construction.



Scientists estimate that brain storage capacity is around 2.5 petabytes.

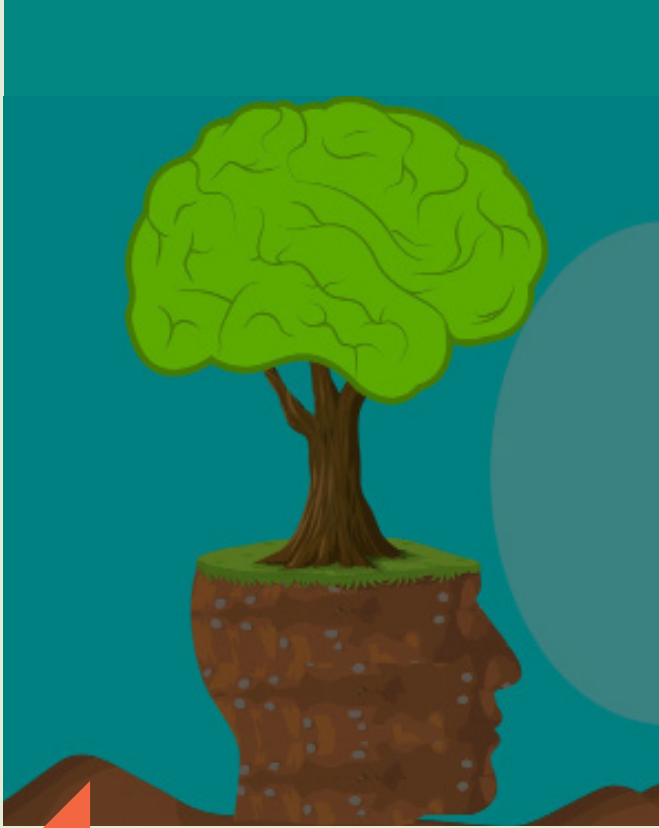
touching them physically. Given that there are billions of neurons in the human brain, you can imagine the enormous number of synapses!

Let us consider the paths made by the electrical signals in our brains like railway tracks under construction. Let us now imagine that a network of railway tracks needs to be built on a large area of land. That railway network needs to pass through villages, forests, farmland and lakes. Theoretically trees may need to be cleared away, buildings may need to be demolished and bridges may need to be built. Electrical sequences passing through the brain are permitted to construct paths of their own, although they miraculously leave almost invisible tracks and they do not destroy anything in the process. This is essentially how your marvellous memory works. Whenever you experience an event, an emotion or a change in your external environment, your brain records a response, or

“If the brain works like a video recorder recording TV shows, we would run out of storage after continuously watching TV for more than 300 years.”

path, along your neural pathways that can be accessed later again and again.

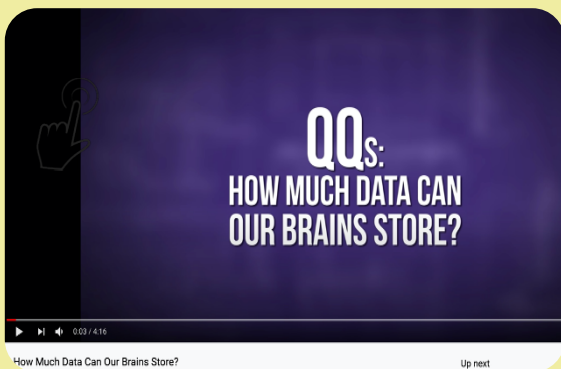
Your memory is quite elegant in terms of its recording capacity as well. Have you ever seen a student asking the teacher to be excused because his/her memory was full? For sure, you have not. This is because the brain has an enormous storage capacity. Although ultimately there must be a limit to our memory capacity, we do not have to worry about running out of space in our lifetime. Our brain has around 100 billion neurons. Each neuron makes 1000 connections with other neurons. In total, the



Your brain is like a muscle. The more you use, it the stronger it becomes.

“If you don’t exercise your brain through learning and knowledge, some parts of your brain would become deactivated.”

YOUTUBE CORNER



<https://youtu.be/bGp3RSH8ukI>

Watch this clip to know how scientists try to estimate the capacity of human memory

brain makes more than a trillion connections. Scientists estimate that brain storage capacity is around 2.5 petabytes. If the brain works like a video recorder recording TV shows, we would run out of storage after continuously watching TV for more than 300 years.

The actual capacity of the brain depends on how we use it. Did you know that babies who do not receive love in their first year of life develop dark spots in their brain? The parts of their brains that would normally become active when babies feel a connection to their caregivers, die. Think of this like a power outage. If a power plant’s connection to a row of houses on a particular street was cut off during a storm or other natural disaster, that row of houses goes dark.

