



BRAIN BUSTERS - Protecting Your Brain

(3rd – 4th Grade Lesson)

Introduce yourself: Hi. I'm (*your name* - from the Children's Hospital at Bronson)
I'm here today to talk about the most important organ in your body.

ASK: Does anybody know what organ that is?

Allow children to respond: – your brain.

ASK: How do you remember the way to your friend's house?
Why do your eyes blink without you ever thinking about it?
Where do dreams come from?

EXPLAIN:

- Your brain is in charge of these things and a whole lot more.
- It's the boss of your body - like a master computer. It runs the show by controlling just about everything you do.
- It is working all the time – even when you are sleeping.

ASK: How big is a person's brain?

REFER TO BRAIN MOLD IN CASE:

- It's large and in charge - so large that it fills the upper half of your head.
- A person's brain is about the size of **2 fists**
- It's almost as heavy as a carton of orange juice! By the time you're grown up, it will weigh about 3 pounds
- It looks like a soft, wrinkly, gray sponge (this brain model is kind of orange)
- Let's take a look at the brain, it's main parts and why it is so important to take care and protect it.

PARTS/FUNCTION

The brain has 4 lobes or parts (Pass out parts to students in 1st /closest seats)

USE PUZZLE TO HELP WITH EXPLANATION OF PARTS:

The brain does a lot of amazing things.

I'm going to need your help.

I'm going to ask you to come up to the front of the room and put your piece on the puzzle and tell us what your piece says.

Lets start with the piece that says "FEELINGS and PERSONALITY"

ASK: Who has the brain puzzle piece "FEELINGS and PERSONALITY" please comes to the front of the room and puts the piece on the board (then return to their seat)?

Frontal Lobe (is right in the front. It's a common place for injuries)

This area of the brain controls:

- Our thinking and behavior:
- Our personality - how we act & react to things.
- AND Our emotions - how we feel about things –
 - ✓ Maybe you got the exact toy you wanted for your birthday, and you're really happy.
 - ✓ It's normal to feel all different kinds of emotions, good and bad. Sometimes you might feel a little sad and wonder why. And sometimes you might feel scared, or silly, or glad.
 - ✓ Or your little brother messed up your room, so you're really angry!
 - ✓ Have you ever wondered where those feelings come from?
 - ✓ They all come from your brain, which controls every emotion you feel.
 - ✓ Our ability to make decisions, planning, and judgment.

ASK: What might happen if you injured that part of your brain?

- ❖ Moods would change very quickly.
- ❖ Ability to get along with your friends
- ❖ Difficult time paying attention

ASK: Who has the brain puzzle piece “TOUCH, TASTE, SMELL” please comes to the front of the room and puts the piece on the board (then return to their seat):

Parietal Lobe

This area of the brain controls:

- Our touch and sensations – feeling of pressure, temperature and pain.
- Handling of objects/Eye hand coordination
- Our movement. Next time you're playing soccer and take a shot on goal, thank your healthy parietal lobe

ASK: What might happen if you injured that part of your brain?

- ❖ **Play video games (Jeopardy question)**
- ❖ It difficult to do Math problems

ASK: Who has the brain puzzle piece “HEARING” please comes to the front of the room and puts the piece on the board (then return to their seat):

Temporal Lobe

This area of the brain:

- Helps use to hear and recognize sounds
- Controls language, speech, listening, and musical ability.
- Controls memory

ASK: What might happen if you injured that part of your brain?

- ❖ Difficulty understanding someone when they spoke to you.
- ❖ Difficult to play video games

ASK: Who has the brain puzzle piece “SEEING” please come to the front of the room and put the piece on the board (then return to their seat):

Occipital Lobe

- Controls our sense of sight (our vision), color recognition, letter & word recognition.

ASK: What might happen if you injured that part of your brain?

- ❖ You would have difficulty reading & writing.

2 other major parts are:

ASK: Who has the brain puzzle piece “BREATHING, SWALLOWING, DIGESTING FOOD” please comes to the front of the room and put the piece on the board (then return to their seat):

Brain Stem

This is your brain’s secretary – it passes information from your body to the correct part of your brain.

