

DISCOVER YOUR ALPHABETICAL BRAIN



Learn how the Alphabetical Brain
Vocabulary explains Consciousness,
Free Will, Happiness, and Success
based upon Scientific Humanism

Dennis Martin

INFINITE INTERACTIVE IDEAS

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ISBN: ~~XXXXXXXXXXXXXXXXXX~~

2-17-18

Happy New Year 2018

ACKNOWLEDGMENTS

Thanks for all the good memories of happy enlightened conversations and challenging arguments in the search for truth and wisdom.

Alice, Beth, Brenda,
Joel, Kate, Van, and the
Earthlink Web Hosting Consultants
And Amazon's Create Space Staff

All references to other books and journals in support of the facts and assumptions that scientifically validate the relevance of the 15 brain ideas are provided at the website:

www.alphabeticalbrain.com

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INTRODUCTION

WHAT IS THE PURPOSE OF THIS

HANDBOOK? The purpose is to explain how your creative imagination and your ability to reason make possible your ability to understand how your brain works. By learning 15 specific brain ideas and their interactions, you will be able to thrive in the future and control your own destiny.

ASSUMPTIONS OF THIS HANDBOOK?

It is assumed at the beginning that **15 *specific brain ideas*** called the **Alphabetical Brain™**

Vocabulary can provide you with the best way to study your brain. The **15 *brain ideas*** are presented in the context of proven memory enhancing techniques for quick retention of the brain ideas and their supporting facts in the linguistic context of science and humanism.

Also, it is assumed that you will be able to learn the new brain knowledge quickly and efficiently, if you use the ***critical thinking skills*** and the ***efficient reading strategies*** that are built into the structure of this handbook.

Learning about your brain's **15 *major functions*** can be quicker and more fun than you might have expected. The specific ideas about the 15 main brain functions ***will be true forever*** since they are based upon the gigantic contribution that ***modern secular science*** has made to the emergence and flourishing of modern human civilization during

the past five hundred years. Studying your brain is worth the time and effort since it is what makes you. You are your mental functions and memory!

WHY? Because you were probably indoctrinated (brainwashed) as a child by your parents and teachers who knew little or nothing about their own brain functions and knew nothing or little about how the brains of children develop as they grow into the brains of resilient teenagers and adults. Since the complete **Alphabetical Brain Vocabulary** was *not* available for your parents and teachers to use, they could not give you the correct information that was required for them and you to understand a human brain's true intellectual (IQ) and emotional (EQ) capabilities.

As you learn about your brain, you must separate the definitive words that name *real things about your brain* in contrast to *metaphorical words*, which have slippery traditional unscientific meanings that merely *name emotional states* rather than describe *real objective things*.

What you know either empowers you or disempowers you from making correct decisions about your life.

WHAT? You have an embodied brain and an embodied mind and a complicated memory system. Your memory system is made up of several separate kinds of memory resources, including *semantic*, *episodic*, and *muscle memory* parts. In addition, they each have several features, such as

declarative memory aspects and *explicit* and *implicit* aspects, as well as *fluid* and *crystal* characteristics. Moreover, there is an *autobiographical* aspect to your memory system that gives you the ability to weave together your many thousands of life experiences into a comprehensive story. ***You are what you remember!***

The story of your life describes your thoughts and feelings and values through time. Your behavior is an expression of your own preferences and the way you have developed your habits to achieve your goals. However, if you do not have clear-cut goals, then your behavior may seem confusing and chaotic and cause extra anxiety. It may seem to be a disconnected random pattern of events, known by psychologists as **“dissociation”**. This mental illness impacts nearly everyone in societies that have changed rapidly during a few decades or during one generation.

That is why it makes even normal people seem anxious and crazy at times. In the 1960s, it was called **“Future Shock”** by Toffler and later it was called **“Culture Shock”** as educated people began to realize that to survive as a human civilization we must **“think globally and act locally”**. To preserve the natural resources of our **“little pale dot”** as Carl Sagan called our planet Earth, we must deal with the combined pressures of a *rapidly changing technology* and *information overload*.

Therefore, everybody needs to understand how his or her brain works so we can be leaders of those who know little or nothing about their own brains, who are the ignorant majority in the world. More than ever before in history, a critical mass of educated people must use their brainpower (mental force) to creatively adapt to the many mind-blowing cultural pressures that adversely impact us all, including worldwide climate change, and make rational choices about our human impact on our planetary environment.

You will be able to easily understand how your ***conscious self-awareness*** is dependent upon having a vast vocabulary of essential words memorized and stored in your complex ***declarative memory systems*** in your ***long-term memory***.

They are maintained in the ***hippocampus*** part of your ***limbic system*** and they are known as your ***active vocabulary***. Those words refer either to real objects in the world or metaphorical things that are imaginary and often mistaken for real objects or things. Reality consists of both kinds of words, but you must know the difference between them.

WHEN? Now!

You have the ***intellectual capacity to learn real facts*** about your brain's physical structure (parts) and your mind's mental functions (interactions). These ***real facts*** can give your ***creative imagination*** and ***ability to think for yourself*** (ability to reason) the

knowledge to make far more accurate and profound judgments and inferences, than what you made as a child or teenager or even an adult who is ignorant of the new brain ideas.

Without specific facts about your *mind's true functions*, you are likely to be ignorant of your full human potential and unable to experience the euphoria that comes from being alive and curious about the meaning of life and how your brain works.

However, you can leap ahead at any time to flip through the **15 *Brain Flash Cards*** that are revealed later in this handbook and on the affiliated website, at **Alphabeticalbrain.com/**. In addition, to the 15 brain ideas, there are more brain facts that you can use to increase your *brainpower (mental force)* in the future. Disciplined study can provide you with a solid *scientific linguistic mental framework* (or linguistic context) for achieving your major plans and prized goals.

HOW IS THIS HANDBOOK DESIGNED? It is designed to help you understand the *interactive relationship* between your brain's *working memory system*, located in the *prefrontal cortex* part of your cerebrum, and the *long-term memory system*, located in the *hippocampus* part of your *limbic system*.

Together, they produce your unique *mindful self-awareness* and your *teachable self-identity or self*. The proof of this statement can be found by **reverse**

engineering your knowledge of your brain's functions. To start, just think of what happens to people who suffer from **Alzheimer's Disease**.

You can observe what happens to the brain functions of dementia victims, especially the victims of Alzheimer's disease, which is the fatal form of dementia. The alarming increase in the number of age-related dementia patients in the U. S. and the skyrocketing number of deaths from **Alzheimer's disease** is expected to reach epidemic proportions in the next **10-20 years** including millions of victims and their long-suffering caregivers, since Alzheimer's disease cannot be cured yet. It is important to know that for many victims, long before they die, they are often completely incapable of caring for themselves.

Think about the ordeals of **Ronald Reagan** and **Glen Campbell**, whose celebrated lives were cut short by Alzheimer's disease. Their families publicized their progressive disabilities to increase public awareness and gain support for medical research about Alzheimer's disease.

The main point is that the *self-identity* of dementia victims deteriorates when the *neuronal pathways* of brain tissue get progressively more obstructed and eventually become irreparably blocked. Also, the *self-identity of caregivers* is severely impacted as victims become more disabled and need intensive care. Medical science now understands how the functions of brain structures

are disrupted when neuronal pathways are obstructed by tangled and broken biochemical circuits. Blockage of neuronal signals is caused by the *accumulation of amyloid plaque* in the neuronal pathways (nerves) in the brain. Amyloid is a general term for *protein fragments* that the body produces normally. Beta amyloid is a protein fragment snipped from an amyloid precursor.

In addition, **telomeres** are repeating **DNA** sequences at the end of **chromosomes**. They prevent chromosomes from fusing with other chromosomes and can stop chromosomes from deterioration by the loss of base pair sequences. In brief, shortened telomeres are related to shortened lifespans. You can think of telomeres as a **“protective guardrail”** on a chromosome.

However, by knowing how your *brain's physical structures* and your *mind's mental functions* interact, you will be able to develop new healthy habits and attitudes to strengthen your resilience and improve your self-esteem and gain self-reliance and possibly even avoid getting Alzheimer's disease, including the early onset kind that starts around 45 years of age instead of the usual 60 and after.

After you have *increased your brain vocabulary* you will be able to *optimize the benefits of the new brain knowledge* to profoundly impact your own behavior. You will be able to think of yourself as someone with *dignity and integrity*. And you will

be able to express your ***free will and creative imagination*** with full confidence, without the need of defining yourself by using traditional religious stereotypical metaphors. You will understand why the new brain knowledge is so exciting and important to share with your friends and relatives. You will be learning the ***real facts of life***, because ***love and sex start in your brain*** and involve all aspects of your several memory systems.

In short, you will understand why evolution and humanism provide the objective evidence for explaining the nature of reality for you and for all your friends.

WHERE? Right here in this brief handbook, you can learn the essential brainpower skills, which involve your true adaptable mental force. The ***power of your mental force*** depends upon understanding how important your general vocabulary is and especially the significance of your specialized brain vocabulary. Moreover, your own ***conscious self-awareness*** is dependent upon a vast vocabulary of essential words, which is stored in your ***unconscious memory systems*** known as your active vocabulary.

These words refer either to real objects in the world or metaphorical things that are imaginary and often mistaken for real objects or things. But knowing

the difference is an important objective of all children and adults throughout their lifetimes.

A mistake about what a word describes, such as a real objective thing, or a metaphorical imaginary subjective emotionalized wish or fantasy, can lead to brain fog or just plain ignorance of reality.

Remember, facts are about real objective things and fantasies are often unreliable indicators of reality.

HOW DOES SCIENCE AND TECHNOLOGY INFLUENCE WHO YOU ARE?

Everything has changed in the *science of human perception* during the past few years. The new brain science, known as *neuroscience*, allows research scientists and surgeons to see *inside living human brains*. The powerful new microscopes called **Block Fluorescent 3-D Microscopes** and the older *functional Magnetic Resonance Imaging (fMRI) and Positron Emission Tomography (PET)* brain scanners have made it possible for researchers and doctors to *look at living brain tissue* and discover exactly how the most consequential parts of human brains operate when they are thinking or feeling.

In other words, we now have *brain pictures* that show things happening inside living brains under different cognitive conditions. The new computerized electron microscopes have verified the brain research that has been done during the

past century and especially during the past three decades and the last few years.

In addition, the new brain knowledge is helping doctors diagnose brain disorders and determine medical treatment plans at brain research centers and hospitals all around the world. And the brain knowledge is now available in books and articles and video documentaries for anyone to see and who lives in a free society and able to do critical thinking for himself or herself.

Also, the latest discoveries have provided amazing new insights into how human brains function when healthy and when intellectually or emotionally dysfunctional. Now because of the microscopic ***empirical visual evidence*** about brain functions that has explained beyond any doubt, ***common sense knowledge*** that you and your family can rely on forever. All you need to do is learn about it.

BRAIN STUDY QUIZ #1

The following *list of the names* of the **15 brain ideas** is a survey inventory, which gives you the opportunity to skim over the **15 names of the brain ideas** to test the extent of your current brain knowledge. Simply put a *check* in the column marked “**Check List**” to identify what brain ideas you already know and understand.

Also, you can write down the *first words you associate with the names* on the list in the column labelled “**Definitions**”. [You may want to use a blank piece of paper instead of writing in the handbook even though it was created for you to write in!]

The act of writing down your thoughts on paper can strengthen your **long-term memory circuits**, because your hand and arm movements, known as **muscle memory**, can reinforce your two other kinds of declarative memories, known as **semantic memory** and **episodic memory**.

This inventory gives you the opportunity to skim over the **15 brain names** to test your **permanent memory** concerning the **15 brain ideas**. It can help you focus on the major ideas, which you may already know. However, this self-administered quiz allows you to quickly detect the ideas that you do **not** fully understand now. Then, you will be able to shift your attention and concentrate on the ideas that you do not know but want to learn.

Brain Quiz #1
**CHECK THE BRAIN IDEAS THAT
 YOU ALREADY KNOW**

BRAIN IDEA NAMES		CHECK LIST	DEFINITIONS
1	Working Memory		
2	Neurons		
3	Dendrites		
4	Axons		
5	Nucleus		
6	Glial Cells		
7	Potentiation		
8	Synapses		
9	Connectome		
10	Plasticity		
11	Cerebral Cortex		
12	Prefrontal Cortex		
13	Limbic System		
14	Pleasure Circuit		
15	Long-Term Memory		

BRAIN STUDY QUIZ #2

The **15 memory codes** listed on **Quiz #2** can help you remember the brain ideas easier than any other memory retention system. The secret of creating permanent memories is to **calmly repeat the associations** of the memory codes to the names of the brain names.

The memory codes are *effective cues* since the combination of letters are directly related to the names of the brain ideas that you need to remember. They act like glue that sticks the brain ideas tightly into your *long-term memory system*. This sticky metaphor will be explained scientifically later codes to the names of the brain names. in the description of the *15 brain functions*. The secret of creating permanent memories is to *repeatedly match (associate)* the memory codes to the names of the brain names.

Basically, you need to think about the brain ideas at regular intervals, so you will be comfortable with their meanings and sounds as well as their gradual increased usefulness in your life. When you need to do some creative thinking with the brain ideas, you will be able to recall them easily and keep your emotions under control as you plan to achieve your goals.

Brain Study Quiz #2
**MATCH THE 15 BRAIN NAMES
 TO THE 15 MEMORY CODES**

15 MEMORY CODES		15 NAMES OF BRAIN IDEAS
1	WRK MEM	
2	N	
3	DEN	
4	AX	
5	NUC	
6	GLI CEL	
7	POT	
8	SYN	
9	CONN	
10	PLAS	
11	CER COR	
12	PFC	
13	LIM SYS	
14	PLEA CIR	
15	L-T MEM	

When you are trying to solve difficult problems or make complex decisions about your use of time or money, you need to determine risks and benefits as you seek to achieve pleasure or profit. With the new brain vocabulary, you will be able to visualize what is going on in your brain as you think about possible outcomes.

This is when your new brain knowledge can leap into your conscious awareness and help you make wiser decisions. Essentially, you are on your own and need to rely on your best judgment or reasoning. An easy way to apply the “**spaced-repetition**” your answers against the list of brain names in **Quiz #1 The best** method of memorization these relationships is to frequently check **Quiz #1**.

It is important to do frequent intervals of exposure for a few minutes and then every few hours and then every few days. The length of the intervals between your exposures to the list of the **15 brain ideas** is important since it is a way of counteracting the known **Forgetting Curve**. It was discovered more than 100 years ago by Ebbinghouse. Simply stated, the rate of forgetting is logarithmic and exponential, being greatest just after having an experience.

It is a scientific mathematical measure of the **fact that more than 90 percent** of the information that people experience every day, if not purposely reinforced within hours, is not remembered in any

useful context. It simply melts away into oblivion if it is **not** reinforced by repetitions or **not** accompanied by strong emotions.

