



Veteran Education Transfer Plan Cover Sheet

Title of ETP	Sleep Disorder Slide Show
Name of IISME Fellow	Juana Martinez-Rodriguez
Fellow's year-round email	jmmartinez1972@yahoo.com
Sponsor Company	SRI International
Name of Mentor	Teresa Steininger and Thomas Kilduff
National Board Certificate Area	Adolescence and Young Adulthood Science
<p>I, the IISME Fellow named above, affirm that the ETP I am submitting is my own work, that I acknowledged sources where appropriate, and that I avoided including any proprietary information of the Sponsor Company. By my submission I am assigning to IISME my entire copyright in the ETP. I understand IISME is simultaneously granting me a license to use the ETP for pedagogical purposes.</p>	
Signature _____	Date _____

Category	<p><i>Curriculum</i> Subject: Math <u>Science</u> <u>Technology</u> Level: Elem Middle <u>High</u> Other</p> <p><i>Staff Development</i> Describe _____</p> <p><i>Other</i> Describe _____</p>
Objectives	<ol style="list-style-type: none"> 1. Describe the basic features of the PowerPoint Program. 2. Create and select a presentation style. 3. Create a short slide presentation on a sleep disorder. 4. Learn about a sleep disorder
Abstract (50 words or less)	Students are given background information on sleep and PowerPoint. After mastering PowerPoint program, students will demonstrate their understanding of the program in a short slide show. Students are given a sleep disorder to research on the Internet, and share to the class in a short slide presentation.
Describe how your ETP aligns with the National Board Standard stated in your proposal.	Standards: Science Inquiry, Contexts of Science, Engagement, Equitable Participation.
Describe the connection between your ETP and the Summer Fellowship.	I'm working in a sleep research laboratory at SRI International where they are studying how a drug affects sleep.
Growth-Measurement Devices	I will give a pretest to test their knowledge on Internet and PowerPoint. As a post measure, their slide presentation will demonstrate how much they mastered PowerPoint and Internet.
Resources Needed	Internet, PowerPoint Program

D7

Evaluation/Assessment Measures Used	Their PowerPoint slide show grade will be based on a rubric.
Formatting specifications	PC __X__ or Mac____ (Must be in Word or Text Format) Software used __Microsoft Office_____
Submitted Copy	Soft and hard copy due to peer coach by the end of the summer fellowship. Also, a copy of the cover sheet signed by a school site administrator submitted to IISME Oct.3, 2004 to receive \$300 grant.
<p>I, the Mentor named above [please select one of the following],</p> <ul style="list-style-type: none"> <input type="checkbox"/> have read the attached ETP, and my comments, if any, appear below. <input type="checkbox"/> have read the attached ETP, and, as outlined in the IISME-Company Fellowship Agreement, have reviewed it on behalf of the Sponsor Company, and have determined that the ETP does not contain any Sponsor-proprietary information. My additional comments, if any, appear below. <p>Comments:</p> <hr/> <p>Signature _____ Date _____</p>	
<p>Administrator's comments:</p> <hr/> <p>Signature _____ Date _____</p>	

D8

B4

Lesson Plan

Name: Juana Martinez-Rodriguez
Course: Biology

Day(s) 4

School: Arroyo High School
Grade level: 9-10

Sleep Disorder Slide Show

I. Focus (What is this lesson about?)

A. What is the essential content?

Fact: The central nervous system is divided into two parts: the brain and the spinal cord. The average adult human brain weighs 1.3 to 1.4 kg (approximately 3 pounds). The brain contains about 100 billion nerve cells (neurons) and trillions of "support cells" called glia. The spinal cord is about 43 cm long in adult women and 45 cm long in adult men and weighs about 35-40 grams. The vertebral column, the collection of bones (back bone) that houses the spinal cord, is about 70 cm long. The brain has three parts: forebrain, midbrain and hindbrain. The forebrain consists of cerebral cortex, basal ganglia, hippocampus, amygdala, thalamus, and hypothalamus. The midbrain consists of tectum, tegmentum. The hindbrain consists of pons, cerebellum, and medulla.

A neuron is made up of a cell body, dendrites, and an axon. An impulse begins when neurons are stimulated by another neuron or from the environment. Nerve signaling chemicals called neurotransmitters control whether we are asleep or awake by acting on different groups of nerve cells or neurons in the brain. Neurons in the brain stem, which connects the brain with the spinal cord, produce neurotransmitters such as serotonin and norepinephrine that keeps some parts of the brain active while we are awake. Other neurons at the base of the brain begin signaling when we fall asleep. A chemical called adenosine builds up in our forebrain while we are awake and causes drowsiness.

