

Name: _____

Getting Enough Sleep at Night

Neuroscientists are scientists who study the nervous system. The nervous system is made up of the brain, spinal cord, and nerves. Some neuroscientists study how sleep affects the brain.

Today, you will be a neuroscientist and learn more about sleep and the consequences of sleep deprivation. Sleep deprivation is when you do not get enough sleep, usually less than 6-7 hours a night for long period of time. Then, you will create a Public Service Announcement (known as a PSA) about the importance of getting sleep. A PSA is a message that is given to the general public to inform them about a problem or change their opinion about a topic. Your PSA will target teenagers and explain the dangers of not getting enough sleep. Follow the steps below to create your PSA.



Step 1: Learn about Sleep

Before you create your PSA, read the information below about sleep.

Facts and Statistics About Sleep

- 1 in 3 adults do not get enough sleep at night.
- Studies have shown that high school students who have higher grades reported sleeping more and going to bed earlier on school nights.
- Studies have shown that more than 50% of middle school and high school students do not get enough sleep at night.
- Teens who report that they drink a lot of caffeine report that they have difficulty sleeping at night and feel tired in the morning.

How Sleep Affects the Body and Mind

Studies have shown that getting enough sleep is linked with the following:

- Improved concentration (example: Being able to complete a homework assignment without getting distracted)
- Better memory
- Increased speed and accuracy at completing tasks (examples: Being able to quickly and accurately complete homework, being able to accurately shoot a soccer ball or basketball during a game)
- Increased better mood, meaning you feel happier or calmer and less angry or aggressive
- Developing and maintaining healthy relationships with other people
- Better physical health (examples: being at a healthy weight)

Studies have also shown that sleep deprivation is linked with the following:

- Poorer memory
- Weight gain
- Irritability and moodiness
- Inability to concentrate
- Health problems, like high blood pressure
- Increased risk of injuries or accidents (example: people who are sleep deprived could fall asleep while driving and get in a car accident)

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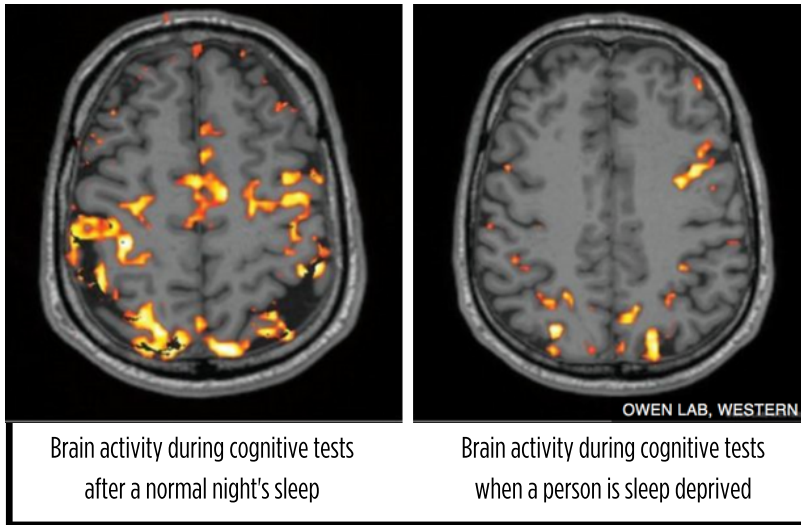
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Brain Scans

Neuroscientists look at brain scans to see the differences in brains between people who are sleep deprived versus people who are not. The two brain scans below are from a study conducted by Professor Owen at Western University. People's brains were scanned in an MRI machine. An MRI machine detects blood flow to the brain. When an area of the brain has more blood flow, it means there is more activity happening in that part of the brain. The scan shows colors, like orange and yellow, to indicate where the activity is happening in the brain.

The scan on the left shows brain activity of a person who is not sleep deprived. The scan on the right shows the brain activity of a person who is sleep deprived. The scan shows that there is more activity or blood flow in the person's brain who has gotten enough sleep. You can visually see this by looking for more orange and yellow colors in the brain scan.

The areas of the brain shown in these scans are related to decision-making and memory. These scans suggest getting enough sleep is linked to better decision-making and memory.



<https://www.bbc.com/news/health-40036667>

Curious about Dr. Owen's work?
Learn more about Dr. Owen's studies here:
<https://www.cambridgebrainsciences.com/science/neuroscientists>

Recommendations for Teens to Get More Sleep

- Stop using technology (including phones, tablets, computers, and television) 30 minutes before bedtime. This will let your brain get ready to go to sleep
- Kids who are 6-12 years old need between 9 and 12 hours of sleep a night. Teens who are 13-18 years old need between 8 to 10 hours of sleep per night. These recommendations were made by a panel of 13 scientists who reviewed 864 scientific articles on sleep.
- Monitor caffeine consumption. Caffeine can prevent sleep
- Try to go to bed at the same time and wake up at the same time each day.
- Try to go to bed at the same time and wake up at the same time each day.
- Create a nighttime routine (example: turning off devices, reading a book before bed, turning off lights at a certain time).
- Do not take long naps on the weekend to make up for a lack of sleep during the week.
- On weekends, try to get up within 2 hours to 4 hours of when you wake up on weekdays.
- Talk with a trusted adult if you are having trouble sleeping, wake up during the night and cannot go back to sleep, or feel like you don't have energy despite getting enough sleep.
- Talk with a trusted adult if your sleepiness is affecting your responsibilities, like staying awake during class or spending time with friends.

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Step 2: Create a PSA

Use the information from step 1 to create your PSA.

Decide which tone your PSA will have.

- Funny Serious Informative Dramatic Other _____

Decide where you will put your PSA so that your audience can see it. You should think about where your audience gets information.

- Newspaper Bus Internet TV
- Magazine App on phone Billboard next to highway Other _____

Brainstorm ideas for your PSA below. Your PSA must include the following:

- The positive effects of sleep on the mind and body
- The negative effects of sleep deprivation on the mind and body
- Recommendations for how to consistently get enough sleep
- 1 fact about teens and sleep

Draw your PSA in the box below. You can also make your PSA on a computer.