Your memory works in a similar way. If you don’t exercise your brain through learning and knowledge, some parts of your brain would become deactivated. Your brain is like a muscle. The more you use it, the stronger it becomes.

In short, even though we do not truly understand how memory works, we certainly understand how important it is for the quality of our life and civilization. It is extremely elegant and beneficial when we compare it to any man-made recording devices. Indeed, it is so remarkable that no man-made devices can remotely compare with it. In fact, no device could be invented without the miraculous memory. As you read this piece, scientists around the world are still working on the unfinished project of understanding human memory.



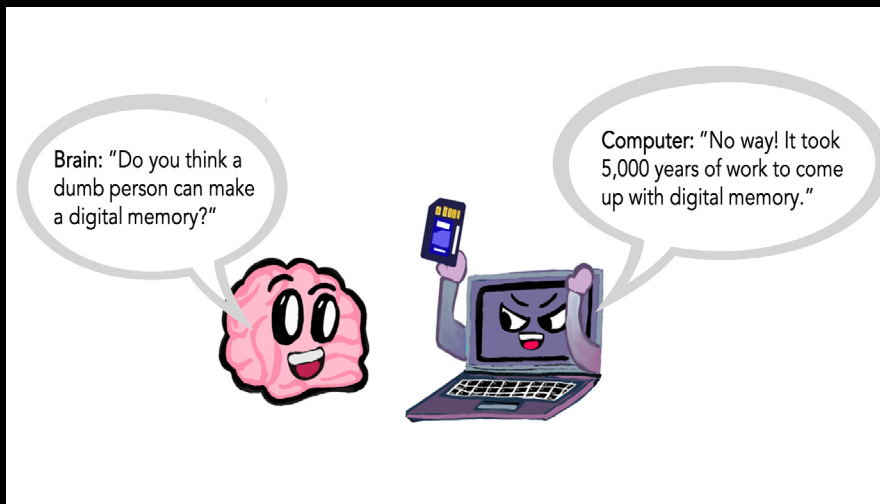
Third Dimension : Critical Thinking

EXPLORING FOR THE MAKER OF HUMAN MEMORY

Let us remember man-made memory storage devices. What does it take to make them? Do you believe that you could make an iPod without studying computer science? Do you think that animals might come up with similar devices if they tried for millions of years? Obviously, they could not. Why? Because it requires a great amount of knowledge and ability to make such devices.

Indeed, the history of digital devices goes back thousands of years. First, objects were primitively represented with symbols. Then, humans learned how to count. Indeed, it was almost five thousand years ago when Sumerian came up with the abacus to teach counting. Many generations later, humans learned to do computational work such as addition, subtraction, division,

and multiplication. The primitive computer-like device- the calculator-was invented in 17th century. None of these computational devices were really computers in the modern sense. It took considerable advancement in mathematics and physics before the first modern computers could be designed around the middle of the last century. We had to first learn about electrons to come up with a transistor- a vital component of digital computing. Even the invention of the Turing machine did not produce current digital memory overnight. Millions of people around the world joined the fields of computer science and programming to build modern computers using the accumulated knowledge of thousands of years. In short, it took centuries of accumulated knowledge gathered by highly intelligent and



“Do you think that the neurons themselves came up with such an amazing tool for us?”

and skilled people to come up with the digital devices that exist today.

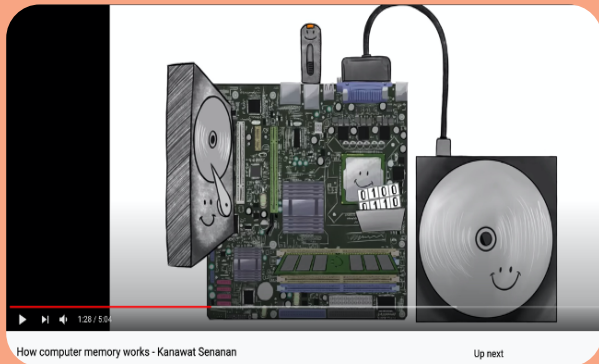
Even though these devices are now available almost anywhere, this does not mean anyone can make them. For instance, if you wanted to manufacture a smart phone by yourself without the help of anyone, it would not be possible. This is because the amount of knowledge and power required to arrange raw materials and write the required programs for the hardware and software of a smart phone is far beyond the knowledge and power of a single person in his or her lifetime. It goes without saying that animals do not have the capability of manufacturing modern digital devices either because they do not have the ability to retain the necessary knowledge to do so (although we now know that some animals are highly intelligent and some can even do simple counting!). Thus, we can

conclude that it is not possible to create digital memory devices without a high level of consciousness, advanced knowledge and power.

