Whodunit and Why?

George Azar- Adams High School
Carrie Bidwell- Clay High School
Alicia Harkins-Pritchett- Mishawaka High School
Emily Zablocki- Adams High School
• DNA Chips: Genes to Disease (211520)
  – $82.00
  – Uses microarrays
  – demonstrates gene expression and the role of gene expression in cancer

• Genetics of Corn (176360)
  – $177.00
  – Discusses basics of Mendelian genetics
    • including segregation and independent assortment of alleles, dominance, genotype and phenotype, expected ratios, monohybrid and dihybrid crosses, and chi-square
Carolina

- AP Biology Lab 7- Genetics of Drosophila (746530)
  - $137.00
  - Covers basic patterns of heredity
- AP Biology Lab 11- Animal Behavior (746614)
  - $94.00
  - Investigates isopod behavior
  - Investigates drosophila mating behavior
• A Murder Mystery- DNA Fingerprinting (FB 1566)
  – $104.40
  – The basics of DNA fingerprinting
  – DNA structure and extraction
  – Gel electrophoresis and autoradiography
  – The accuracy of DNA fingerprinting
Fisher

- **Lyle & Louise: Forensic Entomology (S94587)**
  - $209.00
  - introduction to techniques of forensic entomology
  - use techniques to examine insects collected at the scene of a crime scene

- **Lyle & Louise: Blood Splatter (S94585)**
  - $180.65
  - techniques for blood spatter pattern analysis
  - experiment designed to determine the relationship between the height and angle of impact of a blood drop with the size and shape of the spatter.

- **Lab-Aids* Genetics Concepts Kit (S25084)**
  - $90.00
  - Mendel’s Laws of Genetics
  - Probability
  - Revitalizes antiquated labs
Frey

- The Case of the Silent Sentinel (N1013151016)
  - $79.95
  - Introduces forensic skills to solve a fictitious crime scenario
  - Five forensic analyses
    - Toxicological
    - Handwriting
    - Ink chromatography
    - Fingerprinting
    - Blood group (simulated blood typing)
- CAPSI Human Body Module
  - $485.95
  - Focus on the individual systems of the body and their characteristics
Flinn: A Murder Mystery- DNA Fingerprinting (FB 1566)

$104.40

The basics of DNA fingerprinting
DNA structure and extraction
Gel electrophoresis and autoradiography
The accuracy of DNA fingerprinting

Murder at Notre Dame:
The Football Stadium

Narrated by Mr. Azar
The “Low Down”

• Nevin Longenecker was murdered on the football field during the run through for his honorary doctorates from Notre Dame.

• This gruesome murder is being investigated by 3 teams. These teams are the foremost experts in the field of DNA fingerprinting.

• YOU are a member of one of these teams!
Suspects

- There are 3 suspects who have been identified for this particular murder:
  - Suspect 1: Dr. V
  - Suspect 2: Charlie Weiss
  - Suspect 3: Mike Brey
Ideas and thoughts. . . .

- Demo model
- No H bonds no $5' \rightarrow 3'$
- Build only 1 strand
- Different DNA for each table
- Mark/identify the $3' \rightarrow 5'$ bead to avoid flipping
- Use models for transcription or translation
- Green should be guanine
- Sticky tab notes to replace the beads
Genetics Concepts Kit

- Simulates Gregor Mendel’s eight years of experimentation in five laboratory periods
- Very little teacher input is needed - lab is designed to lead students through the same problems by Mendel
- Allows students to “rediscover” his LAWS OF GENETICS
How it works

- Gametogenesis and fertilization are simulated with GAME-ETO-DISCS and TETRADICE
- Produce random genotypes combinations with the same mathematical probability as if the experiments were done with living organisms
- Students not only learn the concepts of Genetics, but practice experimental design and data collection
Experiments with one allelic pair are performed with GAM-ETO-DISCS

Experiments with dihybrid inheritance is simulated using the four-sided TETRADICE
Ideas and Thoughts.....

• Would work well in the classroom with Biology I students

• Sheet that came with lab is redundant and needs revised

• Great student led lab where students can work at their own pace

• Materials are well labeled and easy to use
Inquiry Investigations™
“The Case of the Silent Sentinel Lab”

- Frey Scientific
- $79.95
- Includes 5 forensic lab activities
  1. Toxicology Analysis
  2. Chromatographic Analysis
  3. Fingerprint Analysis
  4. Document (Handwriting) Analysis
  5. Blood Analysis
How it works

• In this lab your students are part of a forensic team that has been assembled to determine if a crime has been committed.
• The “crime” involves a fictional murder in which the teacher constructs the evidence for prior to the class.
• The main piece of evidence in which this lab is centered around is a body found next to a bottle of poison. The identity of the victim is determined by the teacher.
• Each of the five tests included in this kit will provide scientific findings or facts that will help you determine if a crime was committed and who the primary suspect(s) might be.
Ideas and thoughts.

- Vary guilty suspect from class to class to eliminate “sharing” of answers.
- This lab involves a lot of initial set-up, which is outlined in the lab manual. Once the materials have been created, however, you will not need to make another new “crime” scenario.
- The fingerprint analysis included with the lab kit does not produce clear results. (The kit utilizes inkless stamp pads.) Create the fingerprints using an alternate method.