Name: _____ ID#:_____ Date: _____

Lesson# 3

How Does Our Brain Learn?

Layer 1: Collect Prior Knowledge

Scorecard Preview

Directions: Rate yourself on the following scale.

Note: The ratings below do NOT have to *exactly* match to the Scorecard completed at the beginning of the course.

#	Do you..	Pre-Score Always Sometimes Never
4	Think your intelligence and abilities cannot change over time?	1 2 3 4 5
5	Study just to pass tests rather than to truly learn the information?	1 2 3 4 5
6	Give up easily when tasks become difficult instead of trying new strategies to overcome challenges?	1 2 3 4 5

Investigation

Directions: Follow the prompts in the course to fill in the boxes, below.

A	B
C	D
E	F

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How Does Our Brain Learn?

Layer 2: Connect New Information

Key terms

The following terms and concepts are introduced in this lesson:

- **fixed mindset**: Belief that intelligence and talents are unchangeable traits. Avoids challenges and views failure negatively.
- **growth mindset**: Belief that abilities can improve through effort. Embraces challenges and sees failures as learning opportunities.
- **The Brain Circuit™ Model**: Concept comparing the brain to electrical systems, where learning involves linking new information to what is already known.
- **neurons**: Nerve cells that transmit information through electrical signals.
- **prior knowledge**: Information already known that helps integrate new knowledge.
- **learning in layers**: Building knowledge gradually in short, stacked sessions to develop a complex understanding.
- **emotional center**: Brain area that processes emotions; reacts to threats and pleasures, which either interrupts or supports learning.
- **Front Brain**: Manages conscious thought, decision-making, and short-term memory, important for planning and organizing.
- **red zone**: Brain's state of alert for danger, prevents learning.
- **yellow zone**: Default, "neutral" state where the brain is calm, yet always ready to respond to threats.
- **green zone**: Optimal learning state characterized by joy and relaxation, enhancing information uptake.
- **Back Brain**: Handles subconscious processing and long-term memory storage, efficient in energy usage.
- **short-term memory**: Capacity to hold small amounts of information briefly in the Front Brain.
- **long-term memory**: Stores information for long durations, managed by the Back Brain.
- **memorizing**: Process of storing short-term information without deep understanding, leading to easy forgetting.
- **learning**: Process of acquiring and applying knowledge by connecting new and existing information, supported by the brain's neural networks.

Sections

This lesson includes the sections below. Use this information to guide your note-taking and track your progress through the lesson.

	A. What is your mindset… fixed or growth?
	B. The Brain Circuit™
	C. Learning IS connecting
	D. Learning happens in layers
	E. Three brain sections that drive learning

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Lesson# 3

How Does Our Brain Learn?

Layer 3: Confirm Understanding

Apply + Practice — Connect new terms

The activity below is based on the principle that all learning connecting new information to prior knowledge. Even if these terms are new, their definitions provide the necessary background. By connecting these terms, we actively process them and anchor them in our long-term memory.

Directions: In the blank spaces below, form a sentence by writing a phrase that connects the two words/phrases on opposite ends of each row. Several examples are provided for further clarification.
(This activity is a prelude to concept maps, a strategy introduced in Lesson 13.)

neurons Nerve cells that transmit information through electrical signals.	are electrical connections in the	**The Brain Circuit™ Model** Concept comparing the brain to electrical systems, where learning involves linking new information to what is already known.
learning Process of acquiring knowledge by connecting new and existing information, supported by the brain's neural networks.	lasts much longer than	**memorizing** Process of storing short-term information without deep understanding, leading to easy forgetting.
short-term memory Capacity to hold small amounts of information briefly in the Front Brain.	Is what we use when we are	**memorizing** Process of storing short-term information without deep understanding, leading to easy forgetting.
short-term memory Capacity to hold small amounts of information briefly in the Front Brain.		**Front Brain** Manages conscious thought, decision-making, and short-term memory, important for planning and organizing.
long-term memory Stores information for long durations, managed by the Back Brain.		**learning** Process of acquiring knowledge by connecting new and existing information, supported by the brain's neural networks
Back Brain Handles subconscious processing and long-term memory storage, efficient in energy usage.		**learning** Process of acquiring knowledge by connecting new and existing information, supported by the brain's neural networks
prior knowledge Information already known that helps integrate new knowledge.		**learning** Process of acquiring knowledge by connecting new and existing information, supported by the brain's neural networks

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Lesson# 3

How Does Our Brain Learn?

