

Biology Bulletins *Revisited*

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In October 1981, an article appeared in *The American Biology Teacher* with the catchy title, *Bio-Bull*. In it, author Dale Carlson described a powerful form of communication that he employed successfully in his community college classes. Each week students received what he called a “Bio-Bull” that included current biological topics, assignments, and behavioral objectives (teachers have come far since then!) for lectures and labs. According to the author, students welcomed Bio-Bulls because they reduced the amount of the guesswork that often accompanies teacher/student interactions. Although offering only anecdotal evidence, Carlson sensed that implementing the bulletins had caused student interest and achievement to rise. His brainchild sounded like a winner.

Like all resourceful teachers, I borrow good ideas wherever I find them—articles, hallway conversations, the Internet. Over the years, I became a connoisseur of other people’s original thinking, taking their ideas and adapting them to my personal teaching style. The way that I “borrowed” Carlson’s concept for Bio-Bulls and integrated them into my own teaching followed this same pattern. When I taught high school, I called these advance organiz-

ers “BioBulls” for biology students and “Marine Forecasts” in my Marine Science class. Today, as a science educator, I use “Science Zones” in my Elementary Education Science Methods course to model how teachers can communicate all manner of essential course information to students. In every instance, these publications significantly impacted learning by enhancing student-teacher interactions and building a sense of classroom community.

While I have always been satisfied with the results of distributing weekly bulletins and convinced of their efficacy, the publication of the *National Science Education Standards* (NRC, 1996) validated this practice. Several science teaching standards connect directly with this instructional approach.

- Standard A1: Teachers of science plan an inquiry-based program for their students. In doing this, teachers develop a framework of yearlong and short-term goals for students.
- Standard B3: Teachers of science guide and facilitate learning. In doing this, teachers challenge students to accept and share responsibility for their own learning.
- Standard E1: Teachers of science develop communities of science learners that reflect the intellectual rigor of scientific inquiry and the attitudes and social values conducive to science learning. In

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doing this, teachers ... require students to take responsibility for the learning of all members of the community.

Bulletins certainly capture the intent of these standards. Through their use, science teachers plan instruction, guide learning, and build communities of learners. But additionally, bulletins *communicate clear expectations* to students. Hopefully, future revisions of the science teaching standards will include this latter goal because classroom practices that facilitate the exchange of information contribute immensely to effective teaching and learning.

My first BioBull was printed in 1982, typewritten, and reproduced with a Spirit Master! The first section was conversational, part two referenced student work, and the third piece was informational. It began with an attempt at motivation: "You will work hard in this course and I feel confident that you will find this to be a rewarding and enjoyable experience" followed by blurbs about social drinking, sickle cell anemia, senility, and a detailed overview of the work week. Although every bulletin since has read differently, the original three-part framework has been retained. Table 1 lists items that have been included in these one-pagers.

Strategically Planning for Instruction

Quality instruction is inevitably underscored by careful attention to planning. Although good teachers always capitalize on spontaneous teachable moments, nothing replaces painstaking instructional decision-making for its day-to-day impact on students.

Preparing to teach incorporates three essential stages: course, unit, and lesson planning. Long range planning produces a coherent curriculum framework or syllabus that unfolds over the life of the course. The next level of preparation generates a set of carefully-crafted lessons that reflect a logical ordering of topics and a developmental sequence of learning activities.

Bulletins enter the picture during short-term planning. This stage produces detailed lessons that include such elements as targeted standards, specific methods for delivering instruction and assessing student work, accommodations for special learners, and student materials. The complementary student bulletins I produced defined the specific responsibilities of learners by providing precise information about classroom activities, homework assignments, and assessments. Figure 1 illustrates a sample BioBull for a week devoted to the use of the compound microscope.

Suggestions for Implementing Weekly Bulletins

Committing to weekly bulletins as the principal means of classroom communication has only one downside ... it takes time. But, as teachers gain experience and compile a resource bank, the time factor quickly diminishes. Some

Table 1. Ideas for Bulletin Materials

Personal messages	Seasonal greetings
Content standards	Congratulations/recognition
Daily learning activities	Quotes
Assessment information	Cartoons (Gary Larson, come back!)
Homework assignments	Pictures
Etymological root words	Poems, cinquains, syntus
Timetables/deadlines	Facts and figures
Science in the news	Reminders
Bonus opportunities	Diagrams
Career information	Song lyrics
Mnemonics	Logos
Announcements	Graphic organizers
Scientific data	Acrostics
Science of the season	Jokes
Concept maps	Puzzles

teachers post bulletins on their Web sites to eliminate the need for hard copies. Here are some suggestions that make the process more manageable and productive.

- Prepare a template so that you always have a common starting point.
- Vary the content, but make sure that bulletins retain a consistent look and feel.
- Go visual and add humor. Interesting graphics make bulletins more appealing. The benefit of humor speaks for itself.
- Begin every week by reviewing the bulletin with students. Require students to save all bulletins in their science notebooks.
- Keep a weekly organizer to jot down potential ideas for the next bulletin. By Wednesday, you should have a good estimate of the following week's plan.
- Dedicate a manila or computer folder for collecting bulletin resources. When you spot a cartoon, news brief, poem, quote, etc. that may have some future use, add it to the file.

