

# New Teacher Collaboration

*First-year teachers join forces  
for an integrated biology/English unit*

**T**HE REAL CHALLENGE OF TEACHING comes when we put an idea into practice in the classroom. Many ideas sound wonderful in the beginning, but it is not until planning and implementing something such as an integrated unit that the amount of work ahead is obvious. This is especially true for new, inexperienced teachers. A great idea does not teach by itself but must be planned with management skills, motivation, assessment, and available resources in mind.

The concept of a lesson plan is no stranger to any teacher. However, implementing an integrated unit in our disciplines of biology and English—and bringing together 60 students and two first-year teachers in one classroom—was a new challenge for us both.

**BY CHRISTAN BOHDE  
AND LORI HARRIS**

We began by brainstorming to find a topic that would unite the two disciplines and spark students' interest. We knew we wanted students to work in groups, perform a hands-on experiment, and obtain an understanding of biology and English concepts working in tandem. Discussion led us to center our unit on infectious diseases, a topic we felt teenagers could relate to their lives and about which they would have some previous knowledge.

Surprisingly, the most daunting aspect of planning was placing students in what we thought would be successful groups. We considered leadership quality, social skills, learning ability, and work ethic but had to rely on each other's evaluation of every student. This cooperation was especially important because each of us was going to be teaching 30 students we had never seen before.

To focus the unit, we developed a specific set of scientific goals for students. Through final presentation and subsequent class discussions, we felt students should illustrate the following:

- a definition of infectious versus noninfectious,
- descriptions of differences between bacterial and viral



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diseases with respect to specific causative agents, methods of transmission, symptoms, and prevention of the diseases, and

■ an understanding of current methods of treatment and their relative effectiveness for various infectious diseases.

The main objective was for students to understand how easily many infectious diseases can be spread.

Before the group research began, we planned a hands-on experiment to introduce the topic of infectious diseases (see *How are Diseases Spread*, page 30). Each student was given a cup containing a liquid representing body fluid. They were to exchange their “body fluid” with that of three classmates by mixing the liquid from their cups. Though most cups simply contained water, two were tainted with a weak, colorless sodium hydroxide solution. After exchanges took place, all samples were tested with an indicator by the teacher. If the sample was “infected,” it would change from clear to colored, which occurred in many of the samples. This effectively illustrated to students that though only two cups in the class were infected to begin with, over half changed color by the end of the experiment, simulating the spread of an infectious disease.

Setting guidelines for students is imperative for any lesson. However, before we could inform students of the guidelines, we had to decide them for ourselves. Since it was a large class, some of our individual expectations had to change. It was very similar to what a new teacher goes through at the beginning of a new year: setting guidelines in an attempt to prevent students from “testing” the teacher. These expectations were outlined at the beginning of the project and included behavior, grading requirements, and objectives.

Setting guidelines becomes especially important when students are involved in any laboratory situation. But when well-planned, a hands-on investigation can be the most effective part of a lesson. The experiment was very successful because once students knew what we expected and accomplished the objectives, they saw the relevance of the unit to their lives and truly had fun.

The experiment led to a discussion concerning biological aspects of infectious diseases: causes, transmission, symptoms, effects, prevention, and treatment. During this discussion we tried to elicit students’ prior knowledge. These concepts were then applied to the topic each group selected. Topics included various sexually transmitted diseases and childhood diseases.

# How Are Diseases Spread?

One way many diseases are spread is by the exchange of body fluids. Unfortunately, many of us think this will not affect us, whether the disease is treatable or deadly. We believe the people around us surely do not carry anything that could make us sick. With the number and kinds of diseases out there today, this is just the kind of attitude that could kill us.

## Problem:

Is it easy for a disease spread through infected body fluids to be introduced into a large population by a small number of people? (Write your hypothesis below.)

