



## **Whodunnit? Southern Detective Fiction in the Forensic Science Classroom**

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This curriculum unit is recommended for:  
Honors Forensic Science, Advanced Forensic Science, 11<sup>th</sup> & 12<sup>th</sup> grades

**Keywords:** forensic science, detective fiction, deductive reasoning, scientific method, Edgar Allan Poe, Kathy Reichs, inductive reasoning, logic, observation, hypothesis, crime scene analysis, crime scene investigation

**Teaching Standards:** See [Appendix 1](#) for teaching standards addressed in this unit.

**Synopsis:** This unit uses two works of detective fiction to strengthen forensic science students' skills at observation and deductive reasoning. Edgar Allan Poe's *The Murders in the Rue Morgue* and Kathy Reichs' *Flash and Bones* are examined in book study format to encourage students to stretch their powers of observation by describing and recreating scenes from the stories. Effective communication is looked for during class discussions of the books and in written assignments. The use of logic and reasoning is stressed when working through the stories to follow the authors' plot lines and ultimate resolutions of the crimes. Students are encouraged to model deductive reasoning when creating their own crime stories for their fellow classmates to solve.

*I plan to teach this unit during the coming year to 30 students in 12<sup>th</sup> grade Advanced Forensic Science.*

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# Whodunnit? Southern Detective Fiction in the Forensic Science Classroom

*Jackie Smith*

## Introduction

### Rationale

It is not every day that you get to teach a class that students are truly excited to take. Forensics is such a class. With the popularity of criminal investigation shows on television and in podcasts, students' interest is already piqued. With the hands-on activities and lab work forensics affords, it is truly a class that engages students while building inquiry and critical thinking skills. Introducing literature into the forensics classroom takes this to the next level. It has already been shown that a literature-rich curriculum improves reading and writing skills.<sup>1</sup> Reading also gives students a chance to visualize and develop an understanding of things that they may not be able to see in the lab or in their own lives. A novel study can serve as a tool for building students' abilities to carry on an intellectual conversation with peers and develop social and communication skills.<sup>2</sup>

In my experience, students are lacking the ability to thoroughly observe a situation and accurately communicate their observations. When presented with a crime scene and asked to record just the facts, they struggle to come up with things to write despite there being a plethora of details. They are also deficient in using critical thinking skills, ie. reasoning to solve problems. They are very good at making presumptions which have large leaps in logic. In this curriculum unit, I am using two very different detective stories to exercise students' deductive reasoning skills and introduce them to areas of forensic science that are difficult to reproduce in the classroom. Edgar Allan Poe is credited with writing the first detective story with 1841's *The Murders in the Rue Morgue*. One hundred and seventy years later Kathy Reichs produced *Flash and Bones*, a forensic anthropology-based novel set in Charlotte, North Carolina. The bizarre twists in Poe's work and the local landmarks and culture in Reichs', will catch students' interest and introduce them to crime-solving using reasoning and logic.

### Demographics

William Amos Hough High School is a large suburban high school of over 2500 students located in the small town of Cornelius, North Carolina just north of Charlotte. We opened our doors in 2010 to serve the northern part of the Charlotte-Mecklenburg School District. Eighty-four percent of our graduates go on to either two- or four-year colleges while 16% join the military. Twenty-one percent of our students are minorities and 13.2% are free or reduced lunch students. We have a student-teacher ratio of 19.9 to 1. We offer a comprehensive college preparatory program in the arts and sciences. Classes are taught at the Standard and Honors levels and we offer 26 Advanced Placement courses in conjunction with the College Board. Our students consistently score well above the averages in our school district and our state on the end of grade tests in Biology, English II, Math I and Math III.

Students may explore their interest in the sciences through electives. We offer Honors Forensic Science and Honors Advanced Forensic Science to meet that need. With the overwhelming popularity of forensics in pop culture, these courses grab students' interest while teaching them valuable lab skills and critical thinking. The first-level course covers many of the basic areas of forensics such as crime scene processing, DNA analysis, blood spatter analysis, fingerprint analysis and toxicology. The second-level course builds on some of the basic materials but extends them further and includes new topics such as Forensic Botany, Accident Reconstruction, Counterfeiting and Art Forgery. Honors Forensic Science is a pre-requisite for Advanced Forensic Science. Students generally take these courses in their junior and senior years. Forensic Science brings biology, physics, chemistry, earth science, math, civics, history and writing together in one class that answers the question "When am I ever going to use this in real life?"!