The expression "cut and paste" no longer conjures the image of scissors and glue. Computer templates and online libraries contain thousands of images, quotes, and science information that make the process of classroom communication through bulletins less time-consuming, more creative, and more aesthetically pleasing.

Worth the Effort?

Absolutely! No other practice exerted such a profound and transformative influence on my teaching. Here is how weekly bulletins affect my performance as a teacher.

Figure 1. Sample BioBull



BioBull

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Congratulations! You've gotten off to a great start in Biology. Everyone has been cooperating, doing their assigned work, asking good questions, and working hard. I couldn't ask for more. Try your best to continue in this spirit.

The world of science emphasizes inquiry and problem solving. Discovering answers to many questions requires specialized equipment and technology. During this week, you'll learn how to use one the biologist's most important tools, the compound microscope.

MONDAY ENGAGEMENT	Demonstration: Name the Common Lab Equipment HW: Observe versus Infer (hdt. 10).
TUESDAY EXPLORATION	Lab: Microbes in Pond Water or Plankton in Sea Water (hdt. 12). Examine microslides. HW: The Metric Machine (hdt. 11).
WEDNESDAY EXPLANATION	Review the proper use and care of the microscope. HW: Label the microscope diagram; use your own words to describe the function of each part (hdt. 13).
THURSDAY EXTENSION	Lab: Techniques for Better Microscope Use (lab manual, 9-12). Video: "Water Circus." HW: Prepare for test.
FRIDAY EVALUATION	Lab Practical: Equipment for the Biology Lab. HW: Collect acorns for Acorn Analysis lab (hdt. 14).
ROOTS BONUS	Alb - white Amphi - both Ante - in front of Collect 5 advertisements that contain pictures and slogans. Describe what you believe is inferred by these ads.

... I found floating (in lake water) therein divers, earthy particles, some green streaks, spirally wound serpent-wise and orderly arranged, after the manner of the copper or tin worms ... the whole circumstance of each of these streaks was about the thickness of a hair on one's head.

Anton van Leeuwenhoek, Letter 6: September 7, 1674

...While I was busy looking at the multifarious very little animalcules a-swimming in this water, I saw floating in it, and seeming to move of themselves, a great green round particle of the likeness of sand grains ... I saw that they were not simply round, but that their outermost membrane was everywhere beset with many little projecting particles which seem to be triangular.

Anton van Leeuwenhoek, Letter 122: January 2, 1700

- Going public keeps me honest. My instructional planning is genuine, meaningful, and filled with purpose. Almost every decision about curriculum and instruction becomes intentional and based on careful reflection.
- My planning is tightly focused and well paced. I ask myself, "Is this what I really want students to accomplish during this time period and is the plan realistic?" The plan I share is one that I truly intend to implement. Credibility could easily be lost if I repeatedly failed to meet my own schedule!
- My writing has improved and creativity has risen. It's wise to choose language carefully when you're never sure who might read your bulletins!

- Student accountability rises and as accountability improves, so does performance. Since bulletins are reviewed only at the beginning of each week, monitoring of classroom events and completing assigned work in a timely fashion becomes the students' responsibility. One young man, whose forte was clearly not organization, one day beamed up at me and proudly announced, "Look, my bulletin's right here in the plastic sleeve of my science notebook where I can see it. Now I always know when things are due."
- Incorporating science articles and etymological derivatives supports considerable "accidental" learning and helps students to develop scientific language skills.
- Trepidation associated with test-taking is reduced because the numbered bulletins are virtual study guides that provide a complete and accurate course history.
- Value added. Often, teachers must submit weekly lesson plans to their supervisors. My bulletins were accepted by my department chair in lieu of the traditional weekly plan.
- Bulletins open up additional avenues of communication. Memos are displayed prominently at parent/teacher conferences and during open houses and provide instant answers to students who have been absent. They also enhance the information flow with support personnel such as special education teachers and guidance counselors.
- Monitoring my own year-to-year course changes is simple because of the clear, accurately-referenced and comprehensive record.

For 20 years I've wanted to write this followup to Carlson's article, but I procrastinated. Bulletins became the cornerstone of my science teaching. These one-pagers simultaneously helped all of the partners in public education: me, my students, their parents, colleagues, my administration, special education teachers, and even substitutes. Prior to using bulletins, most of my student announcements were transmitted either verbally or posted hastily in nearly illegible handwriting. Seldom did everyone hear, read, or "get" the message. Today, conducting a science course without giving students some sort of weekly advance organizer seems unthinkable. Colleagues who have latched onto this idea call them "Biology Billets," "BioBabbles," or simply, "Mr. Smith's Physics Newsletter." Find your own catchy title. Try it; you and your students will like it!

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