Elementary School EDUCATOR's Activity TOOLKIT

Dear Educator:

Traumatic brain injury (TBI) is the leading cause of death and disability in children and young adults. Fortunately, the majority of all brain injuries can be prevented by following simple safety precautions.

This elementary school activities curriculum will encourage prevention strategies and behavioral habits that will help to protect children from sustaining a brain injury throughout their childhood and beyond, through fun interactive activities.

The program emphasizes the importance of helmet safety. The activities may be implemented over a period of a few weeks or occur throughout the year when most appropriate for your classroom.

The Brain Injury Alliance of Connecticut thanks you for your interest in the health and safety of our children.

Sincerely,

The Brain Injury Alliance of Connecticut

Brain Injury

Prevention and Awareness 1st Gr – 5th Grades

Objective:

After completing these activities, the children should be able to:
1) understand some basic functions of the brain
2) understand the basic need to protect the brain
3) understand safety measures to take to protect their brain in their daily activities

Recommended Activities

1. Jello Brain Activity (*Jello brain recipe provided*)
2. Newspaper Activity
3. Egg Drop Activity
4. Brain Function Activity
5. Brain Art Activity

Activity 1: Jello Brain Activity (jello brain to be made one day ahead of class):

- Plastic Brain mold (available at amazon.com or other web sites)
- 2 (6 ounces) or 6 (3 ounce) boxes raspberry or strawberry gelatin
- Boiling water
- Cold water
- 1 can of fat free evaporated milk (*must be fat free*)
- spray oil
- Container to transport jello brain

Ask the students what their brains do for them. Answers can include that the brain controls your heartbeat, breathing, temperature, blood pressure, your movement, balance, coordination, sensation, all of your senses (hearing, sight, smell, taste, touch), your emotions (happy and sad), judgment, decision making, memory), speech, sleep, growth. Explain that the brain enables us to do EVERYTHING.

Ask the students what their brain looks like, feels like to touch, what is it's color and what is its size, then show the students the jello brain (must be made a day ahead, recipe included – jello brain molds available on internet) and be sure to tell them that this is not a real brain. Let each student touch the brain, if desired.

Activity 2: Newspaper Activity

- Jello brain or photo of a brain
- Piece of newspaper
- Gallon sized size plastic bags
- Student volunteer
- Newspaper

1. Point out the wrinkles in the jello brain or brain photo. Ask the students why the brain is wrinkled like this and then after they answer, demonstrate why the brain is wrinkled following the newspaper activity as follows:

    - Open up a full page of newspaper, flatten it and show the students all of the information contained in the written type on the page
    - Measure the size of a large (gallon sized) zip lock bag
    - Ask for a volunteer to fit the newspaper page into the zip lock bag without folding it neatly
    - Ask class what they see when they look into the bag
    - Tell them to Imagine how big the brain would be if the wrinkles were flattened out
    - So why is the brain wrinkled?
    - Explanation: Sulci and gyri...the sulci are the grooves and the gyri are the "bumps" increases the amount of cerebral cortex that can fit in the skull
    - Tell them that In fact, the total surface area of the cerebral cortex is about 324 square inches - about the size of a full page of newspaper

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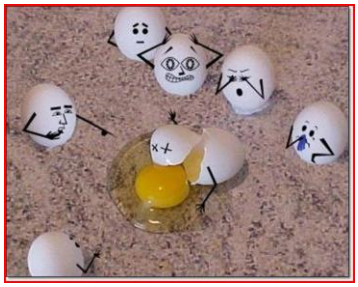
Activity 3: Egg Drop Activity:



- Eggs
- Small sandwich size plastic bags
- Bike helmet
- Newspaper

Demonstrate Helmet/Egg drop

Show the children an egg. Tell them the egg is like their heads. The white shell is hard and protects the soft part inside the egg just like their skulls protect their brains. Explain that if they got
hurt and scraped their arms or knees, they would probably need a grownup to clean the scrape and put a Band-Aid over the scrape to keep it clean and help it heal.

Explain that if someone breaks an arm or leg, that person would need to go to a doctor who knows about broken arms and legs. The doctor would put the broken arm or leg in a cast. Tell the children it might take a long time to get better but it would heal.

Place an egg (NOT hardboiled) in a see thru sandwich sized plastic bag. Show the egg to the students and ask if they think it would break if you dropped it from 3 feet off the ground. Tell them that the egg is representative of their brains and ask if they think the egg would break if you placed it in a bike helmet and then dropped it?

Place crumpled newspaper in a bike helmet (ie the skull) and then the egg in the plastic bag, covered by additional crumpled newspaper (since the brain is surrounded by a skull). Raise the helmet (start about 2-3 feet off the ground, hanging upside down) with the egg in it and ask the children if they think the egg would drop if you now dropped the helmet. Raise the helmet to 3-4 feet off the ground and ask again, then 4-5 feet off the ground. Now tell them you're going to drop the helmet to see if the egg breaks and ask them to count out loud to three: *1 . . . 2 . . . 3 . . .* and then drop the helmet. Tell the students that that was quite a fall and ask if they think the egg now has broken. Raise the helmet onto a table and remove the egg, showing that the egg did not break and non-chalantly drop the egg onto the table. Say something such as *'oh oh'* and raise the plastic bag to show a broken egg.

