

Making Neuroscience Fun

A Brain Awareness Program for All Ages



Brain Health: It's SPECTacular

What to do TODAY

Grade 4 (🌈 A Brain Facts Story)

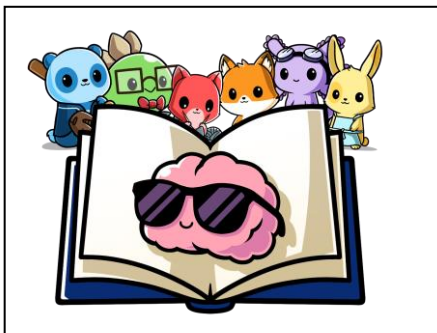
Because your brain does so much for you, this story describes things that you can do to protect your brain and make sure it is healthy.

- 🌈 Your brain is very squishy and needs your protection.
 - 🌈 Your brain needs sleep – to take out the trash.
 - 🌈 Your brain needs energy because there is no such thing as a fat head.
- 🌈 For this presentation, you need to have the Intro PPT Slides and the “Be Nice to Your Brain” Story Video. You will need to bring, 2 different colored sticky notes, 2 dice, and a print out of the last 2 pages of this WTDT.
- 🌈 Have the students sitting at their desks. Put up the Intro PPT Slide 1.



Introduce yourselves and tell the students that you are really excited to be with them to talk about Brain Health.

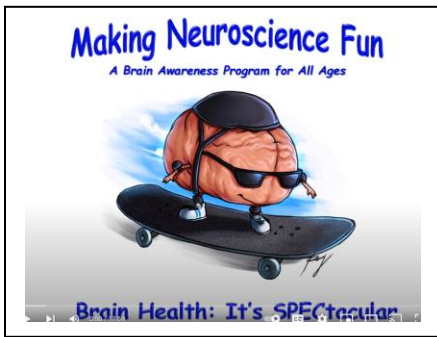
- 🌈 Put up the Intro PPT Slide 2.



Tell the students the name of the program is Brain Health: It's SPECTacular because you will be sharing new stories that will help them take care of their brains.

Tell the students that you will also be doing Activities to help them understand more about their brains and how to take care of them.

- 🌈 Put up the Brain Facts “Be Nice to Your Brain” story video.



Tell the students that today you are going to teach them about some Brain Facts. Brain facts are things that we know about the brain AND we have to know something about our brains to so that we can help our brains get and stay healthy!!!




Start the Story Video and stop after this screen.

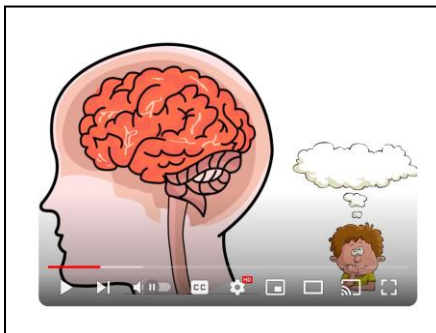


Ok...so the story we are going to talk about today is about how to **Be Nice to Your Brain**.

Being "nice" to our brain means we are taking care of it, so our brain will be healthy.

We want to be nice to our brain because we **NEED** our brain to do everything that we do.


 Continue playing the video and stop after the following slide.

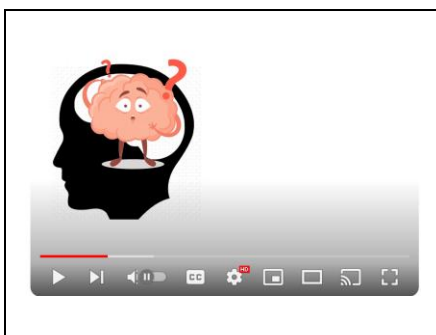


Be demonstrative – maybe hold your elbow and scratch your cheek – say...Hmmm...Does anyone think they know why our brain is in our head?

If they say "to protect" it, say that's right...now let's see how that works.


If they don't know...say, well your head is hard right? So, maybe your brain needs to be in something hard to protect it. Let's see

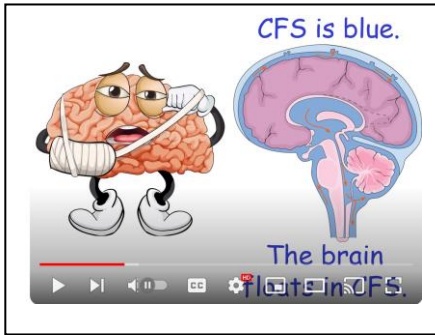
 Continue playing the video and stop after the question in the following slide.



