Preface

This lesson sets the stage for the theme of the Principles of Biomedical Science course and is meant to be an engagement opportunity to excite the students about the study of biomedical sciences. In the first unit, students are introduced to a woman, Anna Garcia, who is found dead in her home. Students investigate the scene, gather evidence, and then move to the lab to analyze their findings in order to determine her manner of death. In each subsequent unit of the course, students obtain additional medical history information for Anna as well as details from her autopsy report as they explore the various illnesses she encountered throughout her life. Students will maintain a medical file for Anna Garcia, compile their ideas and findings over the duration of the course, and ultimately determine her cause of death in the final unit.

Because this is the foundation lesson for the course, the students are introduced to several tasks that will be repeated throughout this course and all the courses in the Biomedical Sciences Program. In this lesson students are introduced to the use of laboratory and career journals and Inspiration® software. Students also learn how to set up an experiment and how to properly document sources.

In the first activity, students are introduced to the mysterious death of Anna Garcia. They play the role of crime scene investigators to examine key information gathered from interviews of friends, family members, and people of interest, as well as examine the scene for clues. Next they play the role of forensic scientists to analyze each piece of evidence collected from the crime scene in order to try to determine what happened at Anna's house and to identify potential suspects. Finally, they will design and perform an experiment to investigate how height affects bloodstain patterns and use the results to determine the height that caused the bloodstain patterns found at Anna's house.

Understandings

1. Principles of Biomedical Science can be used to investigate the circumstances surrounding a mysterious death.
2. Experiments are designed to find answers to testable questions.

Knowledge and Skills

It is expected that students will:

- Recognize that processing a crime scene involves purposeful documentation of the conditions at the scene and the collection of any physical evidence.

- Describe how evidence at a crime scene, such as blood, hair, fingerprints, and shoeprints can help forensic investigators determine what might have occurred and help identify or exonerate potential suspects.
- Recognize that bloodstain patterns left at a crime scene can help investigators establish the events that took place during the crime.
- Recognize that all external variables in an experiment need to be controlled.
- Analyze key information gathered at a simulated crime scene.
- Design a controlled experiment.
- Graph and analyze experimental data to determine the height associated with bloodstain patterns.

Essential Questions

1. What can be done at a scene of a mysterious death to help reconstruct what happened?
2. How do the clues found at a scene of a mysterious death help investigators determine what might have occurred and help identify or exonerate potential suspects?
3. How do scientists design experiments to find the most accurate answer to the question they are asking?
4. How are bloodstain patterns left at a crime scene used to help investigators establish the events that took place during a crime?