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# Unit 1: Self-Awareness Area of Focus 1.01: Understanding Your Brain Lesson Plan

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## Focus Outcomes

Students should:

- Gain a basic understanding of how the brain works, how it affects how we learn, how our emotions work, and how we gain experiences

## Understanding Your Brain Introduction

### Definition:

Your brain is an organ of soft nervous tissue contained in the skull of vertebrates, functioning as the coordinating center of sensation and intellectual and nervous activity. To understand your brain is to understand how it works, how it facilitates learning and cognitive ability, how it perpetuates personality and emotional response, and a host of other functions and capacities.

### Focus Introduction:

Understanding your brain means to understand everything about you. Your brain controls your body the way you control your car. Without it, we are just vessels that cannot move, cannot feel, cannot live. Your brain controls your emotions, your passions, your dreams, and your fears. So how do we understand all of the functions with which our brains control? The short answer is that we cannot fully. The opening quote says it all. If we could understand everything about our brains, they would be too small for us to actually understand our brains. That is a little confusing, but what we want you to understand is that we are learning more about our brains every day. Scientists are unlocking more and more knowledge about neuroscience, however we

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still have a very limited idea of its true capabilities. What we do know is that our brains are one of the most amazing miracles of life, and to understand how our unique brain works is to begin to understand our very natures.

### Growth Mindset:

The brain is the most unique part of the human body, and one of the most unique parts of the entire of existence in the universe. One of the most amazing parts of the brain is called neuroplasticity. At one time, neuroscientists believed that the brain develops in early childhood and, at a certain point, stops developing and we stop being able to make neural pathways, i.e. learn anything new. However, research done in the 20<sup>th</sup> century made the discovery that the brain actually can be altered well into adulthood. So, in essence, we can learn new things at any time in our lives. The growth mindset, therefore, is scientifically correct in its posit that anything can be learned by anyone regardless of natural ability. We just have to try.

### Growth Mindset Questions:

- What is something that you have always wanted to learn to do?
- What is holding you back from following this interest?

### Teacher Guidelines:

- Introduce students to the brain and its many capabilities.
- Discuss the Growth Mindset and how it applies to their lives, and have them answer the questions in their workbook.
- Go over the lesson outcomes and what you expect them to learn about their unique brains.

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## Lesson 1. Your Unique Brain

Lesson One	Your Unique Brain
<p><b>Introduction</b></p>	<p><b>Lesson Introduction:</b></p> <p>Sometimes we can forget just how amazing our brains really are. The latest estimate is that our brains contain roughly 86 billion brain cells, a collection of neurons, which relay messages from the brain to the rest of the body about how it is feeling, what it is thinking, and what it is doing; the others are called glial cells, and they have many functions that optimize the function of the brain. Each neuron connects with, on average, 40,000 synapses, which are structures that permit a neuron to pass an electrical or chemical signal to another neuron. You can find more interesting brain facts at <a href="http://bebrainfit.com/human-brain-facts/">http://bebrainfit.com/human-brain-facts/</a></p> <p>Your brains, as teenagers, are still growing. Scientists say that our brain doesn't fully develop until we turn twenty-five. But what this means is that you are still growing and you can still use this to your advantage. Knowing how your own brain works, for we all have unique brains with unique properties, is essential to fully understanding yourself and your potential.</p> <p><b>Teacher Guidelines:</b></p> <p>Have your students read the introduction in their workbook and, for a few minutes, discuss with them about the unique abilities of their brains. In this lesson, students will be learning:</p>

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	<ul style="list-style-type: none"> <li>• How the brain makes connections</li> <li>• How each brain is unique through development and experience</li> <li>• About left/right brain orientation</li> </ul>
<p><b>How Does It Affect Me Personally?</b></p>	<p>Have your students take the <a href="#">Right Brain/Left Brain Assessment</a>, which will tell them which hemisphere of the brain is their dominant side. What this assessment does is explain how our brains process information uniquely. Left-dominant people are more logical and critical in their thinking, favoring math and sciences. Right-dominant people are more emotionally-minded. These people tend to be better with people and more creative, favoring the humanities.</p> <p>Explain to them that just because this assessment says they are one-hemisphere side-dominant does not mean that they have to follow this direction. This is merely to show them where they are and where they can go. Once they finish the assessment, have your students answer the questions in their workbook.</p> <ul style="list-style-type: none"> <li>• Which brain hemisphere did the assessment say you favor (or are you in the middle)?</li> <li>• What does this tell you about your brain and how it receives information?</li> <li>• With this information, are you pulled more to follow the direction this points you in (with regards to a career or college major)? Or would you rather follow your own path?</li> </ul>

