

Memory and Brain Activities for Elementary School (Grades 2 – 6)

Primary Resources: The Franklin Institute at <http://www.proteacher.com/redirect.php?goto=5342>
Enchanted Learning at <http://www.enchantedlearning.com/subjects/anatomy/brain/>

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1. ENGAGEMENT ACTIVITY: Be an Eyewitness

Have you ever been an eyewitness to a crime? Is your memory of the crime the same as other people's recollection? Here is a way to explore eyewitness memory. Plan to have someone (a teacher or a student) come into your class. Let's call this person, "X." X should plan on doing several things in class such as:

- Change the time on the clock
- Take a book and put it in a bag
- Erase the chalkboard
- Close a window
- Talk to someone

Before X comes into the room, have all of the students working or reading at their desks. When X comes into the room, most of the students will be curious about what he or she is doing. After X leaves the room, have the students write down all the things that happened. (You can do this immediately after X leaves or sometime later). Once everyone has finished writing, find out what everyone remembers and what they did not.

What details do they recall? What did X wear? How long was X in the room? What book did X take? Who did X talk to? What did X say? You may even ask some leading questions to influence memory. For example, if X was not wearing a hat, ask, "What color hat was X wearing?" Compare how everyone's memory was the same and different. For discussion: Why do we remember some details and not others? What could we do to help us remember more about our experience with X? When is it important to remember details? When is it not as important? Why?

2. EXPLORATION ACTIVITIES

The following activities are structured as stations for small groups, but can stand alone and may be done with an entire class.

STATION A: Watch Your Brain Learn

The more frequently we are called on to do a certain task, the easier the task becomes. This is because our brain learns by doing. Each time we repeat a task, nerve cell connections in our brains are strengthened so the brain doesn't have to figure out a problem from the beginning each time. It has already learned how to get to the answer.

Materials: (1) a jigsaw puzzle of no more than 12 pieces; and (2) a clock with second hand.

Procedure: The first volunteer should be timed for one minute doing the jigsaw puzzle and record the score on the board – whether it is how long it took them to complete the puzzle if it was less than a minute, or how many pieces they completed in one minute. Have the same person do the puzzle two more times, timing her/him each time. Record times or pieces completed for each trial. Allow each group member a turn.

Discuss: How are the times different for each person? Did they complete more of the puzzle in a shorter amount of time with each successive try? If the answer is yes, it means the puzzle doer's brain learned how to do the task.

STATION B: Test Your Short-Term Memory

Materials: (1) a tray or plate; (2) 10-20 small items, such as erasers, pencils, coins, or marbles; (3) a cloth or towel; and (4) paper and pencils for your subjects to write down what they remember.

Procedure: Put the small objects on a tray, and cover them with a towel or cloth so they cannot be seen. Uncover objects for one minute so that the group can view them. Do NOT write down what you see – try to remember what all the objects are. After the objects are covered up again, try to write down all of the objects that had been on the tray.

Discuss: How many items did students remember? Were there any items that were forgotten by everyone? What made some objects easier to remember than others? What memory techniques were used to try to remember all of the items? What would have happened if more time had been given? Less time? What would have happened if there had been more objects? Would it have been more difficult? Easier?

Extension: One volunteer should remove one item from the tray. The group views the tray and guesses what has been removed. Try it again while removing three or four objects.

STATION C: How Big is a Brain?

Materials: (1) Table of Animal Brain Sizes (next page) and (2) calculators, pencils, and paper

Suggestions: Students can look up the average body weights of the animals listed in the table that do not have their body weights listed and use math to figure out the percent of body weight for each organism. Grams could all be converted to kg or vice versa. Discussion and further research could include: Is brain weight proportional to body weight? How do you know? What might be surprising from these numbers?

Animal Brain Sizes

ANIMAL	BRAIN WEIGHT (g)	BODY WEIGHT	% OF BODY WEIGHT
SPERM WHALE	7800 g	15 tons=30,000 pounds= 13500 kg	0.06 %
ELEPHANT	6000		
BOTTLE-NOSED DOLPHIN	1500 g	500 kg	0.3 %
HUMAN ADULT	1300-1400	150 pounds= 68 kg=68000 g	2 %
HORSE	532		
CHIMPANZEE	420		
HUMAN BABY	350 - 400		
DOG (BEAGLE)	72	9 to 18 kg	0.5 %
CAT	30		
SQUIRREL	22		
ALLIGATOR	8.4	250 kg	0.003 %
OWL	2.2		
RAT	2	400 g	0.5 %
TURTLE	0.3		
VIPER	0.1		
GREEN LIZARD	0.08		