

Assure Method Unit Plan

Introduction: This unit will demonstrate how diseases infect; progress, as well as, how they are treated in humans. This will be done through examining and researching the life cycle of Malaria. Students will accomplish this through research, experiments, and collaboration with their classmates.

I. Analyzing Students

My unit plan is geared toward the twelfth grade biology level, students between the ages of 17-18. Students will be expected to have a basic understanding of disease and the immune system from perquisite science classes. However, the unit will be modified to assure that each student has the knowledge required to move forward in the lesson. The students will be assessed through interactive surveys, as well as, through the worksheets handed out in class. My goal for this unit plan is that the students will learn how to explore scientific studies through the research method. I also wish for my student to gain the understanding of diseases, the types, life cycles and how this can affect the human population

II. State Objectives

SC.O.B.1.1- Implement safe procedures and practices when manipulating equipment, materials, organisms, and models.

SC.O.B.1.3- Conduct and/or design investigations that incorporate the skills and attitudes and/or values of scientific inquiries (e.g., established research protocol, accurate record keeping, replication of results and peer review, objectivity, openness, skepticism, fairness, or creativity and logic).

SC.O.B.1.6- Investigate, compare and design scientific and technological solutions to address personal and societal problems.

SC.O.B.2.18- Justify the placement of viruses in classification systems.

SC.O.B.2.19- Examine the cycle of viruses and compare disease prevention: vaccinations, vector control, drug therapy.

SC.O.B.2.20- Evaluate environmental factors that affect succession, populations and communities.

21C.O.9-12.1.LS.1- Student recognizes information needed for problem solving, can efficiently browse, search and navigate online to access relevant information, evaluates

information based on credibility, social, economic, political and /or ethical issues, and presents findings clearly and persuasively using a range of technology tools and media.

21C.O.9-12.1.LS.3- Student creates information using advanced skills of analysis, synthesis and evaluation and shares this information through a variety of oral, written and multimedia communication that target academic, professional and technical audiences and purposes.

21C.O.9-12.2.LS.2- Students draws conclusions from a variety of data sources to analyze and interpret systems.

III. Selected Media and Material

- Smart Board
 - Computers
 - PowerPoint
 - Document Camera
 - Handouts
 - Textbooks
 - Websites
 - Microscopes
 - Slides with cells
 - Wiki page for the classroom
 - Second Life
- <http://plus.maths.org/latestnews/may-aug06/africa/lifecycle.jpg>
This websites is to give the student a visual look at the life cycle of Malaria.
 - <http://www.sciencedaily.com/images/2008/10/081008151314-large.jpg>
This is a website that will show what an effected red blood cell would look like. I have this website listed so that the students will be able to compare the cells in their lab to what we know the infected cells to look like.
 - <http://www.youtube.com/watch?v=szlfndjOTFE&feature=related>
This websites is a video that explains the life cycle to the students, so that they will be able to put the discussion and pictures together to gets a firmer understanding of the disease.
 - <http://www.youtube.com/watch?v=IVbq2yQH52g>
This is another video for the students to watch on the life cycle of Malaria.
 - <http://www.topnews.in/red-blood-cells-infected-malaria-become-stiffer-2239115>
This website is for both the student and teacher to get information of what happens to an infected red blood cell when a human is infected with Malaria.

- http://www.emedicinehealth.com/malaria/page2_em.htm
This website is for students and teacher to explain the disease Malaria, as well as, give some information as to where certain types are found in what areas of the world.
- <http://www.cbc.ca/health/story/2010/01/20/malaria-gsk.html>
This website is for students and teachers to give insight on some of the research and progress for treatment of Malaria.
- <http://www.cdc.gov/malaria/>
This website is for students and teachers and gives a good definition of Malaria and also informs of number of cases found each year.

IV. Utilize Media and Materials

Day 1- SC.O.B.2.18 and SC.O.B.2.19

Day 1 of the unit plan will be spent reviewing information about viruses, bacteria and parasites and the way that these are categorized through a PowerPoint presentation. After the PowerPoint presentation I will have an online poll to assess what students know about the different diseases. This is to make sure that the students are all ready for the material ahead so that we can modify any changes in the unit before we begin the unit plan. After we determine whether Malaria is a virus, bacteria or a parasite, we will then look at the life cycle of Malaria itself and students will be given a handout to fill out. The worksheet will be an overview of bacteria, viruses, and parasites, as well as, some examples. Students will be allowed to collaborate with each other, look at the textbook, use the websites posted on the Wiki, and review the PowerPoint presentation to complete the assignment. What is not completed by the students must be done as homework.

