Brain Injury & Safety

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Objectives:

- To educate kids and parents on the importance of protecting one's brain and how to do so
- Appreciate that different areas of the brain correspond to different functions
- Learn a few interesting examples of people with damage to certain brain regions

Materials and Supplies Needed:

Item	Quantity	Notes (Vendor, price, purpose, etc.)
Laminating sheets	10	For matching game cards can use sheet protectors as alternative
Lego building blocks	40	For helmet activity – to act as "lego brain" lego store sells loose lego pieces for ~$8 a bucket
Weigh boat	10	For making "helmets"
Bubble wrap/Foam		For making "helmets"
Poster board	1	For presenting introductory slides/figures
Index Cards	10	For matching game

Background Information / Activity Explanation:

The brain is arguably the most complex organ of the body as it controls every aspect of the body. Scientists over centuries have marveled at this complexity and have tried to understand the principles by which it operates. It has become apparent that the smallest injury to the brain can have detrimental consequences on brain function. The purpose of this activity will be to educate participants about the functions of the major brain regions and to convey the importance of keeping the brain healthy and safe.

3 activities will be featured:

1) Introduction: show a few examples (with illustrations) of brain injuries to specific areas and what deficits are observed.
2) Matching game: Using the same figures as shown in the introduction, laminated figures will be prepared. In addition, cards with words corresponding to each figure will be prepared. Participants will be asked to match up the words with the images.
3) Helmet game: drop a "lego brain" with and without a "helmet." See which one breaks apart more.

Procedures:

Introduction – see below for slides and content details. Print and paste slides onto a poster board. Walk through each participant through the introductory slides. Tailor the explanation to the target audience.

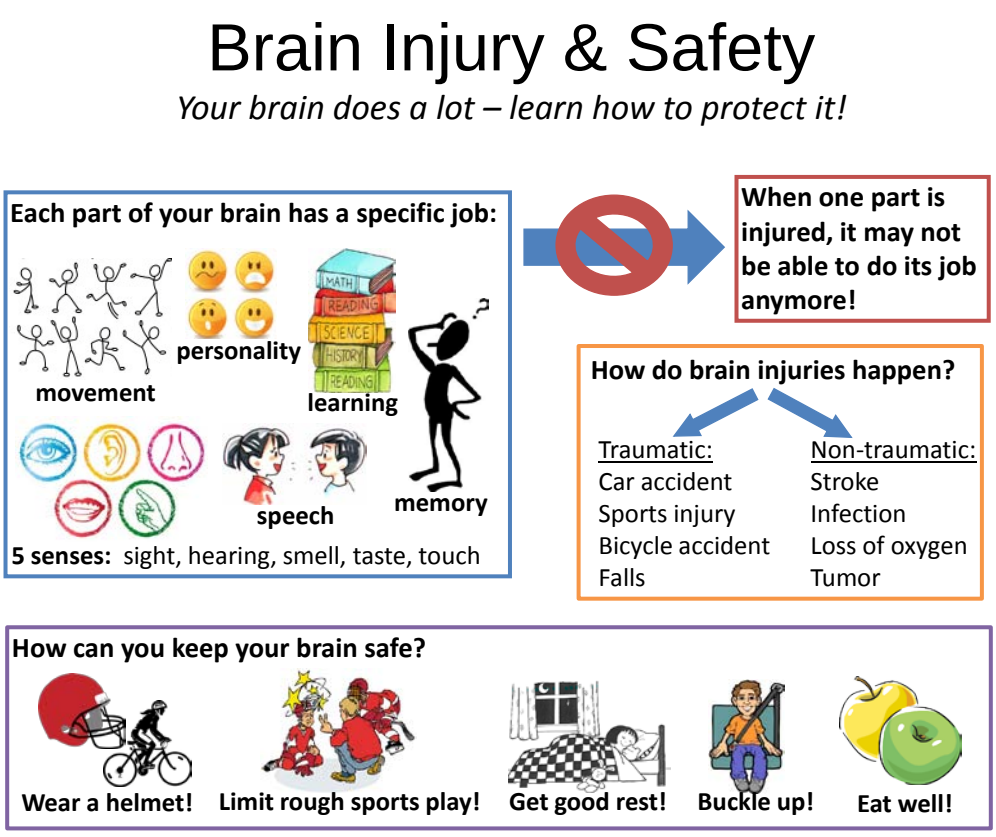
Matching Game – Print and cut out the figures from the introduction (see below). Laminate them or place them in a sheet protector. Prepare a set of cards with words/phrases that are descriptive of the figures (see below). Randomize the figures and the cards. Ask each participant to match up

