This worksheet focuses on some of the most recent research on how brains work and what makes learning last longer in the brain.

**Myth 1: Re-reading a textbook or notes over and over again helps you to learn material.** FALSE. Research shows that this is one of the most popular, but least effective strategies for test scores.

**Myth 2: Practicing the same type of problem over and over again is the best way to learn something.** FALSE. During the practice session, it is easier, but the learning doesn’t last. Students do better on tests and in athletics when they mix up the kinds of problems/skills they are practicing and space out their practice over several days.

**Improving Memory and Learning**

**Setting the Stage for Improved Memory:**

1. Get enough sleep. On average, we need 7-9 hours to consolidate memories and move information into long term memory.
2. Exercise. Regular exercise is shown to change the brain (make you smarter) and improve memory and thinking skills.
3. Study in regular blocks of 40-60 minutes. This is how long research shows most brains can focus for. Take short breaks (10 min) between blocks.
4. Study at your best times of day, if possible (morning, afternoon, night).
5. Change the location where you study or recall information to improve your ability to recall during a test.

**Strategies that help create longer lasting memories of material:**

1. **Space out your studying.** It’s more effective to study new material in 30 minute chunks on Monday, Tuesday, Thursday, and Sunday than to spend 2 hours on a single day during the week.
2. Review within 24 hours of learning something new. **Review through recall!** Can you find the information in your memory? (Quiz yourself, do homework without looking at your textbook, use flashcards, summarize your lecture to a friend, etc.)
3. **Mix up your studying.** Study just long enough to feel like you’ve got a grasp and then switch to another topic, concept or type of problem, and then return to the
original content in a later study session. This is especially important for problem-solving. The goal is to find connections, similarities and differences between what you’re studying. The learning will seem harder and take more effort, but you will retain it for longer. Research shows this works for both sports and academics.

4. **Elaborate** on the material. Ask yourself why and how questions about the material and explain it to yourself.

5. **Study in groups.** You’ll have an opportunity to teach others what you know, hear alternate explanations/examples, create test questions for each other, etc. Teaching others also reveals what you truly understand.

6. **Associate** new information with what you already know - link it to personal experiences, link theory to real world examples, associate it with content from other courses, and imagine how you will apply it.

7. **Use multiple senses** (visualization, saying, hearing, touching, doing) to anchor the memory in more than one location of your brain and improve your ability to recall.

**Memorization Techniques**

- Flashcards (mobile apps can also be useful - Anki and Quizlet are free, highly rated flashcard apps). Flashcards are most effective when you make your own.
- Mnemonics (like “ROY G BIV” to remember the colours in the rainbow, or “RICE” – rest, ice, compression, elevation to recall the steps to treat a muscle injury), rhymes, or songs
- Pictures / visual images/ diagrams paired with information
- Chunking information – create categories to help you remember large sets of information by breaking it into smaller sets with a theme. For example: sorting or grouping information or terms by category, location, time, function, alphabet, continuum, etc.
- Graphic organizers – create your own (new) structure of the information you are trying to learn. It helps you understand how ideas or information is related. Examples of graphic organizers are Venn diagrams, flow charts, mind maps, comparison tables, hierarchical diagrams, etc.
- Overlearn – do more than the assigned problems. Look up additional sources on the same topic.

Adapted from:


https://www.brainscape.com/blog/2012/10/breakthroughs-science-of-learning-2/