In addition, it is important to remember that memories are “**reconstructions**” and **not** reproductions of the actual events or stories being remembered. In this regard, it is essential to remember that when you become aware of a memory, you have the opportunity to **edit**” or change it. Thus, memories are adaptable to your current assumptions, attitudes, and beliefs; they change over time to reflect your new values.

BRAIN STUDY QUIZ #3

For speedy verification of your **15 answers** to the following **15 questions** about the names and meanings of the **15 brain ideas**, you can freely flip back and forth to see the correct answers on the **two lists** of **brain names** on either **Quiz #1** or **Quiz #4**.

You will soon discover that the following **15 questions** are listed in **reverse order** compared to the correct order on **Quiz #1** and **Quiz #4**.

Brain Study Quiz #3 (Part 1)**NAME THE 15 BRAIN IDEAS**

1 – What memory system in the hippocampus is a cause of your self-awareness and stores triggers to declarative memories, such as semantic, episodic, and muscle memories?

Answer =

2 - What biological circuit in your limbic system causes your feelings of happiness when the neurotransmitters dopamine and acetylcholine and others are stimulated?

Answer =

3 – What part of your brain has eight organs and releases neurotransmitters and hormones to control all of your emotions?

Answer =

4 - What part of your brain evolved to control your limbic system's emotions and is the source of your conscious self-awareness and your decision-making function?

Answer =

5 - What is the thin, wrinkled and folded top layer that covers your cerebrum and contains 80-100 billion neuron cell bodies, which are often called your gray matter or neocortex?

Answer =

CONTINUE →

Brain Study Quiz #3 (Part 2)**NAME THE 15 BRAIN IDEAS**

6 - What is the adaptive process of your body and brain's connectome that is one cause of your ability to think, feel, create, and learn new ideas and habits?

Answer =

7 - What is the three-dimensional cellular communication network of neuronal pathways that connects your brain and spinal cord and is one cause of your free will?

Answer =

8 - What are the hundreds of trillions of tiny microscopic biochemical junctions that connect neurons and switch them on or off?

Answer =

9 - What is the way neurons connect so you can think of ideas, feel emotions, control your muscles, and memorize anything you choose?

Answer =

10 - What are the brain cells known as white matter, that surround the axon filaments in your 100 billion neurons and protect, nourish, and speed the flow of biochemical signals?

Answer =

CONTINUE →

Brain Study Quiz #3 (Part 3)**NAME THE 15 BRAIN IDEAS**

11 – What is the source of the action potential spikes that flow through neurons to activate your organs, muscles, glands, and senses?

Answer =

12 – What are the thin filaments inside your 100 billion neurons that conduct biochemical currents of ions that activate your organs, muscles, glands, and senses.

Answer =

13 – What are the thousands of extensions that branch out from the cell bodies of most of your neurons to attach to other neurons through the process of synaptic plasticity?

Answer =

14 – What are the cells in your brain and nervous system that send biochemical currents down filaments from their cell bodies to their end terminals to connect your billions of brain cells to organs, muscles, glands, and senses?

Answer =

15 - What memory system gives you the power to recall an old memory and also to forward your thoughts and perceptions to the long-term memory in your hippocampus?

Answer =

By thinking through the technical words in the following questions, which define the **15 key brain ideas**, you will be able to remember the **15 names and meanings** of the **15** brain ideas faster than by using any other memory techniques or tricks.

BRAIN STUDY QUIZ #4

The following brain study exercise is helpful in reminding you that **short declarative statements** are the easiest ways to remember important ideas. Also, the way they are associated in this table with other brain ideas provides an efficient way to create a **linguistic context** (frame of reference), which can convey greater meanings, such as the dynamic interactive nature of all 15 brain ideas.

Thus, the **progressive sequence** of the 15 brain ideas has a **permanent logical structure** for all your future thinking about your brain functions. You will have this dependable language data base (linguistic context) with which to develop your new brain ideas and philosophy of human nature in the future.

This exercise is another example of the power of **repeating the association** among key words and their concise specific meanings. It is a way of deepening the penetration into your long-term memory system located in your limbic system's hippocampus. If you are motivated to increase your mental force or brainpower in the future, this **solid context** can be a strong basis for achieving your plans and goals for the future.

Brain Study Quiz #4
MAKE 15 MEMORABLE
DECLARATIVE STATEMENTS

NAMES OF BRAIN IDEAS		DEFINITIONS AS STATEMENTS
1	Working Memory	
2	Neurons	
3	Dendrites	
4	Axons	
5	Nucleus	
6	Glial Cells	
7	Potential	
8	Synapses	
9	Connectome	
10	Plasticity	
11	Cerebral Cortex	
12	Prefrontal Cortex	
13	Limbic System	
14	Pleasure Circuit	
15	Long-Term Memory	

You can leap ahead at any time to flip through the 15 Brain Flash Cards revealed later in this handbook for additional specific facts related to each of the brain ideas. The flash cards themselves offer an opportunity to practice the spaced-repetition method of memorization.

However, now is a good time to see the impact of the 15 brain ideas within the **Circle of Consciousness Symbol**©. Notice the *close connection* between **Brain Idea #1**, working memory, and **Brain Idea #15**, long-term memory, which is that they are next to each other.

CIRCLE OF CONSCIOUSNESS SYMBOL

The **Circle of Consciousness Symbol**© is a visual learning device that allows you to focus attention on the big picture of the *logical progressive sequence* of all 15 brain ideas simultaneously. It was created to convey a powerful visual image of the previously unimaginable coalescence of the many diverse and interactive physical structures of your awesome *self-manifesting* holistic evolutionary brain.

Now is a good time to see the impact of the 15 brain ideas within the **Circle of Consciousness Symbol**©. Notice the *close connection* between **Brain Idea #1**, working memory, and **Brain Idea #15**, long-term memory, which is next to each other.

The symbol shows how the connected relationship between your *working memory* system and the *long-term memory* system, inside all fully

functioning human brains, produces both *consciousness* and *self-awareness*, which can create a trainable *self* or *self-identity*.

There are **13 more brain ideas** in between the two basic memory functions on the circle at **Brain Idea #1** and **Brain Idea #15**, which are essential functional elements of the two memory systems.

The **Circle of Consciousness Symbol**© provides a *big picture perspective* for you to think about, since it portrays a progressive logical connection among the 15 basic brain ideas by using *four diagrams*. It gives you another way of perceiving the interactions of the 15 brain ideas in addition to the **15 brain flash cards**. You can use these perspectives to save time as you train your amazing brain to do what you want it to do by using the *spaced-repetition method of memorization*.

The 15 major brain ideas will provide practical new scientific brain knowledge that you can use to activate your mind's cognitive memory circuits, which depend upon your brain's structures and your mind's functions, and the primary cultural influence in your life: your language.

DIAGRAM #1 OUTSIDE CONSCIOUSNESS

Diagram #1: The first diagram shows 15 arrows *outside* the circle, *all arrows pointing outward* toward the names of each of the 15 brain ideas. It depicts the assumption that *you do not know* the complete meanings of all or most of the brain ideas. Therefore, the symbol depicts the fact that all or some of the 15 brain ideas are *outside* your conscious self-awareness.

DIAGRAM #2 INSIDE CONSCIOUS SELF-AWARENESS

Diagram #2 shows all arrows pointing inward toward the smaller center circle called **MENTAL FORCE**. The two words “*mental force*” describe both your ability to reason and your ability to imagine. With these *two major cognitive functions*, you can make adaptive choices with your *working memory* system, since it controls your creative imagination and your decision-making abilities.

This second diagram depicts the assumption that the *names of the 15 brain ideas* and their *unique sequence of interactive relationships* will all be *inside* your permanent long-term memory system *after you have seriously studied* your brain’s physical structures and your mind’s mental functions sufficiently.

CIRCLE OF CONSCIOUSNESS SYMBOL™

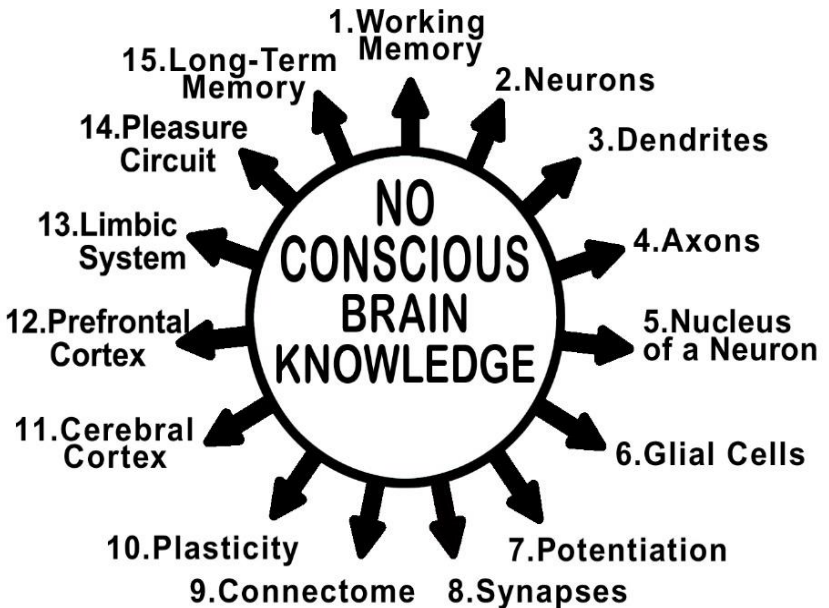


Diagram #1

**ALL 15 ARROWS =
BRAIN KNOWLEDGE**

**YOUR CONSCIOUSNESS IS THE
SOURCE OF REASON AND IMAGINATION
IGNORANCE OF BRAIN KNOWLEDGE**

CIRCLE OF CONSCIOUSNESS SYMBOL™

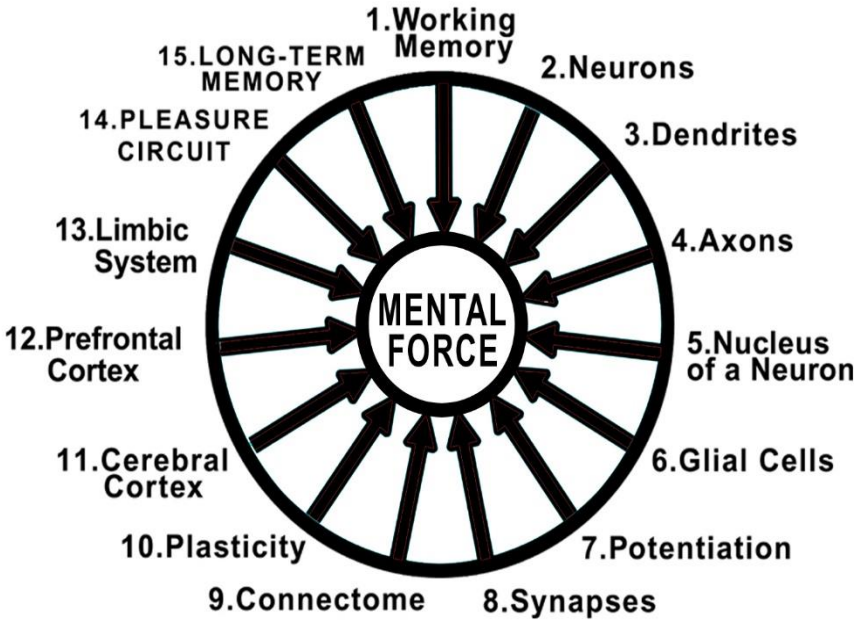


Diagram #2

**ALL 15 ARROWS =
BRAIN KNOWLEDGE**

**YOUR CONSCIOUSNESS IS THE
SOURCE OF REASON AND IMAGINATION**

ENLIGHTENED BRAIN KNOWLEDGE

Once you learn which of the 15 brain ideas you need to concentrate on, you will be able to add many new useful words about your brain and nervous system to your active vocabulary.

DIAGRAM #3 MEMORY CODES

Diagram #3: The third diagram can stimulate your *prefrontal cortex* when you make *instant repeated viewings* of the two diagrams by simply *moving your eyes back and forth* from **Diagram #3** to **Diagram #2**.

This exercise provides the opportunity for you to focus your attention on both the *15 memory codes* and the *names of the 15 brain ideas* by using your *prefrontal cortex (PFC)*. It also provides you with the opportunity to focus your attention to *match the names* of the *15 brain ideas* with the *15 memory code cues* (acronyms) *associated with the names* of the brain ideas.

They appeared as a list in Brain Quiz #2 on page 21. You can freely flip back and forth from **Diagram #3** to **Diagram #2** to match the memory codes to the brain names. This action by itself can stimulate your *declarative semantic memory cells*.

CIRCLE OF CONSCIOUSNESS SYMBOL™

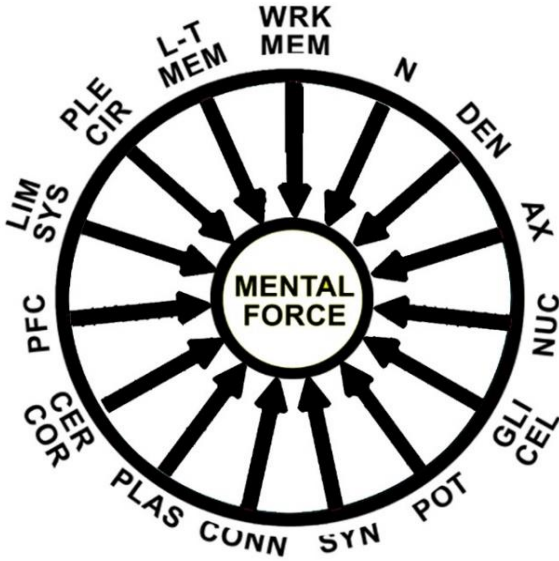


Diagram #3

ALL ARROWS =
BRAIN KNOWLEDGE

BRAIN MEMORY CODES

ENLIGHTENED BRAIN KNOWLEDGE

It is essential for you to know that your *self-awareness* is caused by *the interactive connections* of your *conscious working memory* system (think: random-access memory) and your permanent *long-term memory* system (think: hard drive).

By being mindful of the memory boosting method of memorization that you are using with the *numerical lists* and the *consciousness symbol diagrams*, you will be able to realize just how easy it is to learn anything.

Also, if you decide to use the power of the *spaced-repetition method of memorization* to strengthen the *signals in your neuronal pathways*, you can be an effective learner and benefit instantly from the relief you will feel from understanding the truth about all the brainpower facts, which give you a perception of your unstoppable mental force.

This means that the *names* of the 15 brain ideas will be *easy to recall* when required by new situations and all the essential details associated with them will be easier to be forwarded from your long-term memory located in your *hippocampus* to your working memory located in your *prefrontal cortex*.

Healthy mental functions require that you keep your 15 major physical brain structures healthy. Then, you can experience yourself as a unique person with the free will to reason and to make good decisions during your whole lifetime.