Explain to children that the shell of the egg is a type of protection to keep the egg safe from harm. Tell them that the helmet is the brain's additional protection, after the skull, to keep the brain safe.

Explain to the children that a doctor cannot fix their heads the way that broken bones and scrapes can be fixed. Show the children a bike helmet and ask them what it is.

Ask the children if they can think of an animal that also has a type of protection. Possible suggestions would be a shell on a turtle, antlers on deer, and the needles on a porcupine. All of these are protection. Tell them that they can protect their brains by wearing a helmet.

Ask the children if they can tell you other ways they can keep their brains safe. Make sure you discuss wearing seat belts when riding in cars, pickups, vans, and jeeps. The seat belts hold them in the vehicle in the event of a crash.

Explain that it is important to wear a helmet with activities in addition to riding a bike, such as riding a scooter or ice skating, horseback riding, skiing and to make sure they wear the correct helmet for each activity (i.e. if skiing, wear a ski helmet, if playing football, wear a helmet for football).

Tell them and show them how to properly wear a bike helmet:

A bike helmet fits well when:

1) The helmet sits level on the head and isn't tilted forward or backwards. If a helmet tilts back and exposes your forehead, it isn't going to protect your brain.

2) The helmet has strong, wide straps, that fasten snugly under the chin and you can insert two fingers between the strap and chin
3) The straps form a 'Y' around the ear and the helmet is tight enough so that after fastening, no sudden pulling or twisting could move it around.

Show the children how they should put their palm on the front of their helmet and push up and back. If it moves more than an inch additional fitting is required.

Tell the children to shake their heads around. This can be fun. Tell them that if the helmet they have dislodges when they shake their heads, work on the strap adjustments.

Tell the children that a bicycle helmet can protect the head and brain ONLY if someone wears the helmet every time they ride a bike and talk about why some kids don't like to wear a helmet: Answers: Not cool, messes up hair, don't have one, can't afford one, too good at bike riding to need one.

Activity 4: Brain Function Activity

- Brown paper bag, back pack (or anything you can put items in and not see through)
- Several objects of different sizes, shapes (at least 4)

1. Before you start the lesson, and out of sight of the kids, place everyday objects into the bag.

2. Discuss with the children that the brain makes it possible for us to think, walk, talk, play, remember, and feel happy and sad. The brain is what makes people remember things and events and it is so smart that it lets us remember things we have seen, felt, smelled, and heard before. The brain is very important – the most important part of our body.

3. Tell children that today they will demonstrate their brain's ability to remember objects they have touched before.

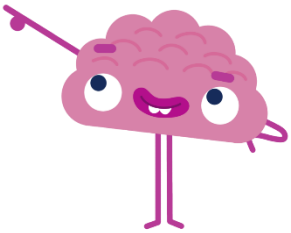
4. Have the children take turns placing their hands into the bag and touch an object. Ask them to describe what they feel. "Is it hard?" "Is it soft?" "Do you know what it is?" If children have a difficult time, allow them to reach for another item.

5. Discuss with children how they remember things because of their brain and ask the children to give you a favorite memory, such as "I remember the sound of fireworks on July 4th."

6. Explain that our senses (hearing, sight, smell, touch, and taste) all send messages back and forth to the brain. This is what allows our hands to know what it is feeling or our eyes to know what it is seeing. If someone hurts their brain because they fell or were in a crash, they may not be able to remember everything they once did. This is why we need to keep our brain safe. It is sad to not be able to remember your favorite things.

Activity 5: Brain Art Activity:

For this project students will create and present a poster that shows what they have learned about the brain.



Objective: students will discover through communicating, describing, and reasoning that they need their brains for many things.

- Large sheets paper or poster board
- Crayons, colored pencils or paint
- Bike helmet
- Photo of a brain

Ask the students -

"What is your skull and can you point it to where it is?"(Explain that the hard part of the head is the skull and that the brain is inside the skull. Explain that the skull's job is to protect the brain.

Using a photo of a brain point to, ask:

- Is this the true color of your brain? (Answer: NO)
- What color is the brain (Answer: greyish pink)
- Is this brain the size of your brain? (Answer: Depends upon what you're showing them - ask them to make two fists – tell them the human brain is the size of two fists put together, knuckles to knuckles)
- Ask students what it would feel like to touch a brain and tell them that the brain would feel like jiggly jello if you could touch it.

To help them focus, give them a theme. You (or they) can choose from the list below, or make up another one. When the posters are finished, put them on display. Here are a couple of possible themes:

Every day I use my brain to _____.
The most important thing my brain does is _____.
I need my brain because _____.
I can protect my brain by _____.

Begin by asking the children the following:

Can anyone name something for which you use your brain?
What is the most important thing your brain does for you?

Instruct students that they are going to make a poster about how they use their brains.
Introduce the theme you have chosen.
When the posters are complete, have each child present his or her poster to the class explaining why they filled in the blank the way they did. Hang them on display in the room or around the school.