

Teaching Guide for Odyssey

March 2010: Bloody Good Science!

This guide was prepared by Robert Maxim. He is an English language arts teacher and author in New York State.

Emergency! Stop That Leak (page 6) Students can use this issue to practice note taking.

While reading the article students can pull important words from the reading. Here is how it works. As students read the first paragraph they pull out: **blood vessels, range, thickness, 25 millimeter, 8 micrometers**. In the second paragraph important words students select: **blood, vital, breathing, eating, fighting disease, disposing of waste, regulating temperature**.

Students can then go back later to their notes, and students can fill or complete, to make sure the notes make sense. This method is particularly helpful when students can highlight important words. The idea is to write down or highlight the main words, leaving out nonessential words.

Students can then take these notes and write their own essay on blood.

Here are some examples of questions to ask students when they are finished note taking.

What is the function of blood?
What components make up blood?
Describe hemophilia.
What are the smallest components of blood?
Describe the job of platelets.

Word bank *Riding the Iron* (page 10)
hemoglobin arteries capillaries carbon dioxide carbon monoxide
carbon monoxide detectors

After reading the article have students use the word bank to complete the sentences.

1. These are boarding and disembarking stations for oxygen. They also allow red blood cells to pass single file. *capillaries*
2. These muscular, elastic tubes carry blood away from the heart. *arteries*
3. This substance dissolves in blood and makes carbonic acid. *carbon dioxide*
4. A device that tells you if the odorless, tasteless gas produced from the burning of carbon containing fuels is present in your home. *carbon monoxide detectors*
5. Red blood cells manufacture an oxygen carrier. What is the name of this oxygen carrier?
hemoglobin
6. A dangerous odorless, tasteless gas. *carbon monoxide*

Blood There is No Substitute (page 18)

Students can read this article and take notes as outlined earlier. Have students answer the following:

1. What are some substances that have been tried as substitutes for human blood? *milk, animal blood, wine, and salt water*

2. What is a blood transfusion? *transferring blood from one person to another*
3. What is the main job of blood? *move oxygen around the body*
4. What is the purpose of hemoglobin? *hemoglobin catches and releases oxygen*
5. Give one reason milk can't be substituted for blood. *milk doesn't contain hemoglobin*
6. What is a risk when artificial hemoglobin is used? *Increased risk of heart attack*
7. Why do you think it is important for people to donate blood?

Vampire (page 36), *Old McDonald Had a Leech Farm* (page 37-38)

Students read the articles and write down at least five facts about bats and leeches and their connection to modern day medicine. Students can then pick teams to research other interesting facts about leeches and bats. Also, research can be done on other blood-eating creatures. I love to have my students write fiction. This seems like a topic they could run with in a writing assignment. Using the facts they collected, students could come up with some interesting writing. Just maybe a student has a blood-curdling tale ready to come forth.

In addition poetry about these creatures could create quite an interest.

This issue fits in with a program we do in our sixth grade. We ask people from our community, representing different careers, to speak to our students. We emphasize the importance of school. This issue will help when we ask health care professionals to discuss careers. Students will obtain background knowledge for the discussion from the issue.

In addition to using the magazine, have students do some online research to find out about careers in the health field.

This issue of the magazine is also a great place to address the effects of smoking on the body and the blood stream.

This activity may help. Ask the students if they know anyone who smokes. Hopefully, students won't, however it never seems to be the case. Collect the data from the students. The information you are seeking has to do with the age that the people the students know started smoking. Most people start when they are young. I have had students tell me parents, uncles, aunts, and cousins start at ages as young as eight years of age.

We discuss why these children started. Peer pressure and the need to belong are all reasons we come up with. The interesting part is the fact that when children start, they have no real idea of what they are getting into. The shocking part of this: the adult now knows how dangerous smoking is to his or her health and now wants to quit. So, the child starts smoking, and now the adult wants to quit, but can't. This is a good discussion topic for young adults.

Also, the financial cost of smoking can be discussed here. Students can figure the number of packs of cigarettes per week, and what the cost per week would be. Then the cost per year can be discussed. What happens if you save this money over a lifetime?

Deposits For The Blood Bank (page 27)

Students can write a persuasive essay or editorial piece promoting blood donation. They can use details in this article, or in the other articles this issue to help write and persuade people to donate.