This process of remembering and applying the new brain information can be facilitated easily once you learn about your brain's structures and their mental functions. By knowing which ***brain functions*** are related to which different parts of your brain and nervous system, you will become aware of their specific relationships to each other, and why they matter.

Then you will be able to generate more accurate new meanings about the reality of your ***mental force*** and how you can use it to improve the quality of your life. You will be able to choose to ***avoid self-imposed emotional obstacles*** and will be able to ***open your mind to new ideas about yourself***, including your self-development and health habits.

This learning experience can give you the power to train the rest of your brain to learn the letters of the **15 *memory code cues*** and their connections to the **names** of the 15 brain ideas in the logical sequence presented in the circle. By spacing the times that you devote to studying the 15 brain ideas, you will be able to easily remember the ideas in your ***long-term memory system***.

The names of your most important ***brain structures*** and their ***mental functions*** can all be remembered easily by understanding how your two basic memory systems, your ***working memory*** and your ***long-term memory***, are connected. You will not be able to think of your brain as being separate from your body anymore, except as an amusing ritual to spend time cogitating.

However, when you can understand the biology of your emotions and begin to define your feelings and thoughts with words that define the real biological sources of your consciousness and self-awareness, then you will be making real progress developing your emotional intelligence and historical perspective about the meaning of life.

Since brain and body are fused together in purpose and functions, their importance is that they are inextricably intertwined to each other in their interactive properties. You will be able to increase your knowledge about human nature and both the positive and negative impacts of culture on your understanding of who you are, in the context of your

potential to thrive in our complex digitized global society.

These 15 brain ideas will always be useful, unless you choose to forget them or damage your brain. If your brain does get damaged, these brain ideas will matter even more for your rehabilitation and longevity, if you were able to regain normal functioning.

Once you learn which of the 15 brain ideas you need to concentrate on, you will be able to add many new useful words about your brain and nervous system to your active vocabulary during your self-talk and decision-making.

This means that the names and meanings of the 15 brain ideas will be easy to recall when required by new situations. By being mindful of the memory boosting methods of memorization that you are using with the ***numerical lists***, the ***consciousness symbol***, and next with the ***brain flashcards***, you will be able to realize just how easy it is to learn anything.

If you plan your study activities as suggested, you will be strengthening the ***signals in your neuronal pathways*** and storing memories that will be easy to recall. You will be able to think of yourself as a super learner because of your newly organized mental force or brainpower.

You will be learning what the physical parts of your brain do to make possible the mental force of your mind's functions. After using the study methods

recommended in this handbook, you will be able to remember the 15 brain ideas for as long as you remember to use them often.

FLASH CARD FORMAT FOR THE 15 BASIC BRAIN IDEAS

The two clumps of neurons located about one inch above both eyes and one inch inside your forehead are the size of two pennies. They are connected to your *long-term memory* system in your *hippocampus* by your *anterior cingulate cortex* neuronal pathways.

You have 100 billion neurons in your brain and nervous system and more than 100 billion surrounding your stomach. They have evolved to protect you from diseases and accidental mistakes you might make experimenting with unknown food or drug substances. They are there because of natural evolutionary forces in conjunction with human cultural forces, including both human reasoning and human imagination.

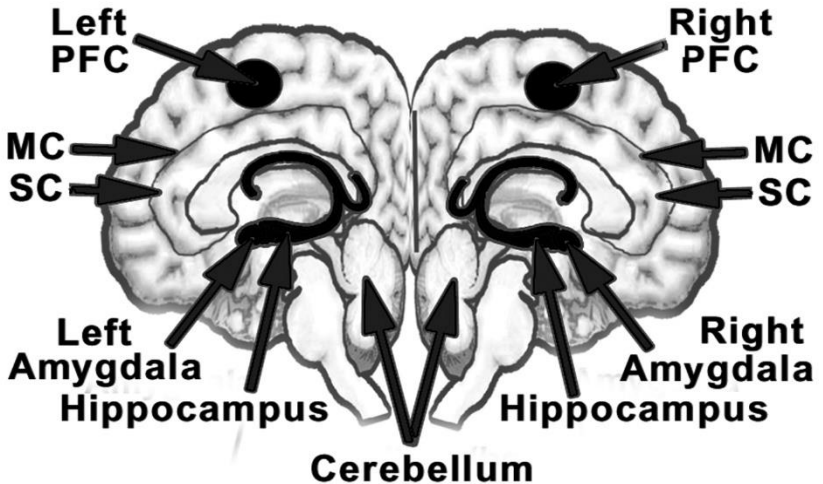
The flash card arrangement of the 15 brain ideas are described by a **QUESTION** on the *front side* of a flash card and an **ANSWER** on the *back side*. They can help you learn the meaning of the brain ideas quicker and easier than other memory techniques since they use memory code cues to boost your memory retention. You can learn fast after a few repeated exposures to the memory codes.

#1 WORKING MEMORY?

The purpose of your *working memory* is to determine what information from your *six senses* (sight, hearing, taste, touch, smell, and proprioception) and your many *habits* are most important. Proprioception is your brain's ability to sense stimuli arising within your body regarding its position, motion, and equilibrium because of *neuron clusters* in our joints, which respond to the force of gravity.

WRK MEM = ?

1



Left PFC = Left PreFrontal Cortex

Right PFC = Right Prefrontal Cortex

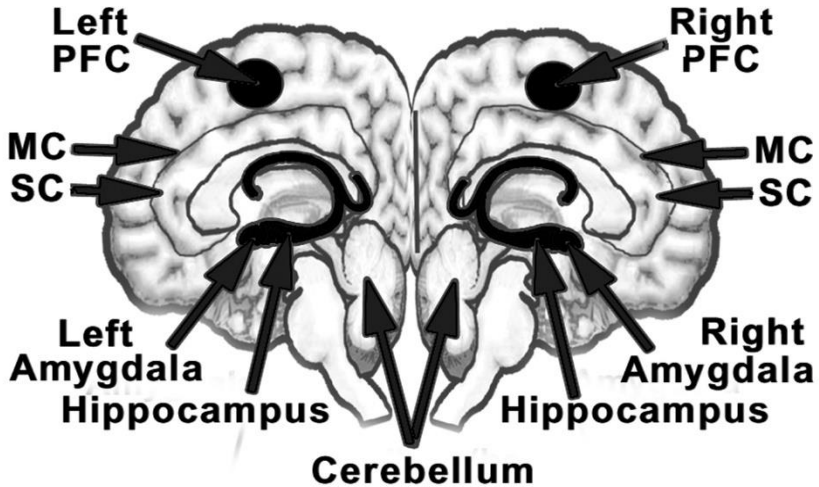
MC = Motor Cortex (signals to body)

SC = Sensory Cortex (signals to brain)

MIRROR IMAGE MODEL OF YOUR CONSCIOUS MEMORY

What memory circuit provides your sense of self and gives you the power to remember old memories and send new experiences into your long-term memory system?

WORKING MEMORY 1



Left PFC = Left PreFrontal Cortex

Right PFC = Right Prefrontal Cortex

MC = Motor Cortex (signals to body)

SC = Sensory Cortex (signals to brain)

MIRROR IMAGE MODEL OF YOUR WORKING MEMORY

Your working memory is the complex mental process that assists you when you are perceiving reality: evaluating what you see, managing your emotions, and solving problems by thinking creatively.

All your *sensory information* gives you the potential of producing the most comfort and pleasure or providing the most protection from pain and danger.

In addition, your *working memory* can be thought of as your *creative imagination* since it allows you to be creative at any moment that you are aware of the need to be creative.

How many of the 15 brain ideas do you know? And how many do you want to understand better?

METAPHORICAL EXPLANATION

"The relationship between working memory and long-term memory is like that of a librarian and a library. Like a librarian, working memory allows you to search through the books, or information, stored in the library to accomplish a specific task." (page 160)

"With Alzheimer's disease, both elements are under attack: the librarian struggles to search through the stacks, and the worms are eating through the books. A shrinking working memory has a detrimental effect on your ability to access the books, to search through the library and find and apply what you need. And when the books deteriorate, it is much harder to read what remains." (page 160)

SCIENTIFIC EXPLANATION

"However, working memory is such a dynamic and adaptive tool that if it remains strong, even if Alzheimer's begins to 'eat away at your neurons', it may in fact help to prevent you from experiencing

the cognitive symptoms associated with the disease" for a long time. (page 160)

You can make your long-term memory system more efficient by adapting the following three powerful learning techniques to improve the functioning of your working memory system in its relationship to your long-term memory system. The techniques are: ***Code Breakers; Bootstrapping; and Chunking:***

- (1) The **Code Breakers Technique** can be used to quicken recall of the 15 major brain ideas, if you develop a step by step plan to remember them in your long-term memory system. For example, the 15 memory codes featured on this website can be used to remember the 15 brain ideas because of the effective spaced-repetition method of learning by association and repetition. (page 182)
- (2) The **Bootstrapping Technique** of learning involves the process of combining (binding) verbal information (text) with visual information (brain diagrams or graphic images) by using both your working memory system and your long-term memory system.

This technique can help you process information such as the brain names and their definitions as well as the details about each brain idea, so all the information can be consolidated, retained, and retrieved at will. **(page 183)**

- (3) The **Chunking Technique** for boosting memorization involves a method of breaking down

complex information, such as the description of your brain's many amazing functions, into smaller subjects or "**chunks**".

Then they can be committed to your *long-term memory system*. "With long chunks of information stored [integrated into] in your long-term memory, your working memory [which operates as the '**conductor**'] can prioritize and manage data more efficiently." (page 183)

BOOK SOURCE = **Working Memory Advantage**, 2013 and especially see the appendix section containing the **Working Memory Quick Hits Manual** on pages 280-291.

#2 NEURONS

Your neurons are specialized brain cells that make it possible for the many physical structures of your body to communicate with each other. Also, they make it possible for you to communicate with yourself and others.

Your neurons are the basic building blocks of your brain and nervous system. They make up about 20% of the cells in your brain. All aspects of your memory resources depend upon the smooth

functioning of all your neurons and all their synaptic connections.

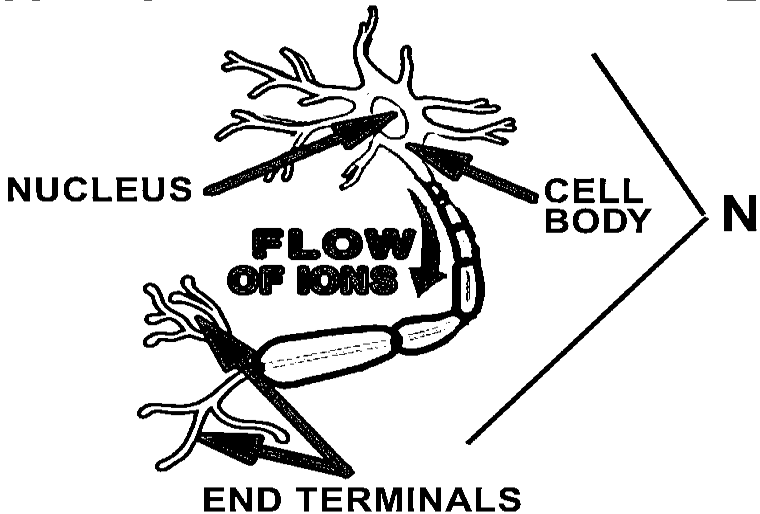
Typically, as many as 10,000-15,000 dendrites are attached to the cell body of each of your 100 billion neurons but there can be as few as one dendrite attached to a single cell body.

Your *neurons* send and receive biochemical currents (ionic impulses or signals) all around your brain and up and down your body but only in one direction within each neuronal pathway. All your 100 million neurons are connected to each other by your 900 billion synapses. Your synapses relay biochemical signals through an electro-chemical transduction process known as *potentiation* (long-term potentiation).

BRAIN IDEA #2

$N = ?$

2



**MODEL OF A BRAIN CELL THAT
CAN SEND A BIOCHEMICAL
CHARGE TO OTHER CELLS**

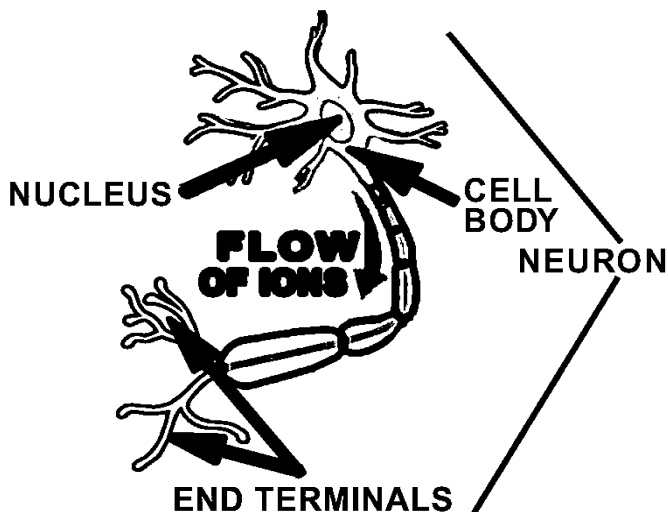
What are the *cells in your brain and nervous system that send biochemical currents* from their cell bodies to their end terminals?

Why is this fact important?

NEURONS #2

NEURONS

2



MODEL OF A SINGLE ACTIVATED NEURON

Your **NEURONS** are different than all of the other cells in your body because *they activate biochemical currents known as action potential spikes* that connect and signal all of your billions of neurons.

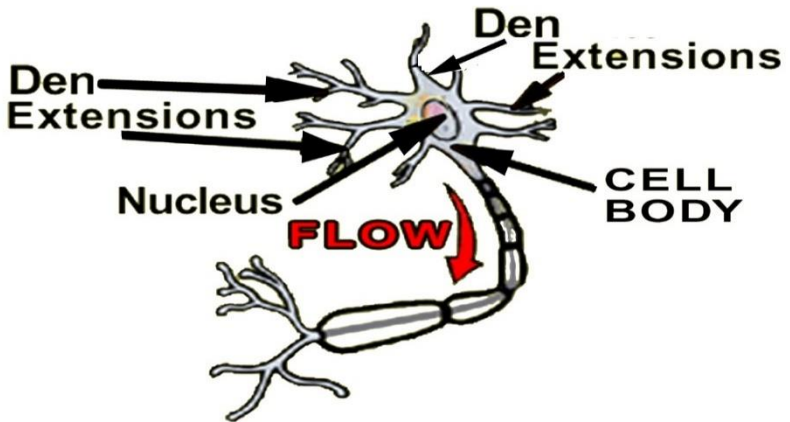
#3 DENDRITES

Your dendrites are terminals (or neurites) that receive biochemical currents (electrochemical impulses or signals) from either other neurons, senses, internal organs, glands, or muscles. Typically, as many as 10,000-15,000 dendrites are attached to the cell body of each of your 100 billion neurons. However, there can be as few as one dendrite attached to a single cell body.