This part of the brain:

- Controls all of the body functions your body needs to stay alive:
 - ✓ Like breathing
 - ✓ Swallowing
 - ✓ Digesting food
 - ✓ Circulating blood.
 - ✓ It controls your body temperature, blood pressure and pulse.
- **The brain stem connects the rest of the brain to the spinal cord, which runs down your neck and back. (Jeopardy question)**

ASK: What might happen if you injured that part of your brain?

- ❖ Injury would make it difficult to eat/You have be able to breath to eat!

Some of the messages go straight to the big boss (your brain), but a lot of them first go through a long bundle of nerves called the spinal cord. The spinal cord is inside your spine. Reach around and feel the bumps up and down the middle of your back - that's your spine.

Cerebellum (Jeopardy question)

ASK: Who has the puzzle piece BALANCE? Please comes to the front of the room and put the piece on the board (then return to their seat):

This part of your brain controls:

- Sense of balance, movement and coordination (how your muscles work together. Because of your cerebellum, you can stand upright, keep your balance, and move around.
 - ✓ Think about a surfer riding the waves on his board. What does he need most to stay balanced? The best surfboard? The coolest wetsuit? NOPE – he needs his cerebellum!

ASK: What might happen if you injured that part of your brain?

- ❖ Couldn't walk
- ❖ Difficult to pick things up with your hands.

HEAD AND BRAIN INJURIES

We've talked about how things can change if a part of your brain is injured.

ASK: How does a brain get injured & what kind of injury does it get?

EXPLAIN: (Show brain model in clear box)

Let's look at what's inside your head

- **Here's your skull. It's made of bone and protects your brain. (Jeopardy question)**

- The skull is about the thickness of this plastic box and like this piece of plastic – your skull can be broken.

Refer to brain mold:

Inside is a very fragile and kind of like jell-o object.

ASK: Does this look like it could be damaged easily?

EXPLAIN: You bet.
Even though it's inside your skull, it can be easily bruised or injured.
A brain reacts differently to injury than other parts of your body.

ASK: If you hurt your knee what happens? Yes, it gets better.

EXPLAIN: A knee or arm will heal quickly after an injury.
A broken bone will grow together & get stronger
A scrape or cut will form a scab and go away.

Damaged brains are NOT easy to fix.

- Every brain injury is very different and some are much more serious than others.
- Some people who suffer from a brain injury seem to get better very quickly.
- For other people, the effects of a brain injury can last throughout their entire lifetime.

ASK: Does everyone who hits his head get a brain injury?

EXPLAIN: No - Hitting our head does not always result in a serious brain injury. Although sometimes it might hurt really badly, most of the times when we hit our heads there is very little damage to the brain.

But if you hit your head hard – your brain can be injured.

ASK: Have you ever heard someone say, “They got their bell rung”? (Jeopardy question) Or they hit their head so hard they “Saw Stars”?

EXPLAIN:

- One type of head injury is called a contusion.
A **contusion** is a bruise to the brain and is fairly common.
✓If you hurt your arm or leg, it will get a bruise - it will turn black and blue. The same thing happens when you hurt your brain.

- A **concussion** is a more serious injury.
A direct hit or powerful shake to the head or neck can cause a concussion.

Use the brain mold in plastic container to explain:

- When someone suffers a **concussion**, the brain shifts inside the skull. This can result in a sudden trouble in the way the brain works - some of the problems we discussed earlier.
- **Concussions are the most common injury in sports. (Jeopardy question)**
- Most of the time, people return to normal after a mild head injury that results in a concussion
- But not all concussions are mild. More serious concussions are sometimes called Traumatic Brain Injuries or Closed Head Injuries.
- Severe concussions can happen after a bad blow to the head, like from a bad bike accident or a car crash.

- A severe concussion may mean that the brain has been injured in a way that someone might have long-lasting problems with some of the activities that we talked about earlier like movement, learning, or even speaking.

Protecting your brain from an injury may be the most important thing that you can do.

Can anyone guess what time of year most brain injuries happen?

- During the summer months - May, June and July.
- For this reason, these months are called **TRAUMA SEASON**. (Jeopardy question)

How old are most of the kids who get brain injuries?

