GENETICS


CATLAB is a genetics simulation program that utilizes cats instead of the more commonly used fruitflies. Like most other genetics simulations, students need to have some basic understanding of genetics before using this program. There are three basic types of open-ended problems. One set of exercises presents hypotheses the students test by breeding cats. The majority of the exercises require students to explain observed results that are either given by the program or self-generated. Finally, there are two exercises that are highly structured and walk the students through hypothesis testing and data analysis. Each cross requires students to specify several different phenotypes, including some with interacting genes. The beginning genetics student may find this confusing. Chi-Square analysis is available, although no background on this statistical test is provided, and the small litter size can make analysis difficult. CATLAB is marketed as suitable for both secondary and college students, but most high school and first-year college students will need to begin with the structured exercises.

The use of cats is one of the strengths of this program. Cats are familiar to most all students, and pictures of real cats demonstrating various phenotypes help students apply what they are learning. The mating results are based upon populations of domestic cats in Australia, but apply equally well to cat populations in other countries. The sound option allows you to hear the cats yowl when mating.

While cute, the sound gets old very fast and can be easily turned off. The use of cats does have a negative side. While cats have some very interesting genetic traits and can be used to demonstrate incomplete dominance, epistasis, sex-linkage, lethality and that dominant phenotypes (e.g., lack of a tail) are not always wild type, many instructors adapting this program will have to learn a new genetic system. The Instructor's Guide provides basic information about the traits used.

The program is easy to load and requires minimal instruction on the options available. The display is clear, although after many crosses can become cluttered. The sample Student Results Sheets can help students keep track of their results.

Overall the program achieves its goal of developing student questioning, hypothesis testing and analytical skills through experimentation with cat matings. While the program will have limited use for beginning genetics students, classes that contain significant genetic units will enjoy using this program.

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TECHNOLOGY


Plant Factory – Running time: 30 minutes. The oil seed plant is the centerpiece for this short, but interesting video about genetic engineering in the botanical world. The narrator explains the essential difference between the "old" method of plant selection and breeding and the newer method – genetic recombination with its speed, specificity, and essentially unlimited gene pool. The actual process is clearly explained in simple terms. Some of the many uses of this adaptable plant are explored – a gasoline replacement (it's biodegradable and renewable), medical (a source of Lorenzo's oil), and as a source of plastic.

The video would be best suited to high school level as an introduction to biotechnology's potential for humanity. Its brevity would be a positive attribute to high school teachers trying to meet pacing guides and state mandated standards, and to students.

Towards a Greener Future – Running time: 30 minutes. In this video several ecological concerns and potential remediations are explored. The video begins with an esoteric research project using earthworms as indicators of soil pollution/degradation. After this study is reviewed, other ecological issues such as acid rain, energy efficiency in building, improved farming methodology, sewage treatment methods, and recycling are considered. The emphasis in the video is proactive – i.e., how little changes in human behavior can make huge differences in environmental outcomes.

Towards a Greener Future could be used in high school science classes (earth science, biology, chemistry, ecology) to stimulate discussion on a variety of issues prior to classroom instruction or as an overview of human impact on the natural world. If a teacher were trying to include the idea of human impact and was running short of time, this video might be an excellent 30-minute summation. It could also be edited by the teacher to show just one or two issues that students then might explore further.

The only downside to the video is the sound — in the introduction the music drowns out the narrator.
However, once the content begins, the music ends and it is easy to understand.

**Animal Science Advances.** Running time: 30 minutes. The tongue in cheek narration of **Animal Science Advances** makes this a fun 30 minutes. Whoever wrote and produced this film definitely had a good time sharing the information contained in it. Who would not love to see cows sleeping on water beds (really, a great idea for improving their health and welfare, which then translates into more milk)? Or, how about giving “treat balls” to pigs and zoo animals to reduce their boredom and repetitive anxious behavior, thus increasing their health as well. How does one select the sex of cattle before fertilization? It’s all in the separation of sperm into male or female swarms. Finally, you’ve heard of Cinderella’s slippers, well, now there are cow slippers. These slippers enable the cow’s sore hooves to mend, and are easy to install with minimum cost or effort from the farmer.

Unfortunately, even though it was fun to watch, I do not think that it would be of value to the typical high school curricula since it really does not address probable state or local science objectives; an exception may be an agricultural course. But it would give the teacher some interesting “tales” to use as examples. The video also ended abruptly in the midst of the last story about the cow slippers.

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**Biology/Microbiology FACULTY POSITION:**

**Saint Joseph College** is Connecticut’s only four-year women’s college. Due to an increase in enrollment within the department, we are pleased to invite applications for a newly approved full-time, tenure track position at the assistant professor level in the area of microbiology, Fall 2002. Responsibilities include teaching microbiology to nursing and nutrition students, teaching upper level/graduate courses in biotechnology, medical bacteriology and/or environmental microbiology and development of courses in the instructor’s area of expertise. Applicants should have a Ph.D. in biology, or biology-related discipline, and have a strong commitment to undergraduate education. In addition, applicants should be able to develop a modest research program that can include upper-level undergraduate and graduate students. Ability to teach in other biological disciplines and experience with on-line instruction is preferred.

Review of applications will begin December 15th and continue until the position is filled. To apply, send a letter (including statement of teaching philosophy and research interests), curriculum vita, and 3 letters of reference to: Human Resources, Biology Search, Saint Joseph College, 1678 Asylum Avenue, West Hartford, CT 06117. An EOE/M/F/D/V employer. Women and minorities are encouraged to apply.

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