

DO HIGH SCHOOL STUDENTS GET ENOUGH SLEEP?

AN INQUIRY LEARNING LESSON



NEVERBORE



“Do High School Students Get Enough Sleep?”

An Inquiry lesson on sleep and sleep cycles

Teacher Notes:

In this lesson, students learn about sleep, sleep cycles and the purpose of sleep through a collaborative inquiry and the production of a Public Service Announcement (PSA) or poster. Students collect class data through sleep diaries and sleepiness scales over 11 days, and they collect class survey data on attitudes and myths about sleep. The compiled results from these studies are available to all students through Google Docs. Students use resources to answer additional questions about sleep, then design PSAs or posters to promote healthy sleep habits for their peers. This lesson is appropriate for a 9-12 Psychology, Physiology or Health class.

Scheduling Notes:

The inquiry and project will take 3-5 days. The teacher should assign the sleep diary and sleepiness scale two weeks prior to the lesson, so that students will have time to collect and input their data.

Learning Targets:

Students will be able to:

- Describe key aspects of sleep and dreaming: stages and characteristics of the sleep cycle; theories of sleep and dreaming; symptoms and treatments of sleep disorders
- Explain how sleep impacts learning, emotions and brain function
- Explain recommended sleep amounts for adolescents

Key Concepts:

- Circadian rhythm
- Sleep stages
- REM v. non-REM sleep
- Sleep deprivation
- Insomnia
- Sleep apnea

Materials:

- Sleep Diary, 1 per student (p. 59 of NIH lesson below)
- Sleepiness Scales, 1 per student (p. 61 of NIH lesson below)
- Devices with internet access, 1 per student or group
- Sleep Study Google Survey <http://tinyurl.com/hfu7gvj> (Teacher should access this survey in advance and make a copy for the class. Provide a URL address or link to your students for your survey)



- Sleep Survey Google Survey <http://tinyurl.com/zjowgz8> (Teacher should access this survey in advance and make a copy for the class. Provide a URL address or link to your students for your survey)
- Sleep Survey correct answers (pp. 78-79 of NIH lesson below)

Sources:

Sleep, Sleep Disorders and Biological Rhythms NIH Curriculum Supplement Series 2003
(https://science.education.nih.gov/supplements/nih3/sleep/guide/nih_sleep_curr-supp.pdf)

“Let’s Sleep on It,” The Learning Network: Learning with the New York Times 2007
(http://learning.blogs.nytimes.com/2007/01/09/lets-sleep-on-it/?_r=0)

Procedures:

Step 1 (2 weeks in advance)

Assign students to keep a Sleep Diary for 11 days tracking:

- Bedtime each night
- Hours of sleep each night
- Number of times waking each night
- Number of caffeinated drinks per day

A sleep diary form can be found on page 59 of this NIH lesson:

https://science.education.nih.gov/supplements/nih3/sleep/guide/nih_sleep_curr-supp.pdf

In addition, students should track sleepiness during the day using the form on page 61 of the NIH lesson.

At the end of 11 days, each student should use their diary data to answer the questions on the Google form **Sleep Study**.

Assign students to take the Google form **Sleep Survey**. Once students have completed the sleep study and sleep survey, the teacher should make the spreadsheet results and the correct answers to the survey available to all students.

Step 2

Post the question: **Do high school students get enough sleep?**

Explain to students that in order to answer this question, we need to answer a few additional questions:

- How much sleep do students in this school get on an average night?
- How much sleep do teenagers need?
- Why does sleep matter?
- What happens when we are sleeping?
- What happens if we don’t sleep enough?

Ask students to brainstorm additional questions and add them to a list in the classroom.

Explain to students: Your assignment is to answer these questions and produce a poster or a public service announcement (30-60 second video) designed to convince teenagers who don’t get enough



sleep that they should prioritize sleep. You will work with a group of up to four members, and you will have ___ days (3-5 days recommended) to complete this assignment.

Give students class time to work in collaborative groups to answer these questions and their own additional questions. They may use a textbook, the American Sleep Research Institute (<http://www.asri.net>), the American Sleep Association (<https://www.sleepassociation.org/patients-general-public/what-is-sleep/>) Frontline: Adolescents and Sleep (<http://www.pbs.org/wgbh/pages/frontline/shows/teenbrain/from/sleep.html>) and additional sources you identify.

Explain to students that they should become experts on sleep before producing the poster of PSA. They should be familiar with the following information:

BRAIN

- What parts of the brain are active during sleep?
- What happens to the teenage brain during sleep?
- How are brain functions affected by sleep?

SLEEP CYCLE

- What are the cycles of sleep, and what is unique to each?
- How does the teenage body react to too much or too little sleep?
- What environmental or physical phenomena might disrupt the sleep cycle?

DREAMS

- Why do people dream? Compare two or more theories.
- When and how frequently do people dream?
- What are nightmares and why do they occur?

SLEEP DISORDERS

- What are common sleep disorders and how do they manifest?
- What are emotional or cognitive effects of sleep deprivation?
- What are physical or social effects of sleep deprivation?
- How can sleep deprivation affect a person's mood or ability to function?

Step 3

Students design and present original posters or PSAs. They may use the survey results (misconceptions about sleep) and sleep diary results (data on MV students' sleep habits). They may also use information from their research. Students are encouraged to be creative and to focus on whatever information they believe is most relevant to their peers.



Scoring Rubric	Exceeds	Meets	Does not meet
Informative	Project contains valuable information to help peers understand the importance of sleep. Addresses key components of brain activity during sleep.	Project contains information to help peers understand the importance of sleep. Addresses brain activity during sleep, but may lack thoroughness.	Project is lacking key information about the importance of sleep or brain activity during sleep.
Persuasive	Project uses an effective campaign to catch teenagers' attention and get them to think about the importance of sleep.	Project attempts to catch teenagers' attention and get them to think about the importance of sleep, but may be flat or lacking in persuasive details.	Project does not adequately attract teenagers' attention, may be written in a formal or strictly informative style.
Creative	Project shows divergent thinking and use of multiple source of information.	Project uses limited resources. Project is complete but still "rough" or unprofessional.	Project shows no evidence of divergent thinking or research on the topic.