the word cards with the appropriate figure. Because the same figures are used as in the intro, younger children should still be able to complete the game (let them refer back to introductory slides if they need help).

Helmet Game – Put a few lego pieces together to create a "lego brain." Make 2 sets (example below). Drop one of the lego brains and see how much the pieces break apart. With the next set, place it inside a "helmet" made out of various materials like plastic weigh boats lined with foam or bubble wrap. Drop the second lego brain and compare which lego brain breaks apart more, the one with the helmet or without the helmet. Depending on the number of people, time, and supplies, allow participants to build their own helmet. Emphasize to parents and kids about helmet safety.

Additional Information (advice, spiel, links, figures, etc.)

Introduction

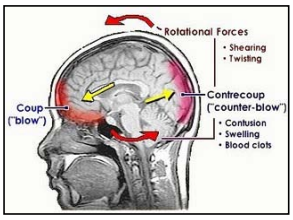


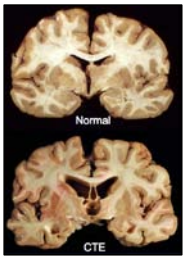
Concussion

Cause: Bruising of the brain, nerve or blood vessel damage

Symptoms: Confusion, nausea, loss of memory or consciousness

Case: Justin Bieber suffered a concussion from hitting his head on a glass wall



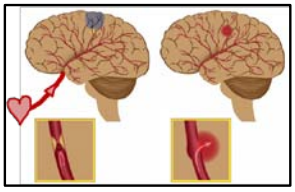


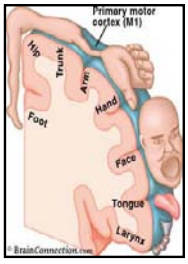
Stroke

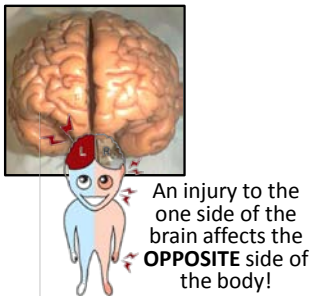
Cause: Blood vessel block or leak in the brain

Symptoms: Many; control of movement, speech, comprehension, etc. can be affected

Case: In 2012 Senator Kirk from Illinois suffered a stroke that affected his right motor cortex







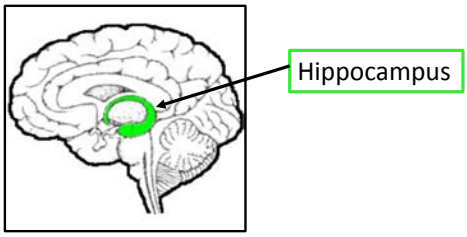
An injury to the one side of the brain affects the **OPPOSITE** side of the body!