Now reflect on your memory. As we discussed in the previous dimension, human memory is much more complex and elegant than the most sophisticated computer. So, how did you get such a fine memory? Did it come into existence on its own without any cause? Do you think it is possible for any material object with no life, knowledge or consciousness to create the billions of neurons and brain structures where memory is managed?

Do you think that the neurons themselves came up with such an amazing tool for us? Is it at all possible that the parts of an organism make the organism? The answer is clear given our experience of digital memory.

YOUTUBE CORNER

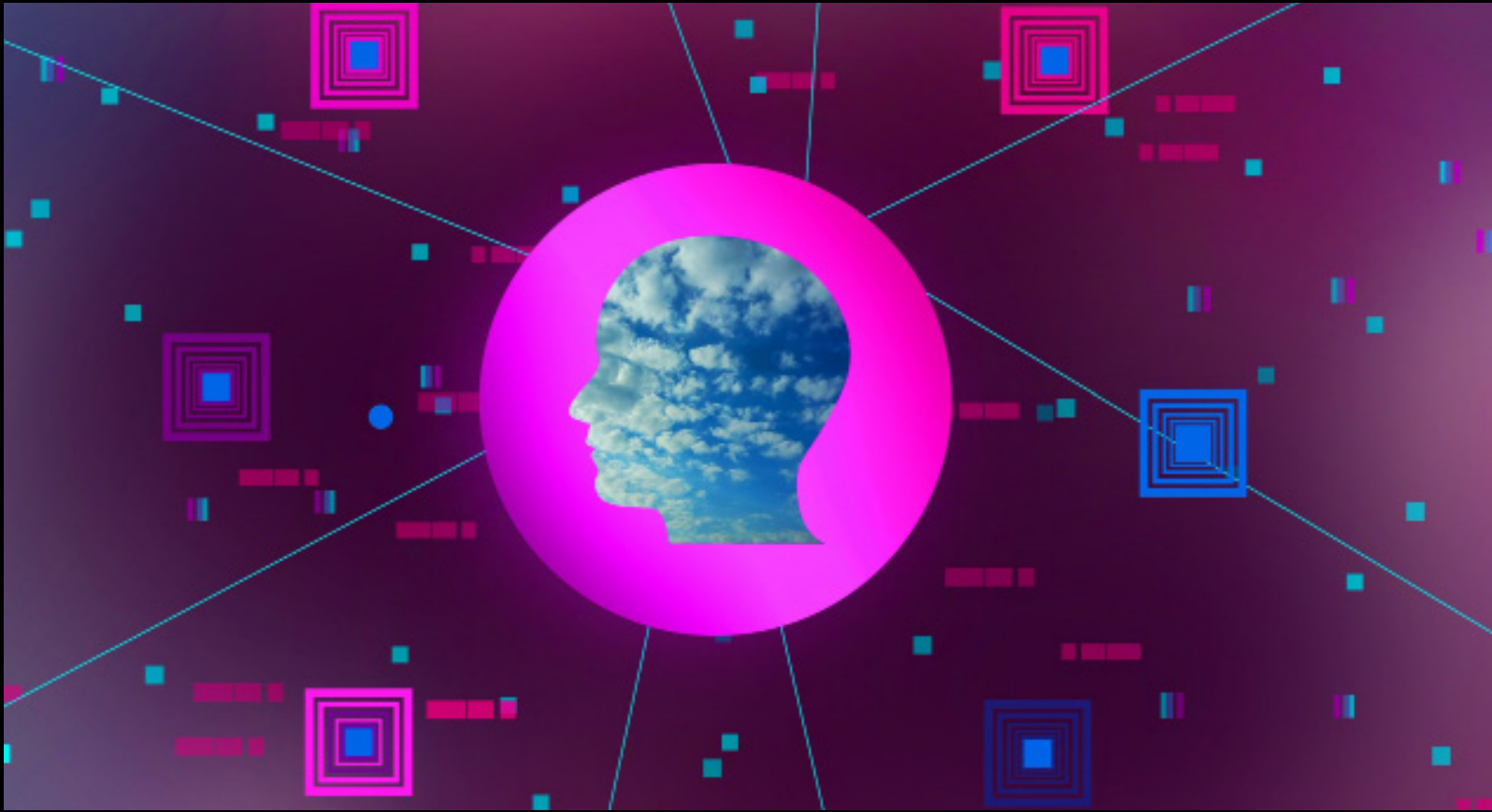


<https://youtu.be/p3q5zWCw8J4?t=1>

Watch this YouTube clip to explore who digital memory works for better appreciation of your digital devices

As discussed before, our memory is more elegant than any electronic device. Unlike a computer's memory, our memory is selective. It is designed to help us focus on what really matters and filter out unnecessary information. Should there be a flaw in what we choose to focus on, we become unbalanced human beings and our mental health suffers as a result. If, for example, you chose to clearly remember every single unhappy event in your life, you would be miserable! On the other hand, if you chose to remember all the positive experiences of your life, and refuse to even acknowledge any negative experiences whatsoever, you may become unable to make good life choices, show compassion to others or make changes in the world around you. A healthy memory and mind are key to achieving balance in all things. That is to say, our memory is far superior to any artificial memory not only capacity-wise, but also by quality.

