

## UNIT 3 - CELLS, HISTOLOGY, INTEGUMENTARY SYSTEM

### ACTIVITY - Fingerprints

#### Objectives:

The main objective is to learn how to make and preserve fingerprints.

Basic types (arches, loops, and whorls),

Sub-types (tented arches, ulnar and radial loops with the open end of the loops pointing toward the arm's ulna or radius bones)

The student will also understand the causes and the uniqueness of the papillary ridges.

#### Materials:

pencils, paper and clear tape

feathers one per student

small jar of talcum powder

small jar of graphite powder

clear tape

clean, clear, plastic glasses or clean jars (baby food jars work well)

black and white construction paper, pre-cut into 2" x 1" rectangles

plastic straw to spoon out powders

#### Strategy:

1. Each student will draw a rectangle on their paper approximately 2" long and 1" wide.
2. Using the pencil on its side and color the rectangle as black possible.
3. Rub the tip of the thumb or the tip of 1 finger on the black rectangle until it is gray.
4. Put a small piece of scotch tape on the gray area of the finger in a smooth manner, usually from the tip down or from the first joint up.
5. Holding only to a corner of the tape, peel it off and carefully then put it on the paper. Write down what hand and finger it came from.
6. Next to the clear tape, draw your fingerprint patterns and label the types.
7. Using a clean finger, rub your finger on your nose for 2 seconds to get more oil on your finger.
9. Take hold of the plastic by putting one hand inside the cup to hold it still. Use the other hand to make a fingerprint on the outside of the cup.
8. Now dust or tap less than 1/2 cm of talcum or graphite powder on the print.
11. Use the feather to spread the powder evenly over the finger print.
12. Blow off any excess powder.
13. Take a small piece of scotch tape and put it on print, as in #4 above.
14. Lift off the tape thereby lifting the print.
15. If you used talcum powder, put it on the black construction paper. If you used graphite powder, put it on white construction paper.
16. Examine the print.
17. Classify it as to type and subtype.
18. Draw this finger print and label its classification.
19. Tape your print to your drawing.

**GAME:** Have each student in the classroom post their finger prints. Send a person out of the room and put finger prints on one or more objects. The person must find the prints and identify the person to whom they belong.

**Discussion:**

1. Is every print different? Yes.
2. How many prints does the FBI have? 2 1/2 billion.
3. How many pore holes does a thumb have? 900-1100.
4. Can they be used by measuring their location and number as additional ways of classifying the prints? Yes.
5. How many sweat and oil gland openings are in a finger? Search on the internet.
6. Can you be convicted by the edge of a footprint or a handprint? Yes.

**Conclusion:**

Students will understand that fingerprints are important in solving crimes, identifying lost and/or dead people and in reuniting relatives.