

Forensics in Biology:

A Theme to Unify Major Biological Concepts

This project is of value because it is a very helpful tool in motivating students to want to learn. Quite often, students would ask, 'When are we doing another forensics lab?' Also, when we actually analyzed the 'crime scene,' it was obvious that the students were able to answer questions based on labs that they had done previously. In addition, the students learned valuable group cooperation skills and communication skills that will aid them in the real world.

Curriculum/State Standard

- 1) Lifelong Learning
- 2) Communication
- 3) Personal Stewardship
- 4) Environmental Stewardship

Overview

Students complete forensics labs over the course of the year. After all basic lab work is done, the students work together to analyze evidence from a "crime scene" that we set up in advance. Each group analyzes one portion of the evidence, researches that particular field (whether it be blood typing, fingerprinting, etc.), and then presents the findings of their group's research and group's evidence in a PowerPoint presentation. After all groups present their findings,

each group comes to a conclusion, based on the evidence presented, as to who perpetrated the crime. The students maintain a portfolio during the year and turn that in at the end of the unit with their lab work, research, evidence information, and their final conclusion.

Objectives

- The student will work cooperatively with a group to conduct several types of forensics labs throughout the year, and each student will become proficient in these lab techniques.
- The student will use the information learned throughout the year to help him/her analyze a real-life situation (the crime scene).

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GRADE LEVEL



ARTS



LANGUAGE



MATH

Misc

MISCELLANEOUS



SCIENCE



HISTORY



SOCIAL STUDIES

1

MONTHS

\$750

TOTAL BUDGET



Kids In Need
TEACHER GRANTS

THIS WINNING LESSON PLAN WAS SUBMITTED BY:

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“Forensics in Biology” project continued...

- The student will maintain a portfolio over the course of the year.
- The student will research the topic for which they will be responsible.
- The student will develop and present a PowerPoint presentation.
- The student will develop a conclusion based on information presented by all groups.

Materials

Calipers, protractors, disarticulated human skeleton, micropipettes, lipstick, loading dyes, UV light, laser pointers, DNA electrophoresis chambers and power sources, measuring tape, microcentrifuge tubes, ink pads, index cards, microscopes (dissecting & compound light), 3.5 floppy disks, and chromatography paper, test tubes, acetone & alcohol solution

Readiness Activity

Students must first complete all background labs before analyzing evidence from the “crime scene.”

Strategies/Activities

The students complete all background labs.

The students research their particular topic (fingerprinting, chromatography, etc.).

The students develop an introduction to their topic (using PowerPoint).

The students analyze the evidence from the “crime scene” and use information from their research and prior labs to analyze the evidence.

The students complete their PowerPoint presentation. In this presentation, they include the introduction to their topic, the methods and materials they used to analyze

their portion of the “crime scene” evidence, their findings (using graphs, tables, digital images), and their conclusion.

Each group presents their PowerPoint to all other students of the class. Each group then analyzes all of the information (from all group presentations) and concludes who (if anyone) is the perpetrator of the crime.

Each person rates all the other groups presenting, as does the teacher.

Each group maintains a portfolio throughout the year. In this portfolio, they include their introduction to the “crime scene” (who, what, when, where, and why), their research articles on their topic, their graded labs throughout the year, their paper copy of their PowerPoint presentation, and their overall, final conclusion (based on all group presentations).

Culminating Activity

Each group presented their PowerPoint presentation to the class. Once this information was presented, each group recorded the information from all groups and placed it into a chart form. The students then analyzed the information in the chart and came to an overall conclusion. The students then submitted their portfolios.

Evaluation

Graded labs done throughout the year

PowerPoint presentation (graded by teachers, fellow classmates, parents, and other faculty members)

Graded portfolio which includes: introduction to crime scene, research articles, graded labs conducted throughout year, graded lab from crime scene, chart with evidence from all groups, analysis of all evidence, final conclusion.

Intra-group peer grade - each group member was required to grade other members of their group.