Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_\_\_

CTE Science Laboratory Investigation

CANINE NOSE PRINTS

**Background Information**

Identification of individuals has always been of concern for police departments and other organizations where the accurate records must be kept. It would be rather embarrassing if the wrong person were arrested or a driver’s license was issued incorrectly, legal issues notwithstanding. In the early days of forensic science, a method called Bertillionage was used that involved taking 11 measurements of the human body to identify a person. While this was effective, it was time consuming and a subject’s measurements were not guaranteed to be the same throughout his or her life. A person may lose a limb or sustain an injury that alters the measurements, and certainly people who are not yet fully-grown would be difficult to identify in such a manner. And in 1903, two inmates in a Kansas prison were found to have the exact same Bertillion measurements, indicating that the method wasn’t as reliable as it was once thought to be.

 Fingerprinting was an ideal solution to this problem. To this date, no two people have ever been found to have the same fingerprint patterns, including identical twins. Some calculations show that the chances of two sets of fingerprints being exactly the same are somewhere around 1 in 64 billion. There are only around 7 billion people on earth, so we can safely assume that each person’s prints are unique.

 In the case of pets, it is often helpful to be able to identify an animal if it becomes lost, is suspected of being stolen, or is involved in a high-stakes competition. Dog paw pads do not have ridges as human fingertips do, but their noses are thought to be unique. There are no large-scale studies of this claim, but some organizations such as the Canadian Kennel Club do accept nose prints as a valid form of identification if a microchip or other identifier is not available.

**Purpose**

 The purpose of this investigation is to determine if nose prints in a small sample of dogs are unique, and to attempt to find any patterns in nose prints that are analogous to human fingerprint patterns.

**Materials**

Dog nose, attached to dog Food coloring

 Index card PENCIL

 Soft, clean cloth Paper towel

**Procedure**

PART I – INK IMPRESSIONS

1. Prepare the dog’s nose by gently dabbing it with a soft cloth. Your goal is to dry the nose. Do not rub at the nose as this may cause discomfort to the dog.
2. Apply a small amount of food coloring to a paper towel and dab it over the entire surface of the nose. Do not apply too much food coloring or the impression will be unclear.
3. Place the center of the index card at the tip of the dog’s nose, and gently press it to all surfaces of the nose in a rolling motion.
4. Allow the card to dry. Your teacher may scan the cards for entry into a database. Attach it to this lab when it is dry and scanned.

PART II – LATENT IMPRESSIONS

1. Create a latent impression of the same dog nose by placing a microscope slide against the nose of a dog. You may consider drying the nose first or trying it as-is. You may use multiple slides if necessary.
2. Using a fingerprint brush and a VERY small amount of powder, dust the slide to reveal the nose print.
3. Lift the developed print off the slide using clear tape, and attach it in the space below.
4. Attempt to compare your latent print to the ink impression that was created earlier.

Figure 1. Latent dog nose print.

**Analysis**

QUESTION 1: Were you able to match up your ink impression with the latent print that you collected? What characteristics helped or made it difficult?

QUESTION 2: Based on our sample size, are dog nose prints a useful form of identification? Explain.

QUESTION 3: Compare dog nose prints to other forms of identification that may be used. Consider cost, ease of use, etc.

QUESTION 4: What would we need to do in order to increase the validity of our study of dog nose prints?

QUESTION 5: What are two things that you would change about this lab if you could?