### Unit Goals

This curriculum unit could be used in either level class and will use works of detective fiction to highlight the process of reconstructing a crime scene to solve a murder. It will stress the use of reasoning to evaluate evidence and draw valid conclusions. Relevant course standards state that students should be able to analyze a case study for elements of crime scene investigation, understand and apply the scientific method to a crime scene investigation, and evaluate a crime scene for the actions necessary to properly recognize, document and collect evidence.

Students should know the seven elements of crime scene investigation (the 7 S's) and be able to spot them in use in a story. The 7 S's are: secure the crime scene, separate the witnesses, scan the scene for evidence, see or photograph the scene, sketch the scene, search the scene for evidence and secure and properly collect the evidence. They should also recognize when the author of a story deviates from this accepted practice. Students should be able to use and apply the scientific method to problems in their own lives as well as follow its use in crime scene investigation. The use of logic and reasoning to move from having a question, to developing and testing a hypothesis to analyzing and effectively communicating results is a process that has life-long application. Students should also be able to recognize what is evidence and what is extraneous to solving the case. They should then know how to properly package various types of evidence and label and document it so that it will be useful in an eventual prosecution.

### Content Research

#### Inductive v. Deductive Reasoning

Reasoning is the foundation of scientific inquiry. It is also the basis of the detective story. There are several types of reasoning, which many people confuse. Deductive reasoning starts out with a general statement and moves to a specific conclusion. This is the framework on which the scientific method is built – developing a hypothesis and then testing it to arrive at a logical conclusion based on observed data. An example of deductive reasoning is "All men are tall. Mike is a man. Therefore, Mike is tall." Obviously, all men are not tall. In order for deductive reasoning to be valid, the original premise, or hypothesis, must be correct. If we change the example to "All men are mortal", the logic holds. "Mike is a man, therefore Mike is mortal."

Inductive reasoning, on the other hand, moves from the specific to the general. There is data and conclusions are drawn from that data. This is the opposite of deductive reasoning. In inductive reasoning, one makes many observations and from them, figures out a pattern and makes a generalization that explains the data. For example, “Mike is a man. Mike is mortal. Therefore, all men are mortal.” In this case the original premises were true and the conclusion that followed was also true. However, this may not always be the case. If you pull three blue marbles from a bag in a row, you may be tempted to conclude that all the marbles in the bag are blue, which is not necessarily true. Scientists applying the scientific method use inductive reasoning to form hypotheses and theories based on observed data. They then use deductive reasoning to test those hypotheses.

## History of Detective Fiction

The first police forces in the world were not established until the 1800’s. France founded the Surêté in 1829 and London established their first police force around the same time.<sup>3</sup> New York City’s first police force began in 1845.<sup>4</sup> So it is not surprising that literary works based on detectives solving crimes did not exist until the mid-1800’s. Also, during this time of the Industrial Revolution, more people were moving into cities. People were having more and more interactions with strangers which allowed them to become more curious and suspicious of other people. These factors also contributed to the development of detective fiction as a distinct genre of literature.

Detective fiction has many of the same elements as classic tragedies – plot, characters, setting, etc... They both begin with a crime and end with its’ solution. However, in detective fiction, the plot drives the story instead of the characters. In classic detective fiction, the plot must always begin with the revelation of a crime. As the story continues, the plot thickens with twists and evidence coming to light. The guilty may even appear innocent and the innocent guilty. Then there must be a reversal of some kind where the guilty party is revealed. The truth comes out and the mystery is solved. The detective not only announces who committed the crime, but also how he was able to use logic to deduce what happened.

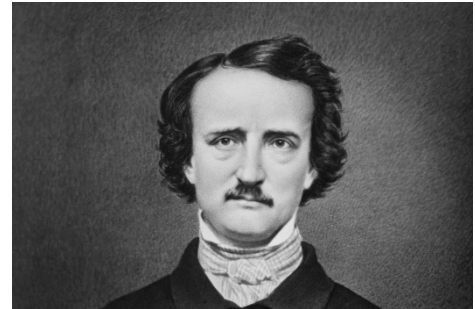
Detective fiction traces its roots back to Edgar Allan Poe’s *The Murders in the Rue Morgue* published in 1841. Poe introduced his detective C. Auguste Dupin in this and two subsequent short stories.<sup>5</sup> The detective in classic detective fiction stories is a static character.<sup>6</sup> He must be extremely capable and good at his job so that the reader always has confidence that he will ultimately solve the crime. The classic detective may have a quirk or two, but he is not deeply flawed.<sup>7</sup> He is always in control and may seem almost superhumanly good at what he does. Examples of the classic detective are Sir Arthur Conan Doyle’s Sherlock Holmes and Agatha Christie’s Miss Marple.

