**A Journey into Memory**

**Topic: Memory and the Brain**

**Developed by:** CUNO graduate students, Michael Cohanpour

**Grades:** 6-8 (adaptable)

**Vocabulary words:** long-term memory, short-term memory, priming, attention, amnesia, savant, hippocampus, spatial navigation, grid cells, place cells, false memory

**Materials:** Brain bank, gloves, laptop, PPE, made worksheets for students

**Time needed: 1 hour**

Introduce myself and “what is neuroscience broadly” (2 min)

What is memory? What are the types of memory? (10 min)

What is short-term memory? (5 min)

Experiment 2: Short-term memory chunking experiment (5 min)

Video 1 (3 min)

Experiment 3: False Memory experiment (5 min)

What is long term memory? HM. (5 min)

Video 2 (5 min)

Memory in research; rodents, spatial navigation (10 min)

Brain Bank (10 min)

Farewell (2 min)

~ 1 hour

**Links:**

1: <https://faculty.washington.edu/chudler/chmemory.html>

2: <https://www.youtube.com/watch?v=Vwigmktix2Y>

3: <https://www.youtube.com/watch?v=iXrvL7IlEtw>

**Summary:** How does memory work? How much do we remember? In addition to answering these relevant questions, this lesson plan will present research on the accuracy of memories, how memories can change, and how the brain allows for different types of memory. Students will also see some real-life examples of patients with various memory deficits. They will also have the opportunity to perform ‘experiments’ in pairs.

**Prerequisites for Students:** No previous experience in psychology or neuroscience is required.

**Learning Goals:** Teach about memory, types, get some hands-on experience, and see some awesome real-life examples. The goal of this lesson is to provide both content and critical thinking activities and exercises to foster a curiosity for the study of memory.

**Background for instructor:**

* Put together relevant ppt, brush up on whole brain anatomy and broadly, the different parts important for different types of memory
* [note: really focus in on activities and having these be well-executed; students love this interactive learning]

**Set-up:** Projector with laptop, brain-bank, worksheets, and different ‘experiment’ materials

**Lesson Outline:**

1. What is memory? Ask the students what are some things you need memory for? Morale of the story: everything. How limited our world would be without memory. It’s so pervasive.
2. Broadly, what are the types of memory: long-term memory, short-term or working memory, procedural memory, sensory memory. Elaborate on the ‘multiple systems model of memory’
3. Introduce short-term memory now (other lesson plan didn’t do this, I think. It was still good though) ) Explain to students that once their brains select the information, it goes into short-term memory. Point out that short-term memory can only hold a limited amount of information;
4. Some type of chunking experiment, still working this out; can use link 1.
5. Show Clive wearing video for memory, use link 2
6. What is a false memory? Do the false memory experiment with the students: Sometimes your brain makes up its own memories. Try to "implant" a memory by asking people to remember the words on list 1. Wait about five minutes, then probe their memory by asking them which words on list 2 they remember
7. Introduce long-term memory, HM, and the hippocampus
8. Now get into the memory savant video, use link 3
9. Introduce spatial navigation and rodent memory experimentation; give some famous examples. Introduce the idea of why rodents are important for neuroscience more broadly!
10. Lastly, brain bank. Point to the different areas involved in memory

**Wrap-up, final thoughts**: There is a lot that is introduced here, but reinforce the idea that there are different types of memory that may be implemented differently in the brain. Give them food for thought, ask them if they have any questions, give them additional resources moving forward.