Sleep has little movement, a stereotypic posture, a reduced response to stimulus, and reversibility. Until 1950s, most people thought of sleep as a passive, dormant part of our daily lives. We know that our brains are very active during sleep, particularly during REM sleep. Sleep appears to be necessary for our nervous system to work properly. Sleep gives neurons used while we are awake a chance to shut down and repair themselves.

Sleep can be subdivided into non rapid eye movement (NREM), and rapid eye movement (REM). During sleep there are 5 phases: Stages 1, 2, 3, 4 (NREM), and REM. Stage 1 is light sleep. We drift in and out of sleep, and can be awakened easily. Our eyes move very slowly, and muscle activity slows down. Stage 2 is when our eye movements stop and our brain waves become slower. In stage 3, the body is very relaxed, and there is a slow, regular heartbeat. It is difficult to wake the person during this phase. In stage 4, the person is relaxed with a slow and regular heartbeat. It is difficult to wake a person during this phase. REM is characterized by a complete absence of muscle tone in the muscles that support the body against gravity. Most brain regions show relatively high level of neuronal activity as during wakefulness. People dream during REM sleep, perhaps as a result of excited brain activity. NREM and REM cycles are approximately 90 minutes.

Circadian rhythms are regular changes in mental and physical characteristics that occur in the course of a day. Circadian rhythms are controlled by the biological clock. The biological clock resides in the hypothalamus, and is influenced by light. Newborn infants sleep about sixteen to eighteen hours per day, and its widely distributed around the twenty-four hour day. This high sleep requirement is assumed to reflect a non-specific restitutorial demand that occurs as a result of dramatic growth. By sixteen weeks of age, the total amount of sleep drops to about fourteen or fifteen hours per day and a clear diurnal pattern emerges. A further gradual decline to about ten to twelve hours occurs between three and five years of age. By age ten, sleep amounts of ten hours or less are reported; sleep then continues to decrease throughout adolescence. Teenagers need to sleep about 9-10 hours. Individuals approaching old age, the amount of nocturnal sleep decreases; older individuals usually sleep only six to seven hours.

A Sleep disorder is a disrupted pattern of sleep that may include difficulty falling or staying asleep (insomnia, restless leg syndrome) or excessive daytime sleepiness (sleep apnea, narcolepsy). Examples of other sleep disorders are narcolepsy, advance sleep phase syndrome, delayed sleep phase syndrome, shift work syndrome, obstructive sleep apnea, insomnias, parasomnias, sleep terrors, hypersomnia, sleep walking, REM behavior disorder, restless leg syndrome, central sleep apnea, and psychosis.

Narcolepsy is a disabling neurological disorder of sleep regulation that affects the control of sleep and wakefulness. It maybe described as the intrusion of the dreaming state of sleep (REM) into the waking state. Symptoms generally begin between the ages of 15 to 30. The four classic symptoms of the disorder are excessive daytime sleepiness, cataplexy, sleep paralysis, and hypnagogic hallucinations. There is no cure for narcolepsy; however, the symptoms can be controlled with behavioral and medical therapy. Excessive daytime sleepiness maybe treated with stimulant drugs or with the drug modafinil. Cataplexy and other REM-sleep symptoms can be treated with antidepressants medications. Narcolepsy can be diagnosed using specific medical procedures: multiple sleep latency test which measures the time it takes to fall asleep and go into deep sleep, and polysomnogram test is an overnight stay at a sleep laboratory to measure waves and body movements as well as nerve and muscle function. The symptoms of narcolepsy can often be effectively managed by discussing possible side effects of medications to your doctor, developing a way to cope with the symptoms, join a support group, schedule regular naps, and seek counseling.

B. What is the learning **outcome**?

Given pictures, demonstration, and activities, students should be able to understand how to research information from the Internet and do a PowerPoint slide show.

II. **Connections** (How does this lesson fit into the big picture?)

A. What is the unit topic for the lesson?

Sleep disorder

B. What is the topic of the previous lesson?

Sleep/nervous system

C. What is the topic of the following lesson?

Endocrine system

III. **Materials/Resources** (What items will be needed?)

Internet/PowerPoint Quiz, Internet, PowerPoint program, rubric

IV. **Activities** (What is the instructional sequence?)

Day 1

A. **Engagement** (What is the motivation to learn?)

Demonstrate: Show a picture of an organism that is asleep, and ask the students what is a sleep disorder?