In contrast to classic detective fiction, by the 1930s, authors had developed characters and stories that were more hard-boiled. The new detectives were deeply flawed characters. They became emotionally involved in the crimes they were solving. The stories became as much about the detective and his flaws as the mystery itself.<sup>8</sup> Examples of this type of detective include Raymond Chandler’s Phillip Marlow and Dashiell Hammett’s Sam Spade.

The Golden Age of detective fiction lasted from 1920-1939. Agatha Christie alone wrote sixty-six detective novels and 14 short story collections.<sup>9</sup> In the United States, the genre took off between the 1930's and the 1950's. Its popularity continues to this day with contemporary crime fiction and the introduction of new crime detectives such as Temperance Brennan, Kay Scarpetta and Alex Delaware.

## Edgar Allan Poe

Poe was born in Boston on January 19, 1809 and lost both of his parents as a very young child. He was taken in by John Allan and taken to England for schooling. Upon his return to the States, he attended the University of Virginia at his foster father's urging, to study to enter the family business. Poe, however, amassed large gambling debts and John Allan refused to subsidize his education further. Poe was forced to work as a clerk in his foster father's business, which he hated. He published his first book of poetry called "Tamerlane and Other Poems" in 1827. Soon thereafter, needing money, he enlisted in the United States Army. After serving a two-year term, he published his second book of poetry and reconciled with John Allan. Allan obtained for Poe an appointment to West Point, but Poe was dismissed for neglect of duty within a few months. He foster father then permanently disowned him.



Edgar Allan Poe – Creative Commons

His third book of poetry was published in 1831 whereupon he moved to Baltimore to live with an aunt and her young daughter. In December 1835, he began working as a critic and an editor of the *Southern Literary Messenger*, for which he gained a fair amount of success. The *Southern Literary Messenger* was the most successful and influential literary magazines in the South at the time, rivaling *Harper's* in the North. The purpose of the *Messenger*, according to one of its editors in its first edition, was to serve as "a kind of pioneer, to spy out the land of literary promise [in the South], and to report whether the same be fruitful or barren."<sup>10</sup> During Poe's tenure at the magazine, he increased its circulation as well as its quality. He also succeeded in developing connections with the literary establishment in the North, giving further credibility to his work. Poe wrote critical reviews of many works of the time including Daniel Defoe's *The Life and Surprising Adventures of Robinson Crusoe* as well as works by James Fenimore Cooper and Charles Dickens.<sup>11</sup> Poe amicably left the *Messenger* in January 1837 to pursue his writing career. After that, the volume of reviews published in the magazine fell off precipitously and eventually the magazine became a political and historical journal before finding its literary roots again. Poe continued to publish his own works in the magazine, for example, *The Raven* in the March 1845 issue. The *Southern Literary Messenger* ceased publication for the last time in 1864.

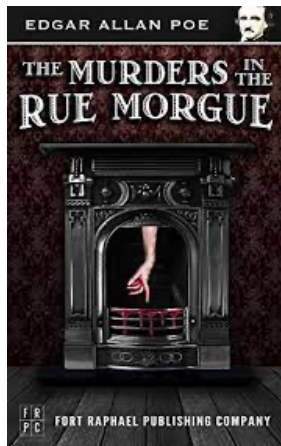
In 1836, he married his cousin who was thirteen years old at the time. They moved between Baltimore, Philadelphia and New York City with Poe working various editing jobs. Eventually, in 1846, they moved to a small cottage in the Bronx where his wife died just a year later. He continued to write a lot, including poetry, short stories and a novel. In 1849, he was found delirious in Baltimore and was taken to a hospital where he died four days later. The official

cause of death is unknown although it has been speculated that alcoholism may have played a role.

Poe is known for many works in addition to his contributions to editing. *The Fall of the House of Usher* (1839), *The Pit and the Pendulum* (1842) and *The Tell-Tale Heart* (1843) are but a few. His works are distinguished by “a unique grotesque inventiveness” in addition to his excellent plot construction. He believed that the short story “through its moods, setting, and details, should strive to create a single overall effect.”<sup>12</sup>

### *The Murders in the Rue Morgue*

Poe’s short story *The Murders in the Rue Morgue* first appeared in 1841 in Graham’s Magazine published in Philadelphia.<sup>13</sup> This first attempt at detective fiction begins with a discussion of what logical analysis really is. He talks about the skills needed to excel at the game of chess versus the games of checkers (draughts). He posits that checkers requires much more skill since the possible moves are simpler. He then discusses the card game whist, stating that skill reading the facial expressions and nuances of the other players, more than any skill with the cards themselves, leads to success.