In fact, no reasonable person would deny the fact that the very invention of a computer with its RAM, transistors, and other components requires an agent with will, knowledge, and power. Indeed, it was only possible to invent a computer after thousands of years of accumulated human knowledge. Thus, it is not far-fetched to understand and conclude that human memory, which is infinitely more amazing than any man-made memory storage devices, could not be possible without a Maker with will, knowledge, and power. Just as we do not expect a computer device to be invented through the random arrangements of basic raw materials, we do not believe that human memory can emerge through the random arrangement of elementary particles. Likewise, we do not think that material causes with no consciousness or knowledge can create human memory. Then, who is the Maker of human memory? Let us find out more about the Maker of our memory and His hidden message.

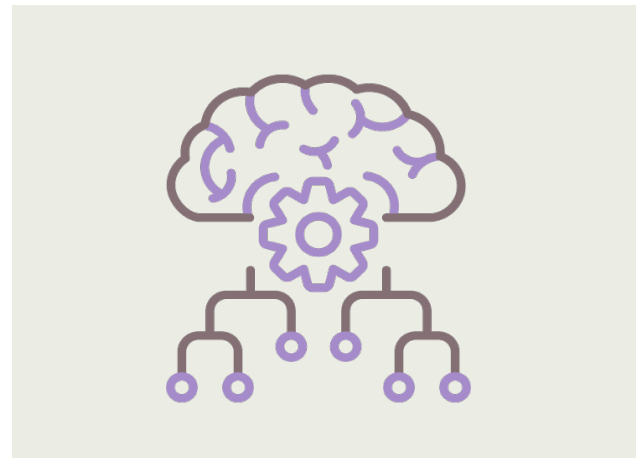


Fourth Dimension : Meditative Thinking

REFLECTING ON THE ATTRIBUTES OF THE MAKER

If neither material causes, that are unable to even think, nor unconscious, blind chance can be the cause of our ability to remember things, then how did this ability come into being? It seems that there is a conscious, rational and knowledgeable Hidden Reality that enables our brain to achieve all these activities. What is this Hidden Reality behind the well-connected and organized activities in our body?

Let us look again at the structure of our brain. Can you see how each part works in harmony with all the other parts so that we can remember and recall information? Even the movement of electrical signals along the brain's neurons is extremely well coordinated and accurate. All these precise and complex activities can



only be the result of an enormous amount of knowledge, wisdom and power.

It is as though each electrical signal knows which path to take for the purpose of establishing memory.

Is it possible that our memory is aware of its connection to our brain and to the world around us? Does our memory have the power and the wisdom to control our brain or the world? Our memory, just like our brain, has neither power, knowledge nor wisdom. Yet, its functioning indicates the presence of great knowledge, consciousness, will and power that control the whole world with which we interact.

Look at the parts you see in the diagram above—they are all composed of nonliving atoms.

They have no sight, power, knowledge or consciousness. Yet each atom is located in exactly the right place and amount that is needed for the memory to work efficiently. How can lifeless things come together to form thoughts that you cannot see or touch?

Moreover, remember that our brain structures cannot function if they were not in a living body. Isn't it fascinating that the brain only functions as a brain within a living body?

