

**STEAM-I Connections**

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| **Area** | **Anchor Text** | **Unit Activities** | **Resources** | **Career Connections** |
| **S**cience | Science text book: Human Body Systems | Review of **Scientific Process**.**Crime Scene Investigation Stations:** Crime Scene Basics and Physical Evidence for all students. Other choices include:FingerprintingImpression EvidenceHairs and FibersChromatographyBlood BasicsDNAForensic EntomologyForensic AnthropologyFacial Reconstruction Arson InvestigationsForensic Files InvestigationsStudy of **human body systems**.Create clay/play doh models of **body organs** made to scale.Simulated **autopsy** of a “body.” Report findings in autopsy report format. | <http://sciencespot.net/Pages/classforsci.html><https://human.biodigital.com/index.html><http://www.nclark.net/>(DNA Templates: <http://www.nclark.net/DNATemplates.html> for 3Doodler<http://www.nclark.net/origami_inst.pdf><http://www.nclark.net/ori_color.pdf>and FORENSICS Activities) | Crime Scene Investigator (in the field and in the lab)Police OfficerCoronerMedical ExaminerArson InvestigatorToxicologistOdontologistForensic Entomologist  |
| **T**echnology |  | **Crime Scene Investigation Stations:** Forensic Files Investigations—video viewing and response formatView **video clip**: “Dr. G on The Drs.: Simulated Autopsy” | Forensic science videos from Discovery Education, StreamlineSC/Learn 360, YouTube  | Ballistics analystComputer Forensic AnalystDigital Forensics ExpertLatent Print ExaminerMechanical EngineerSoftware EngineerPolygraph Examiner |
| **E**ngineering |  | **Independent inquiry:** How are mountain roads constructed?What obstacles might there be? What safety precautions would be necessary? Etc. | Crime Scene Investigation: Engineering the Answer website:<http://spark.ieee.org/2012-issue-1/engineering-the-answer/>STUDENTS read and use to generate inquiry questions. | Facial ReconstructionistMechanical EngineerSoftware EngineerMaterials Scientist |
| **A**rts and Humanities | ***The Christopher Killer* by Alane Ferguson** | **Technical Writing:** Read an actual Autopsy Report. Write a report in the same formatting and language based on their performed autopsy.**Art:** Use the “Sketch to Stretch” Strategy to visualize each of the scenes where a body was found.**Music:** Listen to *La Boheme* as the Character, Dr. Moore, does during the autopsy. Discuss the lyrics (translated into English) and the tone of the music. Brainstorm why this character might have selected this selection and what other selections could have also been chosen and why. | Additional teacher support is available from [www.bookrags.com](http://www.bookrags.com) (via paid subscription or one-time use)Informational Text Set: *Guilty by A Hair: Real Life DNA Matches!* By Anna ProkosRecording of Puccini’s *La Boheme* **Poem:** “As He Lay Dying” by Randolph Stow which can be found on slide 2 <https://prezi.com/u8cr9tcbschl/as-he-lay-dying/> | Crime Scene Sketch Artist Forensic ArtistForensic AnthropologistCrime Scene ReporterCrime Fiction AuthorCrime Scene PhotographerFacial ReconstructionistCrime Scene reconstructionistForensic Document Examiner |
| **M**ath |  | \*\*Use **scale** to create appropriate-sized organs to fit into the provided skeleton frame.\*\*Students MUST learn these basics for future units, i.e. Future City*(7.GM.1 Determine the scale factor and translate between scale models and actual measurements (e.g., lengths, area) of real-world objects and geometric figures using proportional reasoning.)* | <http://www.basic-mathematics.com/scale-drawings.html><https://learnzillion.com/resources/64246-scale-drawings> | Forensic AccountantBlood Spatter AnalystFacial Reconstructionist Ballistics Analyst |
| **I**nquiry |  | **Guest speakers:** Kip Kiser, Chesterfield County Coroner (when he is available) and Lynsee Caulder Carroll (Current SRO for NHMS)—Students are able to ask inquiry questions based on their reading and research. | **Independent inquiry:**Related Careers of Interest<http://www.crime-scene-investigator.net/employment.html#7> <http://weusemath.org/?career=forensic-analyst><https://www.fbijobs.gov/career-paths/stem><https://www.thebalance.com/discover-careers-in-forensic-science-974532><http://www.discovere.org/discover-engineering/engineering-careers>**Independent Inquiry:**Research size and weight of major body organs based on averages for adult male and female. **Independent Inquiry:**How roads are built through mountainous areas.What types of ENGINEERS are required to design and build these roads?**Independent Inquiry:**What evidence is there about the realness/reliability of psychics?How/why do police agencies employ psychics to help solve crimes?**Independent Inquiry:**How dangerous is medical radiation?**Independent Inquiry:**Serial Killers Throughout HistoryProfile of a Serial KillerMany other possible Independent Inquiry Topics—I use these as starting points | Related Careers Inquiry |