The story unfolds through a narrator who befriends Poe’s detective C. Auguste Dupin. Dupin displays his analytical skills by telling the narrator what he has been thinking about after the two men walk in silence for a while. He accomplishes this by the use of deductive reasoning.

Then the men discover an account of two gruesome murders in the newspaper. A woman and her daughter have been brutally killed. They were discovered when neighbors heard cries from the upstairs apartment and rushed in. They found the apartment locked from the inside. Upon forcing the door open, they found the dwelling had been ransacked and furniture broken. Curiously, there was a great deal of cash and other valuables laying around in the home. Seeing a large amount of soot in the fireplace, they examined the chimney and discovered the body of the daughter shoved up the chimney, feet first. The daughter’s body had many bruises on it including very large handprints around the throat. After struggling to remove the body from the chimney, they eventually discovered the mother’s body outside in the courtyard where she had apparently been thrown from the fourth floor window. The mother’s head had been cut so deeply that when the people went to pick up the body, the head fell off.

The witnesses all gave different accounts of the sounds they heard coming from the apartment. They all agreed there was one gruff voice speaking French, but they described the other voice as shrill with indistinct words that could have been in any of many languages. Having no other suspects, the police arrest the clerk who delivered the money to the mother the previous day.

Dupin is sure the police haven’t done everything they could do and secures permission to enter and examine the apartment and bodies. After thoroughly observing the premises and the

condition of the mother and daughter, Dupin places an advertisement in the newspaper stating that the owner of an orangutan should contact him to retrieve their animal. Dupin reveals his thinking to the narrator while they wait for the Maltese sailor to show up. He reasons that the perpetrator had to have left by one of the windows, despite them seemingly being nailed shut. He finds that in fact one window is not nailed shut and can be opened from the inside. He muses that the amount of force used and the brutality of the crimes means that something stronger than a man had to have committed the acts. He has the narrator try to fit his hands onto a sketch of the marks around the daughter's neck but the marks are far too large to have been made by human hands. He combines those facts with the fact that the shrill voice didn't speak in a real language, that he found a tuft of non-human hair in the mother's hand, and that no money was stolen to reach his conclusion. He posits that an orangutan had to have committed the murders. Shortly thereafter, a Maltese sailor arrives and admits to bringing just such an animal to Paris. The beast escaped and found the apartment of the women. The sailor arrived at the apartment in time to see the destruction caused by his pet and fled back to his home while the animal escaped into the city. Eventually the animal was recovered and sent to live in a botanical garden.

Poe's Dupin is generally regarded as a forerunner of Doyle's Sherlock Holmes and Christie's Hercule Poirot.<sup>14</sup> His early detective fiction established certain features which would become mainstays of the genre. First, there must be a "super-intelligent 'amateur' detective who solves the case more for his own pleasure than for any real desire to 'fight crime.'"<sup>15</sup> Next, there must be a sidekick for the detective to play off who doesn't challenge the intellectual superiority of the lead. This sidekick narrates the story. The detective must use deductive reasoning to demonstrate how he solved the case. Lastly, there must be an ending where the detective reveals the solution to the crime and his logic in reaching his conclusion.

### Kathy Reichs

Kathy Reichs is a prolific author, known to the general public mostly for the creation of her Temperance Brennan character in the series of books that became the basis for the television show *Bones*. Reichs also has an extensive professional life in the field of forensic anthropology. She received her Bachelor of Science in Anthropology from American University in 1971. She subsequently studied at and received her Master's and PhD in Physical Anthropology from Northwestern University in Evanston, Illinois. She graduated with the later in 1975. She was honored as a Diplomate of the American Board of Forensic Anthropology in 1986.



She has taught at various colleges and universities, becoming a full professor at the University of North Carolina at Charlotte in 1996. She has also taught F.B.I. agents at Quantico, VA, medical and dental students and surgeons around the country. She has presented professional papers at symposia and academic meetings all over the world.

She has consulted with the American organization that works to identify the remains of soldiers from World War II, Korea and Vietnam. In 1999, Reichs testified in the war crimes tribunals in Rwanda. She has participated in the excavation of mass graves in Guatemala and in identifying remains from the 9/11 attacks in New York City. She has worked for the Mecklenburg County Medical Examiner's Office in Charlotte, NC and

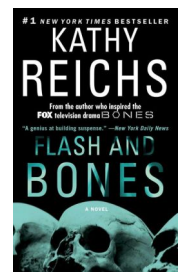
for the Laboratoire de Sciences Judiciaires et de Médecine Légale for the province of Québec, Canada.

