Upper Level Science 07.16.12 MONDAY

Grade Tampering: Investigation (50 minutes)

- Show PPT: fingerprints, detectives,
- ***Note to Teacher**: a day or two before class, prepare 6 or 7 strips of lightweight plastic (such as those used in overhead transparencies) that contain fingerprints of one of the students in the class.
- Introduction:
  - Fingerprints can be fascinating! This investigation requires students to collect and compare the unique characteristics of fingerprints to discover who tampered with a teacher's grade book.
- **Objective**: collect fingerprints from classmates. Compare fingerprints from crime scene with those of classmates.
- Make copies of Figure 1 on p. 4
  - Discuss the 3 types of prints: loops, ridges, and whorls
  - Read the background:
    - Skin is made of two basic layers: the dermis and the epidermis. The epidermis is on the outside. Penetrating both the dermis and epidermis are hair follicles that contain oil glands. Oil serves an important function in keeping hair and skin soft. The outermost layer of skin is made up of a series of ridges. The skin ridges on every person are arranged in a unique way. These ridges can leave an impression in oil or dirt. Fingerprints are impressions left on surfaces in the oil deposited by that person's touch. Sometimes fingerprints collected at a crime scene can be instrumental in identifying a criminal. Since most fingerprints are invisible, experts can do one of the following to make them visible
      - A) Dust them with a powder. White powder is used on dark surfaces, such as gun stocks or dark boxes. Dark powder is used on light-colored objects, like paper or toilet handle.
      - B) Spray them with a chemical that causes the fingerprints to glow in the dark.
  - No matter how the prints are collected at a crime scene, investigation, compare them with prints in fingerprint "banks" to see if they can get a match.
  - Read "The Crime" aloud with students
- **Materials**:
  - Strips of plastic containing fingerprints - paper

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