**LESSON OUTLINE/SEQUENCE**

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| **Location in text** | **Topic, Concept, or Activity** | **Assessment** |
| Chapter 1 | Character introductions and descriptions (**SC ELA Standard 8:** Analyze characters, settings, events, and ideas as they develop and interact within a particular context.)Review types of conflicts in literature: Establish potential conflicts in novel (begin with Cameryn vs. Mamaw)Jargon (i.e. floater, natural), idioms, figurative language, humor, suspense, and imagery *(****SC ELA RL Standard 9:*** *Interpret and analyze the author’s use of words, phrases, and conventions, and how their relationships shape meaning and tone in print and multimedia texts. AND* ***RL Standard 10:*** *Apply a range of strategies to determine and deepen the meaning of known, unknown, and multiple-meaning words, phrases, and jargon; acquire and use general academic and domain-specific vocabulary.)*CAREER INFORMATION: CoronerChart Notable and Quotable/Words of the Wiser  | Reading journal for characters and career conceptsCreate a Personal Vocabulary Notebook of terms (Chapter 1 through end of book). Teacher will “suggest” possible words for the first few chapters and gradually release responsibility to the students. Students will have opportunities to review, share, and game with their words (i.e. Marzano’s practices) |
| Page 13 | WRITING: Building an Argument: anticipating the counterclaim and preparing the rebuttal.*(****SC ELA Writing*** *Standard 1: Write arguments to support claims with clear reasons and relevant evidence.)* | Quick Argument activity (3-5 minutes): Your last discussion with your parents about your view vs. their view |
| End of Chapter 1 and Before Chapter 2 | SCIENCE: Review Scientific Process *(****SC Science Standard 7.S.1:*** *The student will use the science and engineering practices, including the processes and skills of scientific inquiry, to develop understandings of science content.)*TECHNOLOGY: View Forensics Video View and Interact with Crime Scene Basics PowerPoint.*(****ISTE Standard 3****. Knowledge Constructor: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.)* | Students will collaborate to generate a list of procedures and key concepts from the three resources provided. Include in this list the types of tools/technology used and how these have changed over time.*(****SC ELA RI Standard 5:*** *Determine meaning and develop logical interpretations by making predictions, inferring, drawing conclusions, analyzing, synthesizing, providing evidence and investigating multiple interpretations. Inquiry Standard 3: Construct knowledge, applying disciplinary concepts and tools, to build deeper understanding of the world through exploration, collaboration, and analysis. AND Inquiry Standard 4: Synthesize integrated information to share learning and/or take action.)* |
| Page 24 | **MATH:** Cameryn calculates how much she has earned in the first few minutes on the job.  | Quick salary calculations activity |
| Pages 27-37 | Sketch to Stretch strategy: As students listen to the text, they sketch the scene as Cameryn “sees” it. | Sketches scored based on number of details correctly captured. |
| Chapter 3 | Suspense (Clues that the new deputy is up to something regarding Cameryn)AllusionCompare and Contrast Cameryn and her co-worker Rachel | Comparison/Contrast chart + evaluative paragraph |
| Chapter 4 | Compare and Contrast Cameryn and her best friend, Lyric.Author’s craft: Introducing new characters and building suspense. | Add Lyric to the Compare/Contrast Chart.Independent Inquiry Option: Are Psychics Real/Reliable? |
| End of Chapter 4 and Before chapter 5 | *Guilty by a Hair* informational text set. Read with small groups and report out key learning from selected sections. (Jigsaw Reading)  | Group ReportOptional extra credit: Contact one of the Professional Organizations or Colleges listed in *Guilty by a Hair* and provide proof of contact to teacher (CC’d e-mail, letter of response from contact, etc.) |
