

LS-HHMI Outreach Summer Curriculum Project Classroom Resource Information Form

Title	The Science of Sleep
Resource Type	Lesson Plan <input checked="" type="checkbox"/> Activity <input checked="" type="checkbox"/> Lab Activity <input checked="" type="checkbox"/> Homework Assignment <input type="checkbox"/> Correlations <input type="checkbox"/> Other <input type="checkbox"/> <Specify>
Description	This lesson is designed to help students understand how important it is to get enough sleep, how a body tries to ensure it gets enough sleep, and what can happen when there is a lack of sleep. This lesson consists of a PowerPoint presentation, a Teacher's Guide, and links to the resources necessary.
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Objective	<ul style="list-style-type: none"> -Identify the amount of sleep needed for age group -Describe the three sleep cycles -Evaluate and compare sleep data -Describe good and bad sleep habits -Describe individual and social implications associated with lack of sleep 		
Key Concepts	<ul style="list-style-type: none"> -Teen sleep requirement -Sleep cycles -Sleep and overall mental health and social responsibility 		
Student Prep	For one week prior to start of unit, students will complete a Sleep Diary and Sleepiness Scale (Master 0.1-0.4 of the <i>NIH Curriculum</i>)		
Materials	<ul style="list-style-type: none"> 1) <i>Sleep, Sleep Disorders, and Biological Rhythms</i>, NIH curriculum Supplement Series Grade 9-12, National Institutes of Health. http://science.education.nih.gov/supplements/nih3/sleep/guide/nih_sleep_curr-supp.pdf 2) Power Point Presentation 3) Teacher's Guide 4) Internet access (if possible) 		
Grade Level(s)	9 th -10 th Grade		
Teacher Prep Time	1 hour	Class Time	4-5 days
National Standards			
State Standards	<p>Massachusetts:</p> <ul style="list-style-type: none"> 4.4 Explain how the nervous system (brain, spinal cord, sensory neurons, motor neurons) mediates communication among different parts of the body and mediates the body's interactions with the environment. Identify the basic unit of the nervous system, the neuron, and explain generally how it works. 4.7 Recognize that communication among cells is required for coordination of body functions. The nerves communicate with electrochemical signals, hormones circulate through the blood, and some cells produce signals to communicate only with nearby cells. 4.8 Recognize that the body's systems interact to maintain homeostasis. Describe the basic function of a physiological feedback loop. <p>SIS1. Make observations, raise questions, and formulate hypotheses. SIS2. Design and conduct scientific investigations. SIS3. Analyze and interpret results of scientific investigations. SIS4. Communicate and apply the results of scientific investigations.</p>		
Sources	<i>NIH Curriculum Supplement Series for Grades 9-12. Sleep Disorders and Biological Rhythms.</i> http://science.education.nih.gov/customers.nsf/HSSsleep?OpenForm		

<p>References</p>	<p><i>Unless otherwise noted within the presentation, information, charts and graphs have been obtained from NIH Curriculum Supplements for Grades 9-12. Sleep Disorders and Biological Rhythms.</i></p> <ol style="list-style-type: none"> 1. <i>NIH Curriculum Supplement Series for Grades 9-12. Sleep Disorders and Biological Rhythms.</i> National Institutes of Health. http://science.education.nih.gov/customers.nsf/HSSSleep?OpenForm 2. FRONTLINE. <i>Adolescents and Sleep, A Summary of What Researchers Know About Teenagers' Need for Sleep and Why Sleep Affects Memory and Learning.</i> http://www.pbs.org/wgbh/pages/frontline/shows/teenbrain/from/sleep.html#fnB0 3. Jenni OG., Achermann P. and Carskadon MA. <i>Homeostatic sleep regulation in adolescents.</i> SLEEP 28 (2005) 1446-1454. 4. Tobler, Irene and Achermann, Peter, <i>Sleep Homeostasis.</i> http://www.scholarpedia.org/article/Sleep_homeostasis 5. What is Sleep, Biological Clock and Homeostasis videos: http://www.videojug.com/interview/healthy-sleep-for-children#what-is-our-bodys-internal-clock 6. Biological clock diagram http://commons.wikimedia.org/wiki/File:Biological_clock_human.PNG <p>Additional Resource</p> <ol style="list-style-type: none"> 7. Nova sleep movie: http://www.teachersdomain.org/resource/oe08.sci.life.reg.sleep/
<p>Assessment</p>	<p>Assessment can be made in Part 4 of Teacher's Guide. Students write questions, with answers, to be put on the teen drivers test. (The <i>NIH Curriculum Masters</i> 5.2 and 5.3.)</p>