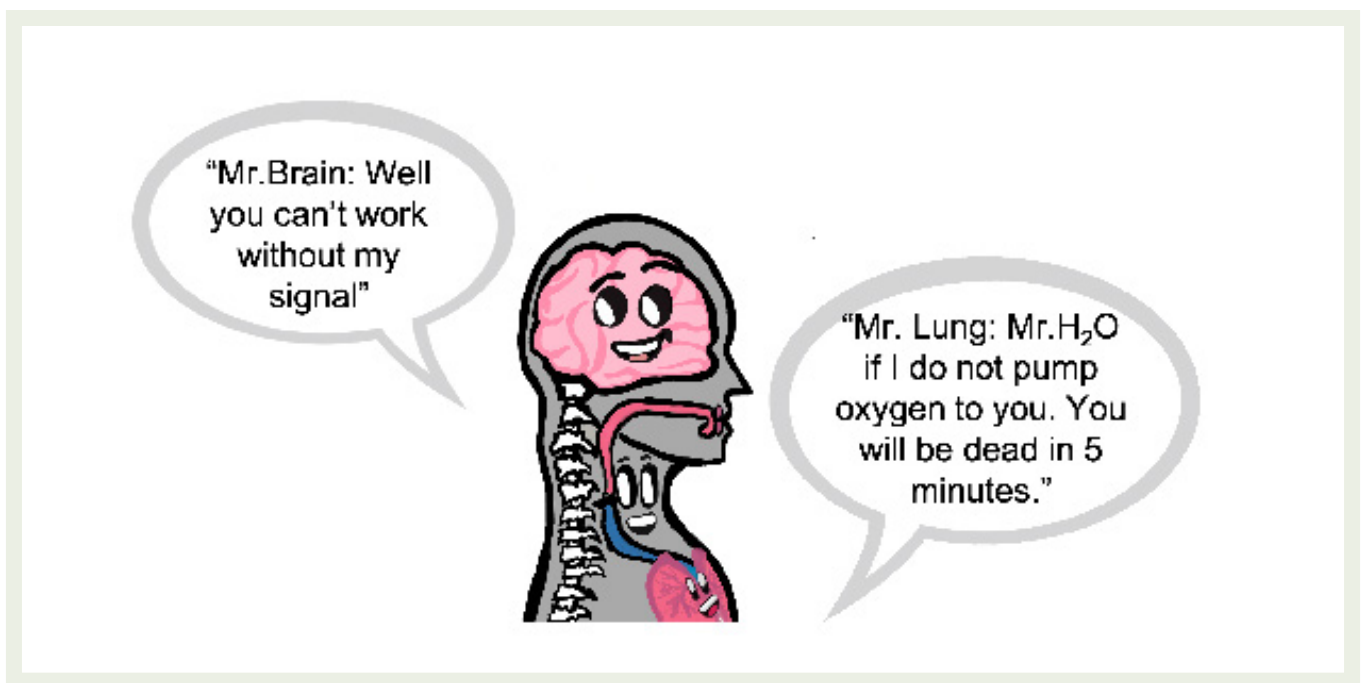
This means that outside a living body, the brain would only be a piece of flesh. It would be a lump of lifeless matter.

What does this mean?

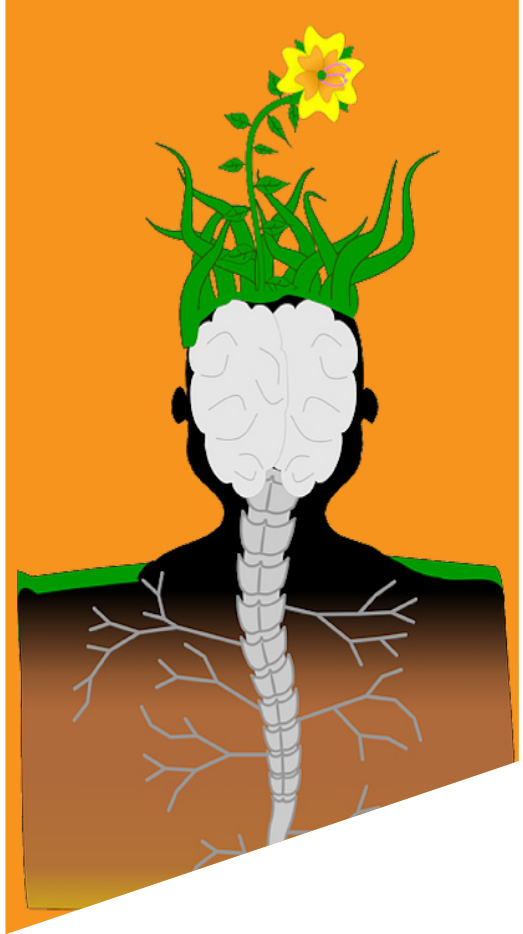
It means that for a brain to function, it has to be part of a living person. It has to be placed within our skull and connected to our blood supply and heart. Yes, the brain only works within the head; and the head is part of a living person that lives in the world.

What do we need in order for us to stay alive and to think, feel and remember? We need air, water, food, sunlight and gravity, to name a few.

Actually, we need the whole world in order for our brain to function. Now, we normally think that our brain is only connected to our body. In reality, this is not correct because our brain is connected to the world around us as well. Let us try to understand how.



