

# **Using Forensics as an Interdisciplinary Theme for 9<sup>th</sup> / 10<sup>th</sup> Grade Science (Biology/Life Science)**

**By: Ms. Urlette Reyes B.S., M.Ed.**

**King Drew Magnet High School of Medicine & Science, Los Angeles Unified School  
District**

**Over View:** For Thematic and Interdisciplinary Teaching

Creating a thematic interdisciplinary lesson/curriculum is a hearty task even for a veteran teacher. Creating a thematic school brings forth the same types of challenges. Approaching student education thematically and interdisciplinary will provide for greater conceptual understanding amongst all students in all disciplines. The school itself must function as if it were a single class providing interdisciplinary content and methods towards obtaining its mission. The applied theme must be broad and specific at the same time so that it can be accomplished and incorporated by all disciplines.

## **Objective:**

- Students will be exposed to the many disciplines that are involved in forensic science.
- Teachers will use forensic science as an interdisciplinary theme throughout a life science class.
- Students will gain insight into feasible and applicable science related careers.
- Students will interact with the theme in a school wide event.

Science Content	School Wide Activities	Classroom Lessons/Activities/ Supplements
<p><b>Scientific Method</b></p>	<p style="text-align: center;"><b>Introduction to School wide theme</b></p> <p>I suggest homeroom as a central place for mini school wide lessons/activities to occur.</p> <p><b>Pink Bathroom Crime Scene – the story of Francis Gesner Lee (1878-1962): Presented by Jiwon Kim BA</b> collab.nlm.nih.gov → webcast and videos → presentations in medicine for HS students → visible proofs: This activity can also be done in all home rooms; the presentation can be fed through the television from the lan office.</p> <p><b>13:52-17:10</b> play this portion of the archived footage and ask students to fill out a Claim-Evidence-Reason graphic organizer based on the information given by Ms. Kim in the archived video footage. <b>Question posed to the students: What was the mode of death?/ How did Ms. Lee die?</b> Have students fill out their graphic organizer and make predictions as to whether Ms. Lee was murdered or if she committed suicide. A class graph of student predictions with appropriate axis and titles can be made.<b>17:37-22:28</b> Ms. Kims debrief of the Pink Bathroom Crime Scene. <b><i>This activity is interdisciplinary and incorporates Science (Scientific method: developing a hypothesis), technology Math (properly creating and labeling graphs) and listening skills.</i></b></p>	<p>Many teachers start the year off with an introduction to metric units and measurements. <b>The following lesson “Measurable You” provides such an opportunity to incorporate the Theme of Forensics and review metrics.</b></p> <p><a href="http://www.nlm.nih.gov/visibleproofs/education/measure/index.html">http://www.nlm.nih.gov/visibleproofs/education/measure/index.html</a></p> <p>All students should be encouraged to complete Career Finder activity.</p> <p><b>This activity provides students with a list of possible careers based on their personal interest, additional information provided includes annual average salary and degree requirements.</b></p> <p><a href="http://science.education.nih.gov/LifeWorks.nsf/CareerFinder.htm">http://science.education.nih.gov/LifeWorks.nsf/CareerFinder.htm</a></p>
<p><b>Science content: Cells -DNA</b></p>	<p><b>Homeroom Activity1:</b> Quick write – What types of information can you get from DNA found at a crime scene? What role should DNA evidence play in a trial/investigation.</p>	<p>The Innocence project has a website with audio and video clips created by and about individuals freed through their project.</p>

	<p>Followed by a mini discussion- Possible student answers might include: Gender, Race (some scientist debate whether this is true), presence or absence of an individual, nature of the crime –skin under nails=possibility of a struggle, sexual secretions might indicate a rape, blood splatter might indicate a shooting or some other trauma etc.</p> <p><b>Homeroom Activity2:</b> Have students watch the Kirk Bloodworth video clip and follow up with students to see if they have any concluding thoughts about the role of DNA evidence in a trial/investigation</p> <p>The story of Kirk Bloodworth – the first man to be exonerated based on DNA evidence <b>Clip 3 19:25-30:40</b></p> <p style="text-align: center;">↓</p> <p><a href="#">Visible Proofs: Forensic Views of the Body Exhibition Opening Program - February 2006</a></p>	<p><a href="http://www.innocenceproject.org/news/AV-Archive.php">http://www.innocenceproject.org/news/AV-Archive.php</a></p> <p>The Press release page of the innocence project contains articles that can be used to supplement class activities and discussions</p> <p><a href="http://www.innocenceproject.org/news/Press-Releases.php">http://www.innocenceproject.org/news/Press-Releases.php</a></p> <p><b>Chapter 12 (Reopening an old coffin- and an old case – with DNA) of <u>Beyond the body farm</u> by Bill Bass, Jon Jefferson</b> would be good reading for connecting science content on DNA to forensics.</p>
<p><b>Science content:</b> <b>Genetics</b></p>	<p style="text-align: center;"><b>School Wide Scavenger Hunt</b></p> <p>Incorporate School newspaper or Leadership Homeroom announcements to provide clues for hidden items or evidence around campus.</p>	<p>This activity would follow nicely after Chapter 3 (Life after Death) of Stiff by Mary Roach which covers human decomposition. <b>This lesson introduces students to the life cycle of the blow fly and how it is used by forensic entomologist</b></p>