BRAIN IDEA #3

DEN ?

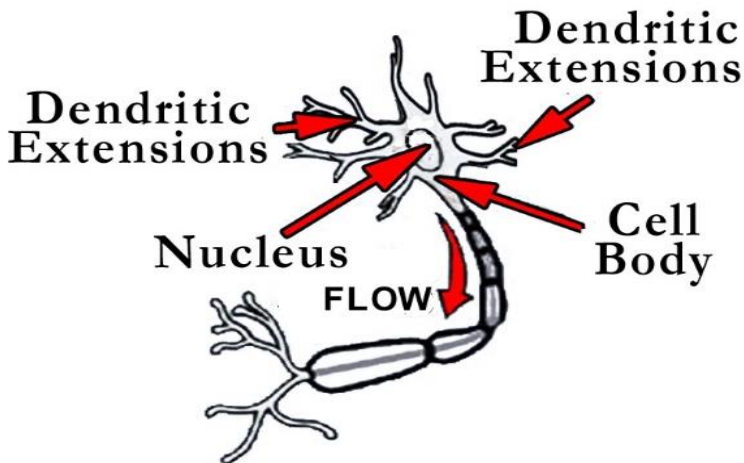
1



**MODEL OF A SINGLE NEURON
WITH CELL BODY EXTENSIONS**

What are the thousands of extensions that branch out from the cell body in most of your neurons to attach to other neurons?

DENDRITES #3



MODEL OF THE DENDRITIC EXTENSIONS THAT ATTACH TO THE CELL BODY OF A NEURON

Typically, your dendrites are the thousands of terminal extensions that branch out from each neuron cell body to connect your 100 billion neurons to each other and to all of your muscles, organs, glands, and senses.

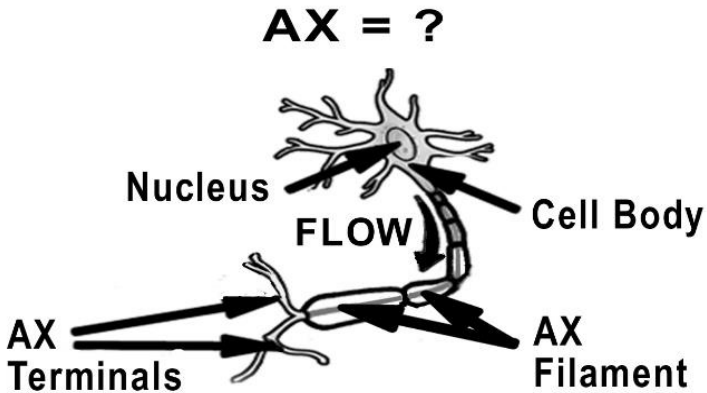
#4 AXONS

Your axons are the thin threadlike fibers called axon filaments, which extend from each cell body of your 100 billion neurons to either other neurons, senses, internal organs, glands, or to your muscles through special end terminals known as axon terminal buttons.

An axon's filament attaches to a neuron's cell body and its function is to carry biochemical currents (ionic impulses or signals) from the cell body to the end terminals (extensions) at the other end of each neuron.

The terminals attach through biochemical junctions (electro-chemical switches) known as synapses, which relay ionic signals from neuron to neuron, and from your neurons to all the other organs, glands, senses, and muscles in your body.

BRAIN IDEA #4



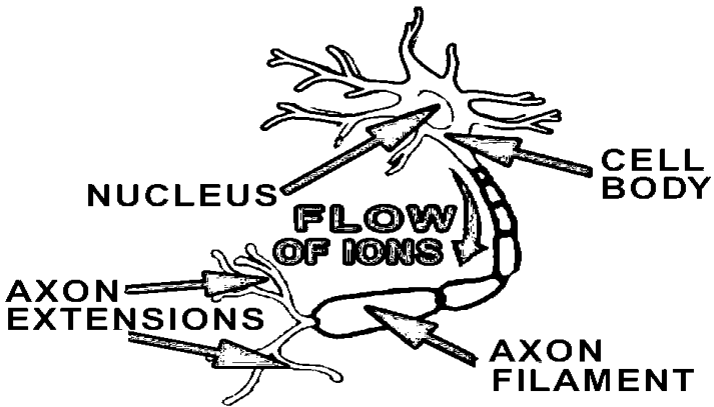
MODEL OF A SINGLE NEURON CELL BODY TRANSMITTING A BIOCHEMICAL CURRENT

**What are the thin filaments
inside your 100 billion neurons
that conduct biochemical
currents of ions ("flow") to
activate your mind and body?**

AXONS #4

AXONS

4



**MODEL OF A SINGLE AXON
FILAMENT CONDUCTING A
BIOCHEMICAL SIGNAL FROM ITS
CELL BODY TO END TERMINALS**

AXONS are the *long thin threadlike filaments through which biochemical currents of ions flow* to connect all of your billions of neurons so they can stimulate your senses, muscles, organs, and glands.

The biochemical signals can flow through very short or very long filaments.

For example, your sciatica nerve, which is the longest nerve in your body, sends biochemical currents from the cell bodies in the neuron fibers of your lower back down your two legs to the end terminal buttons at the other end of the two neuron filaments, which both terminate at the back of the heels of your feet.

Typically, at least 10,000-15,000 synapses are attached to the end terminals of a neuron's filament, but there can be as few as a single neuron for memories of some celebrities or revered relatives such as parents and grandmothers.

#5 NUCLEUS OF A NEURON

The nucleus of a neuron is the source of *action potential spikes* (biochemical signals) that are sent down a neuron's filament to cross a synaptic gap when it is activated by your, actions whether new experiences or habits. The elementary and fundamental function of the *nucleus of a neuron* is that it is the smallest

functioning unit and ultimate building block of human consciousness and free will.

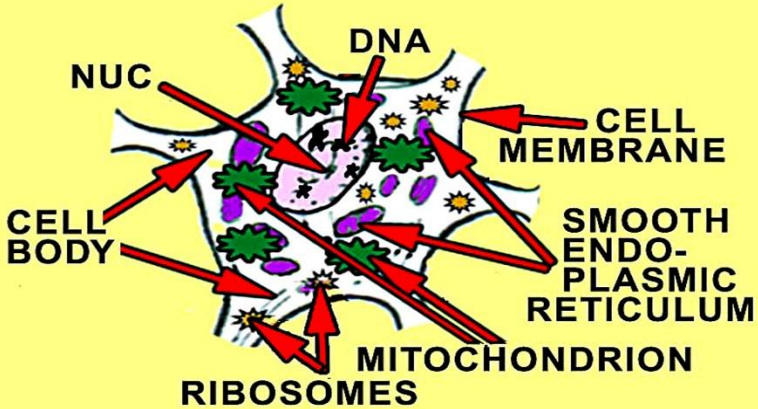
All your 100 billion neurons have nucleuses capable of sending action potential signals to other neurons, senses, internal organs, glands, or your muscles. The action potential spikes, which are generated by the nucleus of each of your neurons, ***cause neurons to connect*** with each other or your muscles, senses, organs, or glands to activate them. Therefore, it is very important to understand the inner microscopic workings of the nucleus of each neuron, which produces the ***action potential spikes*** and which contain your **DNA**.

The elementary fundamental function of the nucleus of your neurons is that it is the

BRAIN IDEA #5

NUC = ?

5

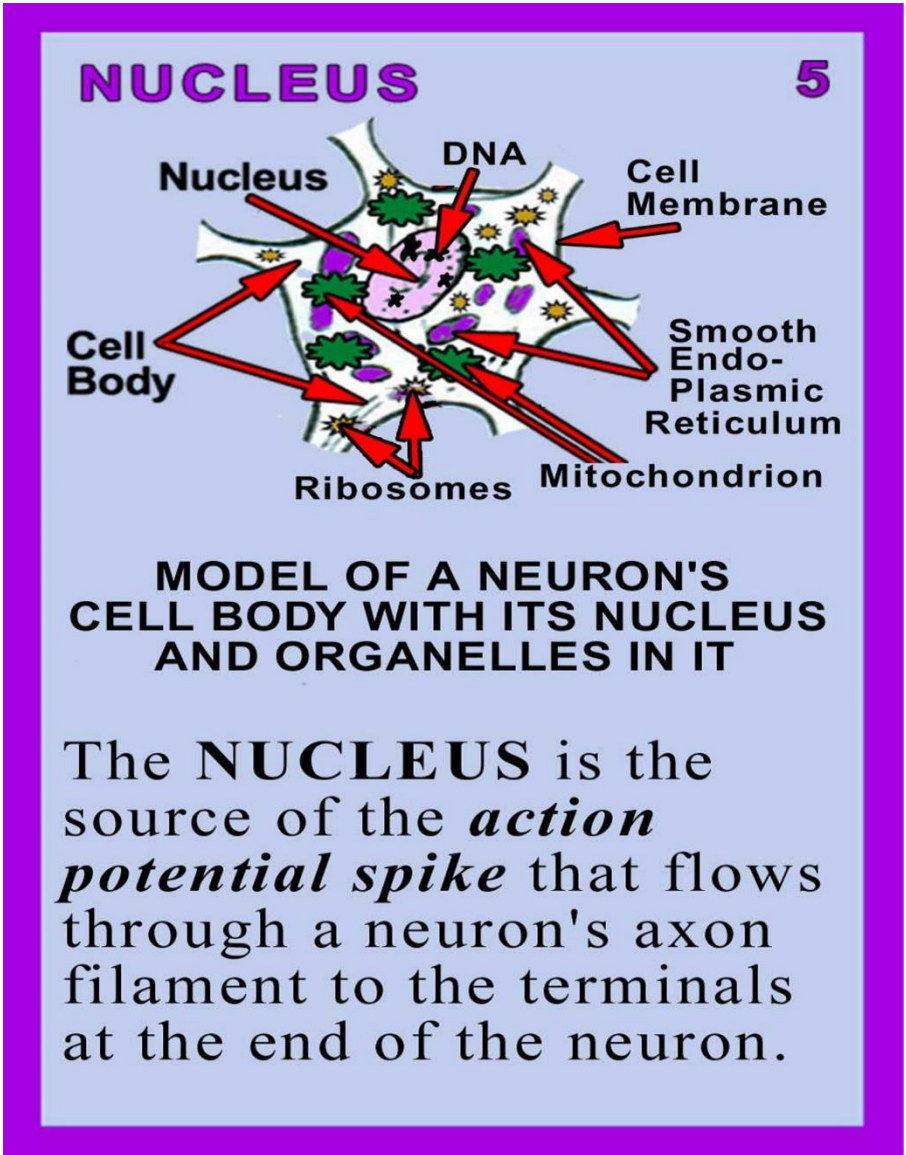


**MODEL OF A NEURON CELL BODY
WITH ITS MANY ORGANELLES**

What is the *source of the action potential spikes* that flow through neurons to activate your muscles, organs, glands, and senses?

Why is this fact important?

#5 NUCLUS OF A NEURON



smallest unit and the ultimate building block of human consciousness and free will.

#6 GLIAL CELLS

Your glial cells are the approximately 900 billion brain cells in your brain and nervous system that protect and facilitate the functioning of your 100 billion neurons.

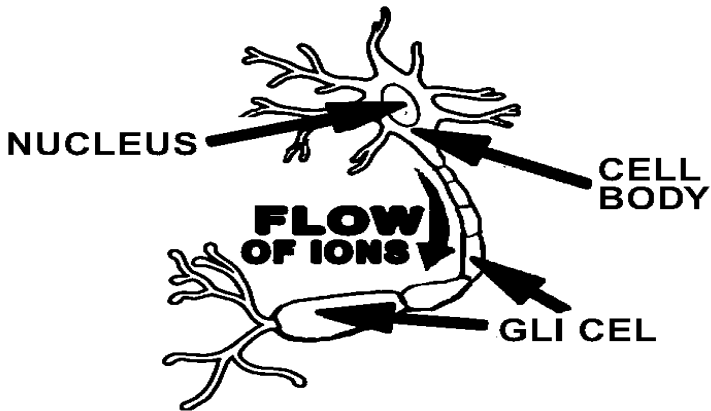
They are the specialized brain cells known as "white matter" which cover the axon filaments of your neurons with myelin sheaths. They nourish, lubricate, and protect the axon filaments of your neurons from toxins.

Your glial cells permit action potential spikes of biochemical electrical current (signals) to flow through the axon filaments faster and they insulate them from the signals of other neurons.

BRAIN IDEA #6

GLI CEL = ?

6



**MODEL OF A SINGLE AXON
FILAMENT COVERED BY WHITE
MATTER (MYELIN SHEATHS)**

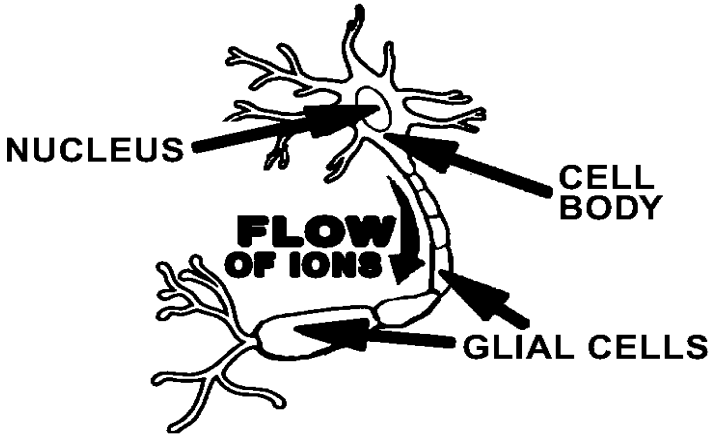
What are the *brain cells known as white matter that surround the axon filaments* in your billions of neurons to protect and nourish them?

WHY IS THIS FACT IMPORTANT?

GLIAL CELLS #6

GLIAL CELLS

6



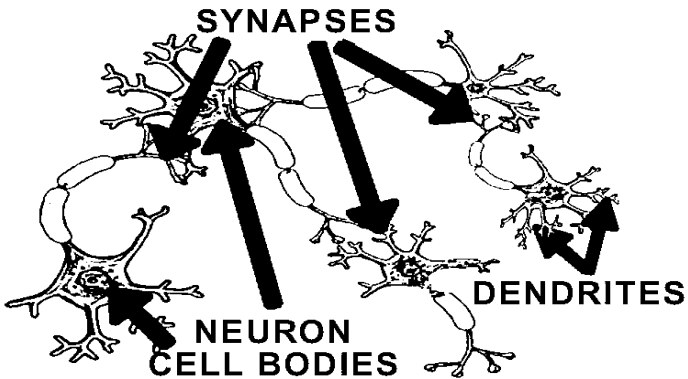
**MODEL OF A SINGLE NEURON
WHOSE AXON FILAMENT IS
COVERED BY GLIAL CELLS**

GLIAL CELLS are the *brain cells known as white matter that form myelin sheaths to protect and nourish axon filaments* so the action potential spikes can flow faster in them.