"We need the whole universe for our brain to function"



Indeed, our brain is a perfectly coordinated system of blood vessels, nerves, neurons and electrical signals. It works in miraculous harmony to perform its functions of thinking, feeling and remembering information. Our brain is a tool that allows us to interact with the world around us and learn from our experiences. It does not work in isolation. It cannot function outside a living human being, who in turn needs the whole world to remain in existence to live. The brain is connected to the oxygen in the air that we breathe. Indeed, without oxygen, the cells in our brain would die. This means that there is a connection between oxygen and our brain. This also means that there is a relationship between the photosynthetic organisms such as plants and our brain. What is more, in order to produce oxygen, the plants need the sun's light- so, there is

a connection between our brain, oxygen and the Sun. Thus, whoever made the Sun is the One who also made the brain cells that work by using the oxygen produced by the plants that use the sunlight. Indeed, one might argue that our brain is connected to the entire universe.

Can we still say that our brain thinks, feels and remembers on its own?

The brain is made of unconscious matter. Therefore, it cannot possibly perform the function of remembering on its own.

Indeed, the brain is just a tool given to us to help us remember our daily experiences.

Now that we learned how the brain's memory works, what can we say about

its Maker? What can we know about the Maker?

It is said that actions speak louder than words. What can you say about the Maker of the brain's memory by looking at the way our memory functions? And at the way it is interconnected with so many other things within the living body as well as the outer world, such as oxygen and the Sun?

The connections of our brain to the air, to oxygen, to plants, to sunlight, to the world and to the universe are like signs indicating that the Maker of the brain can only be the One Who has control over air, oxygen, plants, sunlight and the whole universe. It is understood from these harmonious interconnections, that they are the results of creative activity. This creative activity comes from whoever makes us think, feel and remember by means of the brain. This Giver of thought, feelings and memory can only be The One who makes and sustains the brain within the body. He can only be The One who sustains the body in life together

YOUTUBE CORNER



<https://youtu.be/XMiNcn6kxzI>

Watch this short interview with Raymond C. Tallis who is a retired physician and neuroscientist to learn how he rejects the materialist view of memory

with the whole world, including the sun and sunlight. He must be the Giver and Sustainer of life. He has control and power over all things. He knows everything. He alone can create with wisdom. He alone can grant us memory. In short, the brain's memory can only be the work of The One who has the knowledge, wisdom, power and will to create and sustain every living thing and indeed, the whole universe.



THE PROTECTOR

ALL-SEEING

ALL-WISE

**ALL
KNOWING**

**MOST
MERCIFUL**

**THE
PRESERVER**

**THE
GUARDIAN**

**ALL
POWERFUL**

MOST-KIND

It is obvious that the Maker of memory must have the wisdom, ability and power to make it and to preserve the memories of past events so we can recollect them. It is far beyond our knowledge and power to create and control our own memory. In fact, we can barely comprehend how memory works and we do not have total control over it. We may choose to remember our past experiences and perform our daily tasks in a seemingly automatic fashion, but that is not a total control of our brain's memory. We have no control over the act of remembering or of losing our memory. But we can understand that the Maker of our memory must have infinite knowledge and power to make the brain structures that are involved in our memory. This is because of the fact that our memory is intricately inter-connected to the entire universe. Its Maker- our Maker- must know and be aware of what we experience.

Indeed, the One who bestows the brain's memory, is both aware of the brain and aware of

what the brain experiences. He must know our needs for memory. He must be very kind and generous in giving us such a precious gift at no charge. In reality, since no power can be above the Infinite Power, He has no obligation to provide us with such an amazing memory. Thus, it is clear that He creates memory for living beings purely out of His mercy, just as He creates all the things we need for life. He must be very wise because He uses an extremely elegant system to allow us to think, feel and remember. As the Preserver of everything, He creates memory to preserve our memorable experiences and He also preserves our deeds.

In short, our memory speaks about the Hidden Reality, and reveals its Maker, as being All-Seeing, All-Knowing, All-Powerful, All-Wise, Most-Merciful, Most-Kind, the Preserver, the Protector, and the Guardian. In other words, as we learn about our memory, we also learn more about its Maker.

Fifth Dimension : Moral Thinking

RESPONDING WITH BETTER CHARACTER

Reflect for a moment on the value of your memory. Think of what would happen to a person who experienced sudden memory loss as a result of a brain injury or disease for instance. Imagine what your life would be like if you could not remember how to do basic tasks, like eat, drink, move around, speak or understand language? What if you could not remember who you were or who your family was? How would that feel? It does not sound good, right? Indeed, life without memory is utter misery.

Where did you buy your precious memory? How much did you pay for it? Of course, it is not available for sale. Even if all the scientists in the world pooled their resources and knowledge together, they would not be able to replicate the brain's memory mechanisms in their glorious perfection. The One who created you gave you a splendid working memory to navigate the world around you with ease.

Would you be willing to give up your own unique memory to someone else? How about selling it for a high price? Most of us would not accept this deal because our memories are more precious than any price. Shouldn't we be more grateful for our memory then? Shouldn't we thank the merciful and generous maker and sustainer of our memory?

