



Discovery Lab Pre-Visit Activities

OSCSI

Grades 6-8

Thank you for booking your field trip to the Orlando Science Center! As a means of preparing your students for their Discovery Lab and enhancing their experience, we are providing you with these pre-visit materials to share with your class.

Discovery Lab Objective:

Become a crime scene investigator and decipher the evidence to discover the truth! Match ink samples with chromatography, identify mystery unknowns by their physical and chemical properties, learn blood-typing techniques, and create sketches of a suspect using facial recognition computer software.

Next Generation Sunshine State Standards:

SC.6.N.2.1, SC.6.N.2.3, SC.7.N.1.1, SC.7.N.1.3, SC.7.N.1.5, SC.7.N.2.1, SC.8.N.1.1, SC.8.N.1.3, SC.8.N.1.6, SC.8.N.4.1, SC.8.N.4.2, SC.6.L.14.1, SC.6.L.14.5

Key Vocabulary:

- **Forensics:** scientific tests or techniques used to investigate crimes.
- **Suspect:** person(s) investigated for committing a crime.
- **Serology:** is the science that deals with the properties and reactions of serums, like those found in blood.
- **Chromatography:** the separation of ink pigments.

Key Concepts:

- Forensic scientists can use various tools and techniques to collect, analyze and share information to help solve the truth of what happened in a crime.
- Solving a case requires many pieces of strong evidence from various sources.
- Chemical solutions can be used to separate the pigment in ink.
- Digital facial reconstruction from eyewitness accounts can help give a face to the perpetrator.
- There are four main blood types, each with a positive and negative rh factor. Testing blood type from a crime scene can help identify suspects.
- Chemicals have specific properties that make them unique.

Discussion Topics:

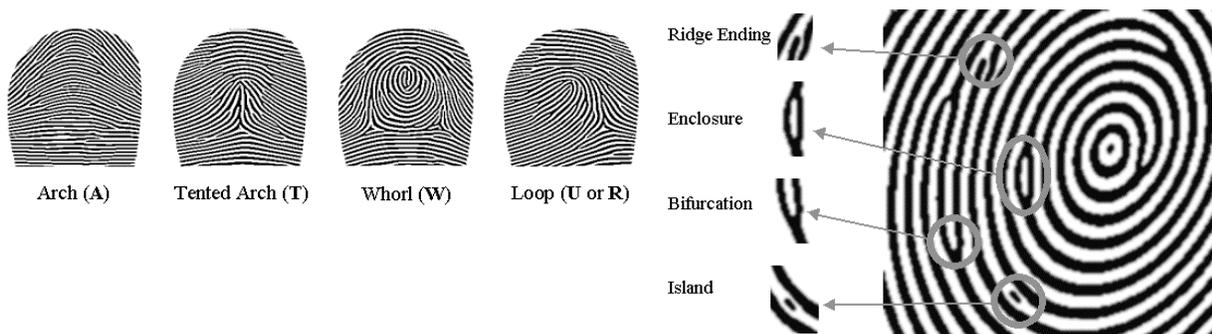
- NYPD Blue, Law and Order and CSI are all TV shows that involve solving crimes. They usually start with the result of the crime and try to figure out what happened leading up to it. *What techniques have you seen forensic scientists use on the television shows?*
- Many times, TV shows display a skewed view of reality. They add in cinematic elements like music, lights and storyline plot, and leave out the elements that don't add to the interest of the show, like the characters brushing their teeth. *What similarities and differences do you think there are between TV forensics and real life forensics?*
- Crime scene investigators start with the result of a crime and try to figure out what happened. They find bits of clues along the way and analyze them to fit them together into a sequence, much like the scientific method. Which steps of the scientific method do crime scene investigators use?

In Class Activity:

- Take the students' fingerprints! The tip of the finger is far from being either smooth or symmetric. It is completely covered with tiny ridges that form a pattern that is virtually unique. Even identical twins will have different ridge patterns. It is this pattern of ridges that is called the fingerprint. When the fingertip comes in contact with something, a layer of sweat containing amino acids in the shape of the fingerprint will be left on the object. The fact that these latent prints can often be recorded combined with the fact that no two fingerprints are the same is what makes fingerprinting practical.

Materials: Inkpads, white paper

- Procedure:**
1. Gently press fingers on the inkpad one at a time.
 2. Begin with your little finger and work towards your thumb.
 3. Press fingers one at a time on the fingerprint card to capture each fingerprint.
 4. Look at your fingerprints with the hand lens and identify which of the four main types of fingerprints you have.
 5. Look closely at your fingerprint to identify any type of minutia within your print.
 6. Keep your fingerprint sheets and compare with your friends.



Additional Resources:

<http://forensics.rice.edu/>

<http://www.virtualmuseum.ca/Exhibitions/Myst/en/index.html>

<http://www.forensicevidence.net/>

<http://news.bbc.co.uk/2/hi/technology/7591945.stm>