She has written many forensic crime novels, the first of which was titled *Deja Dead*. For that novel, Reichs won the 1997 Ellis Award for Best First Novel. Her character from her books, Dr. Temperance Brennan, became the heroine in a long-running television series called *Bones*, which Reichs helped produce.

### *Flash & Bones*

The story opens with the discovery of a body sealed in a barrel with asphalt in a landfill next to the Charlotte Motor Speedway. The next day a man comes to Dr. Temperance Brennan, a forensic anthropologist and the protagonist of the story, to tell the tale of a twelve-year-old mystery. His sister and her boyfriend, both of whom had ties to racing, disappeared and were never heard from again. Are the two things related? To make things more intriguing, the boyfriend, Cale Lovette, belonged to a right-wing militia group known as the Patriot Posse who may have been planning acts of domestic terrorism. In addition, a man from the Centers for Disease Control who worked with bioterrorism agents came to Charlotte for Race Week and has gone missing. How is all of this connected?

Tempe examines the body back at the morgue but is unable to determine with certainty to whom the body belongs. The F.B.I. has taken an interest in the case and suddenly the body from the barrel disappears from the morgue. Agent Williams does reveal that, before being cremated, the body tested positive for ricin, a deadly bioterrorism chemical. Reichs introduces several other characters to increase the tension in the story. Cotton Galimore, a former cop who worked on the investigation into the disappearance of Cyndi Gamble and Cale Lovette before being convicted of taking a bribe from a drug dealer, is now the head of security at Charlotte Motor Speedway and is anxious to see the case resolved before it becomes headlines during Race Week. Cyndi's high school chemistry teacher Ethyl Bradford adds some background to the story and provides the name of one of Cyndi's friends, Lynn Nolan (née Hobbs). Grady Winge, a worker at the Speedway, was supposedly the last one to see Gamble and Lovette alive in 1998. J.D. Danner was the head of the right-wing Patriot Posse at the time of the disappearance and Lovette had loose ties to the organization. Owen Poteat worked at the Speedway in 1998 and supposedly saw Gamble and Lovette ten days after Winge last saw them at the Charlotte airport. Finally, Craig Bogan is Cale Lovette's father. He runs a greenhouse that supplies the Speedway with decorative plants. He didn't approve of Cyndi Gamble's desire to drive NASCAR someday and frequently fought with his son over the issue.



The action comes to a climax at the Charlotte Motor Speedway on the night of the Coca-Cola 600. Tempe is at the track to interview another potential witness to the disappearance 12 years ago when she is knocked unconscious and imprisoned in a gardening shed. There she finds that Cotton Galimore, whom she had begun to suspect in the disappearances, has also been drugged and taken prisoner. Using deductive reasoning, Brennan figures out that the killer has to be Craig Bogan just as he returns to finish her off. As he throws her into a deep sinkhole at the track and begins to fill it in with soil, Detective Slidell shoots Bogan and rescues Brennan. Bogan was a



misogynist and felt women had no place in NASCAR. He and Cale fought over Cyndi's driving until finally Bogan snapped and killed both young people and buried them in the woods with help from Grady Winge.

### Using Detective Fiction in Forensic Science Classes

Both works bring rich content to students in forensic science classes. They can both be analyzed to uncover the reasoning used in solving the cases. Students can be asked to describe the different crime scenes in detail to highlight the amount of information available to the crime solvers. The books can also be used to follow the crime scene investigation process for what was and was not done correctly. Students can identify the steps of the scientific method as the protagonists use them to solve the crimes. Students can be queried about the proper way to collect, package and document each piece of evidence discovered in the stories.

## **Instructional Implementation**

### Teaching Strategies

This unit focuses on two works of detective fiction. Various strategies work well with book studies. I will prepare a reading calendar to keep students on track to finish the works at the same time. I will ensure that daily reading is being done by the use of reading guides and unannounced quizzes approximately once per week. These quizzes will consist of quotes from the works and questions about them as well as questions about major uses of forensic principles. This ensures they have read the material closely. After every section in Poe's story and every 4-8 chapters in Reichs' book, we will have small group discussions or literature circles that focus on discussion questions about major themes or events in the works. These are more than just factual recall. At the end of the stories, I will give the students a list of substantial questions to answer. They will have until the next class to prepare their answers. At the next class, we will hold a Seminar Circle where all of the students sit in a circle and discuss the answers to the questions. In this way, students will be working individually, in small groups and as a whole class to interpret and apply the works. As a culminating activity, students will work in small groups to create a crime scene complete with a backstory and physical evidence. Students from the class will then use deductive reasoning and the scientific method to solve other students' crime scenes.

