

Dissection Alternative

Froguts

Bio-eLearning, \$300 per year for a whole school or \$30 per year for personal home use

Overview of Product

In a time when many of us are seeing our science budgets slashed and our time spent on doing actual science reduced to accommodate getting students ready for standardized tests, creativity is the key to keeping our students engaged. Along with the money and time constraints, if you're like me, you have more students asking for alternatives to dissection. I have never had a problem accommodating students, but much of the material available is nothing more than images of dissected frogs, with little or no interactions. I teach a zoology unit, and websites that have representatives of other phyla are almost nonexistent. I often found myself pulling materials from several sites. Then I was introduced to Froguts. As I found, Froguts offers an affordable alternative to high-cost specimen purchases. For those of you who have no need to offer alternatives, Froguts can be used as a supplement to actual dissection. In my class, I found that Froguts helped my students to use the most of their limited time and increased comprehension better than other dissection websites.

The developers of Froguts have created a multimedia tool that not only engages the students but gives students the ability to assess themselves and get immediate feedback. The software comes on a CD with an activation code. The software is universal binary and can be used on PCs and Macs. I had the option of downloading the material to computers at my school or at home (one subscription covered the whole school), and my students could take it home to work at their own pace.

The Froguts subscription allows learners to complete virtual dissections of the frog, starfish, squid, fetal pig, owl pellet, and cow eye. Although I was not able to use it in my classroom this year, there are interactive modules that cover Mendelian history

and genetics via the classic pea experiment. There is also a comprehensive fruit fly lab.

Finally, the support one gets from the Froguts team is like nothing I have experienced before. The subscription service provides full support to all subscribers. The directory I received walked me through standard implementation. For those of you looking for large-scale implementation, there are easy-to-follow directions. The one suggestion I have is to work with your technology director to see how best to meet the needs of your school or district.

Learning Goals & Standards

There are no universal standards when it comes to dissection in the classroom. Many states have laws that govern the use of animals in the classroom. The NABT has created a list of states and their regulations in regards to dissections. Please see <http://www.nabt.org/websites/institution/index.php?p=97> for more information.

In terms of the *National Science Education Standards*, the following standards are addressed by the Froguts program.

Grades 5–8, Content Standard C: Life Science

- Structure and function of living systems
- Diversity and adaptation of organisms

Grades 9–12, Content Standard C: Life Science

- The cell
- Biological evolution
- Matter, energy and organisms in living systems
- Behavior of organisms

AP Biology Course Topics Addressed

Organisms and Populations

A. Diversity of Organisms

Evolutionary Patterns

Evolutionary Relationships

Structure and Function of Plants and Animals

Structural, physiological, and behavioral adaptations

Response to the environment

Instruction

In terms of instruction, once the program is loaded onto your computer, you're ready to go. What is great about Froguts is that it offers the flexibility to be used as a teacher demonstration, as I did as pre-labs, or by students working together or on their own at home. With this flexibility, I was able to choose the setup that best met my needs.

Each module is set up the same way, with a brief overview of the organism and a list of objectives. What makes this program so versatile is that my students and I had real control over the dissections. The tool bar along the bottom allowed us to turn speech on and off. This allowed me to walk the students through the process, and when I had students doing the alternatives all they had to do was plug in their headphones to listen. There are other features found on the toolbar that allow the students to work at their own pace and use the program to meet their learning styles.

One part of Froguts not found in other software is the ability to manipulate tools and take measurements right on the screen. A toolbar pops up on the right side of the screen, where students are able to select the very same tools found in a traditional dissection kit. By clicking and dragging, students were able to perform the same cuts and incisions as their classmates.

I did not receive the software until early March of the school year, when we were beyond the genetics unit, so I was not able to use the Mendelian Genetics and fruit fly modules with my sophomores. However, in May, while reviewing for the AP Bio Exam, I did use it as a refresher. The module was broken up into four sections; the first covered the Law of Dominance, the second and third covered the Law of Segregation and Law of Independent Assortment, and the last the *Drosophila* Fly Lab.

In terms of the virtual dissections, the program has six virtual dissections to choose from. These include the cow eye, fetal pig, frog, owl pellet, squid, and starfish. I was

able to use Froguts as a pre-lab and as an alternative for three of the dissections I complete over the course of the last quarter. In my Anatomy and Physiology course, I used the cow eye to supplement our dissection. Many times, my students dissect the eye and will be a little disappointed. "That's it?" they say. The virtual cow eye provided a pre-lab that I went through with the class first, and we did the actual cow eye the next day.

In my sophomore biology class, the last unit I teach is zoology. In Ohio, we do our state testing in March, so in April and May I get to teach all the important biology left out of the test, specifically botany and zoology. Since my course is required, I offer dissection alternatives. This year I had one student who preferred to do the alternatives. The student completed the frog dissection and fetal pig dissection on the computer in the back room while the rest of the class dissected in the front. Several times, the students doing the

traditional dissection would go back to see what hers looked like or compare. I was able to move back and forth between the students doing the traditional dissection and the one doing the virtual.

The final and most important piece is the fact that students can assess what they have learned and get immediate feedback. Just using the fetal pig as an example, the module is broken up into systems and at the end of each system students have the option of taking a 10-question quiz over the material covered. At the end, the students took a 50-question final test over material from the previous sections.

Summary

I cannot say enough good things about Froguts. I have been teaching biology and using dissection in my classroom for the past 12 years and I can unequivocally say that

this is the best alternative to dissection I have come across. Whether you are a new teacher concerned about dissecting in your classroom for the first time or a veteran teacher looking to save money or infuse some technology into your biology program, Froguts is an economical and educational alternative. Through its use of images of real animals and rich text, Froguts is the closest one can get to the real thing when it comes to dissection.

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