**Integrating Literature About Forensics Into the Curriculum**

Barbara Dell (English/Language Arts)

Sarah Parsons (Science)

Amy Soldavini (Social Studies)

Melanie Ware (Art)

The topic of forensics fascinates many teens. We have found resources that integrate into four curricular areas: English/Language Arts, Science, Social studies, and Art. These resources will be used with ninth grade students, since that is the year that many of them are studying biology.

We understand that not all students are as advanced developmentally and linguistically as others, and that they come from a range of social groups and cultures. Because of this we include a variety of resources including web sites, novels, graphic novels, and video clips. Print materials have a range of ATOS reading levels (from 4.4 to 9.0) and language translations. For example, the novel ***Murder on the Orient Express*** has been translated into at least eight languages and ***Theodore Boone: Kid Lawyer*** into at least four. In addition, characters in the mystery novels include African-American and Chinese-American teens, and a non-fiction book includes stories of forensic anthropology in Rwanda and Argentina.





**Integrating Forensics Literature into the English/Language Arts Curriculum**

Annotated Bibliography and Lesson Plan

Maryland Common Core State Curriculum: English Language Arts

<http://mdk12.org/share/frameworks/CCSC_Writing_gr9-12.pdf>

Standards for Writing

W3 CCR Anchor Standard -- Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

W.3d (for Grade 9-10 Students) -- Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or **characters**.

Standards for Speaking and Listening

SL1 CCR Anchor Standard -- Prepare and participate effectively in a range of conversations and collaborations with diverse partners, building on others’ ideas and expressing their own

clearly and persuasively.

SL.1c (for Grade 9-10 Students) -- Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.

"Crime Scene Investigation Murder Mystery Game." ***Crime Scene Investigation Murder***

***Mystery Game*.** Web. 18 July 2012.

<[http://www.mymysteryparty.com/crscinmumyii.html](http://www.mymysteryparty.com/crscinmumyii.html%22%20%5Ct%20%22_blank)>.

In this pre-packaged CSI-themed murder mystery game (which can be downloaded for a fee) “investigators” participate in solving a murder committed at the “Annual International Crime Scene Investigation Association Convention.” Each participant is assigned a role, such as “Crick Watson, a crabby and introverted evidence analyst from Sydney Australia.” Clues are provided, as are suggested props. Additional activities (provided) include a “Forensic Sleuthing Battle,” a “Crime Drama Movie Challenge,” and a “Fantastic Forensic Charades.”

**Strategies for classroom use:**

* Warm-up Activity: Each student will be given a brief character description. The student will write a one to two-paragraph back-story for that character.
* The class will participate in a CSI-themed murder mystery party. While playing their assigned parts they will read clues, listen to other participants, and examine and analyze information provided to solve the mystery.
* In small groups, students will discuss their theories about the solution to the mystery. They will organize their ideas, and choose a spokesperson to present their theory to the class.
* The class will discuss the results.

Standards for Reading Literature

RL1 CCR Anchor Standard -- Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

RL1 (for Grade 9-10 Students) Cite strong and thorough textual evidence to support analysis of what the text says explicitly, as well as inferences drawn from the text.

Balliett, Blue, and Brett Helquist. ***Chasing Vermeer***. New York: Scholastic, 2004.

A famous Vermeer painting has been stolen from a museum, and sixth-grade-sleuths Petra and Calder follow the clues that will solve the case. (ATOS 5.4)

Christie, Agatha. ***Murder on the Orient Express*.** London: HarperCollins, 2007.

Who killed millionaire Samuel Edward Ratchett on the train – while it’s stopped by a snow storm? Investigator Hercule Poirot must find out before the killer strikes again. (ATOS 6.2)

Ferguson, Alane. ***The Christopher Killer: A Forensic Mystery*.** New York:

Viking/Sleuth, 2006.

Seventeen-year-old Cammie is the daughter of the county coroner, and is itching to get involved in a real forensic case. She’s unprepared for the reality, however, when the victim of a serial killer turns out to be her friend.