### Classroom Lessons/Activities

#### *Reading the Works*

This unit necessarily begins with reading Poe and Reichs' works. Set up and publish a reading calendar for your students, breaking the works down into manageable chunks. See Appendix 2 for a sample calendar. Since my classes meet every other day, I assign approximately nine pages of *Rue Morgue* or four chapters of *Flash and Bones* per class period. Each day during class, as a warm up activity, I have my students complete a brief quiz on the assigned reading for that day to make sure they are keeping up with it. See Appendix 3 for a sample quiz. Students can also complete a reading guide for *Flash and Bones* as they progress through the chapters, which can

be submitted on a daily basis. Use the guide in Appendix 4. While we are in the process of reading the books, I only devote the first 10 to 15 minutes or so of class to the readings. For the rest of class, I continue with my regular curriculum. I generally teach this unit at the beginning of the year so it coincides with my first unit which reviews the material from the introductory forensic science course and my units on Advanced Anthropology and Advanced Pathology and Toxicology.

### *Background Knowledge*

While students are reading the books, I conduct a discussion of inductive versus deductive reasoning and make sure students know the difference. Inductive reasoning is reaching a conclusion based on observations. Deductive reasoning is reaching a conclusion based on facts. I give them reasoning exercises to illustrate the differences. See Appendix 5 for sample exercises. Students struggle with these exercises, but they are a good way to get them thinking critically about evidence and proof.

At this time, I also introduce them to the genre of detective fiction. We discuss its' history beginning with Edgar Allan Poe's *The Murders in the Rue Morgue* and continue to the present day with modern detectives such as Kathy Reichs' Temperance Brennan. We discuss the different types of detectives in fiction throughout history and classify C. August Dupin as a classic detective due to his almost intellectual detachment and reliance on logic alone to solve the crime. We classify Temperance Brennan as a hard-boiled detective due to her flaws and attitude.

### *Small Group Discussions*

Once we are done reading *Rue Morgue* in its entirety, I conduct small group discussions on the text. I have students form groups of approximately five students each. I assign a couple of the discussion questions in Appendix 6 to each group. After allowing sufficient time, I have the class come back together and share the results of their discussions. I want to see that my students have thought deeply about the text and that they can follow the logic and reasoning used by Dupin to reach his conclusions. We then move on to reading *Bones*.

### *Reading Guide*

I have students use the reading guide in Appendix 4 to keep up with the reading of *Flash and Bones* and to make sure they are pulling out the important details of the story. Some days I will collect the reading guide as a quiz grade. Other days, I may give a separate quiz to make sure they are on track with the reading and understanding the major themes and the science in the work.

### *Writing a Crime Scene Narrative*

One skill that is essential to crime scene investigators is the ability to observe a situation and accurately and thoroughly communicate what they have seen. Once we are finished with the book, I have students choose a crime scene from the story. The body discovery at the landfill in

the beginning of the story or the death of Wayne Gamble at the race track later in the story are two good ones. I have my students write a crime scene narrative based on their chosen scene. A crime scene narrative is a thorough description of the crime scene including people present, evidence found, environmental conditions and any other details they can discern. I tell them that if they have not written a full typed page, they have not included enough detail. This exercise tends to be difficult for them because they are used to taking shortcuts and it takes time and patience to capture enough detail for this activity. They may need to use their imaginations to fill in missing details from the story, but as long as they are logical and flow with the text, I allow it.

### *Tracking Suspects and Evidence*

Another exercise is to have students stop after reaching a certain point in the story and have a discussion about what they know so far. What evidence has Brennan uncovered so far? Where does this evidence seem to be leading? Who appears to be a suspect at this point? Is there anything about the evidence she has at this point that could lead in more than one direction? If so, where? This could be done after reading the first 12 chapters and then again after reading the next 12 chapters. It would be interesting to compare the evidence at the two points with the conclusion of the story and see where things finally wind up. After twelve chapters, Grady Winge and J.D. Danner look suspicious in the death of the body at the landfill. By chapter 24, suspicion is turning to Cotton Galimore. At the end of the book, Craig Bogan is revealed as the culprit. Have students follow the twists and turns in the evidence that implicate or clear the various suspects. This exercise will help them strengthen their reasoning skills. They can use the table in Appendix 7 to keep track of the evidence and suspects as the story progresses.

