

Anemia Activity Suggestion

Activity 5B

Note:

This activity suggestion describes how specific content might be taught to middle school students. It does not contain fully developed lesson materials, which we hope to develop under future funding in this content area. Any feedback on how you are able to use this lesson suggestion would be greatly appreciated. Your comments can be sent to us at teachhealthk-12@uthscsa.edu.

Activity Focus:

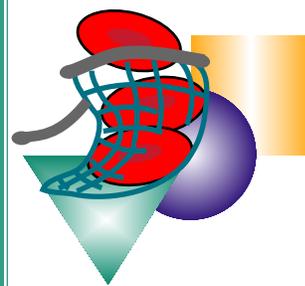
The students will be acting as doctors in trying to identify the type of anemia their fictional patient has. Based on “blood” samples and “blood” smears, the students will identify the type of anemia. Students will have the opportunity to classify, measure, record observations, compare samples, calculate, analyze results, draw conclusions, and report the results.

Activity Rationale:

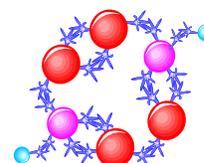
The job of the red blood cells is to carry oxygen to all of the parts of the body. Hemoglobin is the molecule that enables the red blood cells to do this. Anemia, the most common disorder of the blood, can be caused by the lack in quality or quantity of the hemoglobin. Anemia leads to a reduced amount of oxygen getting to the tissues and cells of the body which can lead to a variety of symptoms in patients diagnosed with this disorder.

One of the approaches to classifying the type of anemia a fictional patient has is by looking at the red blood cell size in a mean cell volume (MCV) lab test. This test will help to classify the anemia into two categories; below normal (microcytic) or above normal (macrocytic). MCV is calculated by dividing the hematocrit by the red blood cell count. Hematocrit is the proportion of blood volume that contains red blood cells. This is measured after blood has been separated into layers by spinning in a centrifuge. The length of the layers can actually be measured. The red blood cell count is the number of red blood cells per liter of blood.

$$\text{MCV} = \text{HEMATOCRIT} \div \text{RED BLOOD CELL COUNT}$$



Activity Suggestion



ACTIVITY 5B
SUGGESTION

Cast Your Net: Adventures With Blood

Suggested Methodology:

1. Introduce what anemia is and how it looks in the blood.
2. Discuss the different ways anemia is identified in a fictional patient.
3. Go over the process of the MCV lab test and discuss the calculations and terminology.

The students will observe prepared slides of blood smears, a transparency, or a paper copy of what would be seen under the microscope. This is what students will use to get the RBC count. Hematocrit values will be taken from the “blood” sample. The concept of a density column to represent the different layers of the blood can be used. By pouring the required amount into a vile, students will be able to measure the length of the layer. Students will record their calculations. They will then compare the values to a chart to identify the type of anemia the patient has. Students can then research their patient report.

Suggested Resources:

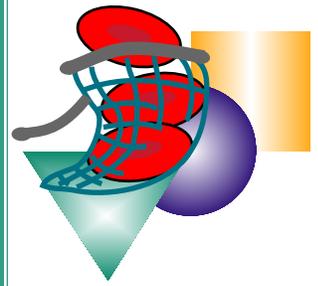
National Library of Medicine

<http://www.nlm.nih.gov/medlineplus/ency/article/003648.htm>

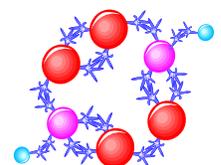
(Lists MCV ranges)

<http://www.nlm.nih.gov/medlineplus/ency/article/000560.htm>

(images of RBCs)



Activity Suggestion, continued



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Cast Your Net: Adventures With Blood