Layer 3: Confirm Understanding

Apply + Practice — Connect new terms – page 2 of 2

The activity below is based on the principle that all learning connecting new information to prior knowledge. Even if these terms are new, their definitions provide the necessary background. By connecting these terms, we actively process them and anchor them in our long-term memory.

Directions: In the blank spaces below, form a sentence by writing a phrase that connects the two words/phrases on opposite ends of each row. Several examples are provided for further clarification.
(This activity is a prelude to concept maps, a strategy introduced in Lesson 13.)

Back Brain Handles subconscious processing and long-term memory storage, efficient in energy usage.	makes connections when we are	**learning in layers** Building knowledge gradually in short, stacked sessions to develop a complex understanding.
fixed mindset Belief that intelligence and talents are unchangeable traits. Avoids challenges and views failure negatively.		**growth mindset** Belief that abilities can improve through effort. Embraces challenges and sees failures as learning opportunities.
fixed mindset Belief that intelligence and talents are unchangeable traits. Avoids challenges and views failure negatively.	triggers negative feelings in the	**emotional center** Brain area that processes emotions; reacts to threats and pleasures, which either interrupts or supports learning.
growth mindset Belief that abilities can improve through effort. Embraces challenges and sees failures as learning opportunities.		**emotional center** Brain area that processes emotions; reacts to threats and pleasures, which either interrupts or supports learning.
red zone State of alert for danger, prevents learning. **yellow zone** Default, "neutral" state where the brain is calm, yet always ready to respond to threats. **green zone** Optimal learning state characterized by joy and relaxation, enhancing information uptake.		**emotional center** Brain area that processes emotions; reacts to threats and pleasures, which either interrupts or supports learning.

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Lesson# 3

How Does Our Brain Learn?

Layer 3: Confirm Understanding

Scorecard Review

Directions: What solutions have you learned to resolve each problem, below?

For each statement: rate yourself post-lesson, briefly describe a solution you learned, and calculate the difference from your pre-score.

#	Do you…	Solution	Post-Score (Always Sometimes Never)	+/- change from pre-score
4	Think your intelligence and abilities cannot change over time?		1 2 3 4 5 ☐ ☐ ☐ ☐ ☐	
5	Study just to pass tests rather than to truly learn the information?		1 2 3 4 5 ☐ ☐ ☐ ☐ ☐	
6	Give up easily when tasks become difficult instead of trying new strategies to overcome challenges?		1 2 3 4 5 ☐ ☐ ☐ ☐ ☐	

Rubric: Apply + Practice

Directions: This rubric is to help you and your teacher evaluate your progress on the Apply + Practice activity.

Criteria	Excellent (4)	Satisfactory (3)	Needs Improvement (2)	Poor (1)
Understanding of Concepts	Accurately connects all terms with deep understanding.	Connects most terms accurately with good understanding.	Some correct connections, limited understanding.	Incorrect connections, little understanding.
Clarity and Coherence of Sentences	Sentences are clear, logical, and well-explained.	Sentences mostly clear, minor issues.	Sentences lack clarity, often confusing.	Sentences unclear, incoherent.
Completion and Effort	Completes all parts thoroughly, high effort.	Completes most parts, good effort.	Completes some parts, minimal effort.	Completes few parts, little effort.

Total points: _____ /_____

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Lesson # 3

How Does Our Brain Learn?

Skill Demonstration Form

The purpose of this activity is to apply the information from this lesson to "real life" situations. It can be a stand-alone assessment and/or used as preparation for the end-of-course Exit Presentation.

Directions Complete the prompts below, in writing or with multimedia tools.
NOTE: As an alternative to this form, a digital portfolio is provided throughout the curriculum

Section #: _____ **Section Title:** _____

Chapter #: _____ **Chapter Title:** _____

1. What is the skill or topic you learned?
   (For example: taking notes, using a planner, communicating with teachers, etc.)

2. What is the name of the evidence and a short description?
   (Examples of evidence: a page of notes, a page from a planer, an email to a teacher, a photo of your organized binder or bedroom, etc.)

3. How does this evidence illustrate what you learned about this skill or topic?

4. How/why/when do you expect to use this skill or information in the future?

Rubric Evaluation guidelines are below.
(Your teacher will determine the total number of points possible.)

Score	Points Possible	Performance Indicator
		The evidence provided demonstrates an understanding of the concept/strategy.
		The evidence provided demonstrates appropriate application to a current setting.
		The description of a future application demonstrates an understanding of the potential use for this concept/strategy.
_____	_____	**Comments:**