Ok...so the brain is squishy and your head is hard, so what do you think would happen if shake your head up and down or side to side?

If they say something like...it would get hurt...say that's right. If no answers, then make some suggestions to them.

 Continue playing the video and stop after the following slide.



In a VERY excited way say...That is so COOL (or whatever the current word for cool is)!!!

Your head has watery stuff in it called CSF and your squishy brain is floating around in it!!!

Continue playing the video and stop after the following slide.



Say...OH, I get it. My hard head and the watery CSF inside my head can ONLY protect my squishy brain when my body is moving around itself.

When my body is moving around like on a bike, skateboard, skates, or anything that my body can't do alone – then I need to help protect my squishy brain.

So, that is why wearing a helmet is important. Or, wearing a seat belt when I am in a car or at a ride like a rollercoaster.

My head and CSF can't protect my brain all by itself – it needs help. AND, we have to help it. Because protecting our brain means we are being nice to our brains and keeping it healthy!!!

Continue playing the video until you get to this slide.



Ok...so first we learned that we can be BE NICE TO OUR BRAINS by helping our heads (with the CSF) to protect our brain by wearing helmets or seat belts to protect our brain when our bodies are going faster than our feet can carry us.

Now we know of another that we can BE NICE TO OUR BRAINS - We can SLEEP!!!

Who knew that sleeping could help your brain not only to rest, but sleep is the time when your brain washes away all the trash – which is made from the chemicals that the brain uses to help you to do all the things you need to do.

Put up the Intro Slides #3 which has the game board of the Sleep Deprivation Game.

Because sleep is SOOOOOOO important to our Brain Health, we are going to do an Activity to help us remember how important sleep really is – it is called the **Sleep Deprivation Game**.

Deprivation is a big word. It means you are being kept from possessing, enjoying, or using something that you like or need. So, if you are deprived of using a computer – you can't play video games. If you are deprived of going outside – you can't play soccer, or go for walks.

If you are deprived of things your body needs – like food and sleep, you could get very sick.

Here is how we will play the game:

- The goal of the game is to be the team that has the most Hours of Sleep at the end of the game.
- We are going to use Sleep Deprivation Game board on the screen. We will use 2 different colored sticky notes for our **game pieces**.
- For this game, I will be the **Dream Catcher** and I will read the description of the Game Space the team lands on.
- Next, we are going to divide you into 2 teams and we will assign you a color (this is the 2 colors of the sticky notes you have). Each team will have one dice.
- Each team needs to have a **Sleepy Time-R** that will keep track of your teams sleep hours. Each team begins the game with two Hours of Sleep.
- When it is one teams turn, you will roll the dice and tell me - the Dream Catcher - how many spaces to move you. I will read the space and tell you what it means. This determines if the team gains or loses Sleep Hour.
- If a team lands on a Memory Booster space, they get a Memory Booster card which can add or delete hours from their team.
- Teams take turns rolling the die and advancing their sticky notes around the board until one reaches the End space.
- Then the **Sleepy Time-R** from each team will tell us the number of Hours of Sleep each team has left.
- The team with the most hours of sleep is the winner.

You can speed up or slow down the game based on the time you start it...the story video still has about 10 minutes left.

When the game is done, have the students go back to their desks.

- Continue playing the video and stop after the question on the following slide.



That is a good question, how does our brain get energy? That's right...by eating food we can get energy for our brain AND our bodies.

- Continue playing the video and stop after the question on the following slide.



What do you think? Would the leaves or the longer burn faster? Take some answers. Which one do you think would burn longer – the leaves or the logs? Take some answers and then play the video.

🎨 Continue playing the video and stop after the following slide.



So, now we know of 3 ways that we can BE NICE TO OUR BRAIN.

We can wear a helmet or seat belts when our body is going faster than our legs can carry us.

We can get the sleep our brain needs to rest and also repair and clean up all the waste that we make when we are awake.

And, we can eat foods that not only give our brain and body energy, but also the nutrients we need.

🎨 Continue playing the video to end.

Tell the students that you had fun talking with them today and ask them if they had fun learning.

Tell the students to remember to protect their squishy brain by wearing helmets. To get some sleep so their “janitor” brain can get to work. To eat when their brain tells them that they are hungry – so they can make healthy food choices.

Tell them that all of these things will help them to be nice to their brain and will help their brain stay healthy which is SPECTacular.

Be sure to thank them for listening and the Brain Health Team of JHU students will see them soon.