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	<ul style="list-style-type: none"> <li>• Did this assessment help you understand your brain more fully? Why or why not?</li> </ul>
<p><b>Tools for Learning</b></p>	<p><b>Tools for Learning:</b>  <a href="#">How the Brain Works</a> (9:05)</p> <p><b>Video Background:</b>        This video teaches about how your brain functions in a simple but educational way.</p> <p><b>Section Questions:</b>        Give two examples of how the brain works that you learned from this video.</p> <p><b>Teacher Resources:</b>  <a href="#">The Mysterious Workings of the Adolescent Brain</a> (14:26)- the speaker in this video discusses how the impulsive and moody behavior of teenagers is caused by their developing frontal cortex.</p> <p><a href="#">How The Mind Works</a> (12:52)- this video discusses the different ways that our mind processes information and makes decisions.</p> <p><a href="#">How to Teach Your Kids About the Brain</a>- this article seeks how to teach adults how to interact and share with children about their brain and how it functions.</p> <p><a href="#">7 Habits That May Actually Change the Brain</a>- this article explains a few ways that we can take better care of our brains through mindfulness</p>

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<p><b>Innovation</b></p>	<p><a href="#">Interactive Brain Model</a> - Have your students build a model brain on their own, labeling each section of the brain and telling its function.</p>
<p><b>Know Your Quote</b></p>	<p>Have your students read the quote from Emerson M. Pugh and answer the questions in their workbook.</p> <p><i>"If the human brain were so simple that we could understand it, we would be so simple that we couldn't."</i> -- <b>Emerson M. Pugh</b></p> <p><b>Section Questions:</b></p> <ul style="list-style-type: none"> <li>• In your own words, what does this quote mean?</li> <li>• Give one example of a part of your brain that you find interesting or unique.</li> </ul>
<p><b>Mindful Moment</b></p>	<p><b>Mindful Moment Reading Passage:</b>  <a href="#">5 Ways to Nourish Your Brain</a></p> <p><b>Teacher Guidelines:</b>        Have your students read the article on their Mindful Moment Handout, which gives five mindful practices that will keep your brain healthy. Once they finish, have them answer the questions in their workbook. You can discuss with them what they learned or what you took from the article more in depth if you choose/have time.</p> <p><b>Section Questions:</b></p> <ul style="list-style-type: none"> <li>• How does mindfulness (more specifically, mindful meditation) reduce stress in our brain?</li> <li>• Why is it important to exercise to keep a healthy brain?          What is the importance of serotonin in the brain?</li> </ul>

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	<ul style="list-style-type: none"> <li>● What are some ways that continued learning helps keep our brain healthy?</li> <li>● How can we be mindful of what we eat and drink? How does this affect our mental health?</li> <li>● How does socializing affect our mental health? How can having various social connections stave off mental disorders?</li> </ul>
<p><b>From “Me” to “We”</b></p>	<p><b>Activity:</b> Eyewitness</p> <p><b>Directions:</b> Plan to have someone (a teacher or a student) come into your class. Let's call this person, "X". X should plan on doing several things in class such as:</p> <ul style="list-style-type: none"> <li>● Change the time on the clock</li> <li>● Take a book and put it in a bag</li> <li>● Erase the chalkboard</li> <li>● Close a window</li> <li>● Talk to someone</li> </ul> <p>Before X comes into the room, have all of the students working or reading at their desks. When X comes into the room, most of the students will be curious about what he or she is doing. After X leaves the room, have the students write down all the things that happened. (You can do this immediately after X leaves or sometime later). Once everyone has finished writing, find out what everyone remembers and what they did not.</p>

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	<p>What details do they recall? What did X wear? How long was X in the room? What book did X take? Who did X talk to? What did X say? You may even ask some leading questions to influence memory. For example, if X was not wearing a hat, ask, "What color hat was X wearing?". Compare how everyone's memory was the same and different. Explain that our brains have a unique function that fills in memory when we don't actually remember seeing something. That is why when there are multiple witnesses to a crime, many times they will have conflicting stories. Sometimes a witness will "remember" something because they heard another person say it.</p> <p>If you have time, have your students read this article about memory: <a href="#">Exceptional Memory Explained: How Some People Remember What They Had for Lunch 20 Years Ago</a></p>
<p><b>Research</b></p>	<p><b>Research Topic:</b>        Have your students visit <a href="#">Language and the Brain</a> and write a summary of one of the articles they find there.</p>
<p><b>Deeper Learning</b></p>	<p><a href="#">Brain Games</a>: these are some games that you can have your students play to test out their cognitive skills</p> <p><a href="#">Split Brain Activity</a> - this site has a right/left brain interactive activity that could be fun for your students</p>

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