

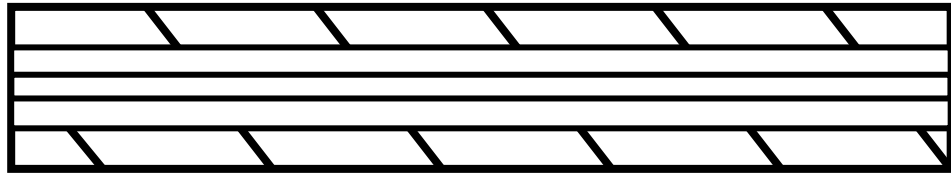
# Hair & Fiber Evidence

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.

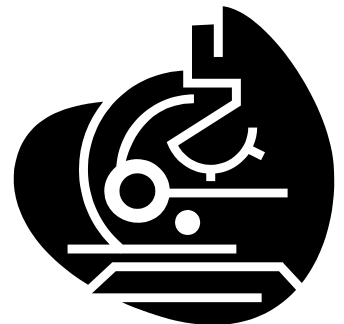
**Cuticle** – Yellow  
**Cortex** - Blue  
**Medulla** – Red



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?