Memory

Objective: For kids to learn about how their brain makes memories and why they remember somethings but not others. and have fun testing their (and your!) memory

Materials:

mirror boxes (trace star in the mirror), laminated star image
dry erase marker and some kind of eraser
memory item box with towel to cover up items in the box
on computer, memory test: https://faculty.washington.edu/chudler/puzmatch.html

Experiment:

1. Use the memory item box. For younger kids, take out more items and/or items they might not know. Give them 1 minute to remember everything and encourage them to touch the objects or ask you if they don't know what something is.
2. After 1 minute: If they can write, give them pencils and paper to write down items they remember. Average is to remember 7 things and groupings of them. Our phone numbers are 7 numbers 728-7836 and then they're "chunked" into 3 and 4 numbers to help us remember them.

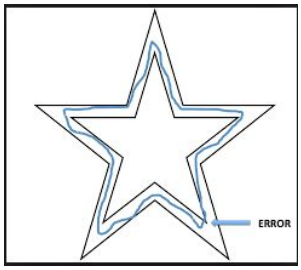
Did the visitors hurry to remember? that's because they know they'll forget if they don't do it right away. That's our working memory. it's 3-5 minutes. Without the hippocampus, that's all you can remember is 3-5 minutes to ago.

3. Now, use the same memory box but hide it from them and remove 1 object. (I try to pick an object that they remembered otherwise it's really hard).

4. Have them remove an object to test you! They love this part!

5. Play the memory experiment on the computer:
https://faculty.washington.edu/chudler/chmemory.html

6. Ask them if they know how to ride a bike or hop or skip. Did they always know how to walk, run and skip or did they have to learn when they were little? Their brain had to form memories of how to do these things. We call this motor or muscle memory. They can make new motor memories today by trying to trace the star keeping their pen in between the 2 lines of the star but using the mirror reflection.



Motor memories do not need the hippocampus to form. Famous experiment performed by Dr. Brenda Milner on the famous patient HM who had his hippocampus removed and could no longer form new memories about events and people and only had a working memory of 3-5mins. She would perform the tracing star experiment with him and each time he'd do it, he'd get better at it but he had no memory of ever having done it before.
Patient HM could remember his past life since those are stored throughout your brain. The hippocampus is 1 of 3 areas of the brain where we know new neurons are made once we're born. We used to think we were born with all the neurons we'd ever get. The new neurons move from the hippocampus to the areas of the brain where the memories are stored.

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DIY: Sleep Improves Memory!