

The Science of Sleep & the Brain

Today you'll learn more about sleep and the brain.

- Work with a partner. What do you already know about sleep and the brain?

Do you want to do the rest of this lesson alone or with your partner?

There is a small part of the brain called the hippocampus. (Actually, there are two of them). The hippocampus helps turn short-term memories into long-term memories. That happens when you sleep. If you don't get enough sleep, your short-term memories don't have a chance to become long-term. That's why when you don't sleep much during "test week" you forget everything you studied about.



Illustration courtesy wisegeek.com

Your hippocampus is more important for your learning than your university campus!

Look at the "infographic" at <http://tinyurl.com/sleep-brain1>
Scroll down until you see: YOUR BRAIN ON SLEEP →
If it is too small, make it bigger. Press CTRL Shift +
Press all 3 keys at the same time. Do this a few times.



You will probably need a dictionary for this lesson.

1. Read the information in the purple box (Sleep is as important as eating).
Find the word "hippocampus."
What two things is the hippocampus involved in?

2. Sleeping is as important as eating. Which of these does sleeping do?
Check (✓) the ones mentioned.

- Keeping you healthy.
- Balancing your diet.
- Making you popular.
- Giving you energy.

3. Read the green box (How much sleep you need).
"Sleep-deprived" means "not getting enough sleep."
"Impaired" means "damaged."

How old are you? _____

According to the chart, how many hours of sleep do you need? _____

Are you short of sleep? How much more should you get? _____

4. Read the yellow/brown box (Sleep debt).
What are some dangers of often not getting enough sleep.

What is your "sleep debt" for the past 7 days? _____

(If you don't remember exactly, multiple your answer to the last answer in part 3 x 7)

5. Read the next purple box (Sleep deprivation research).

The students slept 4 hours for 6 nights. Check (✓) the problems mentioned.

- anger problems blood pressure body couldn't fight flu
 danger of diabetes stress sadness/depression

6. Read the next box (REM & non-REM sleep).

True or False?

During REM sleep

- ___ eyes move a lot.
___ arm and leg muscles move a lot
___ you get more energy for the next day
___ you have dreams

7. At the bottom of the page, find "Sources." How many different sources did the authors use to know about the science of sleep? _____

Have you heard of any of these sources? Which ones?

How can you sleep better?

Now go to this page: <http://tinyurl.com/sleep-brain2>



Scroll down to the blue and black infographic.

Click on it to make it bigger. Read it quickly.

8. Which things do you usually do now? Check (✓) them.

- Turn off devices with screens (cell phone, computer, TV) 30 minutes before you sleep.
 Don't eat or drink just before bed.
Some experts say, "No caffeine after 3 p.m."
 Go to bed 8 hours before you need to get up.
 Don't do work in bed.
 Meditate to relax.
 Keep a journal of good things from your day.
 Read a book for fun.
 Make healthy "before bed" habits (take a bath, brush your teeth, etc.)
 Make a "to-do" list for tomorrow.

9. Promise to yourself.

Which of the things in #8 are you going to try? Circle them.



This lesson is designed to be done on-line with a fairly large screen (like in a computer lab). If that isn't practical, you can print out the infographic. The first graphic will take about five sheets of paper. Have students work in pairs or small groups to assemble it and do the tasksheet.

Note: I paraphrased some of the information to make it more accessible for language learners. Also, I left out the part on the stages of sleep since I didn't think there is much folks can do about that. Wanted to get them on to the "how to sleep better" before they run out of time/energy.

Here are the actual URLs. I used tinyurls because thought it would be almost impossible to type the long ones, especially the first one, accurately.

<https://blog.hubspot.com/marketing/science-of-sleep#sm.00001kj6xivy8refqy66sqscmqc>

<http://tech.co/better-sleep-establish-sleep-ritual-infographic-2015-04>

Answer Key Below

Sleep and your brain. **Answer Key**

Today you'll learn more about sleep and the brain.

- Work with a partner. What do you already know about sleep and the brain?

Do you want to do the rest of this lesson alone or with your partner?

There is a small part of the brain called the hippocampus. (Actually, there are two of them). The hippocampus helps turn short-term memories into long-term memories. That happens when you sleep. If you don't get enough sleep, your short-term memories don't have a chance to become long-term. That's why when you don't sleep much during "test week" you forget everything you studied about.



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Your hippocampus is more important for your learning than your university campus!

Look at the "infographic" at <http://tinyurl.com/sleep-brain1>

You will probably need a dictionary for this lesson.

1. Read the information in the purple box (Sleep is as important as eating). Find the word "hippocampus."

What two things is the hippocampus involved in?

Memory creation
consolidation (this is also of memory)

2. Sleeping is as important as eating. Which of these does sleeping do? Check (✓) the ones mentioned.

- Keeping you healthy. (T)
- Balancing your diet. (T)
- Making you popular. (F)
- Giving you energy. (T)

3. Read the green box (How much sleep you need).

(Students' answers will vary)

"Sleep-deprived" means "not getting enough sleep."

"Impaired" means "damaged."

How old are you? _____ **(Students' answers will vary)**

According to the chart, how many hours of sleep do you need? _____

Are you short of sleep? How much more should you get? _____

4. Read the yellow/brown box (Sleep debt).

What are some dangers of often not getting enough sleep.

obesity (gaining weight), heart disease, stroke, diabetes

What is your "sleep debt" for the past 7 days? _____ **(will vary)**

(If you don't remember exactly, multiple your answer to the last answer in part 3 x 7)

5. Read the next purple box (Sleep deprivation research).
The students slept 4 hours for 6 nights. Check (✓) the problems mentioned.

anger problems blood pressure ✓ body couldn't fight flu
 danger of diabetes ✓ stress sadness/depression

6. Read the next box (REM & non-REM sleep).

True or False?

During REM sleep

- ___ eyes move a lot. (T)
- ___ arm and leg muscles move a lot (F)
- ___ you get more energy for the next day (T)
- ___ you have dreams (T)

7. At the bottom of the page, find "Sources." How many different sources did the authors use to know about the science of sleep? (8).

Have you heard of any of these sources? Which ones?

HuffingtonPost.com is a popular (not academic) news and entertainment website.

Scientific American is a science magazine.

The Sleep Foundation is a non-profit organization.

"nih" = the National Institutes of Health, the U.S. government's organization for health/medical research

health.harvard.edu = Harvard University School of Medicine

uchospitals.edu = University of Chicago School of Medicine

bbc = The British Broadcasting Corporation, public broadcaster in the UK (and worldwide)

cdc = Centers for Disease Control, part of the US government.

Note to teachers: you might want to have a conversation about how trustworthy these sources seem.

How can you sleep better?

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(Students' answers will vary)

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- Read a book for fun.
- Make healthy "before bed" habits (take a bath, brush your teeth, etc.)
- Make a "to-do" list for tomorrow.

8. **Promise to yourself.** (Students' answers will vary)

Which of the things in #8 are you going to try? Circle them.



Have a good sleep tonight!

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This tasksheet by Marc Helgesen

www.HelgesenHandouts.weebly.com

It may be copied for classroom use.