### *Seminar Circle*

At the conclusion of the book, I assign students the Seminar Circle Questions in Appendix 8. They must write out thorough, well-researched answers to the questions and cite evidence from the texts to support their answers. I have everyone answer the first question. Students may then choose two of the remaining questions to answer. At the next class meeting, after they have turned in their papers, I conduct a seminar circle discussion. This is a student-led discussion of the questions about which they just wrote. Without using their notes or papers, students must state their positions on the topics and support them with facts from the two texts. Students must contribute their answers to the questions at least once and must respond to someone else's contribution at least twice during the discussion. Their grade for this exercise is 50% their written responses to the questions and 50% their ability to orally communicate and defend their ideas with evidence.

### Assessments

#### *Newspaper*

One activity that makes an excellent culminating project is having students create a newspaper based on the two readings. The newspaper should be at least two pages long. The first page should be written as if the year were 1841, when Poe published *The Murders in the Rue Morgue*. The second page should be in the present day, when Reichs is publishing her books. Each page

should contain a minimum of two articles. The first article on each page should be a report of the crime as if the writer were a news reporter covering the crime at the time. The article should include any evidence found during the investigation and the actions of the main characters up to and including the solution of the crime. The second article should be a report on the methods the lead characters used to solve the crimes. For example, a discussion of the types of reasoning and how Dupin used them should be included in the *Rue Morgue* story. Current forensic techniques in anthropology and pathology should be discussed in the *Bones* second article. Each article should be a minimum of 350 well thought out words.

The newspaper should contain at least four graphics spread throughout the paper. Graphics can include pictures, drawings, charts, graphs, etc.... They can be hand drawn or computer generated. They can include clip art or photographs or anything else your students can imagine. All graphics must have captions. If they use someone else's drawing or photo, they must credit the original source.

Each page of the newspaper must include at least one advertisement appropriate to the time period for an item or thing or an event related to the story. For example, students could create an advertisement for the botanical garden to view the orangutan once he was moved there. For the second page of the paper, they could create an advertisement for a certain piece of equipment a forensic anthropologist would use such as calipers.

Students should be cautioned that their writing should be fact-based as if they were writing news stories. They should include the who, what, where, when why and how of the stories. They should also be reminded that simply copying facts into their articles does not constitute news reporting. This would be a good time to review the definition of plagiarism with them and make sure they understand the consequences of submitting work that is not original, without attribution. A sample rubric for this project is included in Appendix 9.

### *Creating a Crime Scene*

An activity my students particularly enjoy is creating their own crime scenes. I use this as a unit assessment because it requires them to synthesize all of their knowledge of forensic science to develop an appropriate crime backstory and evidence. First, I have them form small groups of 3-4 students each. Then I ask them to come up with a crime story. They should have several characters including one or more victims and several suspects at a minimum. They may also include more peripheral characters. They need to develop a backstory that reasonably explains what happened and the roles of all the people in the story. Others should be able to read their story and character descriptions and credibly hypothesize about what could have taken place.

Students will then create a small-scale model of their crime scene. They can use common items found around the household for this. A shoebox works well as a base for the model. It should be to scale and it should portray the background information. Others should be able to look at the model and background material and understand what took place.

Students must also create at least two pieces of evidence to go along with their crime scenes. These can be things such as footprints, photographs of footwear, text messages, fingerprints,

broken glass, bloodstains or, in one creative case, fit bit data that showed the victim's heart stopping, thereby pinpointing the time of death. This evidence should contribute to a person's ability to solve the crime. It can be as creative as the students can imagine.

Finally, students will write a solution to their crime. It should explain the roles of all suspects involved and what happened. It should address motive as well. It should be kept separate from all other materials. I keep the solutions with me so students cannot see them as they are trying to solve the crime scenes of their peers. See Appendix 10 for student instructions for this activity, which include a grading rubric.

I usually give students one or two 80-minute class periods to work on their crime scenes and all remaining work must be completed on their own time. On the due date, I have students set up their crime scenes around the room, along with their evidence and backstories. As groups, students are then required to solve at least two other crimes. They can go around the room and select which crimes they want to solve. They then must read the background material, examine the crime scene and evidence and as a group decide on a solution. They write up and submit their solutions, which must include their reasoning for choosing a particular suspect or solution. I grade the solutions based on reasonableness and logic used as well as whether they got the correct solution. See Appendix 11 for sample forms used.

