**Hair Analysis**

1. **Overview**
* Hair can be very valuable to forensic scientists.
* Need to be familiar with hair \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* A hair is composed of three layers:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



1. **Structure**
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Hard, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ covering that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the inner layers.

2. Made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ layers of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

3. Differ in types and arrangements of scales.

 Types of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ scales: found on very fine hair of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, rarely in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or petal-like scales: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ off from shafts of hair. NOT found on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, found on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, etc.
* Imbricate or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ scales: overlap (like \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_). Found on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and some animals





1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ within the cuticle.
3. Makes up \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ hair.
4. Contain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that give hair its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. Forensic scientists use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, shape, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ granules.
6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that run through the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the \_\_\_\_\_\_\_\_\_\_\_\_.
8. May be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



1. Forensic scientists use the medullary \_\_\_\_\_\_\_\_\_\_\_\_\_, medullar \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and shape.

 Medullary Index

 =diameter of medulla / diameter of hair

* + - * Humans🡪 index is \_\_\_\_\_\_\_\_
			* Animals🡪 index is \_\_\_\_\_\_\_\_\_
			* Thus \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ generally have a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ medulla than \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Human roots \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ different based on whether they have been \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or if they are telogen hairs and have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ roots will vary, but in general have a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ shape.
1. **Hair Identification Factors**
	* Because humans \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ their hair with color or other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, this \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in identification
	* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can be in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	* Bleaching removes the color and gives it a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ tint.
	* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of colored “\_\_\_\_\_\_\_\_” helps with id.
		+ - Hair \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ~\_\_\_\_ cm/month
2. **Process of Analysis**
* \_\_\_\_\_\_ determine whether hair is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* If \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: they compare hair to that of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ using \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ scopes.
* Then determine \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, etc.
* Hair can be used to determine \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* If \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: they \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the animal.
1. **Other Important Points . . .**
* Hair is one of most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ types of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ evidence
* Hair \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ be used to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ suspects or scenarios and to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) other evidence
* Hair NOT \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ type evidence unless the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is present (can obtain \_\_\_\_\_\_\_\_\_\_\_\_\_\_ sample from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells in hair \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
	+ DNA from hair
		- The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ contains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DNA. If the hair has been \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ removed, some \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ tissue may be attached containing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
		- The hair \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ contains abundant \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DNA, inherited only from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. It can be typed by comparing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ if no DNA from the body is available.