| Chapter 5, pages 79-85 | Sketch to Stretch Strategy: Sketch the crime scene—first with pencil, then adding color*(****SC Visual Art 7th Grade Standard:*** *The student will use composition and the elements and principles of design to communicate ideas.* ***Indicator VA7-2.4*** *Describe, both orally and in writing, the ways that his or her use of organizational principles and expressive features evoke the ideas he or she intended to convey in a work of visual art)*Discuss the importance of Visualization on Comprehension. | Students have practiced Sketch to Stretch with the scene where Cameryn’s first case was found and were scored based on a scale of how many details they captured accurately. Students may select the perspective from which to sketch (i.e. overhead, front, etc.) Now, students are attempting to be as accurate and realistic as possible in relation to scale and proportion. They will write about their sketch and share their interpretation with the class. |
| Chapter 5, page 82 | Poem: “As He Lay Dying” by Ralph Stow.Discuss the poem and what it is trying to relay.Examine the role of the speaker. Read the poem aloud in small groups with students taking on the role of narrator and “Voice” using the verbs as an indication of how the line should be spoken. | Group oral reading participation.Discuss the poem and text in relation to each other.  |
| End of Chapter 5 and Before Chapter 6 | **TECHNOLOGY & SCIENCE:** View video clip: “Dr. G on The Drs.: Simulated Autopsy” Discuss tool and procedures. Answer questions and allow students to share experiences. | Discussion  |
| Chapter 6 | Discuss “gallows humor” and why it exists. Discuss how humor is frequently used to break tension in literature, drama: movies, TV shows, etc. and the various types of humor (with examples). | Group chart of humor types |
| Chapter 7 | Chapter 7 is RICH with new vocabulary words. Some of these will be pre-taught so as not to impede comprehension. Others will be suggested for the Vocabulary Notebook.Point out how Dr. Moore, Mr. Mahoney, and Ben each build their argument/claim, counter claim, and rebuttal. | Vocabulary Notebooke |
| Chapter 7, page 107 | **MUSIC:** Play *La Boheme* in the background as students read through the autopsy section.Provide copies of the lyrics and play the music again as students follow along. Discuss the words, the tone of the music and discuss why this selection might have been selected. **TECHNOLOGY:** Students may capture legal copies of their music selection and bring to class to play while they perform their autopsy (provided the lyrics are school appropriate). *(****ISTE Standard 2.*** *Digital Citizen: Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.)***SCIENCE:** Demonstrate how an ABFO scale is used and why it would be useful in crime scene investigations. | **MUSIC:** Students will select their OWN music for an autopsy and **write** an explanation as to why they made the choice.**TECHNOLOGY:** Allow students to take pictures both with and without the ABFO scale. Bring the pictures in to play “Stump the Class” as students try to gauge the correct size of the object photographed. |
| Chapter 8 | Discuss coping mechanisms that people use to get through difficult times and which are healthy and which are not healthy.Discuss examples of times when people are judged by their age, gender, or looks. Discuss how authors use “stock” characters.\*\*Video Clips on Gender Bias and Age Bias and Stereotpes.\*\*Age bias will be an integral part of an upcoming unit. | Find examples of coping mechanism in this chapter.Discuss examples of age and gender bias from chapter 1 through chapter 8. |
| After chapter 8 and Before Chapter 9 | **SCIENCE:** Human Body systems introduction and handouts.Students make their play doh models of the organs and place them in the proper position in the skeleton provided. Teacher take the “bodies” and modify them with beads for bullets, blue glitter glue for bruising, and red glitter glue for bleeding, and then will dip them in paraffin wax and return them to students. The paraffin wax serves as the skin. Students must be observant in the autopsy in order to discover indications of cause of death.Students will perform autopsy and write autopsy report. | **SCIENCE & TECHNICAL WRITING:** Students will perform an autopsy on their “body” and will **write** their autopsy report documenting their procedures, findings, and conclusions. |