B. **Development** (What are the teacher/student activities that will guide students to the essential learning?)

Students will take a Internet/Powerpoint quiz, and as a class go over the questions.

C. **Application** (How will students use the new ideas and information?)

Students will go to the computer lab and research a sleep disorder. The sleep disorder will be assigned.

Day 2-3

- A. **Engagement** (What is the motivation to learn?)
I will ask the class to give me examples of a sleep disorder.
- B. **Development** (What are the teacher/student activities that will guide students to the essential learning?)
I will explain what narcolepsy is in a PowerPoint slide show. In the slide show I will explain how to use some basic concepts regarding the PowerPoint program: slide, layout, views, toolbars, icons, etc.
- C. **Application** (How will students use the new ideas and information?)
Students will go to the computer laboratory and create a PowerPoint Slide Show.

Day 4

- A. **Engagement** (What is the motivation to learn?)
I will ask the class what were some problems they had when they were creating the slide show?
- B. **Application** (How will students use the new ideas and information?)
Students will present their slide show to the class.

V. **Outcomes and Evaluation** (How will students success be determined?)

- A. What are the evaluation criteria to be used?
Students will create a PowerPoint slide show on their understanding of a assigned sleep disorder.
- How will students be asked to reflect on their own learning?
Ask the following questions.
1. Describe the basic features of the PowerPoint Program.
 4. Create and select a presentation style.
 5. Create a short slide presentation on a sleep disorder.
 6. Learn about a sleep disorder.

Resources:

<http://www.lessonplanspage.com/CICreatingPowerPointPresentation1112.htm>

http://www.actden.com/pp/unit1/1_main.htm

http://www.ninds.nih.gov/health_and_medical/disorders/narcolep_doc.htm

<http://www.sleepdisorderchannel.net/narcolepsy/diagnosis.shtml>

<http://www.med.stanford.edu/school/Psychiatry/narcolepsy>

<http://www.sleepfoundation.org/publication/livingnarcolepsy.cfm>

<http://faculty.washington.edu/chudler/chsleep.html>

<http://www.sleepfoundation.org/>

<http://washpost.com/nielessonplans.nsf/0/1FC5C5C85A4D61C985256B44005C5D3B?OpenDocument&sol=0>

http://www.pfizer.com/brain/teachers_html.html#spyingonsleep

<http://www.sleepquest.com/>

<http://www.thesleepsite.com/>

<http://www.sleepfoundation.org/nsaw/sleepiq99i.html>

<http://www.evms.edu/sleep/disorders.html>

Narcolepsy

By: Mrs. Martinez-Rodriguez

This slide features a blue header with the word "Narcolepsy" in white. Below the header, the author's name "By: Mrs. Martinez-Rodriguez" is displayed in a white rounded rectangle with a blue border.

What is Narcolepsy?

- A frequent disorder: it is the second leading cause of excessive daytime sleepiness.
- A chronic neurological disorder that involves your body's central nervous system.
- It is a disabling illness affecting more than 1 in 2000 Americans.

This slide has a blue header with the question "What is Narcolepsy?". The main content is a list of three bullet points describing the disorder, enclosed in a white rounded rectangle with a blue border.

Major Symptoms

- Excessive daytime sleepiness begin between the ages of 15 to 30.
- Regular episodes of cataplexy (loss of muscle control)
- Sleep paralysis (unable to talk or move)
- Hypnagogic hallucinations (scary dreams and sounds)
- Automatic behavior (routines performed without full awareness or later memory)

This slide has a blue header with the title "Major Symptoms". The main content is a list of five bullet points detailing the symptoms of narcolepsy, enclosed in a white rounded rectangle with a blue border.

Diagnosing Narcolepsy

- Polysomnogram tests is an overnight stay at a sleep laboratory to measure waves and body movements as well as nerve and muscle function.
- Multiple Sleep Latency Test, which measures the time it takes to fall asleep and go into deep sleep.

Treatments

- No cure, it is a life-long condition
- Stimulants: Ritalin, pemoline
- Antidepressants to treat cataplexy, hypnagogic hallucination and sleep paralysis.

Living with Narcolepsy

- Discuss changes in your symptoms with your doctor.
- Schedule regular nap times
- Join a support group
- Seek out counseling

Slide 7

Resources

- http://www.ninds.nih.gov/health_and_medical/disorder/narcolep_doc.htm
- <http://www.sleepdisorderchannel.net>
- <http://www.med.stanford.edu/school/Psychiatry/narcolepsy/symptoms.html>
- <http://sleepfoundation.org>