We should offer the True Bestower of gifts three things in return for this valuable memory: remembrance, reflection, and gratitude.

1

Remembrance is realizing that there is a Creator and Maker of our memory.

2

Reflection is thinking of our priceless, miraculous memory as a gift of our Creator's mercy.

3

Gratitude is being thankful to the Creator for bestowing upon us such a precious blessing.



STORY TIME ...

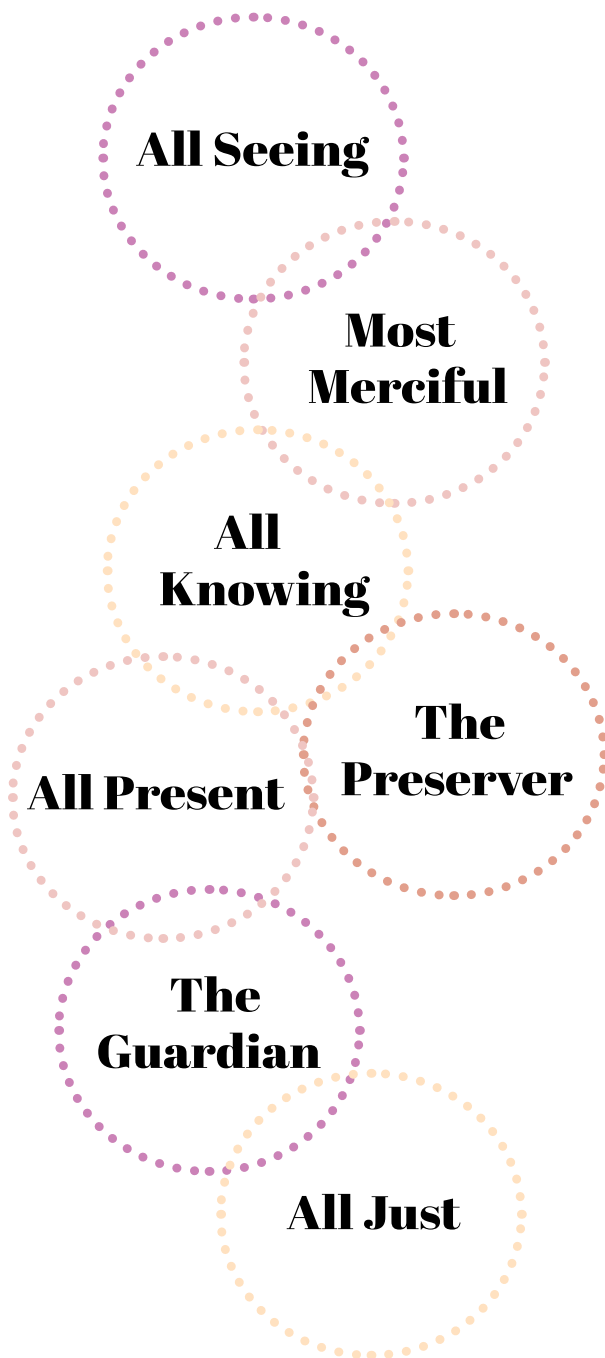
Margaret Thatcher, the former prime minister of the United Kingdom, was commonly known as the Iron Lady due to her incredibly strong personality and tough leadership style. She was also known for having a “blotting paper memory” which helped her absorb huge amounts of information in her younger years. Despite being ruthless in her youth, she suffered from a mental decline in her seventies and eighties. She was described by her daughter Carol as having once been “ageless, timeless and 100% cast-iron damage-proof”. Carol found it difficult to accept the fact that her once mentally sharp mother suffered a loss of memory in her later years. Margaret Thatcher, who once lead debates and dominated conversations, became reduced to someone who “could hardly remember the beginning of a sentence by the time she got to the end”.

The most painful part of memory loss for Thatcher was forgetting the most recent events of her life. Even though Thatcher had lost her husband many years ago, she would forget that he had died and ask her daughter about his whereabouts. Carol once described these painful incidents by saying: “I had to keep giving her the bad news over and over again. Every time it finally sank in that she had lost her husband of more than 50 years, she’d look at me sadly and say ‘Oh’, as I struggled to compose myself. ‘Were we all there?’ she’d ask softly.”

Pause and reflect: can you control your memory and choose what to forget? You can only experience the world around you and let your memory perform the role it was assigned to. The Maker of your memory enables you to use it. He gives us life right now. We are his guests. He takes care of our needs. The more we reflect, the more we understand how generous and compassionate our host is. And the more we enjoy His gifts, the more we feel grateful to him. The more we realize His compassion, knowledge, and power, the more we can trust Him and turn to Him for help. By doing this, we can also eventually overcome our fear of other things. This knowledge makes us even more grateful to our Maker.