BRAIN IDEA #7

POT = ?

7



**MODEL OF NEURONS ATTACHING
TO EACH OTHER TO RELAY
BIOCHEMICAL SIGNALS**

What is the *way neurons connect* so you can think of ideas, feel emotions, control your muscles, and memorize anything you choose?

WHY IS THIS FACT IMPORTANT?

#7 POTENTIATION

The transduction action of potentiation activates the neurons in your neuronal pathways and makes possible your mind's mental force. The function of long-term potentiation is to strengthen the action potential spikes in particular neuronal pathways by adding connections to more neurons through the repeated signaling of ionic currents along the particular neuronal pathways being stimulated or blocked (excited or inhibited).

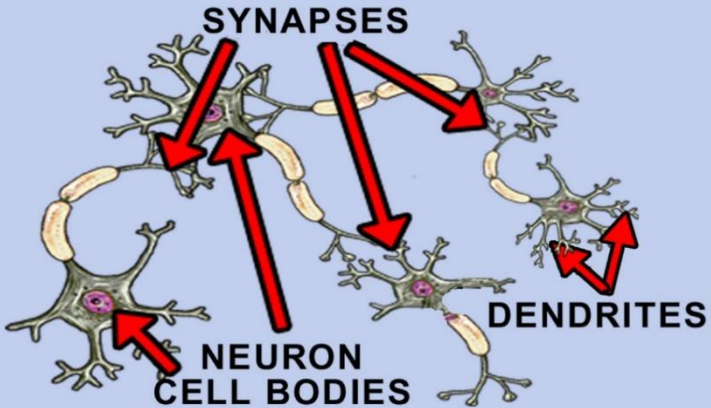
It is this biochemical communication process that causes a habit to form through repeating a certain physical behavior or mental idea until it is consciously or sub-consciously registered in your working memory and then transferred to your long-term memory system where it is unconsciously remembered. It happens inside neural

pathways when the ionic currents
(biochemical signals) are associated with
strong
emotions or repeated enough due to training
or

POTENTIATION #7

POTENTIATION

7



**MODEL OF (LONG-TERM)
POTENTIATION AS NEURONS
REPEATEDLY CONNECT
(SYNAPSE) TO MAKE YOU
CONSCIOUS**

POTENTIATION is the *cellular communication process* that makes human consciousness possible. It is one of the *essential sources* of your *self-awareness* and repeated signaling creates new memories.

to incidental routine behavior to create "**memory Triggers**" that are "**wired**" into your long-term memory system in your hippocampus.

This fundamental biological process produces new memories of all the sensations that your mind's mental force is aware of from both inside and outside your body. For example, procedural memory, which is also called muscle memory, deals with physical skills and habits of movement that are made possible by the potentiation process (repeated signaling process of thousands or hundreds of thousands of ***action potential spikes*** of ionic current) being forwarded from your working memory to your long-term memory system.

#8 SYNAPSES

The purpose of your synapses is to make possible the transmission of biochemical

currents (ionic impulses or signals) from neuron to neuron all around your brain and up and down your body.

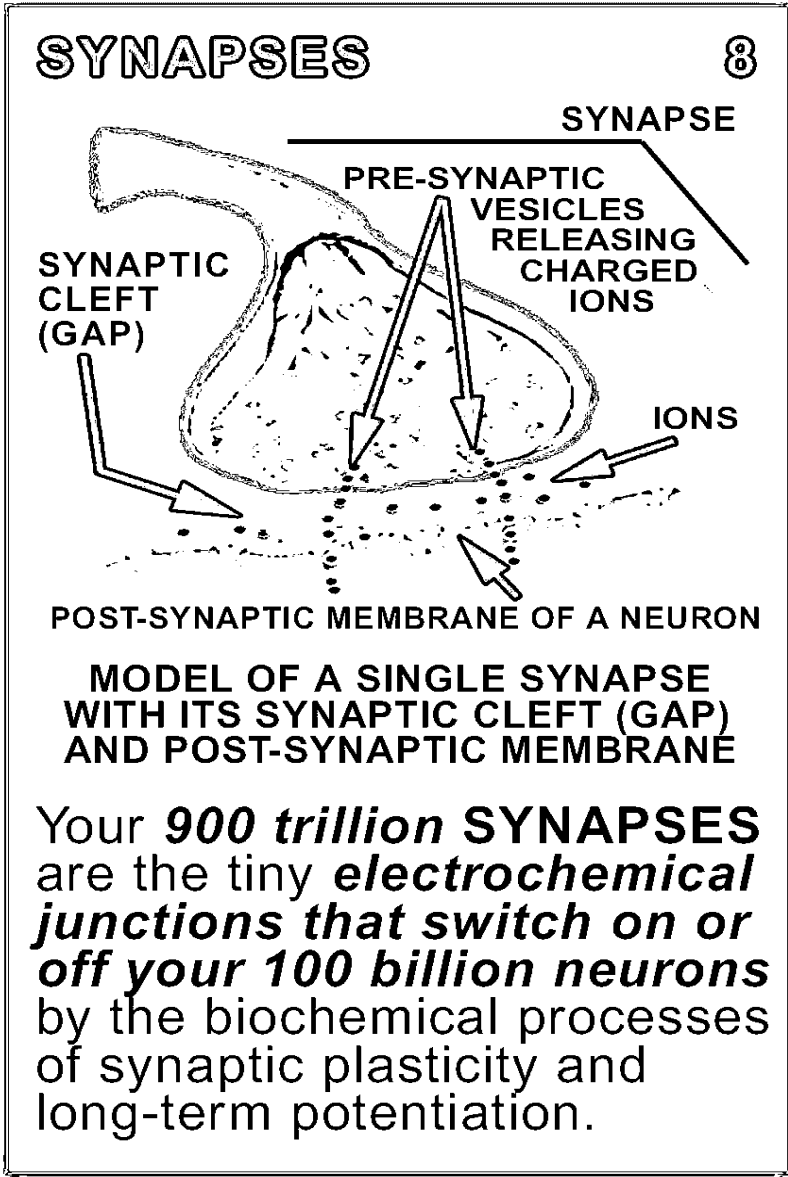
Your synapses are the 900 trillion electrochemical junctions or biochemical switches, that allow the 100 billion neurons in your brain and nervous system to send signals to and from your senses and to and from your many bodily organs. this signaling process is what ultimately makes possible your human consciousness.

Your brain's transduction signaling process is caused by the way your neurons and your synapses are connected at the microscopic quantum level of human existence.

Transduction is a complicated biochemical process by which your memories are formed by the phenomenal synaptic

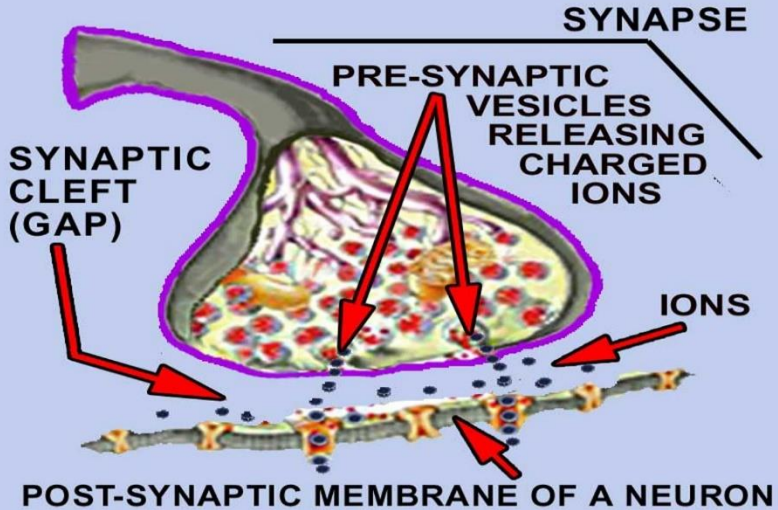
plasticity process known as long-term potentiation.

BRAIN IDEA #8



SYNAPSES

8



**MODEL OF A SINGLE SYNAPSE
WITH ITS SYNAPTIC CLEFT (GAP)
AND POST-SYNAPTIC MEMBRANE**

Your **900 trillion SYNAPSES** are the tiny **electrochemical junctions that switch on or off your 100 billion neurons** by the biochemical processes of synaptic plasticity and long-term potentiation.

#9 CONNECTOME

The purpose of your connectome is to make possible the transmission of biochemical current (ionic signals) all around your brain and also up and down your body.

The word connectome describes the biological structure of the 3-D communication network, which connects your brain to your nervous system (the rest of your body).

In addition, the massive complexity of your connectome network structures makes possible your brain's plasticity process and, therefore, your mind's ability to reason and, therefore, to adapt to virtually any challenge.

Thus this intrinsic biological process of your brain's plasticity function (using the physical structure of your connectome)

gives you the quintessential ability of your mind's mental functions, especially including your brain's ability to change itself by itself!

Therefore, the functional interactions between the biological structure of your body's connectome and the psychological process of your mind's ability to reason gives you the power to be a creative person with willpower and the freedom to choose among many options to create a potentially infinite number of solutions to problems. Since we live in the most technically sophisticated civilization that has ever existed, your choices are limited only by your own personal knowledge and motivation to create your own goals and plans for achieving them. By increasing your vocabulary to expand your enlightened consciousness, you can build the brainpower to make your own decisions and choose your own behavior.

THE COMPLEXITY OF YOUR CONNECTOME MAKES POSSIBLE YOUR BRAIN'S ADAPTABILITY

Historically, your biochemical connectome network was simply called your brain and brainstem and spinal cord without any detailed explanation of how your brain and body were actually connected to communicate at the extremely tiny molecular level of quantum effects. Now, however, the microscopic functions of your biochemical current (electrochemical ions), whether polarized, depolarized, or re-polarized in the zillions of molecules of your 100 billion neurons and 900 trillion synapses are understood well enough by brain scientists and science journalists to give you clear descriptions so you can learn about them and use the practical knowledge to better cope with the daily challenges of

existence and lifelong quest for increased intimacy and wisdom.

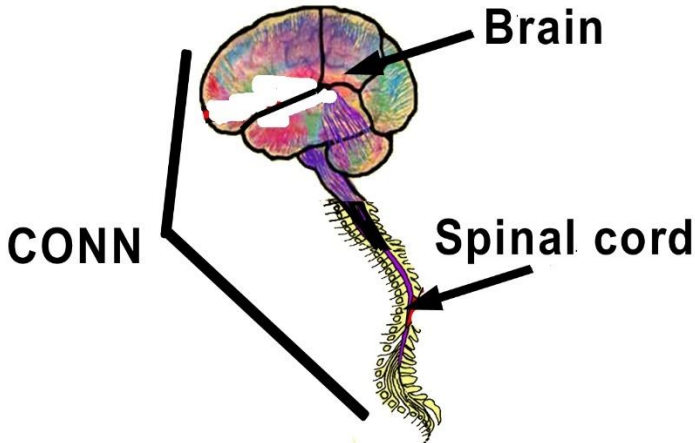
In addition, the smaller connectome circuits within the larger connectome network have a

variety of specialized functions that make possible an infinite number of possible connections among your 100 billion neurons. The smaller cortical and neuronal connectome circuits can activate a vast number of diverse movements that you do either consciously or unconsciously.

BRAIN IDEA #9

CONN = ?

9



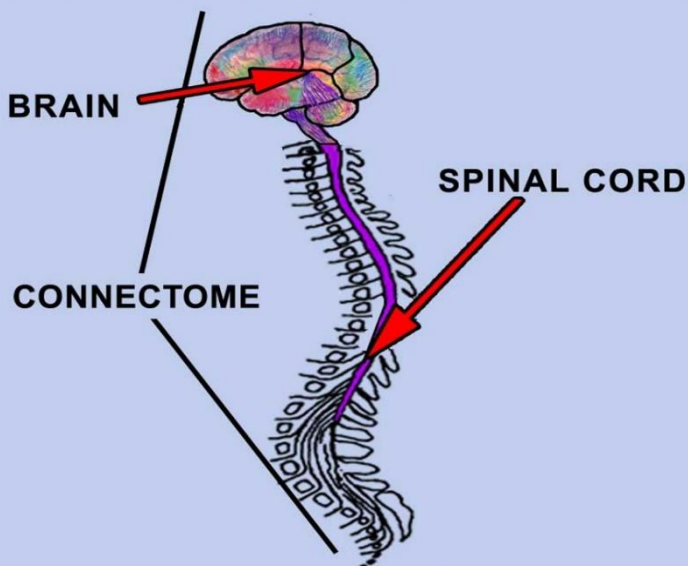
**MODEL OF THE CELLULAR
CONNECTION OF YOUR
BRAIN AND SPINAL CORD**

**What is the 3-dimensional
cellular communication network,
which connects your brain and
spinal cord, that causes your
self-awareness and free-will?**

CONNECTOME #9

CONNECTOME

9



MODEL OF THE 3-D CELLULAR WEB STRUCTURE OF YOUR CONNECTOME'S NETWORK

Your **CONNECTOME** consists of *all of the neural fibers in your brain and nervous system* that connect your brain and spinal cord biochemically.

#10 PLASTICITY

(NEUROPLASTICITY)

The evolutionary purpose of your brain's *plasticity process* (neuroplasticity) is that it makes you adaptable by making it possible for you to learn from changes in the environment and your own experiences how to survive and thrive.

Now that you are aware of the massive complexity of your connectome's neuronal pathway structures, you will be able to understand how it produces your brain's plasticity. The plasticity process includes your brain's ability to modify itself through learning more complex language skills and increasing your vocabulary as you learn to make more useful choices and manage your habits better.

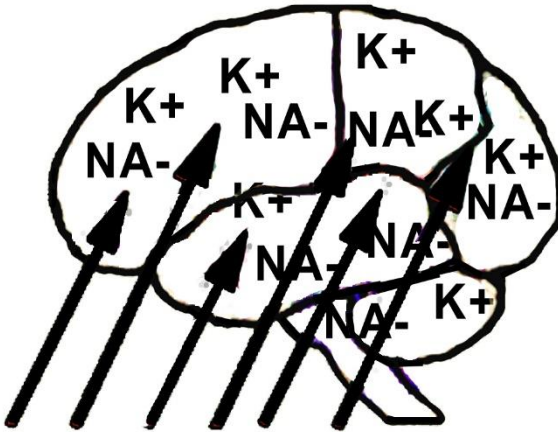
The neuroplasticity process makes possible
your mind's mental force and, therefore,
your ability to reason and imagine. Now
modern scientific

knowledge can explain in plain English the
way in which your billions of neurons
and trillions

BRAIN IDEA #10

PLAS = ?

