

University of Mary Division of Education Instructional Sequence for:

Bacteria and Viruses Lesson 5

By: Ann Balster

Grade level: 7th Grade

Subject area: Life Science

Materials Needed: Life science Textbook (Chapter on Bacteria and Viruses), Individual parts for Case Study, Notes handed out prior to class

SStandards:

MS-LS2-2: Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

MS-LS2- 4: Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

Objectives:

Students will be able to:

1. Create a hypothesis
2. Support a hypothesis with data
3. Understand methods of contracting disease
4. Perform and create a character in front of the class

Learning Activities:

- I. Week I Bacteria, Day 5: The Black Plague Case Study lab, see <http://teacherlink.ed.usu.edu/tlresources/units/Byrnes-S2000/Symons/bubonic.htm> for instructions.
 - a. Ask students to get out their notes and then start class with a little Q and A about the previously discussed topics of the week.
 - i. Remind students of what they already know about Bacterial Disease!
 1. Who knows what Reservoirs are?
 2. Who knows how we can acquire pathogens such as bacteria?
 - ii. Now it is time to put this knowledge to the test.
 - b. Teacher will reiterate the format of the case study lab.

- i. What is a case study? A form of research where you look at actual quotes and testimonials from eyewitnesses (like a court case).
- c. Case studies will start, and students are instructed to take notes on clues that are presented along the way. (20-30 minutes)
 - i. Remind the students that they do not have to feel afraid about getting up “on stage” to perform.
 - 1. My biology classroom is a safe environment, and if at any point a student is feeling nervous, they can always come and talk to me. I just want everyone to give it a try.
 - 2. An actor ceases to be “Jim” and become the character chosen for you once you leave your seat.
 - a. Give yourself the opportunity to be creative with your character
 - ii. Then teacher will start the Introduction as the Narrator about the Black Plague, and the case studies will proceed.
- d. After all case students are finished, students will talk with neighbors (3-4 students in groups) about their findings and hypothesize the cause of the Black plague. Groups will present a clear hypothesis and reasoning to the class after about a couple minuets of table-talk. (5-10 minutes)
- e. Teacher will finish with the paragraph provided on the website, solving the case. (2 minutes)
- f. Students will write down the questions, and then return next Monday with them answered: (2+ minutes)
 - i. Monday Entrance slip:
 - 1. What did you enjoy about this case study?
 - 2. What do you think it would feel like, living through a massive epidemic like the Black Plague?
 - 3. What are ways to prevent the spread of horrible diseases like the Black Plague?
- g. **Weekend Homework: Bacteria worksheet (due Monday), Entrance Slip, and prepare for Bacteria Quiz**
- h. Dismissal: Wish everyone a good rest of their day and a fantastic weekend.

Assessment: Today, I will assess the student on their understanding through the small group discussions and large group discussions. I will also take into account the Entrance slip on Monday. The Bacteria Worksheet is due on Monday, so I will check understanding about that, then.

Reflection: I thought that this lesson was really fun, not only for the students but for me. I felt that everyone was really enjoying all parts of the lesson. Perhaps this was due to the fact that it dabbled in different interests that the student(s) might have. Biology

wasn't the only subject presented in the Case Studies. Drama and history skills were also included. Perhaps for the first time ever, a student that I was working with *liked* biology/life science because it wasn't entered on cells and population distribution. A student could have been super interested in theater, and as a biology teacher I would have ever know unless I gave that student the opportunity to shine in my classroom. Integration of seemingly opposing subjects is extremely important. It allows for differentiated instruction and different learning theories to be used in the same class and lesson, which is a very rare thing.

If I could change anything it would be to give the students a copy of the case studies so that they could follow along. Granted, it is more fun to watch the acting than to read a script, but it is also good for the students to receive the information in more than one way (e.g. auditory and visual). However, I would need to find a way to hand out the packets of case studies while not allowing the students look ahead and receive clues about the Black Plague before they were mentioned in class. Also I did decide during my lesson that I would change the exit slip into an entrance slip for convenience of time. I want the students to think about my questions, rather than quickly finish the problem set and head to the next class without true reflection on the topic and learning opportunity given to them.

All in all, I really hope to put this lesson into my actual practice. I feel like this lesson could be modified to a high school level too. Future modification could include an application of technology into the lesson such as giving the students the opportunity to make a movie of the case study. This could increase the Project-based learning aspect, and it could teach the students a lot about project responsibility as well as videography and of interesting technological skills.