Gerber, Linda C. ***Death by Bikini*.** New York: Sleuth/Speak, 2008. Print.

A famous rock star is found dead on the beach of the tropical island resort owned by Aphra’s family. The victim was strangled by her own bikini top. Who committed the crime? Could it have something to do with the hot Seth Mulo and his parents, who arrived the day before the murder? Is Aphra in danger? (ATOS 4.4)

Grisham, John. ***Theodore Boone: Kid Lawyer***. New York: Dutton Children's, 2010.

Thirteen-year-old Theodore Boone, who has a dream of becoming a lawyer, is a witness in a sensational murder trial. He’s the only one who knows the truth about what happened, and he’s determined that justice be served. (ATOS 5.2)

Ingold, Jeanette. ***Paper Daughter***. Boston: Houghton Mifflin Harcourt, 2010.

After her father is killed in a hit-and-run accident, sixteen-year-old budding journalist Maggie Chen searches for clues about his killing while confronting questions about her ethnicity. (ATOS 5.3)

Reid, Kim. ***My Own Worst Frenemy: A Langdon Prep Novel***. New York: Dafina KTeen

/Kensington Pub., 2011.

African-American sixteen-year-old Chanti, whose mom is a vice cop, wins a scholarship to a fancy private boarding school. Because of her background, she comes under suspicion for a string of thefts, and searches for clues to find out the identity of the real culprit. (ATOS 5.4)

**Strategies for classroom use:**

* Students will read a novel such as ***My Own Worst Frenemy*** by Kim Reid, ***Paper Daughter*** by Jeannette Ingold, ***The Christopher Killer: A Forensic Mystery*** by Alane Ferguson, ***Murder on the Orient Express*** by Agatha Christie, ***Death by Bikini*** by Linda C. Gerber, ***Theodore Boone: Kid Lawyer*** by John Grisham, or ***Chasing Vermeer*** by Blue Balliett. (This is a representative list, not the only books students are permitted to read.) As they read, students will keep a “notebook” of clues in an attempt to solve the mystery before the end of the novel. They will indicate whether forensics could have been used to find or analyze each clue. After reading the resolution to the mystery, students will write a paragraph summarizing their own clue-solving ability.



**Integrating Forensics Literature into the Science Curriculum**

Annotated Bibliography and Lesson Plan

Maryland State Curriculum for 9th Grade Science

State Curriculum – Biology

<http://mdk12.org/share/vsc/vsc_biology_hs.pdf>

**Expectation** 1.7: The student will show that connections exist both within the various fields of science and among science and other disciplines including mathematics, social studies, language arts, fine arts, and technology.

**Indicator** 5: The student will investigate career possibilities in the various areas of science

**Objective** b: Describe current opportunities for employment in biology related careers, e.g., teaching, research, medicine, engineering, public health, sanitation, food science, environmental science, animal science, agriculture, biotechnology, forensic science.

***Ferguson’s Careers in Focus: Forensics***. New York, NY: Ferguson, 2010.

This book focuses on twenty careers that involve some sort of forensics. The book is divided by careers and gives the reader information about the job and steps to take to make it their career. Each section includes a brief overview and history of the job. There is a detailed description of the job, requirements for high school and post secondary education or training, and licensure. The book gives information about exploring the career, possible employers, how to start out and advance in the career, the future outlook for the career, and the earnings scale. Information on additional agencies, associations, and contacts is also provided so the reader can get a more in-depth look at the career. Some of the career sections also include an interview with an actual forensic scientist in that career.

"***CSI: Crime Scene Investigation."*** TV.com. Web. 19 July 2012. <http://www.tv.com/shows/csi-crime-scene-investigation/watch/antibody-profiling-2433254>.

The clip “Antibody Profiling” from the “Split Decisions” episode of CSI shows crime scene investigators using antibody profiling to find a suspect in a shooting. The investigators are trying to figure out which twin shot the victim. DNA testing doesn’t work in this case because they are most likely identical twins. The scientists explain that antibodies are produced in response to your environment, so identical twins will have different antibodies. WARNING – the clip starts with a sex scene (1 man and 2 girls); before showing the clip to the class move the start to 2:07. That is the part that begins the antibody profiling.

