



## Hair Analysis

teacher instructions

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### Goals:

- Introduce students to the thought process involved in developing a technique for forensic analysis
- Introduce students to the physical structure of hair
- Provide opportunity for students to improve skills in observation, critical thinking, and microscopy

This activity involves two parts, which may be performed separately or as a cohesive unit. The first part requires students to examine a set of hairs. Using their observational and critical thinking skills, they will develop a procedure to identify hairs collected from crime scenes.

The second part is intended to complement any of the crime scene scenarios developed by the UCB Hughes Initiative. In this part, students examine the hairs supposedly collected from the crime scene as well as hairs from suspects and their pets. They will use the data sheet provided to determine which suspect is the most likely match. If you intend to use both parts, it is recommended that you do them in the order described above.

Hair Analysis Activity, Part One:

### Materials:

- Hairs from different species and individuals (humans, cats, dogs, horse, deer, rabbit, guinea pig, chinchilla, etc)
- microscope slides
- cover slips
- water and droppers
- microscopes

### Instructions:

Prepare a set of labeled, wet-mount slides for each group of 2-4 students. Smaller groups are probably better, but do whatever works best for your classroom. Each set should contain one slide with hairs or a single hair from

each individual. Eight to ten slides total per set is a good number. A hypothetical set might include the following slides:

- 1.) human hair (red, long, curly)
- 2.) dog hair (black, straight)
- 3.) cat hair (grey, long)
- 4.) deer hair
- 5.) dog hair (white, wiry)
- 6.) cat hair (beige, short)
- 7.) human hair (brown, straight, short)
- 8.) rabbit hair
- 9.) human hair (blonde, wavy, long)
- 10.) horse hair

Instead of preparing the slides yourself, you may choose to give each team of students a set of labeled envelopes containing the hairs and ask them to prepare the wet mounts.

Instructions for preparing wet mounts of hair are included in the student handout for Part Two.

Hair Analysis Activity, Part Two:

Materials:

Hairs from four different humans, one dog and one cat  
microscope slides  
cover slips  
water and droppers  
microscopes

Instructions:

Prepare a set of four envelopes, labeled and filled according to specifications listed below for each team of students. Ideally, envelopes A, B, and D should contain an individual paper packet for each individual that the hair is collected from. Each individual packet should ideally contain about 20 hairs. Some volunteers may be more amenable than others to donating this much hair.

**Label:**

**Contents:**

Suspect A

packet containing 20 hairs from human 1,  
packet containing 20 hairs from dog

Suspect B

packet containing 20 hairs from human 2,  
packet containing 20 hairs from cat (same cat as in  
evidence envelope) (suspect and suspect's pet)

Suspect C

packet containing 20 hairs from human 4

evidence

packet containing 1 hair from human 2,  
packet containing 1 hair from human 3,  
packet containing 1 hair from cat

In addition to the set of envelopes, provide each team of students with slides, coverslips, water and droppers, microscope, and copies of the student handout. Each team will need 8 copies (one per hair) of the data collection sheet.