

Hair Analysis Lab

Determination of a Species

Pre-Lab

1. Where on the hair shaft will you find . . .
 - a. the cuticle?
 - b. the medulla?
 - c. the cortex?
 - d. the pigment?
2. Which part of the shaft (cortex, cuticle or medulla) will you observe by making an impression of the hair?
3. Besides identifying a species, what are TWO other things that you can tell from examining a hair?

Part A. Examining the Cuticle

1. Label a slide “cuticle” and your name.
2. Run your fingers through your hair to get a loose hair.
3. Coat the slide with a thin layer of nail polish. Let the polish dry for a minute then place your hair on the nail polish, allowing some of the hair to extend off of the slide. Allow the polish to dry most of the way.
4. Remove the hair samples from the slide – do this by gently pulling upward on the piece of the hair hanging off of the slide. Be careful to not tear the nail polish.
5. Use a light microscope to observe the scale pattern at low and high magnification. You will most likely need to adjust the amount of light coming through the lens.
 - A. Sketch the scale pattern of each sample – select the best magnification for this. Make your sketch detailed enough to be useful later. Also, make sure the sketch is about 2” in diameter.
 - B. Include the total magnification (eyepiece x objective lens)
6. Classify the scale pattern as coronal, spinous, or imbricate.

7. Observe the prepared slides labeled “A”, “B,” and “C.” Sketch, identify type of scale pattern and record total magnification.

Part B. Examining the Cortex and Medulla – Human

1. Label a slide “fallen” and your name.
2. Place clear nail polish on the slide. Place the hair sample in the wet nail polish to secure the hair in place.
 - A. To observe a whole hair 8 inches or longer, place the hair on the slide in a figure eight pattern and use three areas of tacking.
 - B. Make sure that both ends and the shaft are secured in the nail polish.
 - C. Wait until the nail polish is completely dry before proceeding. You will be leaving the hair in the nail polish this time.
3. Observe the slide using low and high power. Select the best one for your sketch.
 - A. Examine the hair.
 - B. Sketch the root, some of the shaft, and the tip; label as needed.
 - C. Record the total magnification you used.
 - D. Is the distal end (tip) damaged or cut? How do you know?
4. Estimate the diameter of your hair. This is done by estimating the number of hairs that will fit in the field of view on high power. The actual size of the field of view on high power is 0.375 mm (1.5 mm on low power).
5. Repeat steps 1 – 4, this time using a hair that you have pulled out of your head.

Part C. Examining a Variety of Hairs

1. Examine the following slides:
 - A. dog hair
 - B. cat
 - C. horse
 - D. mouse
 - E. deer
2. Sketch the hairs, paying close attention to the medullary characteristics as they are important in your identification of the hairs.
 - A. Make sure your sketches are detailed enough to use again.
 - B. Include the total magnification used for each.