

DO IT!

Memory!

Declarative Memories are memories of what we have learned about people, events, and facts. Declarative memories are processed using the hippocampus and cerebrum. Procedural Memories (memories that involve how to do things, like riding a bike, cooking, tying your shoes) are stored separately from declarative memories in the brain. There are many strategies for improving performance of declarative memories. These strategies are called mnemonic techniques.



You'll Need

- 1) Paper
- 2) Pencil
- 3) Tray or Plate
- 4) 20 Small Random Items (marbels, buttons, coins, small toys etc)

Smart Start

Before starting this activity, prepare one tray with 20 random items for each group. Each tray should have a different assortment of items (groups will be rotating trays during this activity). Take a photo of each tray, to use as a reference later in your program (see follow-up).

- 1. Discussion.** Start a discussion with students about memory. What do they know about memory? What kinds of memories do we have? (discuss declarative vs procedural memory). In this activity, we will be investigating our declarative memory.
Each student should have paper and pencil. Students will be sitting in groups of 3 or 4.
- 2. Trial 1 [no memory aid]**
 - Give each group of students one tray of items.
 - Students will have 3 minutes to try to memorize all of the items on their tray. For the 3 minutes, they will sit silently. No writing or talking.
 - After the 3 minutes is up, the teacher should cover and collect the trays. Then each student should try to write down as many items as they can remember.
 - Students will then count the total number of items they remembered.
- 3. After completing Trial 1.** Have a discussion: are there ways to make it easier to remember something (mnemonic strategies)? What have they done before to help them remember things? (ex: Roy G BIV for colors of the rainbow, songs, rhymes, etc)

Now we will do 2 more trials while using different techniques to help remember the items. Your group will have a different assortment of items, but the same amount of time for each trial.

4. Trial 2 [Grouping]. Rotate the trays around the classroom so that each group has a different set from before.

- This time, members of each group will work together to sort or group items in a way that is meaningful to them.
- Then they will try to memorize the items.
- Students will still only have a total of 3 minutes for grouping and memorizing
- After the time is up, students should cover the trays and write down the items they can remember.
- Students should record the total number of items they remembered. Was it more or less than trial 1?

5. Trial 3 [Using a word or phrase]. Rotate the trays around the classroom so that each group has a different set from before.

- This time, members of each group will work together to construct an acronym or funny phrase based on the items on their tray.
- Then they will try to memorize the items. Students will still only have a total of 3 minutes.
- After the time is up, students should cover the trays and write down the items they can remember.
- Students should record the total number of items they remembered. Was it more or less than trials 1 and 2?

6. Trial 4 [Optional]. If there is time and enough trays of materials, allow students another trial where they use a mnemonic strategy of their own.

7. Compare. Have students compare and discuss their results for the different trials by making a chart or graph. Are there differences between the results of the trials? What worked best? Was it the same for everyone? How is this information useful? Can you think of ways to use this in your everyday life?

8. Discussion. Declarative memories, like lists of information, facts, and events are produced using the hippocampus and cerebral cortex (outermost layers of the cerebrum). Ask students what they think would happen to the memories of a person who had part of their brain removed or damaged?

DO IT!

9: Watch. Have students watch this TEDed video (5 min), which describes the role of the hippocampus in memory.

- It will relate their experiences from two activities they have done (mirror tracing and this memory activity) to the experience of a patient who had his hippocampus removed. <https://www.youtube.com/watch?v=KkaXNvzE4pk>.
- Have a discussion about how brain diseases (like alzheimer's) and brain injury can affect memory. Let students share their thoughts.

10: Follow Up [Optional]. After a few days, have students list the items they can remember from the 3 trays.

- How do these new lists compare to the original lists they made?
- Can they draw any conclusions about the different memory techniques?
- Video for nearpod training (11 minutes)- recommend they only watch part of it? https://www.youtube.com/watch?time_continue=141&v=27ZsQ9PjSW0