| Chapter 9- 17 | Students begin to read independently or in small groups.***(SC ELA RL Standard 13****: Read independently and comprehend a variety of texts for the purposes of reading for enjoyment, acquiring new learning, and building stamina; reflect on and respond to increasingly complex text over time.)*They will become the investigators and will have a crime-solving notebook.Each of the potential characters will be listed in the notebook and students must gather evidence through the remainder of the book which implicates or exonerates each suspect. Explanations MUST be based of textual evidence and supported.*(****SC ELA Standard 5:*** *Determine meaning and develop logical interpretations by making predictions, inferring, drawing conclusions, analyzing, synthesizing, providing evidence, and investigating multiple interpretations. 5.1 Cite multiple examples of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.)*A debriefing will be held via discussion at the conclusion of every chapter and class will create Evidence Charts.As students complete the assigned reading for each day, they will have time to visit **Crime Scene Investigation Stations** and work on **Independent Inquiry.** | Crime-Solving NotebookComplete Vocabulary Notebook |
| After Chapter 17 | Students will “Wrap-It-Up” by creating a wrapped box full of what they learned from this unit. The “learning” artifacts may be paragraphs, objects they can explain, products they have made, Vocabulary Notebook, Crime-Solving Notebook, Pictures, pieces from Crime-Scene Investigation Stations, Independent Inquiry findings ,etc. *(****SC ELA RL Standard 6:*** *Summarize key details and ideas to support analysis of thematic development. 6.1 Determine one or more themes and analyze the development; provide an objective summary.*  | Students’ CULMINATING GRADE will be based on the contents of their Wrap-It-Up Box and presentation.\*\*I sometimes allow students groups to come up with a single box for their group as long as each member contributes artifacts equitably. |

**LOOKING AHEAD**

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| **Last year:** | **What I will do differently:** | **Reason:** |
|  Student groups were given a set number of play doh colors and selected which organs would be made from each system | For body systems and organs, I would assign (or have students vote) on a single color for organs of each system.I am considering letting students 3Doodle the skeleton—depending on how much time we have and if a quality template can be found. These students have already learned the basics of using the 3Doodler.If possible, the “bodies” will be initially clothed with tiny Barbie-type clothing. Perhaps, students or parents who sew would volunteer to make an outfit for each. | I think having a color-coded system will help students retain knowledge of the systems and functions longer since my science counterpart doesn’t get to this topic for a few more weeks.Clothing the “bodies” will make the procedure more realistic and more like the book. |
| Crime Scene Investigation Stations:Everyone did every station with PowerPoint and Activities | Crime Scene Investigation Stations: We will Do Crime Scene Basics and Physical Evidence together and then students can have a CHOICE of 2-3 other stations depending on time.Students would be about to get a short preview and the sign-up for the stations they want to explore.For those wanting to do/learn more—I would be willing to stay after school a few days in order to students to get to do all they wished without loss of class time. | 1. Doing EVERYTHING took a lot of time.2. I won’t have to provide as many resources, materials, supplies, etc. |
| Independent reading | I will begin letting students read independently sooner so that I have more time for students to work with the Crime Scene Investigation Stations and Independent InquiryI will not allow students to get so far ahead in the book that they spoil it for others. By stopping and debriefing after each reading and transitioning to another activity, students won’t get too far ahead of their peer groups. | More creative use of time and allowing for student choice.Fewer “spoilers” which lessens interest and hampers engagement. |
| Wrap-It-Up: Culminating activity | I will provide more suggestions for possibilities as the students progress through the unit. | Many of the students were regretful that they had not saved items for their Wrap-It-Up—such as their color chromatography sheets, fingerprints, blood spatter, autopsy reports, ABFO pictures, etc.One students even said they should have played their autopsy music during their presentation. |