

GROW YOUR PALS PROGRAM GUIDE



THE NATIONAL FFA MENTORING PROGRAM

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LESSON 3.37

Brain Power

Unit:
MISCELLANEOUS

PRECEPTS

- J. Mental Growth
 - J7. Practice sound study skills

NATIONAL STANDARDS

- NL-ENG.K-12.4 – Communication Skills
- NL-ENG.K-12.12 – Applying Language Skills
- NS.5-8.1 – Science as Inquiry
- NS.5-8.6 – Science in Personal and Social Perspectives
- NT.K-12.5 – Technology Research Tools



Lesson Type:
One-on-One

STUDENT LEARNING OBJECTIVES

As a result of this lesson, the student will ...

- Describe how **repetition** allows the brain to learn.
- Explain how the brain works.





TIME

Instruction time for this lesson: **10-15 minutes.**



RESOURCES

Brain and Nervous System. (2009). Kid's health. Retrieved January 31, 2010, from Kid's health website: http://kidshealth.org/parent/general/body_basics/brain_nervous_system.html#

National FFA Organization. (2003). LifeKnowledge Precepts and Signs of Success.

Enrichment Activities – The Human Heart. (2010). The Franklin Institute. Retrieved January 31, 2010, from The Franklin Institute website: <http://sln.fi.edu/biosci/activity/bio-4.html>



TOOLS, EQUIPMENT AND SUPPLIES

- ✓ Stopwatch
- ✓ Jigsaw puzzle with no more than 12 pieces
- ✓ Scissors

KEY TERMS



The following term is presented in this lesson and appears in ***bold italics***:

Repetition



CONTENT OUTLINE

Objective 1. | Describe how *repetition* allows the brain to learn.

I. Learning through ***repetition***

A. ***Repetition*** – performing an action over and over

1. The more frequently we perform a task, the easier it becomes
2. Brains learn by doing
3. Each time a task is repeated, nerve cell connections in the brain are strengthened
4. The brain does not have to figure out a problem from the beginning if it has already learned how to get to the answer

Objective 2. | Explain how the brain works.

II. How the brain works

A. The brain is like a computer that controls all bodily functions

1. A message comes into the brain and the brain tells the body how to react
2. Many messages occur because of our senses
 - a. Touching a hot stove
 - b. Hearing glass breaking
 - c. Smelling something burning
 - d. Seeing storm clouds in the sky

INTEREST APPROACH



Think about studying for a quiz or a test.

Pause for a few seconds.



There are many different ways to prepare. What are the different things you do when you are studying that help you remember?

Allow one minute for a discussion about how the mentee studies for a test. Tell some of the things that you do if the mentee has difficulty.



We do some of the same things when preparing for tests. One thing that is most helpful is repeating actions, such as reading over notes again and again, writing out words, drawing pictures, etc. These things help the brain learn. Today, we will see how **repetition** helps the brain learn and then discuss how the brain works. While this may be a little confusing, hopefully you won't be puzzled long.

SUMMARY OF CONTENT AND TEACHING STRATEGIES

OBJECTIVE 1. | Describe how **repetition** allows the brain to learn.



What does the word **repetition** mean?

*Pause and allow the mentee to respond with his/her definition of the word...ask the mentee to give examples of **repetition**.*

I. Learning through **repetition**

A. **Repetition** – performing an action over and over



Great. So we know that **repetition** means to perform an action over and over, but how could this possibly help the brain learn?

Pause and allow the mentee to respond with his/her ideas, then continue.



Good thoughts. The more frequently we perform a task, the easier it becomes for us to do. This is because the brain learns by doing. Each time a task is repeated, nerve cell connections in the brain are strengthened. If the brain has already learned how to get to the answer, then it does not have to figure out how to solve a problem from the beginning.

1. The more frequently we perform a task, the easier it becomes
2. Brains learn by doing
3. Each time a task is repeated, nerve cell connections in the brain are strengthened
4. The brain does not have to figure out a problem from the beginning if it has already learned how to get to the answer

Here is an example. When learning how to add at a young age, it might take a little longer to figure out that $2 + 2 = 4$. However, now that we have worked that problem so many times, it seems that we know the answer without even thinking about it. This is because we have repeated that problem many times. It might be easier to understand this concept by using a puzzle.

Spread out the jigsaw puzzle in front of your PALS. Tell him/her you are going to demonstrate how the brain can learn. Have your PALS assemble the puzzle as quickly as possible while you time him/her. Record the time. Have your PALS repeat the procedure two additional times. Review the times and notice that the times decreased with practice.



Now that we have witnessed how repetition can help the brain learn, we should talk about how the brain works.

OBJECTIVE 2. | Explain how the brain works.



II. How the brain works

A. The brain is like a computer that controls all bodily functions

1. A message comes into the brain, and the brain tells the body how to react



There are many examples of messages coming into our brain. Often, these messages are the result of our senses. Let's think about some messages that might come into our brain and how our brain might respond.

2. Many messages occur because of our senses

If our fingers touch a hot stove, the nerves in our finger tips would send a message to the brain that the stove was hot. How would the brain respond?

Allow the mentee to respond.



Good work. Now, which of our senses would send a message to the brain if we heard glass breaking?

Allow the mentee to respond.



Excellent. Another sense that we rely on is our sense of smell. If we smelled something burning, what might our brain tell us to do?

Allow the mentee to respond.



OK, one more example. If we use our sense of sight and see storm clouds forming in the sky, what message might our brain send back?

Allow the mentee to respond.



Great work! We have talked about how **repetition** helps the brain learn and how the brain receives and sends messages throughout our body. Now, we will review these concepts.



REVIEW / SUMMARY

Use the Eye Witness News e-Moment® to interview your mentee about how the brain works.



Let's pretend that you are a scientist who knows all about the brain. I will be a news reporter and am going to interview you, the brain expert, about how the brain works and will ask for examples in the interview.

Ask the following questions in the interview:

1. *I understand that **repetition** helps the brain learn – explain why this is, please.*
2. *What are some examples of how people might use **repetition** to learn?*
3. *This is fascinating information – how does the brain process all this information?*

APPLICATION



Large Group Idea

Visit the website http://kidshealth.org/misc/movie/bodybasics/bodybasics_brain.html and view the interactive brain diagram.



Small Group Idea

Have the student draw a picture that represents an action that would cause a message to be sent to the brain, such as touching a hot stove, and then ask the student to identify which sense would be responsible for the message. Explain a probable reaction.

PALS3.37.ONE.ASSESS.A | EVALUATION ANSWER KEY

The mentee should explain that your brain does not have to figure out a problem from the beginning if it has already learned how to get to the answer.

Answers to the question will vary. Possible answers include:

1. The eyes told the brain what the shapes are.
2. The brain told the fingers where to put the shapes.



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Have the student switch roles and play as if you are the mentee and he/she is the mentor. They will time you as you complete the puzzle activity and explain to you why you are able to complete the puzzle faster each time. After the puzzle activity, ask the mentee: What messages may have been sent to and from the brain when working the puzzle?