Hair & Fiber Evidence

Name _____

Hair Biology

1. Hair is composed of the protein _____, which is also the primary component of finger and toe _____.

2. Hair is produced from a structure called the hair _____. Humans develop hair follicles during _____ development, and no new follicles are produced after birth.

3. Hair color is mostly the result of _____, which are chemical compounds that reflect certain wavelengths of visible light.

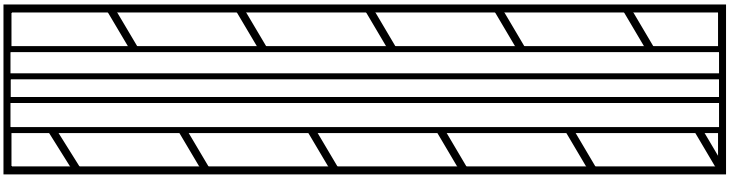
4. Hair _____ (round or oval) and _____ (curly or straight) is influenced heavily by _____. The physical appearance of hair can be affected by _____status and intentional _____ .

5. The _____ _____ (head, arm, leg, back, etc.) from which a hair originated can be determined by the sample's length, shape, size, color, and other physical characteristics.

6. In order to test hair evidence for DNA, the _____ must be present.

7. Shade in the diagram below to show the different parts of a strand of hair.

Cuticle – Yellow **Cortex** - Blue **Medulla** – Red



8. The structure of hair has been compared to that of a _____ with the medulla being the _____, the cortex being the _____ and the cuticle being the _____ on the outside.

9. The cuticle varies in its _____, its _____, and whether or not it contains _____.

10. The cortex varies in, _____, texture, and _____.

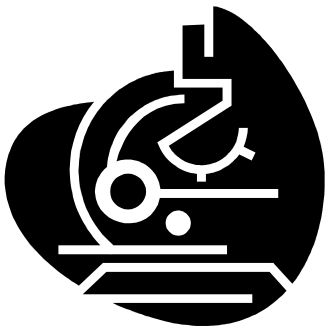
11. The medulla may vary in thickness, _____, and _____.

12. Like the cuticle, the medulla can be important for distinguishing between hairs of different _____, but often does not lend much important information to the differentiation between hairs from different _____.

Fiber Evidence

13. A _____is the smallest unit of a textile material that has a _____many times greater than its _____. A fiber can be spun with other fibers to form a _____that can be woven or knitted to form a fabric.

14. The _____and length of fiber used, the type of _____method, and the type of _____construction all affect the transfer of fibers and the significance of fiber associations.



15. Matching _____fibers on the clothing of a victim to fibers on a suspect's clothing can be very helpful to an investigation, whereas the matching of _____fibers such as white cotton or blue denim fibers would be less helpful.

16. The discovery of _____and multiple fiber transfers between the suspect's clothing and the victim's clothing dramatically _____the likelihood that these two individuals had physical contact.

Natural Fibers

17. Many different _____fibers that come from plants and animals are used in the production of fabric.

18. _____fibers are the plant fibers most commonly used in textile materials

19. The animal fiber most frequently used in the production of textile materials is _____, and the most common wool fibers originate from sheep.

Synthetic Fibers

20. More than half of all fibers used in the production of textile materials are synthetic or _____-_____.

21. Nylon, rayon, and polyester are all examples of _____fibers.

Hair & Fiber Identification Lab

Hair Samples: Think About It …

(1) In which samples are we viewing the cuticle? How do they compare?

(2) In which samples are we viewing the medulla? How do they compare?

(3) What characteristics can be used to identify hair samples?

Fiber Samples ...Think About It …

(1) Which samples are natural fibers?

(2) Which samples are synthetic fibers?

(3) What characteristics can be used to identify fiber samples?