#10



NEURONS IONS ARE THE SPARKS OF LIFE

K+ = Potassium ions (positive)

NA- = Sodium ions (negative)

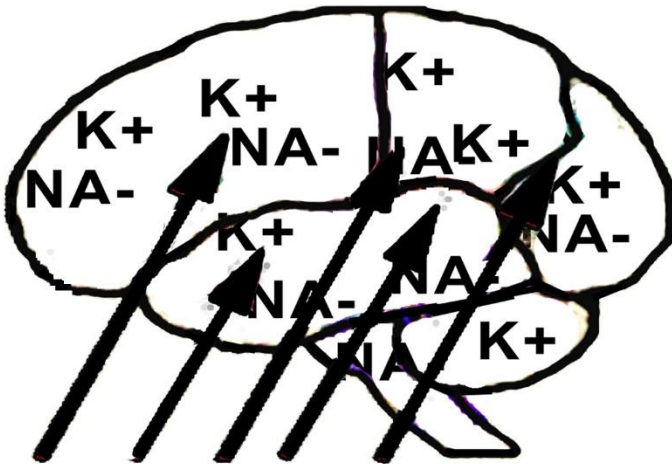
**MODEL OF YOUR BRAIN'S
ABILITY TO CHANGE ITSELF**

What is the adaptive process of your brain's connectome that is a cause of your ability to think, feel, create new habits, and learn new ideas?

PLASTICITY #10

PLASTICITY

#10



NEURONS ARE THE "SPARKS OF LIFE"
 K^+ = Potassium ions (positive)
 NA^- = Sodium ions (negative)

MODEL OF THE ADAPTIVITY OF
 YOUR BRAIN THAT MAKES
 CHOICE AND CHANGE POSSIBLE

Plasticity is your brain's evolutionary biological ability to organize itself by changing electro-chemical signaling in neural pathways because of potentiation.

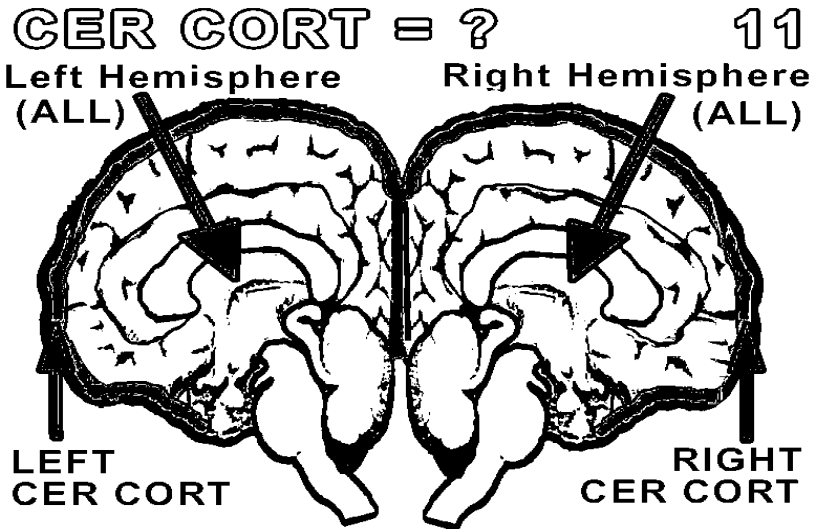
of synapses are attached to each other and how they function together to create your coherent self-awareness or sense-identity through the learning process as your mind interacts with culture and nature to activate your conscious self-awareness, and memory systems.

This phenomenal adaptive cellular communication process has a dimension known as "**synaptic plasticity**". Since your neurons and synapses are jointly involved in the exchange of ionic isotopes of potassium (**NA-**) and sodium (**K+**) at the location of each of your 900 billion synapses, which make possible your and infinite adaptability.

It is important to realize that the process of *synaptic plasticity* depends upon how well all the other interactive and interdependent parts of your

connectome's network (brain and nervous system) are coordinated.

BRAIN IDEA #11



**OPEN BRAIN MIRROR IMAGE
MODEL OF YOUR BRAIN'S
SPLIT CEREBRUM**

What is the *thin, wrinkled, and folded outer layer covering your cerebrum* that contains billions of neuron cell bodies known as gray matter?

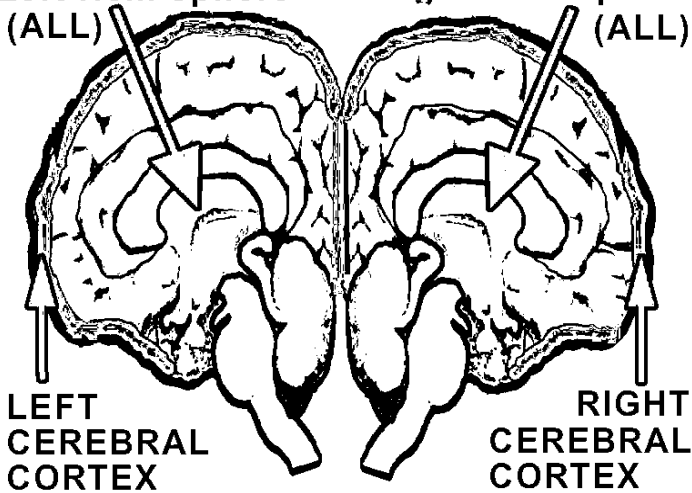
Why is this fact important?

CEREBRAL CORTEX #11

CEREBRAL CORTEX 11

Left Hemisphere
(ALL)

Right Hemisphere
(ALL)



MODEL OF YOUR SPLIT BRAIN'S CEREBRAL CORTEX

Your **CEREBRAL CORTEX** is the *thin outer cover of your brain's two hemispheres* consisting of billions of neuron cell bodies known as gray matter that is the newest evolutionary development.

The primary purpose of your cerebral cortex is to control your conscious bodily movements. It is the outermost layer of your brain that is responsible for higher thought processes including speech and decision making.

It gives you conscious control over your behavior by generating biochemical currents or signals that control your thoughts, feeling, and memories so you will be able to make smart decisions regarding survival.

Since humans have evolved to become the greatest survivalists on earth, it is important to know how your cerebral cortex caused humans to become the most dominant species on earth.

Our cerebral cortex provides us with more brainpower than any other animal has,

including animals which are larger in physical size who have larger brains. That is because their brains have proportionally less cerebral cortex tissue than our human brains.

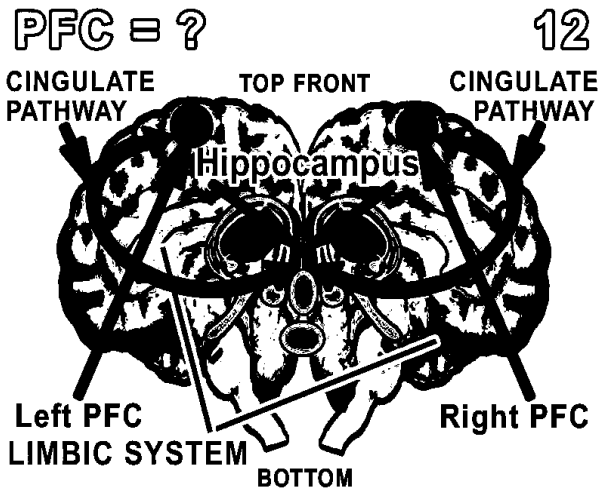
Since your cerebrum is split into two parts, a left hemisphere and a right hemisphere, your cerebral cortex is often referred to in its divided sense as having two "cortices" (the word is plural for cortex).

But whatever names are used, the unmistakable fact is that the primary function of a human brain is to help the body that it is attached to survive.

The cerebral cortex is the newest part of the human brain to have evolved after hundreds of thousands of years of the evolution. In addition, humans developed fully as *Homo sapiens* only about 40-000-50,000 years ago precisely because of our

incredible cerebral cortex, which is hugely larger than the cortex of apes.

BRAIN IDEA #12



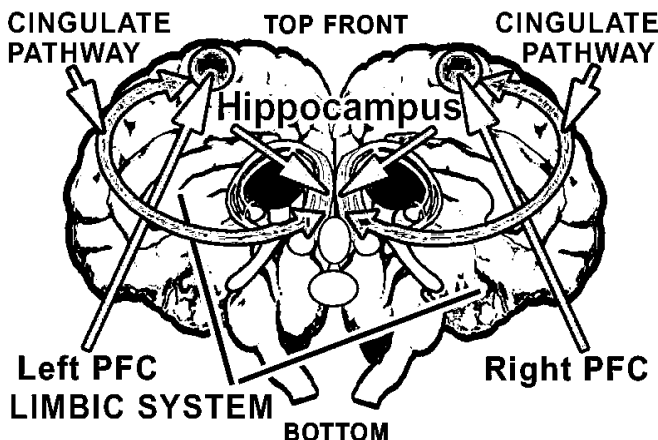
**OPEN BRAIN MIRROR IMAGE MODEL
OF YOUR OWN SENSE OF SELF**

What is the *source of your sense of self with its conscious executive control function* that evolved to manage hormones and neurotransmitters activated by your limbic system?

Why is this fact important?

PREFRONTAL CORTEX #12

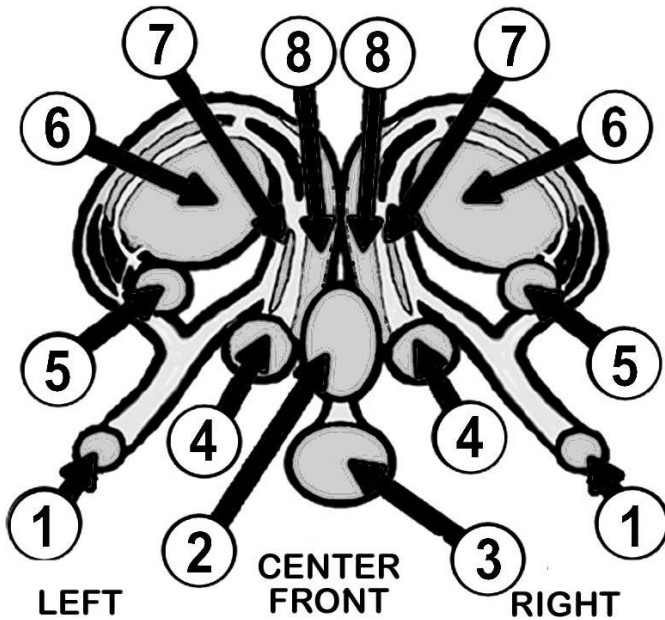
PREFRONTAL CORTEX 12



**MODEL OF THE ESSENTIAL
CONNECTION OF YOUR PFC AND
HIPPOCAMPUS FOR YOU TO BE
SELF-AWARE AND AWARE OF TIME**

Your **PREFRONTAL CORTEX** *contains two small clusters of neurons in the front of your cerebrum* that are the source of your sense of self and of time when they are connected by your anterior cingulate pathway to your long-term memory system in your hippocampus.

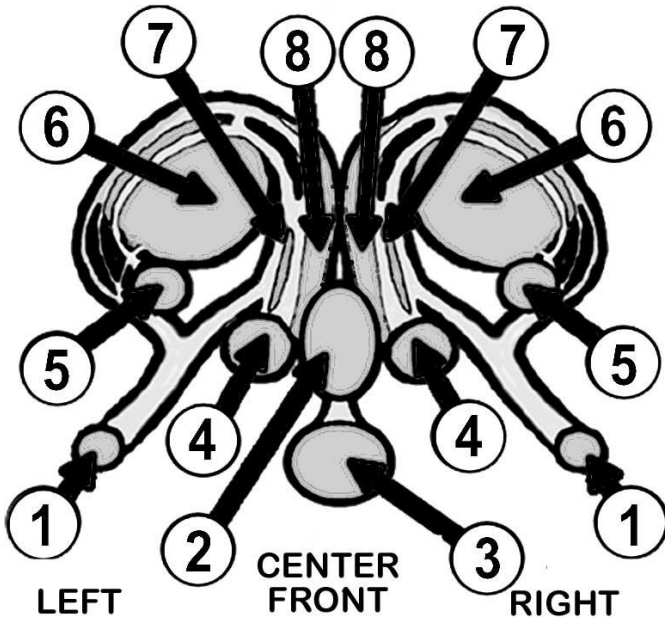
BRAIN IDEA #13



MIRROR IMAGE MODEL OF THE EIGHT MAJOR PARTS OF YOUR EMOTIONAL BRAIN

What part of your brain has eight major organs and releases neurotransmitters to control hormones that influence all your feelings?

LIMBIC SYSTEM #13



- 1 – Olfactory Bulbs (two sides)
- 2 – Hypothalamus (two parts)
- 3 – Pituitary gland (“master”)
- 4 – Amygdala glands (two sides)
- 5 – Pineal glands (two sides)
- 6 – Thalamus/gateway to B-stem
- 7 – Hippocampus (two sides)
- 8 – Basal Ganglia (two sides)

The purpose of your limbic system is to produce all of the motivational energy and emotional feelings that your brain and mind both need to survive and thrive in a complicated and potentially dangerous environment.

To do so, it assists in the preservation of your memories of the most salient experiences and most consequential decisions that saved your life or that worked well for you during the past.

Your limbic system consists of eight major structures, which provide more than eight major functions that are directly involved in your survival activities, particularly, and all of your other thoughts and feelings no matter what their associations are.

In addition, since your hippocampus has several types of long-term memory

resources, its healthy functioning is essential for your perception of having a unique persistent authentic self. You have semantic, episodic, and procedural memory modules with triggers inside your hippocampus.

The latest brain research has demonstrated that your brain's prefrontal cortex, which is your executive decision maker, does not develop fully until the mid-20s and early 30s of a person's life.

Therefore, a person's ability to reason cannot control strong emotions as easily and as fully until the third decade of life. For example, the strong bonding feelings that are evoked by the social peer groups in the second decade of life are hard for an individual to overcome until his or her prefrontal cortex is fully developed in the 30s.

When you understand yourself from this new perspective of humanistic and scientific reasoning, the self-image that you construct from your life experiences is the genuine real deal, not some fanciful illusion or twisted delusion.

Unfortunately, your limbic system can also preserve a lot of useless, dysfunctional memories of social habits and mindsets, including a variety of addictions, that were learned in your childhood and youth before you were prepared through proper education to establish complete control over your feelings.

Nevertheless, the eight vital brain structures of your limbic system produce many kinds of neurotransmitters that stimulate each other and your many hormones that flow through your blood (circulation system) or your neuronal pathways (biochemical signals) to activate a range of feelings all over your body.