Day 2 - SC.O.B.1.3 and 21C.O.9-12.1.LS.1

Day 2, we will then review the lesson from Day 1. We will all go over the worksheets and students will make any corrects needed before they are turned in. Then there will be a brief PowerPoint on the disease Malaria. Also using the document camera I can show them the mosquitoes (unaffected of course) so that they can see what the mosquitoes look like. Student will then be given a worksheet with the websites that are on the Wiki page. This worksheet will outline what Malaria is and its life cycle. They will be responsible for going to each of the websites and gathering information from the sources. Students may collaborate with each other on these worksheets. We will then spend the rest of the class sharing the information the students found. I will then add any information needed or answer any questions that the students may have on the material researched.

Day3- SC.O.B.1.6 and 21C.O.9-12.1.LS.1

On Day 3, students will explore the course of Malaria through the software Second Life. The students will use their avatars to explore the life cycle through the interactive classroom I have setup. It will show them how the parasite infects its host, the route that it travels as well as the affect that it has on the body. They will also be able to look inside the cell of a healthy humans red body as well as the red blood cell of some with Malaria. After the student has completed the virtual tours, they will write a paragraph explaining what they saw on the tours and post it on the wiki page.

Day 4- SC.O.B.1.3 and 21C.O.9-12.1.LS.3

Day 4 will be spent preparing the student for their experiment. This will include a PowerPoint on the effects that Malaria has on the red blood cells of an infected person. We will review movie clips and pictures so that the students can visualize the effects of this disease. We will then proceed to review the lab procedures and begin to prepare the lab area. The students will be given a pre-lab worksheet to complete either in class or at home to make sure that they understand the material that the lab is based on. Movie clips and pictures will be posted on the Wiki for students to review.

Day 5- SC.O.B.1.1 and 21C.O.9-12.2.LS.2

On Day 5, I will take up the worksheets and answer any questions the students may have on the pre-lab worksheets or the experiment before we start. I will then go over the lab procedure for the class again to make sure the directions are clear. In this lab, the students will compare the cells of a healthy red blood cell and the cells of the infected red blood cell by using the microscopes. Students will make observations and write them down in their lab journals and then make a post on their wiki pages on their observations. By posting this on their wiki page, students will be able to compare the outcome of their experiments with other lab groups in the class. They will have a post-lab worksheet to complete either in class or at home.

Day 6- SC.O.B.1.6 and SC.O.B.2.20

Day 6 will be spent on looking at where this disease is primarily found, why the cases are higher in the areas and how it affects the societies it is found in. I will then discuss treatments that we have, such as the vaccinations, and ways to prevent being infected with Malaria, like the mosquito nets. Students will then complete a worksheet in class. This worksheet will cover the unit plan and will test how well the material was learned.

Day 7-21C.O.9-12.2.LS.2

Day 7 will be spent in the computer lab. Each student will then write a brief essay of what they researched, what they learned and what else they would like to know about Malaria. This essay will then be uploaded to the Wiki so that the students may see each other's responses and share information and comments. By doing this I will be able to evaluate how well the unit planned worked for the class as well as their

reactions to what we did. The class will also be instructed to come up with one PowerPoint slide each to upload to GoogleDocs. This slide will be about the most interesting thing they have learned through the unit plan. The students will have all day to complete this assignment. What is not finished in the class must be finished at home so that we can discuss the wikis and slide show the next day.

V. Required Learner Participation

In order to keep the students attention I have made the lessons very interactive. I have incorporated many images and video clips in my discussions so that the students can actually see what it is I am teaching them. Students are also given worksheets to work in groups with. They will be very involved with the unit because they will be doing the research themselves and collaborating with their peers to find information. They will also be able to participate in an experiment with will show them with their own eyes what they are learning looks like. This will make it more real and prevalent to them. They will also be able to communicate with each other through the Wiki page to encourage collaboration beyond the classroom and to share their thoughts and information.

VI. Evaluate and Revise

Students will be evaluated each day through the handouts and worksheets given as well as through periodic polls that I will be able to give online so that I can modify any changes that need to be made. SC.O.B.2.18 and SC.O.B.2.19 will be evaluated by the worksheet that is given out at the end of Day 1. On Day 2 and Day 3, SC.O.B.1.3 and 21C.O.9-12.1.LS.1 will be evaluated through the research that the students do and the worksheet that they complete. It can also be evaluated through the information that the students share in the discussion. 21C.O.9-12.1.LS.3, SC.O.B.1.1 and 21C.O.9-12.2.LS.2 are evaluated through the experiment and the virtual tours in Second Life. It will be evaluated through how smoothly the procedure is done, as well as, the lab reports and conclusions that the students present. SC.O.B.1.6 and SC.O.B.2.20 is evaluated in Day 6 by the final worksheet given to the students. On the last day, 21C.O.9-12.2.LS.2 will be evaluated through the essay that the students post on the Wiki page. This will let me evaluate the overall effectiveness of the unit plan.