	<p style="text-align: center;"><b>School Wide Reading</b></p> <p>Provide or have all students purchase Stiff/ Beyond the Body Farm. Begin reading before break – have students create a reading log/ teachers should create a face book page or blog for students to post to during the winter break. <i>This activity is interdisciplinary and incorporates Science content, technology and Literacy skills.</i></p> <p><u>Stiff: The Curious Lives of Human Cadavers</u> by Mary Roach</p> <p style="text-align: center;">or</p> <p><u>Beyond the Body Farm</u> by Bill Bass, Jon Jefferson</p> <p><b>Alternate Books on Forensics(Grades K-12):</b>  <b>Nonfiction -</b>  <a href="http://www.nlm.nih.gov/visibleproofs/resources/bibliography_nonfiction.html">http://www.nlm.nih.gov/visibleproofs/resources/bibliography_nonfiction.html</a>  <b>Fiction -</b>  <a href="http://www.nlm.nih.gov/visibleproofs/resources/bibliography.html">http://www.nlm.nih.gov/visibleproofs/resources/bibliography.html</a></p> <p style="text-align: center;"><b>School Wide – Art Competition for KD Forensic T-Shirt design</b></p> <p>Design should be based on school wide activities, Forensic careers or school wide novel.</p>	<p><b>to determine the time of death.</b></p> <p><a href="http://www.nlm.nih.gov/visibleproofs/education/entomology/index.html">http://www.nlm.nih.gov/visibleproofs/education/entomology/index.html</a></p> <p><b>This lesson focuses on what is DNA and various DNA typing techniques</b>  <a href="http://www.nlm.nih.gov/visibleproofs/education/dna/index.html">http://www.nlm.nih.gov/visibleproofs/education/dna/index.html</a></p> <p>Schools can purchase gel electrophoresis kits and equipment from any school science supply vendor (WARDS, FREY,etc.)</p> <p><b>Chapter 16 (Pushing the Limits of DNA testing)of <u>Beyond the body farm</u> by Bill Bass, Jon Jefferson</b> would be good reading for connecting to science content.</p>
<p><b>Science content: - Evolution</b></p>		<p><b>The Evolution of Forensics: The Rise of Forensics/History of Forensics.</b></p> <p><b>Information on this topic can be found on the visible proofs website:</b></p>

<p><b>Science content:</b> <b>Ecology</b></p>	<p><b>School Wide Activity – Careers in Forensics- Forensic Anthropology</b></p> <p>Play Video during homeroom: Clyde Snow- a journey in forensic anthropology. Mr. Snow talks about his global work to aid in identification of bodies/individuals killed through military/political atrocities.</p> <p><b>Clip 3: 33:20-55:57</b> ↓ <a href="http://www.nlm.nih.gov/visibleproofs/visit/">Visible Proofs: Forensic Views of the Body Exhibition Opening Program - February 2006</a></p> <p><b>Post Video Discussion:</b> ask students how various locations (global/environmental) might affect the work of a forensic anthropologist – If students can not readily come up with a response outside research might be needed.</p>	<p><a href="http://www.nlm.nih.gov/visibleproofs/visit/">http://www.nlm.nih.gov/visibleproofs/visit/</a></p> <p><b>Chapter 5 (The rockets’ red glare, bodies bursting in air: Dealing with a mass disaster)of <u>Beyond the body farm</u> by Bill Bass, Jon Jefferson</b> would be good reading for introducing Natural Disasters and connecting it with Forensics.</p>
<p><b>Science content:</b> <b>Physiology</b></p>	<p><b>School Lunch Dance/ Schoolwide crime scene</b> CSI theme ie...caution tape, body outline, huge finger prints...etc scavenger hunt for free tickets to the dance, free year book coupon (<b><i>just some ideas</i></b>)</p>	