**YOUR LIMBIC SYSTEM HAS EIGHT
MAJOR PARTS**
(See the numbered list below)

[1] OLFACTORY BULBS (these two bulbs, which are located on each side of your *limbic system complex* at the front, are attached inside your two nostrils and give you the sense of smell)

[2] HYPOTHALAMUS (although it consists of one organ structure, it is divided into two parts with two separate functions)

[3] PITUITARY GLAND (this single organ structure is known as the "**master gland**" since it controls the release of many other neurotransmitters and hormones)

[4] AMYGDALA GLANDS (these two glands, one in each hemisphere, consist of two parts linked together in the limbic system complex, which activate feelings of anxiety, fear, and pleasure as well as memory functions)

[5] PINEAL GLANDS (these glands are on both sides of your limbic system complex and regulate sleep behavior since they control your circadian clock)

[6] THALAMUS (this single brain structure in your limbic system complex connects your brainstem to the rest of your brain and is known as the "**gateway**" to your brainstem)

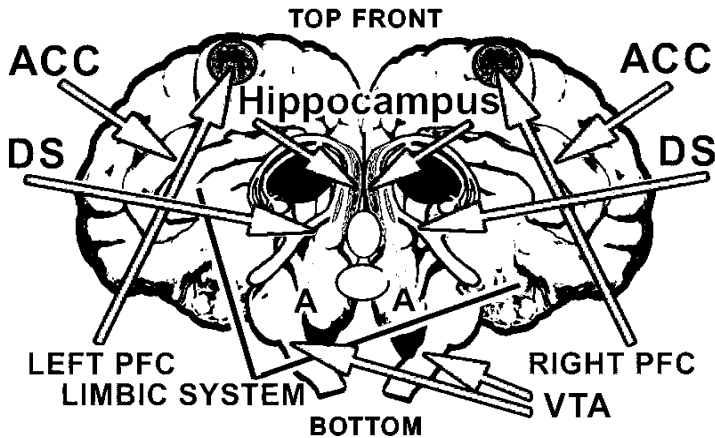
[7] HIPPOCAMPUS (this major structure is on both sides of your limbic system complex and deals primarily with long-term memory storage) =

[8] BASAL GANGLIA (this structure, which is located on the bottom of both sides of your limbic system complex, is divided into several sections with different essential functions)

PLEA = #14

PLEA = ?

14



A = Amygdala

ACC = Anterior Cingulate Cortex

DS = Dorsal Striatum Basal Ganglia

VTA = Ventral Tegmental Area

MIRROR IMAGE MODEL OF YOUR BRAIN'S REWARD SYSTEM

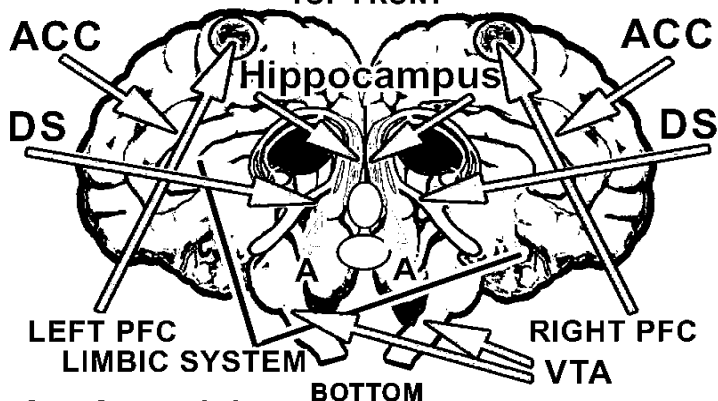
What *biological circuit in your limbic system causes feelings of happiness* when neurotransmitters, including dopamine, are stimulated?

Why is this fact important?

PLEASURE CIRCUIT #14

PLEASURE CIRCUIT 14

TOP FRONT



A = Amygdala

ACC = Anterior Cingulate Cortex

DS = Dorsal Striatum Basal Ganglia

VTA = Ventral Tegmental Area

MODEL OF YOUR PLEASURE CIRCUIT (REWARD SYSTEM)

Your **PLEASURE CIRCUIT** is the *biological source of all the happy feelings that you associate with meaning in your life*, but it can be damaged by bad habits and chemical addictions.

PLEASURE CIRCUIT #14

The evolutionary purpose of your pleasure circuit is to produce emotional pleasure and rewards of all kinds as motivation for your resilience and endurance in the face of uncertainty and the difficult challenges of surviving in hostile conditions and thriving in safe and secure situations.

You can quickly explore the relationships among the 15 fundamental brain ideas and your PLEASURE CIRCUIT by focusing your attention on the following Circle of Consciousness symbol.

The symbol contains the 15 names of the 15 brain ideas outside surrounding the circle and the 15 red arrows pointing outward from the edge of the circle to the names.

The 15 red arrows pointing away from the edge of the circle toward the names of

the brain ideas indicates that at the beginning of your brain study the 15 functional brain ideas are assumed to be outside of your self-awareness.

When the symbol is activated, the 15 red arrows are reversed so they are inside the circle of consciousness pointing toward the word "mental force" at the center of the circle.

This new arrangement indicates that after some systematic brain study you will be able to understand the meaning of the 15 brain ideas and their relationships.

All 15 brain ideas will be together in your long-term memory system in your hippocampus and accessible to your creative working memory system in your prefrontal cortex.

You are a survivor of nearly unimaginable odds over hundreds of thousands of years, because human beings could have evolved in other ways as is shown by the fossil record of earlier prehumans and protohumans before homo sapiens became dominant between 30,000-40,000 years ago.

Think of the small animals roaming around and escaping the claws and teeth and feet of gigantic dinosaurs 60 million years ago. Some of those animals evolved into us after one of the five major extinctions during the geologic shifts in the continents and ice ages, which wiped out a huge number of species who had previously lived on planet Earth.

Now that we are living with sophisticated technology created by science and engineering, which can control many of the destructive conditions of nature, the

use of the logic of the scientific method has proven to be the best measure of what humans can achieve.

As the victor in the great battle to survive and thrive, we humans have won out over all other animals. This was due to our large brains and partly to the human pleasure circuit, which has provided us with the pleasure instinct and other reasons for willing to stay alive (will to live).

You have pleasure circuits, that can be activated both consciously or unconsciously for many reasons and anytime you think it is appropriate for you to feel good.

The problem is that we live in a culturally contextualized world due to the influence of our birth language and the socio-

economic structure of the families and communities we were born into.

If your early education perpetuated the basic language of your parents and childhood caregivers, then you were stuck in a peculiar version of reality influenced by the words and grammar that you learned. Until high school or college, you did not have much choice unless you had influential humanistic teachers and mentors in your life who taught you how to be an independent critical thinker with an open mind.

The significant challenge after formal education was for you to develop an appreciation for lifelong self-education to keep your mind ready to solve more complex problems in a fast-changing global business culture.

It is assumed that brain science along with evolutionary biology and cognitive psychology can provide the best intellectual foundation for all future thinking and problem-solving activities.

New scientific ideas about managing your pleasure circuit are more easily accessible now than at any other time in human history through technical education and skill training programs.

Your instinctual need for pleasure can be modified by understanding at the basic biological level how your thoughts can control your feelings. You can create a healthy sustainable emotional balance in your life by yourself --- with a little help from your friends and brain scientists. You can get off the hedonic treadmill of addictive cravings and meaningless social trivialities by asserting your basic humanistic rational quest for meaning in

satisfying your curiosity by seeking knowledge and helping others for altruistic purposes.

BRAIN IDEA #14

LONG-TERM MEMORY 1-22-18

The evolutionary purpose of your long-term memory system is to consolidate memories that are useful for survival purposes in the future.

This awesome purpose can be understood by learning the distinctions among three kinds of long-term memory.

They are: [1] episodic memory for recalling events; [2] semantic memory for recalling facts; and [3] implicit memory for doing routine activities like eating or remembering how to brush your teeth or knowing where to find your clothes in

the morning or recognizing the faces of your family members and friends. (See below for more book information: Working Memory, 2013, page 160).

The awesome purpose of your working memory can be achieved by learning a few specific thinking skills, which can strengthen your mind's mental force.

"The relationship between working memory and long-term memory systems is similar to that of a librarian and a library. Like a librarian, working memory allows you to search through the books, or information, stored in the library in order to accomplish a specific task." (page 160)

"With Alzheimer's disease, both elements are under attack: the librarian struggles to search through the stacks, and the worms are eating

through the books. A shrinking working memory has a detrimental effect on your ability to access the books, to search through the library and find and apply what you need." (page 160)

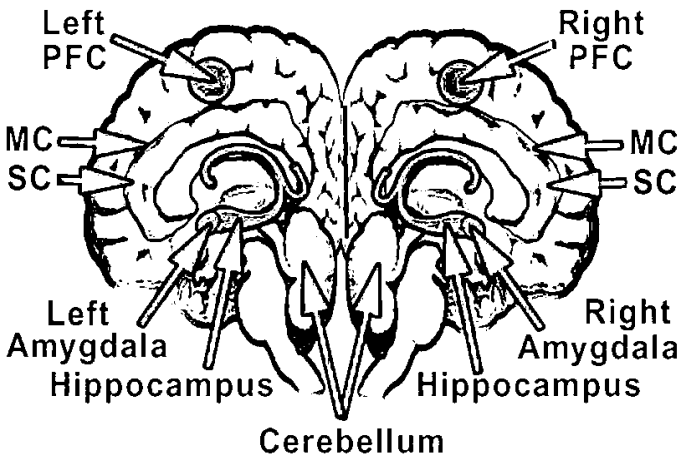
"And when the books deteriorate, it is much harder to read what remains." (page 160)

"However, working memory is such a dynamic and adaptive tool that if it remains strong, even if Alzheimer's begins to eat away at your neurons, it may in fact help to prevent you from experiencing the cognitive symptoms associated with the disease" for a long time. (page 160)

BRAIN IDEA #15

L-T MEM = ?

15



MIRROR IMAGE MODEL OF YOUR MEMORY CIRCUITS

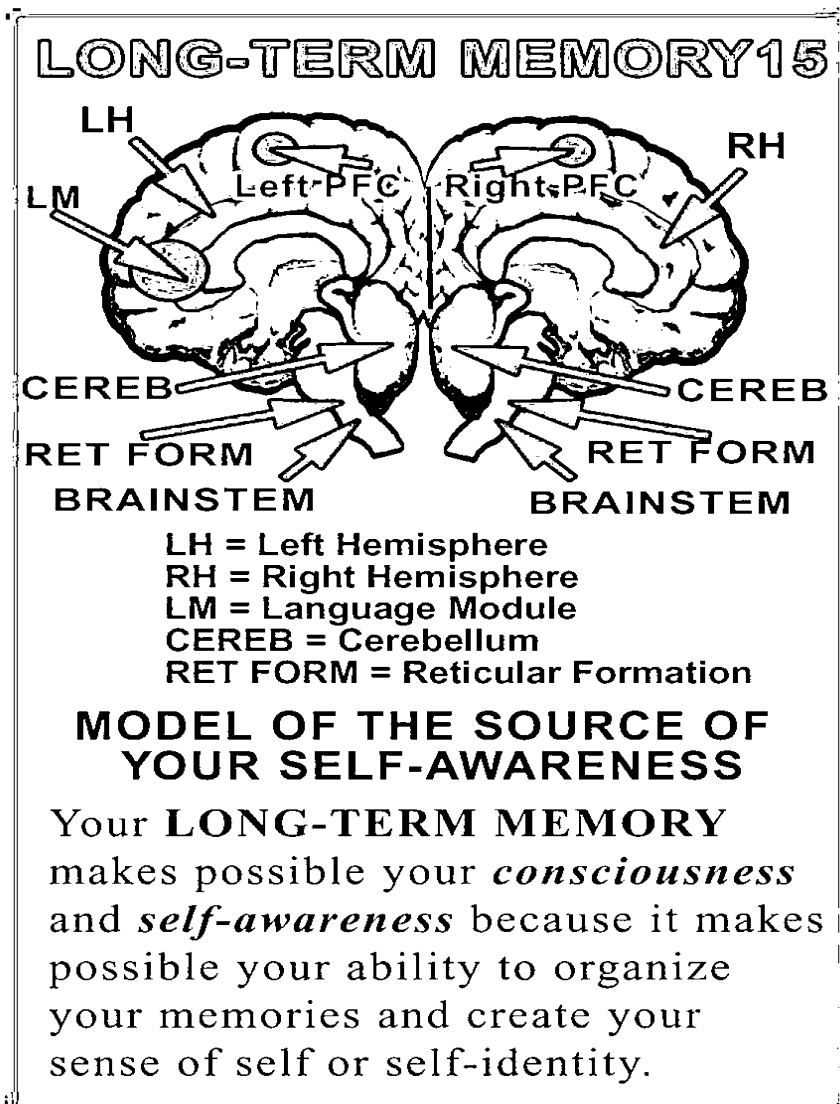
MC = Motor Cortex (signals to body)

SC = Sensory Cortex (signals to brain)

What memory circuits in your hippocampus provide your sense of self and involve the consolidation of many kinds of memory?

Why is this fact important?

LONG-TERM MEMORY #15



What are the secrets of making your long-term memory system more efficient?

Three powerful learning techniques can improve the functioning of your working memory in its relationship to your long-term memory. They are: (1) Code Breakers; (2) Bootstrapping; and (3) Chunking.

- (1) The Code Breakers Technique can be used to quicken recall of the 15 major brain ideas, if you develop a step by step plan to remember them in your long-term memory system. For example, the 15 memory codes featured on this website can be used to remember the 15 brain ideas through the spaced-repetition method of learning by association. (page 182)

- (2) The Bootstrapping Technique of learning involves the process of combining (binding) verbal information (text) with visual information (brain diagrams or graphic images) by using both your working memory system and your long-term memory system. This technique can help you process (consolidate) information such as the brain names and their definitions and also the details about each brain idea so all the information can be integrated, retained, and retrieved at will. (page 183)
- (3) The Chunking Technique of memorization involves a method of breaking down complex information, such as the description of your brain's many amazing functions, into smaller subparts or "chunks". Then they can be committed to your long-term memory system. "With long chunks of information stored in your long-term memory, your working memory

"conductor" can prioritize and manage data more efficiently." (page 183)

BOOK SOURCE = Working Memory Advantage, 2013 and especially see the appendix section containing the **Working Memory Quick Hits Manual** on pages 280-291.

HOW CAN KNOWING MORE ABOUT YOUR BRAIN HELP YOU THRIVE?

The new brain facts and vocabulary can help you reinvent yourself and transform your attitudes and habits into successful skills for fearlessly expressing your humanistic values. You can learn to become prepared to meet the challenges of the future successfully.

The structure of this website is designed to help you use *critical thinking skills* and *critical reading strategies* to cope with

the enormous complexity of your brain's interactive organic structures. Thinking about your brain's physical structures in a systematic way can help you understand what your mind's functions are able to achieve.

Now is the perfect time to learn about the new evidence-based brain knowledge. It involves learning and understanding what truly causes an enlightened consciousness and an enlarged self-awareness.

Your mindsets (attitudes) and habits (routine unconscious daily behavior) are all ***learned*** cultural behaviors. They are the genuine psycho-social causes and shapers of your behavior including your moment by moment conscious self-awareness.

Moreover, these same mental and cultural causes and shapers (especially language) make your free will possible due to the evolutionary nano-microscopic molecular quantum processes inside your brain that also make your consciousness possible.