***"What Is Forensic Nursing?"*** EHow.co.uk. Web. 19 July 2012. <http://www.ehow.co.uk/video\_5113631\_forensic-nursing\_.html>.

This clip is very informative, though not that interesting. There is a forensic pathologist explaining many of the jobs and responsibilities of a forensic nurse. She explains how a forensic nurse might be used in a court, hospital, and nursing home.

**Strategies for classroom use:**

* Warm-up Activity: The students will carry out a scientific investigation in the field of biology. As a connecting activity between scientific investigation and forensics, students will read about three or more forensic careers in Forensics. At least one of the careers each students research must be crime scene investigation or forensic nursing, because we will have guest speakers from those fields.
* After learning about their self-selected careers, they can read about forensic nursing and a crime scene investigation. The students will watch the CSI clip (starting at 2:07) and discuss the way that science and biology relate to crime scene investigators. The students will watch the clip about forensic nursing and discuss the way that science and biology relates to forensic nursing.
* Students will create four interview questions for a forensic nurse or crime scene investigator.
* We will have a forensic nurse and a crime scene investigator come to the class as guest speakers. The students can then use their questions to help guide the discussion with the nurse or investigator. I will contact a crime scene investigation training organization, the local police department, or the state police to get the contact information for a fire investigator. I will contact a forensic nursing agency (International Association of Forensic Nurses in Arnold, MD), the local hospital, or larger Baltimore hospital, or morgue to get the contact information for a forensic nurse.



**Integrating Forensics Literature into the Social Studies Curriculum**

Annotated Bibliography and Lesson Plan

Maryland Voluntary State Curriculum for Social Studies Grades 9-12

http://mdk12.org/instruction/hsvsc/government/standard3.html

**Standard 3.A.1.a** - Compare climate, land use, natural resources, population distribution, demographic and density maps of Maryland and the United States

**Standard 3.B.1.c** - Analyze the importance of regional characteristics and interests including economic development, natural resources, climate and environmental issues in formulating local, state, and national government policy.

Walker, Sally M. ***Written in Bone: Buried Lives of Jamestown and Colonial Maryland****.*

Minneapolis, MN: Carolrhoda Books, 2009.

A step-by-step explanation of archaeological digs that involve human remains from colonial times with great detail about the process, clues, and scientific tests that allow archaeologists to answer the questions, “Who were you?” and “What was your life like?” for skeletons of European and African immigrants. Well sourced and illustrated with primary documents and evidence; the author worked “alongside the scientists who use[d] state-of-the-art methods to decipher clues from America’s colonial past” (book jacket). Includes source notes, timeline, text and web bibliography, index, and photo credits. (ATOS 9.0)

"Smithsonian National Museum of Natural History." ***Written in Bone: Forensic Files of the 17th-Century Chesapeake*.** Web. 20 July 2012. <http://anthropology.si.edu/writteninbone/>.

This is the website of the Smithsonian exhibit that displays the work of the scientists profiled in the book ***Written in Bone***. Includes a video, web comic, and education guide.

***Moments in Time: Jamestown: Against All Odds*.**Prod. Terra Nova Television.

Discovery Channel, 2003. *Discovery Education*. Web. 20 July 2012.

<http://www.discoveryeducation.com/>.

This video aligns with the archaeological dig written about in the ***Written in Bone*** book, but expands more into the non-human artifacts and clues derived from the study of those artifacts. Disease, starvation, conflicts, trade are some of the conditions studied.

Latta, Sara L. ***Bones: Dead People Do Tell Tales****.* Berkely Heights, NJ: Enslow

Publshers, Inc., 2012.

