

Melissa Parente  
Capstone Project

**Pedagogy Unit Design:  
Migraines in Adolescents**

**Stage 1: Identifying Desired Results**

**Title:** Harry's Horrible Headache: Metaphor or Fantasy??

**Unit Description:** This is a two week unit that will focus on students in eighth grade and is designed to heighten student awareness and educate them about head pain disorders. Students will address their own misconceptions about headaches and migraines through a variety of activities. They use critical thinking skills to make prediction supported by evidence to explain different case scenarios.

Today, Harry Potter is a huge area of interest for children and adolescents, so these activities will incorporate three Harry Potter books: *Harry Potter and the Sorcerer's Stone*, *Harry Potter and the Goblet of Fire*, and *Harry Potter and the Order of the Phoenix*. Students will understand the differences between migraines and types of headaches by learning the various symptoms and triggers that come with them. The final project that they will create involves working together in groups to create an advertisement that effectively illustrates the benefits to particular type of headache or migraine treatment (i.e. over-the-counter medication, prescription medication or alternative treatments such as massages). By using Harry Potter in this unit, students will be able to make connections to both reality and fantasy, yet understand that migraines are an under-recognized importance. Robert (2007) wrote that "Headaches need not be a curse for Muggles or Wizards: it can be lifted with research, better to understand it, and education, better to manage it".

Migraines are one of the most mistreated and undiagnosed diseases. Students understanding the difference between the definition of a headache and a migraine will aid them to think critically. Understanding the various triggers that can aid in an attack are important to be able to recognize. Migraines can be looked at through many different levels, such as at the cellular level and population level. Migraines are a central nervous system disorder and are genetically based. Parents who suffer from migraines can pass them on to their children, even if

it is only one parent who suffers from migraines. Understanding what happens during an attack within the head can help to understand and explain the various types of migraines and headaches along with their symptoms. Migraine sufferers can usually explain their experience through words, art, and expressions but sometimes it is so complex that it is difficult to understand what is going on. People have many misconceptions about migraines and students will bring them into the classroom as common knowledge. Students will learn about how to interpret various scenarios, making predictions about what they think is the proper diagnosis, then finding evidence to support their prediction.

### **Unit Enduring Understandings:**

1. Biological categories are often not clear cut, more often occurring along a continuum without sharp dividing lines. Migraines are a good example of this because currently the cause(s) is not known.
2. We can understand biological phenomena by analyzing them at multiple levels from the molecular to the population level.
3. Scientific exploration can be used to help us to understand the world around us by connecting the importance of newly gained knowledge to our personal lives and our communities.
4. There are common medical conditions that are not well understood, even by professionals.

### **Unit Essential Questions:**

1. How is a migraine different from a headache?
2. How can we avoid the triggers that can cause an attack?
3. Why do some treatments and/or medications work and some do not work?

### **What students will need to know and be able to do (knowledge and skills)<sup>1</sup>:**

1. Use critical thinking skills to distinguish headaches from migraines in various scenarios.
2. Describe the various symptoms associated with tension-type headaches, cluster headaches and migraines.
3. Describe various types of triggers and their effects.

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<sup>1</sup> The design of this unit is based on *Backward Design* adapted from <http://www.ascd.org/portal/site/ascd/template.chapter/menuitem.b71d101a2f7c208cdeb3ffdb62108a0c/?chapterMgmtId=7733f2e3401b3110VgnVCM1000003d01a8c0RCRD> and utilizes models developed for this approach to curriculum planning.

4. Explain what happens inside your head prior, during and after an attack. Describe what is actually hurting.
5. Apply their understanding of headaches and migraines to situations in popular literature (i.e., *Harry Potter* books).

**Standards:** This unit will focus on standards from the National Science Education Standards book for grades 6-8. Science as Inquiry: Content Standard A- Develop students' abilities to do and understand scientific inquiry. Develop descriptions, explanations, predictions, and models using evidence. Thinking critically and logically to make the connections between evidence and explanations. Understand that scientific explanation emphasize evidence (National Research Council, 1996, pp. 121-123).

Science in Personal and Social Perspectives: Content Standard F- personal and community health and natural and human-induced hazards (National Research Council, 1996, pp. 168-169).

**Benchmarks:** The benchmark for grades 6-8 under the subheading Mental Health in chapter six called the human organism states that individuals differ greatly in their ability to cope with stressful situations. Both external and internal conditions (chemistry, personal history, values) influence how people behave (AAAS, 1993, p.149).

**Common Misconceptions:**

Migraines are a very highly undiagnosed area and are often confused with severe headaches. Many times people do not go to the doctor because they think that what they are feeling is a headache that will go away. In an article entitled, "5 Migraine Myths", published in volume 58 issue 7 of the July 2006 issue of *Prevention Magazine*, misconceptions about migraines were addressed. A common misconception is that if it were a migraine, I'd know it. Realistically you wouldn't know unless you knew what to look for or have been to the doctor who has properly diagnosed you. Migraines and headaches have similar characteristics but are very different conditions. Another misconception is that migraines are just really bad headaches. Migraines are actually a central nervous system disorder and are usually hereditary. Migraines consist of throbbing head pain that is usually located on one side of the head along with other symptoms depending on the type of migraine, such as nausea and sensitivity to light and sound. Migraines can have a severe impact on one's daily activities and can last up to 72 hours. Yet

another misconception is that stress and other psychological problems cause migraines. Migraines are a neurological disorder not a psychological disorder. The causes of migraines are still unknown but there are various triggers that precipitate an attack. Stress is considered a trigger along with other emotional difficulties. A fourth misconception is that you can cure a migraine by avoiding certain foods, like chocolate. In reality, you may be able to curb the frequency of migraines by avoiding anything that triggers them, such as chocolate, but diet will not cure migraines (*Prevention Magazine*, 2006).

