Investigating Murders in Miniature

Dollhouse crime scenes teach students how science can solve real-life problems.

Forty high school students gathered at the University of Maryland's College Park campus this summer to play with dolls—all in the name of serious science. During a weeklong course on forensic science, they heard experts explain the fine points of DNA fingerprinting, microscopic analysis, crime-scene and evidence preservation and ink chromatography. But the capstone was a session with a special set of dollhouses that simulate crime scenes.

By featuring forensic science, the HHMI-funded summer science program, called Jump Start, captures the interest of students enthralled with popular television programs such as *CSI* and *Crossing Jordan*, says Kaci Thompson, director of undergraduate research and internship programs at the university's college of life sciences. It also happens to incorporate aspects of several scientific disciplines—including anthropology, biology, chemistry, criminology and psychology.

After spending four days studying the techniques of the forensic scientist, students peer inside meticulously crafted dollhouse crime scenes depicting victims, locations and lines of evidence. They debate possible scenarios. "I don't think he was whacked," says one student. "He's not in an awkward position at all." Another adds, "I think if he was dragged, his arms would be stretched back." Later, they assess their powers of deduction when instructors reveal what each scene actually represents.

Thomas P. Mauriello, a professor of forensic sciences in the university's department of criminology and criminal justice, conceived of the dollhouses 10 years ago after seeing a similar set at the State of Maryland's medical examiner's office, where they are used for training. Mauriello designed and furnished the dollhouses, with the help of graphic artists, to use as a teaching tool in his undergraduate class, Introduction to Criminalistics. He says the structures help him integrate the techniques of forensic science into a cohesive and realistic process.

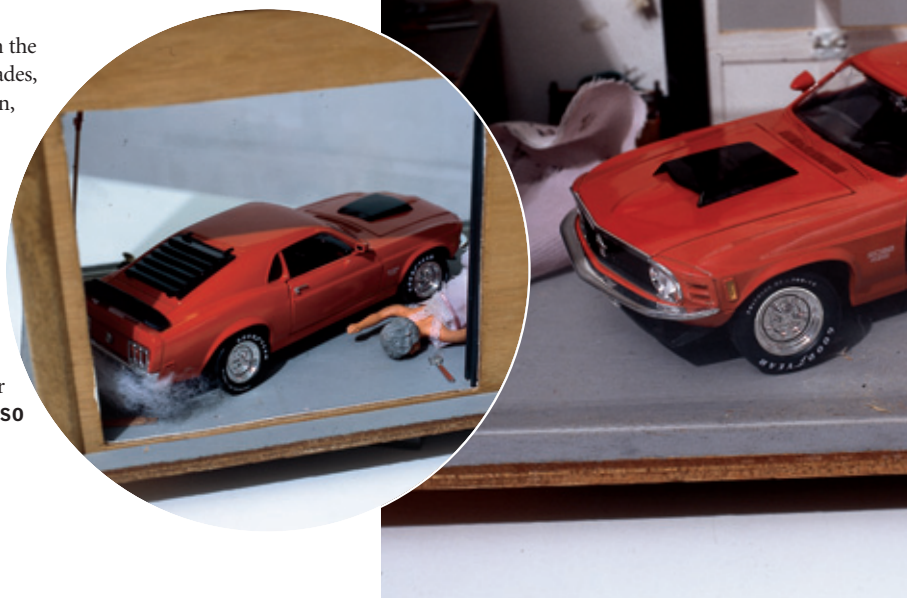
The Jump Start students, juniors and seniors hailing from the greater Washington, D.C., area, are selected on the basis of grades, teacher recommendations and essays. According to Thompson, the program doesn't necessarily aim to encourage students to pursue the field of forensic science. Rather, it tries to show students how knowledge of a broad range of scientific methods can be used to solve real-world problems.

Katherine Beling, a senior at Baltimore's Catholic High School, liked the approach. "This gave us a chance to use our own imaginations rather than just look at DNA samples under a microscope." Now in its fourth year, the program also includes two additional one-week high school courses, one focused on biotechnology and the other on animal behavior and physiology.

—EUGENE RUSSO

MOLLY ROBERTS (5)

1. Chinyere Okol, Timothy Simons, Prabu Selvam, June Streets, Taniesha Hunter and Benjamin Miller (from left to right) discuss a dollhouse crime scene. Based on evidence presented (blood stains, footprints and possible murder weapons, for example), they exchange ideas about the nature of the crime, the time at which it was committed, the cause of death and whether or not the scene actually depicts a crime at all.



2. Evidence, including footprints, a broken table lamp, blood stains and marks from the burglar's crowbar, help students piece together how this living room burglary took place. The position of the door and the lamp and the two different blood stains suggest that the perpetrator stood behind the door, struck and killed the homeowner with the table lamp, cutting himself in the process, and then fled.

3. Bullet casings, an open safe, a shotgun and splattered blood from a shotgun wound are clues used by students to solve this attempted convenience store robbery. When the masked suspect turned to flee, cash in hand, the clerk shot him with a semiautomatic weapon retrieved from the safe. As he was shot, the thief returned fire with his shotgun. Both the suspect and the clerk are found dead.

4. Suicide or accidental death? After moving her car into the garage, the victim locks her keys in the car—perhaps by accident, perhaps deliberately. The key chain also holds the key to the house. The victim slips on dog feces and hits her head on a toolbox. She and her dog die from carbon monoxide poisoning.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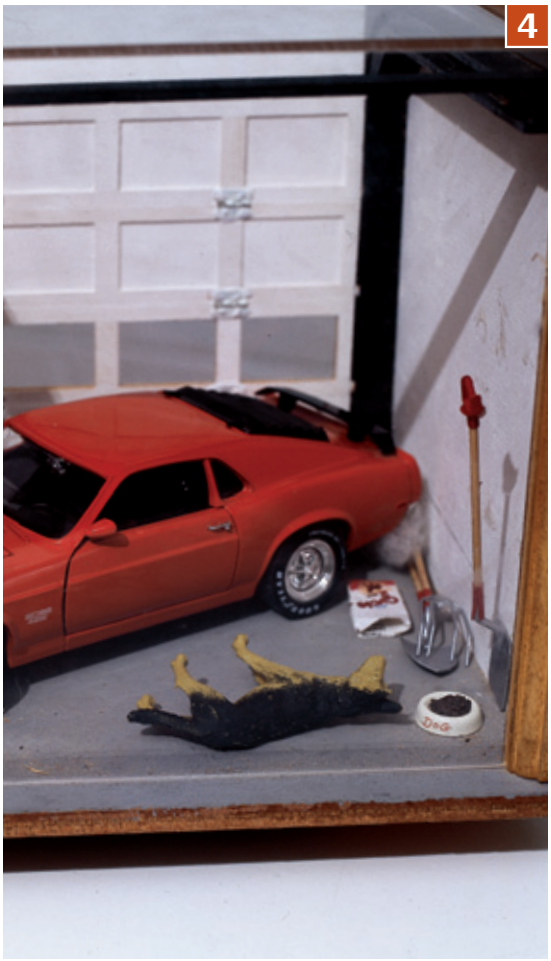
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