You can discover which brain circuits cause normal positive behaviors, such as creative decision making, and which brain circuits cause abnormal negative behaviors, such as chemical addictions, chronic anxiety, and learned helplessness.

As you learn how the feedback and feedforward loops of your evolutionary brain's *neuronal circuits* work, you will be able to understand how to choose the ideas and ideals that will help you thrive in the future, no matter what challenges you face or what problems you need to solve.

Since you live in the most technically sophisticated civilization in history, your choices are limited only by your motivation to create your own reasonable goals and sensible plans for achieving them.

You have the freedom to choose from many attitudes and behaviors displayed in the mass media 24 hours a day and seven days a week. However, the mass media opportunities for viewing various lifestyles and innumerable events globally can be overpowering. The pressures of living in the rapidly changing digitized global world of the 21st century can cause extreme psychological instability or mental disorders, especially if you are not confident about your own abilities and skills to cope with the social pressures.

Thus, your freedom is constantly being threatened by destructive cultural

pressures to conform to the goals and plans of others, such as business corporations and social institutions.

This is due to the powerful influence of business advertising, which all children are born into and all adults have been exposed to throughout their lives. We have all been exposed to the **“shop until you drop”** description of a common response to the **“buy now or you will regret it”** slogan of businesses.

Every day your brain is vulnerable to hidden cultural pressures, which can shape your behavior, if you are not aware of what they are doing to your brain 24 hours each day if you let them!

Prominent among the many negative cultural influences, which can upset your brain's fragile balance, are the steady stream of

marketing distractions from the mass media and social media and entertainment companies.

The total massive volume of the disruptive images and the sounds from the mass media and social media and other cultural institutions can diminish your sense-of-self and decrease your happiness level, if you passively let them influence you. However, by learning how to control your own emotions, you can combat the many kinds of manipulation, such as gaslighting, and overcome learned helplessness.

Nevertheless, you can learn to protect your *mind's mental force* from the pervasive negative cultural influences with their menacing metaphorical memes.

The definition of meme is now in the Oxford English Dictionary as "An element of a culture that can be passed on by non-genetic means, especially

imitation." This phrase was cited in the book, **The Meme Machine**, in the foreword by Richard Dawkins on page viii. The book was written by Susan Blackmore with a Foreword by Richard Dawkins, Oxford University Press, 1999 (i-xx, 264 pages).

A *meme* is the fundamental unit of information, analogous to the gene in the emerging evolutionary theory of culture and epigenetics. Memes have the characteristic of being pervasive thoughts or thought patterns that replicate themselves through cultural means (socialization), such as cliches or analogies or parasitic codes or viruses of the mind that are contagious to vulnerable children and naïve impressionable adults.

For example, many *commercial memes* are dangerous for your brain since they can distort

or exaggerate the importance of products for the maximum profit of enterprising corporations instead of providing transparent evidence-based healthy options for consumers.

Some of the most dangerous cultural metaphors are *memes*. They are ideas, beliefs or belief systems, or patterns of behavior, which can spread throughout a culture (any social group) either vertically by cultural inheritance (as by parents to children) or horizontally by cultural acquisition (as by peers, the news media, or the entertainment media).

Also, such memes can manipulate both individuals and groups through distorting political and economic policies to meet

the special interests of corporations rather than the social needs of individuals and groups. In addition, religious memes can vivify ancient religious beliefs to confuse and frighten people and make them anxious about themselves and their futures. This can be a waste of their money and a waste of their precious time.

However, by learning the new brain vocabulary and by making healthy educated decisions regarding your own personal and family welfare, you can reduce the damage of negative cultural influences on your mind's ability to reason. You can use the brain vocabulary to focus on the positive brain ideas and supporting facts using the scientific method to investigate your brain as well as nature and the cosmos.

You would be using your critical thinking skills and critical reading strategies to

search for reasonable answers to solve tough problems
and choose the best options for difficult social
and political issues.

When you learn the new brain vocabulary, and the new propositional logic that explains the meaning of your *mind's mental force*, you will be able to improve your ability to use your ability to reason and creatively solve problems.

This fact is based upon your ability to learn new scientific knowledge, which derives from the *neuroplasticity* (plasticity) of your brain, which gives you the ability to adapt to changes when you need to make life enhancing changes to promote your own self-identity and to protect your family and friends.

Your *mind's mental force* gives you the ability to learn how to make reasonable choices even if you are confused by conflicting social issues and political policies.

But you must know how your brain works to overcome the strong pressures of menacing mindless cultural memes that can confuse and depress you and others to the point of becoming depersonalized and dehumanized.

Fortunately, you can become more mindful of your sense-of-self or self-identity and your true humanistic nature, since you were born to be more than a consumer of other people's products and services!

HOW CAN YOU HELP CHILDREN LEARN ABOUT THEIR BRAINS?

This website is especially designed to help parents communicate about the essential 15 brain ideas with their children. Parents need to develop a balanced approach to making sure that their children learn healthy brain habits. The bonus is that what is good for children's brains is also good for children's hearts.

Children need to exercise regularly; eat nutritious foods; get enough sleep; and challenge their brains daily to solve difficult problems by using modern critical thinking skills and critical reading strategies.

The website teaches thinking skills that can provide you with a modern humanistic philosophy of life. You can

use this website to provide reliable brain knowledge for dealing with family life relationship issues. It includes brain information related to good parenting practices.

To be a humanist parent is to be able to use your intellectual intelligence (IQ) and your emotional intelligence (EQ) to reason effectively and create a fulfilling philosophy of life for yourself and for your children.

You need to apply the modern techniques of critical thinking and critical reading within the context of a secular view of history. As a humanist parent, or someone responsible for teaching children, you need to create balance and challenge in your own life, so you

and the children who you guide can create *more cognitive reserve* (more resilience) and *less cognitive dissonance* (less confusion).

This goal can prepare you for emergencies and provide you with the basis for fulfilling family interactions. The idea of increasing cognitive reserve means that you can increase the variety and density of the neuronal connections throughout your brain and nervous system by doing a variety of interesting and challenging new activities daily.

Children must be *trained* to satisfy their own age-related developmental needs of physical, intellectual, and emotional growth through the predictable developmental stages and teachable moments of their young lives.

The idea of reducing cognitive dissonance in your own life, and in the lives of your children, refers to conscientiously coping with the mind-numbing assault on the brains of children by the massively disruptive mass media and the addictive social. The compelling commercials compete with educational programs for the *precious time* that children need intermingle with other children and people rather than commercials. Unfortunately, when children's brains are distracted so much of the time, childish traditional metaphorical beliefs can be reinforced. Such irrational beliefs can become simplistic even though children need to be developing an appreciation for the complexity of reality as they grow up.

Children could become more enthusiastic about gaining an understanding of science, history, politics, art, and even

their own health if they were not constantly pressured to waste so much time on noisy commercials. The 15 basic brain ideas need to be discussed within the family circle and across generations with the appropriate age-related content of words for all ages.

All family members can participate and contribute within the context of mindful growth through the sequence of predictable "ages and stages" concerning childhood growth factors.

As both you and your children learn the new brain ideas in a rational humanistic context, the new scientific insights about brain structures and mind functions can become more useful in everyday decision-making and problem-solving situations.

The new brain knowledge can help children learn to control their thoughts and feelings better by using the most important brain ideas ever discovered.

Parents and teachers can teach

children progressive mindfulness skills so their behavior and aspirations for the future will reflect the modern humanistic liberal values of respect for diversity, including gender, racial and ethnic inclusion.

The book, **10 Mindful Minutes** by Goldie Hawn and Wendy Holden, describes a wonderful way to introduce children at home or

in the classroom to a sensible brain vocabulary and many skill-sets. The new brain vocabulary can empower children to enjoy more meaningful lives when they are taught basic language skills that emphasize the new brain vocabulary.

Children can be taught to respect scientific humanism as they learn how scientists have discovered the hidden causes of human behavior and have invented new ideas and techniques for exploring nature and the universe.

The book, which was published by the Perigee/Penguin Group, 2011 (218 pages), suggests that parents and teachers can teach children to think of the two parts of their prefrontal cortex as if they were "**Two Wise Owls**" since they are the primary source of their conscious self-awareness. The two prefrontal cortices are located above each eye about an inch below the forehead.

They are about the size of a penny in the front section of both the left and right cerebral hemispheres. The two wise owls,

as shown in the following diagram, enable children (and adults) to make choices and be kind to each other once they are permanently stored in their long-term memories.

Teach your children that their *prefrontal cortices* can be thought of as being like two wise owls. The two wise owls are located at the front of the brain on each hemisphere.

The other essential part of the human brain that can be taught to children at home or in the

classroom is the function of the amygdala.

This vital brain function can help children regulate their emotions when they learn that their amygdala is like a **"Guard Dog."**

You can teach children not to be distracted by mass media advertisements and online shopping choices, which their young brains are exposed to every day on television or the radio or

podcasts or computers or in movies, or on social media, including music and games.

Today, when children's success in life depends more than ever before on independent thinking skills and emotionally intelligent reasoning skills, it is vitally important to teach them how to determine the rational benefits and the possible risks of their decisions. It is the function of a humanist parent to teach children how to make sane and fair choices based upon reasoning rather than blind obedience.

Unfortunately, our hyper-connected consumption-driven society can itself be a source of brain damage due to the constant

disruptive influences by the ubiquitous mass media. Since corporations want to commodify your experience of being a human being by selling you anything and everything, it is important that humanist parents teach their children how to cope with the overwhelming media distractions.

This mindless triggering of unnecessary false emotions by the incessant marketing of the mass media and the social media both require that specific critical thinking skills and critical reading strategies and progressive mindfulness skills can be taught to children.

Then they will be resilient and know how to deal with the enormous distress caused by hyper-commercialism. As both you and your children learn the new brain ideas in a rational humanistic context, the new scientific insights about brain structures and mind functions can become more useful in everyday decision-making and problem-solving situations.

In addition to the brain process of neuroplasticity, brains can change by neurogenesis. It is the growth of new neurons in your limbic system's two olfactory glands, which is the part of your brain required to detect odors, and in your limbic system's 8

hippocampus, which is the part of your brain that contains the "**triggers**" of your long-term memory system. Finally, to summarize: it is

possible to teach your children the new brain vocabulary. They can learn about the

essential brain functions required for healthy intellectual and emotional growth. To be effective, you must discuss the desired behaviors continuously and model them always in your daily activities with your children.

This website can help humanist parents teach their children the new whole-brain thinking approach to the scientific understanding of brain structures and mental functions, which is the best way to integrate the new brain knowledge into humanist family living to produce responsible and resilient family members.

This handbook can help humanist parents teach their children the new **“whole-brain thinking”** approach to the scientific understanding of brain structures and mental functions, which is the best way to begin cross-generational talk about brain functions.

WHAT ARE THE LASTING BENEFITS OF UNDERSTANDING YOUR BRAIN?

Accurate brain knowledge can help you prosper in the real world of scientific thinking about your brain. First, your brain and mind are always connected and always active, even when you are asleep. This website can help you expand your imagination and stimulate more happiness every day.

The new brain knowledge can give you more control over your brain's pleasure circuits and your mind's memory systems, after you learn more about the basis of your ability to reason and make sensible decisions about how you use your *time*.

The new brainpower maxim is: "**Your Mind is What Your Brain Does!**" It means that your mind is inseparable from your brain and body. This means that you have an embodied self but no mystical spiritual soul. This is reality and it is okay.

By using this handbook, you can access many effective solutions instantly for creating successful outcomes every day. However, you must decide to manage your time wisely and choose to organize your plans for achieving your basic humanistic needs to love and be loved for rational altruistic purposes.

Fortunately, you can gain more confidence in your ability to feel self-confident and to stop intrusive unwanted negative feelings by activating ***whole-brain thinking*** strategies. Also, you will be able to share accurate up-to-date brain knowledge with others to solve problems

and create a sense of well-being for yourself and your friends and relatives.

To do it, you must balance your mind's mental forces. This is a gargantuan task, if it is not done correctly, since there are *internal biological pressures* from many brain organs competing for your attention as well as many sources of distraction from cultural causes outside your body.

For example, you have strong actionable messages coming into your prefrontal cortex (your brain's executive function) from both sides of your brain (the left hemisphere and the right hemisphere) and you have two opposing functions in the back and front of your brain (the occipital lobes and frontal lobes).

In addition, you have two opposing functions at the top and bottom of your brain (the cerebral cortex and your limbic system).

Since these main physical biological brain structures evolved to protect you against environmental threats, such as wild animals and geological catastrophes, like earthquakes, volcanic eruptions, and other combative

humans, the many functions of your mind are always competing for your attention during your waking hours --- and even when you are asleep.

Even though your brain and nervous system evolved to detect danger or threats in your environment during the past 3-4 million years, your personal experiences of the past, and your goals for the future, can both play major roles in

how you choose to control your behavior and how you strengthen your ability to reason right now.

By learning how your thoughts can control your feelings, you will be able to reduce toxic distress and increase 3 healthy pleasures in your life. In addition, by learning the new brain vocabulary, you will be empowered to choose a new rational mindset based upon your own experiences and scientific experimental facts to understand your true potential as a creative happy humanistic person.

In addition, you will be able to use your hundreds of millions of *mirror neurons* and their hundreds of trillions of synaptic connectors to empathize with others and to collaborate more successfully with family members and your friends and your social network.

When you choose to focus on a perception
of

reality based on the new brain facts
according to science, you will have a solid
rational

philosophical basis for making your plans
and achieving your goals for the rest of
your life. You will be able to escalate up
to a higher level of human consciousness,
knowing that your goals and plans for
achieving them will probably

change to become more interesting after you
begin to imagine new insights about
yourself and imagine new relationships
with others based upon your new
knowledge about the 15 brain ideas

This will happen because you will be
adjusting to new possibilities with the
same firm dependable humanistic

personal moral values and perceptions of reality. As long as you are mindful of the awesome ability of your brainpower to cope with the existential conditions of life, you will be able to rise to the challenges that you choose to encounter and master. The **Humanist Alternative** puts full

responsibility on you for solving your problems and improving your social relationships in collaboration with your family and 4 friends.

When you make your goals consistent with humanistic values, your self-acceptance and self-esteem can improve. This will empower you to manage your time better. Since no divine intervention has ever been proven to work for anybody, it makes good sense to train your brain to achieve your highest aspirations yourself, with a little help from the brain scientists cited on this website.

Among the lasting benefits of using this website are its memory boosting structure and its

emphasis on specific critical thinking skills and critical reading strategies for understanding the 15 brain ideas.

GLOSSARY

15 BASIC BRAIN IDEAS

Axons

Cerebral Cortex

Connectome

Dendrites

Glial Cells

Limbic System

Long-Term Memory

Plasticity

Pleasure Circuit

Potentiation

Prefrontal Cortex

Neurons

Nucleus of a Neuron

Synapses

Working Memory

CONSCIOUSNESS

FREE WILL

HAPPINESS

SUCCESS

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