This book introduces the field of Forensic Anthropology to students through its impact on specific historical cases. Includes murder cases, human rights violations and genocides in 1980’s Argentina and 1990’s Rwanda. Also explained through forensics are the cases of World War II Nazi , Dr. Josef Mengele; United States soldiers classified as POW/MIA during the Vietnam War; identification of remains in the Oklahoma City bombing of 1995 and the passengers of United Airlines Flight 93 on September 11, 2001. Includes a list of post-secondary schools in the field, source notes, bibliography, glossary and index.

**Strategies for classroom use:**

* Students will view the video and web comic from the Smithsonian web site.
* Students will, in groups, complete the following lesson from

***Written in Bone: Educator's Manual*.** A&E Television Networks, 2009. Web. 20

July 2012.

<http://www.mnh.si.edu/education/printable\_resources/WrittenInBoneEdu

catorManual.pdf>.

**Cracking the Case:** In order to determine information about an individual by analyzing their graves and bones, forensic anthropologists must take into account many different types of clues to help them unlock the story of who the person was and how they may have died. Ask students to choose one or more of the scenarios below and write a short paper about what this information could reveal about the person from the past.

a) Forensic analysis of a baby’s skeleton reveals that the child died of rickets. What are some clues that would indicate that the child had this disease, and what were some of the causes of this disease in the 17th century?

b) The skeletons of animals such as snakes and rats are discovered among the remains in the trash pits of a 17th-century Chesapeake colony. What would these findings suggest about life for the colonists during this time period?

c) Sea shells are discovered inside a simple coffin from the 17th century. What might forensic anthropologists conclude from this finding?

d) Forensic anthropologists conclude that a 17th-century child died of lead poisoning by analyzing his or her skeleton. What would be some of the telltale clues that this was the cause of death?

e) A lead coffin dating from the 17th-century Chesapeake is discovered with rosemary sprigs inside. What might these features suggest about the person who was buried inside?

f) The skull of a skeleton from the Jamestown settlement shows signs of trephination. What does this mean, and what might it suggest about the circumstances of death? After providing answers to these clues, ask students to brainstorm and discuss additional clues that may reveal insights into individual and group life in the 17th-century Chesapeake.

* Students will study a historical event or case (assassination, disappearance, death, disaster, etc.) that could have further questions answered with advances in forensic anthropology.
* Using poster board or a graphic organizer, students will use existing evidence from that case or event to list questions remaining about the case and forensic techniques available today that could have changed the way history was written.

**Integrating Forensics Literature into the Art Curriculum**

Annotated Bibliography and Lesson Plan

**Using the State Curriculum: Visual Arts, Grade 8** (no 9th grade curriculum guide available)

<http://mdk12.org/instruction/curriculum/visual_arts/standard1/grade8.html>

**Standard 1.0** -- Perceiving and Responding: Aesthetic Education

**Indicator 1** -- Identify, describe, interpret, and produce visual representations of the physical qualities of observed form

**Objective b** -- Represent accurately in visual form spatial relationships, detail, and specific features of subject matter

Jeffrey, Gary, and Terry Riley. ***Autopsies: Pathologists at Work*.** New York: Rosen

Central, 2008.

This graphic novel presents three true crimes stories that were solved using forensic evidence found during the autopsies. A full-color, graphic novel format adds visual details to the overview of the investigation and post-mortem exam. (ATOS 5.3)

Jeffrey, Gary, and Peter Richardson. ***Solving Crimes with Trace Evidence***. New York:

Rosen Central, 2008.

Your fingerprints, hair, and blood can be traced back to you, and therefore can be used as evidence in criminal investigations. This graphic novel covers three stories of actual crimes solved by using trace evidence. Details in the graphic art and text provide overviews of how a crime is investigated and how trace evidence is analyzed. (ATOS 5.2)

Shone, Rob. ***Corpses and Skeletons: The Science of Forensic Anthroplogy***. London:

Franklin Watts, 2009.

Art and forensic anthropology come together to determine age, sex, and manner of death in criminal investigations. This graphic novel covers three actual cases that used these tactics. (ATOS 4.8)

Shone, Rob**. *Crime Scene Investigators*.** New York: Rosen Pub. Group, 2008.