Hippocampus Injury

Cause: Loss of oxygen, traumatic injury

Symptoms: Unable to form new memories, disorientation

Case: Patient H.M is one of the first cases of damage to the Hippocampus in the 1950s



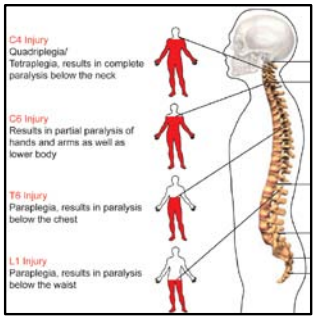
Declarative Memory

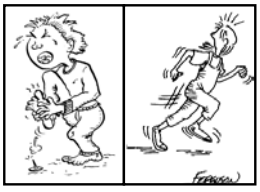
Spinal Cord Injury

Cause: Trauma, fall, car accident, inflammatory disease, etc.

Symptoms: Loss of the ability to sense or move parts of the body below the site of injury

Case: Amanda McGrory, an olympic marathoner became paralyzed when she was 5



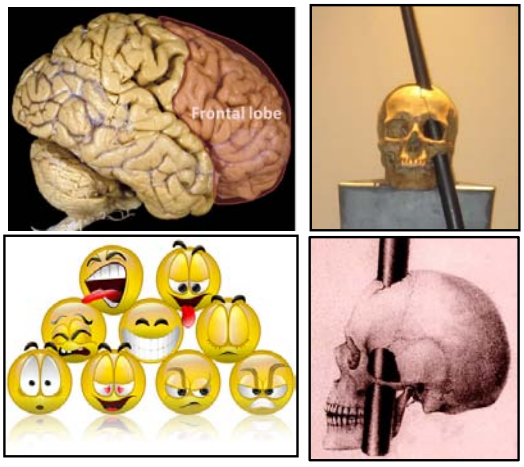


Frontal Lobe Injury

Cause: Trauma to the front of the head, car accidents, etc.

Symptoms: Personality changes, trouble in social situations, impulsive behavior

Case: In 1848 Phineas Gage was working on the railroad and a metal rod he was using exploded and shot through his frontal lobe

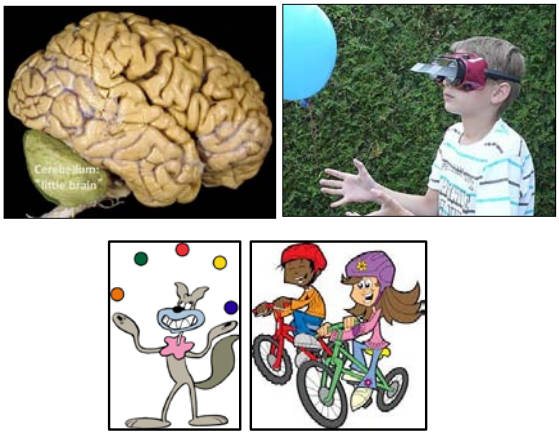


Cerebellum Injury

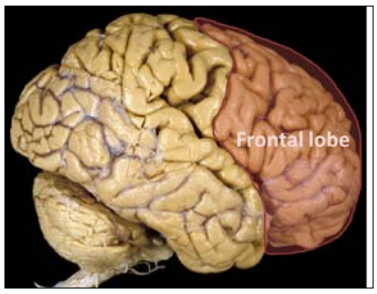
Cause: Trauma to the back of the head, car accidents, etc.

Symptoms: Trouble with coordination and balance, unsteady movements

Case: YOU! At the prism goggle activity today you will have the chance to experience temporary changes to the cerebellum

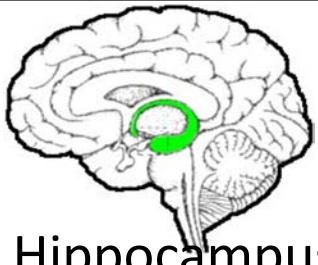


Matching Game
Sample matching sets – feel free to amend and/or make additional matching sets

Personality Planning	Phineas Gage
	
Movement	Senator Kirk
	

Declarative Memory

HM



Hippocampus

Adjusting movements

YOU!
(prism goggle station)

Movement Feeling

Amanda McGrory: Champion Marathoner

Example “Lego Brain” and helmet