## **Stage 2: Determine Acceptable Evidence**

**Title:** Marketing advertisement for headache and migraine treatments.

### **G What is the goal of the performance?**

Students will understand the complexity of migraines and headaches, demonstrating their understanding through oral presentation and visual demonstration.

### **R What Role does the student assume in the performance?**

Students are members of a creative marketing team charged with creating an ad for a type of migraine treatment.

### **A What Audience does the student address?**

The president (the teacher) and the marketing department (the other students in the class) for the company.

### **S What is the Situation for the performance?**

The National Association for the Better Understanding of Migraines (NABUM) has negotiated a contract with our company, looking for the best ad for headache and migraine treatments. Each team of four or five will create an ad for a type of headache or migraine treatment. They will need to focus on an over-the-counter medication; a prescription drug; or an alternative treatment.

### **P What Product should be produced?**

Each group will produce an advertisement created on poster board with descriptions, illustrations (i.e. graphs, photos) and explanations.

### **S What are the Standards for the product?**

The poster should be arranged in an organized manner, displaying evidence of understanding about the following questions:

- What type of headache or migraine does this treatment claim to remedy?
- What are the symptoms?

- What are some triggers that cause them?
- Why does this particular treatment work?

**Preconception Assessment:**

To introduce this unit, I will give my students a pre-assessment quiz to see what they already know prior to beginning this unit.

1. What is a headache and what are its symptoms?
2. What is a migraine and what are its symptoms?
3. What is the difference between a migraine and a headache or are they the same thing?
4. How would you know if you were suffering from a migraine or a headache?
5. What are ways to avoid a headache or migraine?
6. Why do some headache or migraine treatments work and some do not?

**Quizzes, Tests, and Academic Prompts:**

- Pre-assessment quiz
- Migraines vs. Headaches activity: defining each, list different types, and explain situations and/or experiences that have caused a headache or migraine.
- Case scenarios identification: using descriptions from Harry Potter books.
- Performance Assessment: creating an advertisement to promote a particular type of headache or migraine treatment (i.e. over-the-counter medication, prescription medication, or an alternative treatment such as massage).
- Post-assessment quiz, using same questions that were asked in the pre-assessment.

**Stage 3 Plan Learning Experiences, Instruction, and Resources**

**Where**

In order to help both the teacher and students know where they are going and why, the students will begin with unit with a pre-assessment quiz on migraines and headaches. The questions that will be measured are:

- What is a headache and what are its symptoms?
- What is a migraine and what are its symptoms?
- What is the difference between a migraine and a headache or are they the same thing?
- How would you know if you were suffering from a migraine or a headache?
- What are ways to avoid a headache or a migraine?

- Why do some headache or migraine treatments work and some do not?

### **Hook**

To begin this unit, the students will read and listen to a headache description scenario taken from *Harry Potter*. They will predict what Harry's trigger(s) are and explain whether or not Harry is suffering from a headache or a migraine. This activity will get the students thinking about ideas that will be covered within this unit.

### **Experiences**

Students will be able to make realistic connections and communicate the differences between migraines and headaches through the following learning experiences:

- Migraines vs. Headaches- as a whole class, we will review the definitions of a migraine and a headache. [ Definition: A migraine is a disabling central nervous disorder of the the brain, nerves, and the blood vessels (The Cleveland Clinic Foundation, 2003). Definition: A headache is when the nerves send a rush of pain messages to your brain, and you end up with a headache. (definition was found on [http://www.kidshealth.org/kid/ill\\_injure/sick/headache.html](http://www.kidshealth.org/kid/ill_injure/sick/headache.html) website.) The students will be asked to describe an experience or situation that had caused them to have a headache. Students will observe and discuss the different type of headaches and migraines, focusing on the types of headaches that are closely related to migraines (tension-type and cluster headaches). [This lesson was adapted from a lesson on Discoveryschool.com and will be referenced.]
- Case scenario activity: students will read different headache descriptions that are explained in the Harry Potter books, identifying keywords that they think describe Harry's headache. They will make predictions about what type of headache or migraine that Harry is experiencing and explain using evidence from knowledge gained in the prior activity.
- Create an advertisement for a headache or migraine treatment- students will work in cooperative groups as teams in a marketing department. Their objective will be to create an ad that best fits a particular headache or migraine treatment, illustrating their understanding through oral presentation and visual demonstration.

### **Reflect**

Students will be asked to write a brief summary of what they learned from this unit giving examples. They will also revisit the pre-assessment questions through a post-assessment quiz.

**Exhibit**

Students will engage in a performance assessment working cooperatively in groups as a team. Each team will be given feedback on their presentations by the teacher and classmates. Students will be given a post quiz at the end of the unit.

### References

- 5 Migraine Myths (2006, July). [Electronic version]. *Prevention Magazine*, 58(7). Retrieved on August 6, 2007 from EBSCOhost (not sure how to cite since it is on penn's library site) <http://web.ebscohost.com/ehost/delivery?vid=3&hid=102&sid=0f62934e-5fff-4829-ac76-1f...>
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  - Sheftell, F., Steiner, T., Thomas, H. (2007). *Harry Potter and the Curse of Headache [Electronic version]*. American Headache Society, pp. 911-916.
- \*An attached copy of the article follows, including the headache descriptions of Harry Potter that I will be using within this unit on pages, 912-915.