GAME SPACES *(page 1 of 2)*

Caffeine



Caffeine is the most widely used brain stimulant in the world. It comes in many forms, such as coffee, tea, energy drinks, and soda. It works by blocking the sleep-promoting molecule adenosine from bonding with receptors on your neurons. **Lose 1 Hour Card.**

Canceled Class

Woo hoo! A canceled morning class means more time to sleep in. **Gain 1 Hour Card.**

Fall Back



When we set our clocks back an hour at the end of Daylight Saving Time, we gain time to sleep. **Gain 1 Hour Card.**

First Night in a Hotel

Sleep researchers at Brown University discovered what is known as the "first-night effect," which states that when you sleep in unfamiliar surroundings, only the left half of your brain is getting a good night's rest. **Roll again.**

Hypnic Jerk

The involuntary muscle spasm that occurs as a person is falling sleep (and is often accompanied by a feeling of falling) can be caused by stress, anxiety, fatigue, or caffeine. **Lose a turn.**

Insomnia

Insomnia is the inability to sleep. This sleep disorder can be caused by many things, including stress, travel, and caffeine. **Lose 2 Hour Cards.**

Left Pillow on a Plane

Oh no! You left your pillow on a plane. How will you sleep well? **Lose 1 Hour Card.**

Midnight Movie

Not getting a full night's sleep does more than make you cranky. Lack of sleep can lead to trouble forming long-term memories, increased anger, cerebral shrinkage, and slurred speech. **Lose 1 Hour Card.**

Narcolepsy

Formerly called "sleeping sickness," narcolepsy is a chronic sleep disorder that is characterized by excessive sleepiness during the day and, in extreme cases, sudden bouts of sleep that occur several times per day. Thus people with narcolepsy can literally fall asleep at any time. **Roll again.**

Night Terrors



Night terrors usually begin when children are 3 to 6 years old and disappear during adolescence. Children in the throes of a night terror scream and cry. Their eyes are open, and they may say incoherent things while gesturing emphatically. Unlike nightmares, some details of which people can clearly recall once they awake, night terrors are characterized by confusion upon awakening and the lack of any recall of elaborate dream imagery. **Lose 2 Hour Cards.**

Noisy Neighbor

Music from next door kept you up all night? Without a good night's sleep, you could suffer from poor memory and decision-making. **Give 1 Hour Card to the player on your left.**

Red Eye Flight



Late night flights mean you are sleeping in an unfamiliar space and disrupting your sleep cycle. **Roll again.**

GAME SPACES *(page 2 of 2)*

Sibling Steals Your Pillow



Give 1 Hour Card to the player on your right.

Sleep Paralysis

Sleep paralysis is a temporary inability to speak or to move while falling asleep or waking up—a highly disconcerting experience, especially when the person experiencing it doesn't know its cause. **Lose a turn.**

Sleep Over

Jump to the space of the player in front of you. Do not follow the instructions on that space.

Slept Through the Night



Congratulations! You slept at least 8 hours and passed through all four stages of sleep. **Roll again.**

Somnambulism

Sleep walking during non-REM sleep affects about one-third of children. About 3 percent walk during sleep at least once per month. **Move back one space.**

Somniloquy

Sleep talking can happen during either REM or non-REM sleep. The words are generally so poorly articulated and the sentences so meaningless that anyone who hears them will be at a loss to interpret them. Those utterances that occur during REM sleep do, however, tend to be somewhat more intelligible. **Take 1 Hour Card from the player to your left.**

Spring Forward



When we set our clocks forward an hour for Daylight Saving Time, we lose sleep. **Lose 1 Hour Card.**

Summer Vacation



Finally, no more early morning classes. Time to sleep in! **Gain 2 Hour Cards.**

Too Much Screen Time

Blue light, like the light wavelengths emitted by our screens, leads us to believe it is morning or daytime. Looking at a screen before bed keeps you awake. **Lose 1 Hour Card.**

Use a Sleep App to Determine Your Sleep Cycle

Sleep behavior is defined by: reduced motor activity; diminished responses to external stimuli; posture (lying down with eyes closed); and relatively ready reversibility. These four criteria distinguish sleep from coma and hibernation. Using an app to track your sleep pattern can help you make adjustments that will lead to better sleep. **Gain 1 Hour Card.**

Woke Up in Stage 1 of Sleep

Non-REM sleep begins when you first lie down and close your eyes. As you fall asleep, the rapid beta waves of wakefulness are replaced by the slower alpha waves of relaxation with your eyes closed. Soon, even slower theta waves begin to emerge. Though your reactions to stimuli from the outside world diminish, Stage 1 is still the phase of sleep from which it is easiest to wake someone up. **Gain 1 Hour Card.**