Hair & Fiber Evidence
Name ____________________________

**Hair Biology**

1. Hair is composed of the protein ____________, which is also the primary component of finger and toe ____________. Hair is produced from a structure called the hair ____________. Humans develop hair follicles during ____________ development, and no new follicles are produced after birth.

2. Hair color is mostly the result of ____________, which are chemical compounds that reflect certain wavelengths of visible light. Hair ____________ (round or oval) and ____________ (curly or straight) is influenced heavily by ____________. The physical appearance of hair can be affected by ____________status and intentional ____________.

3. In order to test hair evidence for nuclear DNA, the ____________ must be present.

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

5. The cuticle varies in its ____________, its ____________, and whether or not it contains ____________.

6. The cortex varies in, ____________, texture, and ____________.

7. The medulla may vary in thickness, ____________, and ____________.

8. The cuticle and 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 ____________.

9. 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.

**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?