## Hypothesis:

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## Procedure:

1. You will be assigned to a group that is part of a larger population. Groups 1 through 4 are in the BLUE population, groups 5 through 9 are RED, and groups 10 through 15 are GREEN.
2. There should be approximately 20 people in your color group. Number yourselves individually 1 through 20. Using your number and the color of your population, each person should have a code name such as Blue-14 or Green-2. Record this name below.
3. At the front of the room, you will see a cup with your code name on it. When everyone is ready to start, get your cup. This is your simulated body fluid. CAUTION: *Do not drink this liquid. Inform a teacher immediately if it spills.*
4. Exchange "body fluids" with three people in your color group. To exchange fluids, pour all of the liquid into one of the cups and pour it back and forth between cups two more times. This will ensure a thorough exchange of the fluids. Each time you do this, record the code name of the person you exchange with below.
5. Bring your sample to the teacher to have it tested for infection. Samples that change color are infected.

My code name \_\_\_\_\_

Exchanged body fluid with:

Code name \_\_\_\_\_

Code name \_\_\_\_\_

Code name \_\_\_\_\_

## Questions:

1. How many people were in your large group? \_\_\_\_\_ How many people ended up being infected? \_\_\_\_\_

2. What are two possible body fluids this liquid could represent in passing on certain infections? \_\_\_\_\_  
\_\_\_\_\_

3. What are two examples of diseases where this exchange of body fluids is one way to get the infection? \_\_\_\_\_  
\_\_\_\_\_

4. What has this shown about the way diseases are spread through a group of people? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

To tie in an English aspect to the unit, we had students present a public service announcement to their peers. To successfully complete this assignment, groups had to research the disease, learn about using proper tone, and create an attention-getting visual aid that covered the biological aspects of the disease and cited the group's sources. Students learned about these areas through class discussion and examples presented by the teacher.

We collaboratively created all plans for the discussions and examples. This teamwork between teachers was imperative to the success of the unit. As new teachers, we relied on each other for new ideas and support. We knew that without each other, the unit would have lacked many essential elements. Since then, we have come to realize the importance of having a group of people with whom to share ideas and to provide much-needed support in all stages of teaching.

Once the experiment and subsequent discussions were completed, research began in the media center. Teamwork now became essential, and each group depended upon each student's contribution. Fortunately, the time we spent on planning paid off, and we found the groups to be very dynamic. We were careful to distribute students we thought would assume leadership roles and keep all students on task. But this is not to say we were prepared for everything. In addition to providing a constant barrage of questions, students demonstrated an obvious need for discipline. We realized that we could not be everywhere in the classroom at once and that the unexpected could and would occur. Once again our ability to work together and our cohesiveness kept problems to a minimum. Learning this concept can save a teacher's life. We have learned from our experiences that immediately addressing small problems helps to avoid larger ones.

When presentations began, control of the project changed hands from teachers to students, and everyone's hard work showed. The creativity of many of the visual aids, discussions, and skits surpassed our highest expectations. Imagine a ninth grader pretending to be a rabid animal by growling and hopping around on stage wearing furry ears attached to a headband while his group presents facts in front of 56 students, two teachers, and one video camera. This is just one of many examples of our students' creativity. For any teacher, seeing students

this interested and active in learning is the reason for being in the profession.

#### **NEXT TIME . . .**

We have learned that there is no way to know beforehand which activities will be successful. When this project was conceived, our goal was to try something new and have fun doing it. During the project some aspects were very enjoyable and some simply frustrating for us

and our students. For example, seeing students work in an environment where individuals were able to complement one another's strengths in a group setting was very rewarding. However, ensuring success for all students within groups was challenging, especially when trying to keep them on task.

Obviously, doing one integrated unit does not make us experts. While we feel this project was very successful, we have thought of many changes we will make next time. The simple but necessary task of taking attendance became a hindrance to achieving the unit's goals. One time-saving solution we have dis-

cussed is to post a student sign-in sheet.

Many students indicated in evaluations at the end of the project that they could have achieved much more given additional time. The simple solution may be to allow an extra day for research. We attempted to account for individual responsibility but were not satisfied with the result after listening to student feedback. Equal distribution of work was a foreseen challenge and is not easily solved any time students work cooperatively.

The challenges encountered during this integrated unit led us to constantly rethink, replan, and reorganize. Fortunately, the successes we encountered made us eager to plan another integrated unit. ✧

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#### **REFERENCES**

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