A graphic art formatis used to describe how crime scene investigators use physical evidence at a crime scene to help determine details of the crime in this look at three actual cases. (ATOS 5.1)

Shone, Rob, and Nik Spender. ***Solving Crimes through Criminal Profiling***. New York:

Rosen Pub. Group, 2008.

Criminal profiling is a fascinating field that is used with forensics to help determine the physical and mental characteristics of a criminal. Three case studies that used these techniques are presented in graphic novel format. (ATOS 4.9)

West, David. ***Detective Work with Ballistics*.** New York, NY: Rosen Pub. Group, 2008.

In this graphic novel three real-life crime stories are describedin which ballistics experts analyze guns and bullets found at crime scenes to solve crimes. (ATOS 4.9)

Sukach, Jim. ***Crime Scene Whodunits: Dr. Quicksolve Mini-mysteries*.** New York:

Sterling Pub., 2003.

Dr. Quicksolve, his son Junior, and his former partner, Elliot Savant, make swiftly solving mysteries a lot of fun. Readers can try to solve the crimes right along with them. This book contains several short mysteries and their solutions.

**Strategies for classroom use:**

* Warm-up Discussion: What constitutes forensic evidence? List ideas on the board.
* In small groups, students will chose one of the graphic novels to examine the spatial relationships, details and specific features of the subject matter, keeping the idea of forensic evidence in mind.
* The teacher will use the document camera to display a story from the book ***Crime Scene Whodunits***. As the story is read, students will take notes on possible forensic clues that would help solve this crime.
* Students will create a graphic novel page containing six frames in which all forensic clues necessary to solve the crime from the short story appear.

Works Cited

"2011 Popular Paperbacks for Young Adults." *American Library Association*. Web. 22 July 2012. <http://www.ala.org/yalsa/booklists/poppaper/2011>.

*AR BookFinder US*. Web. 22 July 2012. <http://www.arbookfind.com/>.

Bucher, Katherine Toth, and M. Lee. Manning. *Young Adult Literature: Exploration, Evaluation, and Appreciation*. Upper Saddle River, NJ: Pearson Education, 2006. Print.

"Howard County Library - Home." *Howard County Library - Home*. Web. 22 July 2012. <http://www.hclibrary.org/>.

"Maryland Common Core State Curriculum: English Language Arts." *Standards for Writing: Grades 9 and 10; Grades 11 and 12*. Web. 22 July 2012. <http://mdk12.org/share/frameworks/CCSC\_Writing\_gr9-12.pdf>.

"Montgomery County Public Libraries - Where the County Reads, Meets, Learns." *Montgomery County Public Libraries - Where the County Reads, Meets, Learns*. Web. 22 July 2012. <http://www6.montgomerycountymd.gov/content/libraries/index.asp>.

*NoveList*. Web. 22 July 2012. <http://web.ebscohost.com/novelist/search?sid=a8b9e362-e8b6-46ce-9465-4763c3bfbd34%40sessionmgr110&vid=24&hid=110>.

"Share Book Recommendations With Your Friends, Join Book Clubs, Answer Trivia." *Goodreads*. Web. 22 July 2012. <http://www.goodreads.com/>.

"State Curriculum - Biology." Web. 22 July 2012. <http://mdk12.org/share/vsc/vsc\_biology\_hs.pdf>.

"Using the State Curriculum: Visual Arts, Grade 8." *Perceiving and Responding: Aesthetic Education ~ Grade 8 ~ Visual Arts Using the State Curriculum ~ School Improvement in Maryland*. Web. 22 July 2012. <http://mdk12.org/instruction/curriculum/visual\_arts/standard1/grade8.html>.

"Using the State Curriculum:Government, High School." *Standard 3 ~ Government ~ Using the State Curriculum ~ School Improvement in Maryland*. Web. 22 July 2012. <http://mdk12.org/instruction/hsvsc/government/standard3.html>.

"Young Adult Library Services Association (YALSA)." *Young Adult Library Services Association (YALSA)*. Web. 22 July 2012. <http://www.ala.org/yalsa/>.