- The majority (76%) occurs among children less than 15 years of age

ASK:

What are the the most common causes of a brain injury?

Show Posters that correlate with causes:

#1 Cause: Motor vehicle crashes (Jeopardy question)

- Someone in a motor vehicle crash might suffer a traumatic brain injury if:
 - His head bangs the windshield during the crash
 - Bangs into someone else in the car.
 - Being thrown out of the vehicle.

2 Cause: Falls

- Bicyclists tend to land on their heads
- Playground equipment and hitting head on the ground.
- Trampolines

3 Cause: Sports and Recreational Activities

- Football, boxing, and hockey (High-contact sports) Pose a higher risk of head injury, even with the use of protective headgear.

PREVENTION

ASK: **What can you do so that you don't get a brain injury?**

- There are many ways to prevent brain injuries from occurring.
- Sometimes doing something that only takes a second can save your brain from a very serious injury.
- Some great ways to protect your brain include:

- Buckling up in all vehicles
 - ✓ Be sure to wear your lap and shoulder belt correctly on EVERY RIDE.
 - Riding in the back seat is safer than the front seat.
 - **It is recommended that kids ride in the back until 12 years of age. (Jeopardy question)**
- Wearing a helmet every time you get on your bike.
- **Be sure to fasten the chinstrap so the helmet stays on your head if you fall. (Jeopardy)**
- Wearing a helmet any time you participate in a sport where your brain may be at risk

Wearing helmets can reduce the risk of TBI by 85 percent (Jeopardy)

ASK: What sports and/or activities should you'd wear a helmet?

Let's look at some picture and you identify the sport: (use helmet picture poster)

Skating
Skateboarding
Football
Hockey
Baseball
Horseback Riding
Race Car Drivers
Skiing
Snowboarding

Some kids and adults don't like to wear a helmet – some even refuse.

ASK: Do you know why?

EXPECT ANSWERS SUCH AS:

- Not cool
- Too hot
- Don't want to be seen with a helmet
- Never been hurt –don't need one

*These Are Just Not True!

Some jobs require workers to wear helmets to protect their head and brain. Can you think of people who wear helmets during their job?

Construction Workers	Jet Pilots
Astronauts	Soldiers

What else can you do to protect your brain?

Have students place prevention tactics to magnetic board :

- Make sure there is a "good" surface around the playground equipment!
 - Just in case you fall off of a climber, a soft surface will help to protect you from being hurt when you drop.
- Know the risks involved with sports!
 - This applies mainly to boxing, football and the martial arts. However, even soccer, climbing, horseback riding, diving and skiing have risks. Always wear your safety equipment properly and be in good physical condition for your sport.
- Look before you leap!
 - I know it sounds impossible, but people DO dive into swimming pools without water. Dive only in the deep end of the pool and make sure that the water in the lake and at the beach is deep enough to dive in headfirst.
 - RULE to follow: Feet First – First Time, Every time!
 - Also, be aware of any objects, such as large rocks, that may be hidden under the water.
- Look both ways before crossing the street! **Look Left Right & Left (Jeopardy)**
 - I know that you have heard this one before, but accidents do happen and you can't be wearing your helmet all the time.
- Stay away from guns!
 - I don't think I have to explain this one.
- Don't drink alcohol, take drugs, or use cigarettes and tobacco
 - The cells in your brain hate this stuff because it kills them!
- Eat right!
 - Healthy and nutritious meals!

- Your brain needs energy to work its best.

Be Good to Your Brain

Now you know a little more about all the cool stuff your brain can do. Your brain's always looking out for you, so return the favor! Treat your brain well and protect it from being hurt

Take care of the boss of your body and it won't let you down - it's the hardest worker around.

Prepare for Brain Buster Jeopardy game:

Divide class into 2 or 3 groups

Recruit a scorekeeper

Everyone wins!

- Even score out with bonus points if necessary!

Share content of bag with materials to take home (teacher can distribute to each student before dismissal)

Provide one packet for the *teacher*

Ask Children to go home & teach parents/adult in their home what they learned today. The packet of goodies also has items for grownups who care for them.