ORLANDO SCIENCE CENTER

Discovery Lab Post-Visit Activities

OSCSI

Grades 6-8

We hope that you enjoyed your visit to the Orlando Science Center! As a means of enhancing and extending your students' Discovery Lab experience into the classroom, we are providing you with these post-visit materials to share with your class.

Discussion Topics:

- In the lab, we tested blood, the perpetrator's note, chemical substances found at the scene and faces of suspects. In a real criminal investigation, collecting, analyzing and sharing evidence would've taken a much longer period of time and would've been more extensive. *What are some other similarities and differences between the analysis you did, and real crime scene investigations?*
- Some of the techniques used in the lab are also used for other types of science. For instance, identifying chemical properties is used in materials science for creating new solutions to fit various needs. *What are some techniques that you've learned in your science class that can be applied to forensic science to help solve crimes?*

In Class Activities:

- Blood spatter is often found at the scene of a crime. Blood spatter can be analyzed to determine the type of weapon used, the direction and force of impact, the amount of blood shed, the type of blood, the point of impact and other factors. Sometimes, the perpetrator fled the scene of the crime, which can show the direction of travel. Individual blood droplets can be analyzed to determine how high they were dropped from. Make fake blood using water, red food coloring and corn syrup. Have the students use pipettes to drop blood from given heights. After the blood dries, have them measure and record in a table the diameter of the droplets to determine how the height and diameter are correlated.
- Urinalysis is the testing of urine for medical diagnosis. Many times urine is taken of suspects or perpetrators to determine if drugs or alcohol were involved in the crime. Drug tests can determine the type of drug used and alcohol tests can determine what the blood alcohol level was at the time it was taken. In this activity, make fake urine and have the students run tests on it to determine if different samples test positive for drugs. Create fake urine by adding a few drops of yellow food coloring to water. Split the urine into different cups so that you can create 'different' urine. In some cups, put several drops of ammonia and others add several drops of vinegar. Tell the students that they are different samples and they need to determine which test positive for drugs. Have the students add several drops of pH indicator (like phenolphthalein) to the different urine samples. Whichever ones change color to magenta, for instance, is positive for drugs.

Math Problems:

- The average body has 10 pints of blood. Three quarts of blood were found at a crime scene, suspected to be the perpetrator's. Approximately how much blood does the perpetrator have left in his body?
- A man was shooting from a window 30 feet high at a person that was standing 50 feet from the base of the window. How far did the bullet travel? What angle was the shooter's arm at (in reference to the wall)?

Writing Prompt:

Nancy Drew and Sherlock Holmes are characters from novels that help solve crimes. Create your own super sleuth story for the reader to solve! Create characters as suspects and give clues about the crime that occurred, and don't forget to give false clues. You could even write about forensic tests that the characters carry out to solve the mystery. Make up a crime based on a movie or some people you know from school. Trade with someone else and see if they can solve the mystery!

Art Project:

Facial reconstruction software is used more extensively than sketch artists because it is cheaper and more easily accessible. Have each student write a detailed eyewitness testimony of a secret person. They can pick someone in the class or from the school, but don't say the name of the person. Switch testimonies with someone else. Try to draw the suspect using the eyewitness testimony. Once everyone is finished, have some students show their pictures to see if they can figure out who the sketch was supposed to resemble.

Additional Resources:

FBI Handbook of Crime Scene Forensics by Federal Bureau of Investigation
CSI Expert!: Forensic Science for Kids by Karen K. Schulz
Detective Science: 40 Crime-Solving, Case-Breaking, Crook-Catching Activities for Kids by Jim Wiese
The Forensic Casebook: The Science of Crime Scene Investigation by Ngaire Genge