“How can we express our gratitude and appreciation to Him?”



The Maker of memory does not ask for money. Our memory, our brain, body and everything in this world belong to Him.

As we discussed earlier, it is clear that the brain is not the source, but the means for memory. It is like hardware through which memory (software) is being created as a direct outcome of creative activities in the universe. It becomes obvious that the One who creates memory can record all of our activities. Indeed, the Maker of memory must be aware of everything that we do. He observes and records everything we experience with our brain. He knows what we choose to think about. He knows whether we choose to dwell on our misfortunes rather than our blessings. Thus, we should actively choose to remember His blessings. We need to be grateful for the misfortunes as well, as they remind us of our humility and weakness, and of our dependence on our Maker for life and everything in it. We should offer our appreciation through good words and actions. We should remember Him as the Most-Merciful Giver of everything. We should reflect on His countless blessings. From His creative acts, we should know Him as the All-Seeing, All-Present, All-Knowing, All-Just, The Preserver and The Guardian. We should praise Him and be grateful to Him.

Just as He records the entire function of a tree in its tiny seed, He records our life experiences in our memory. This means He can also record the deeds of all human beings for the full accountability that His justice requires. Thus, we should be mindful of His surveillance and mindful of being fully accountable for our deeds. We should fear His just punishment if we commit evil. We should also be hopeful and pray for His eternal blessings as we choose to perform good deeds.

YOUTUBE CORNER

How Your Memory Works Up next

<https://youtu.be/XMiNcn6kxzI>

Watch this YouTube clip to realize both memorizing and forgetting are great blessing

TEST YOUR KNOWLEDGE

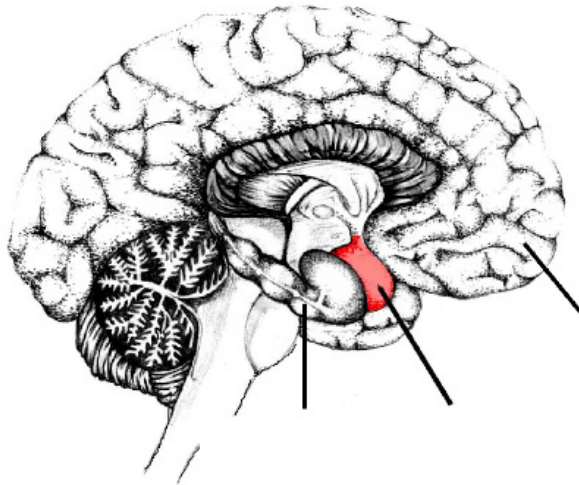
I. UNDERSTANDING SCIENCE TERMS

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

Explicit Implicit Hippocampus Amygdala Basal Ganglia

1. _____ memories are the kind of memories you don't have to think about.
2. If the _____ was damaged, you would not remember how to move your body.
3. Explicit memories are the kind of memories you can describe in words.
4. In the _____, short-term memories are made.
5. The _____ is an organ where fear memories are made.

Label the following diagram:



II. CHECKING FACTS

Determine whether each of the following is true or false.

1. Memory emerged by accident through the random coming together of atoms and molecules. _____
2. Memory is the work of neurons in the brain. _____
3. The One who bestows the brain's memory, is both aware of the brain and aware of what the brain remembers. _____
4. Our memory is not connected to the universe. _____
5. Memory is the outcome of Creative activities in the universe. _____
6. The human species could survive without memory. _____



III. UNDERSTANDING CONCEPTS

Write a short answer for each question or statement.

1. What is the intended function of our hippocampus?

2. What is the intended function of our amygdala?

3. What is the difference between short term and long-term memory?

4. Why do you think a human memory is superior to a computer's memory?

5. List two things we learn about the Maker of the eye as we study our brain's memory mechanisms.

6. Why are neurons not the real source of memory?

IV. APPLYING CONCEPTS

Write a paragraph to answer each question.

1. How is our short-term memory different from the RAM of a computer?



2. Why do you think that the brain's memory did not make itself?

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

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

5. How can you show your gratitude to the One who granted you the gift of memory?

6. What should we choose to remember? Why?

V. THINK-THANK GAME

In this “think-thank” game, we want you to think about your brain’s memory 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 your memory 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 your memory 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 our memory.”
2. Player 2 responds, without pausing, with something about the eyes to be thankful for. For example: “For making us remember how to walk.”
3. Player 1 repeats the appreciation phrase again loudly and quickly. For example: “Thanks to the Maker of our memory!”
4. Player 2 responds, without pausing, with another thing about the brain’s memory to be thankful for. For example: “For making us remember how to read!”

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