## Appendix 1 – Teaching Standards

HS-FS-Intro-1      Students will be able to analyze a case study for elements of crime scene investigation

Students should understand and be able to apply the 7 S's of crime scene investigation which are: 1) to secure the scene, 2) to separate the witnesses, 3) to scan the scene for evidence, 4) to see the scene by taking photographs, 5) to sketch the scene, 6) to search the scene for evidence, and 7) to secure and collect the evidence so that it can be used in a future prosecution to hold someone accountable. Students should also be able to critically evaluate a crime scene investigation.

HS-FS-Intro-2      Students will understand and apply the scientific method to a crime scene investigation

Students should understand the steps in the scientific method that are applied to forensic investigations including asking a question, formulating a hypothesis, conducting an experiment, analyzing data, reaching a conclusion and effectively communicating that conclusion to the proper people. They also need to understand how to loop back in the process when their first hypothesis doesn't turn out to be correct.

HS-FS-Intro-3      Students will evaluate a crime scene for the actions necessary to properly recognize, document and collect evidence.

Students should be able to observe a crime scene which entails taking in all of the details available to them and then deciding what material is relevant as evidence and what is not relevant to their crime. They should then be able to properly collect and correctly package that evidence so that it will have value later in court. For example, blood evidence must be dried out and then packaged in paper, while arson evidence must be collected in airtight containers.

## Appendix 2

Suggested Reading Timetables (for a class that meets for 80 minutes every other day)

### *The Murders in the Rue Morgue*

Day 1	pages 1-9 (up to “EXTRAORDINARY MURDERS”)
Day 2	pages 9-18
Day 3	pages 18-27
Day 4	pages 27-35

### *Flash and Bones*

Day 1	Chapters 1-4
Day 2	Chapters 5-8
Day 3	Chapters 9-12
Day 4	Chapters 13-16
Day 5	Chapters 17-20
Day 6	Chapters 21-24
Day 7	Chapters 25-28
Day 8	Chapters 29-32
Day 9	Chapters 33-36

### Appendix 3

#### Sample Quiz for Daily Reading

For pages 1-9 of *Rue Morgue*

1. What does the author mean when he says “As the strong man exults in his physical ability, delighting in such exercises as call his muscles into action, so glories the analyst in that moral activity which *disentangles*”?
2. Why do the narrator and Dupin like the night and dislike the daytime?
3. What did Dupin mean when he told the narrator that “most men, in respect to himself, wore windows in their bosoms”?



## Appendix 4

### Reading Guide for *Flash and Bones* - Key

#### Ch. 1

1. What mistakes did the local cops make when they exhumed the body in the sandpit?  
*They didn't wait for the professional, they left many parts like small bones and teeth*
2. How does the weather help set the tone for the chapter?  
*It is dark and foreboding and about to storm*
3. Where does Officer Warner lead Temperance Brennan?  
*To the Morehead Road landfill behind the Charlotte Motor Speedway*
4. Why does Tempe respond "I work for the medical examiner" when Weaver Molene asks "You the coroner?"  
*Because there is a big difference between a coroner and a medical examiner*

#### Ch. 2

1. Where is the Mecklenburg County Medical Examiner's office?  
*At the corner of College St and 10th St.*
2. What information did Tempe record about each of her cases before she even touched the bodies?  
*Case number, description of remains, circumstances of discovery of body*
3. What tools did Tempe assemble to conduct her investigation of the bodies?  
*A camera, calipers, clipboard and a magnifying lens*
4. What is the hyoid bone and what happens to it during strangulation?  
*It is a delicate U-shaped bone from the throat that breaks on each side during manual strangulation.*

#### Ch 3

1. When did Wayne Gamble's sister disappear? Is that consistent with the body found in the landfill?  
*1998; yes*
2. What are legends cars?  
*Small single-seat cars for racing beginners*
3. Why did Cyndi Gamble's parents not like Cale Lovette?  
*He was 24 years old, she was 17; he hung out with a rough crowd of white supremacists*
4. Why did Tempe ask Wayne if he could access Cyndi's dental records?  
*In case she needed to identify the body*

#### Ch 4

1. What was the gender of the body found in the landfill?  
*male*
2. What three things do forensic pathologists attempt to determine when working with dead bodies?  
*Identity, cause of death and postmortem interval*
3. Why did Hawkins bag the body's hands?  
*To preserve any evidence caught under the fingernails*

4. What is the difference between forensic pathologists and forensic anthropologists?  
*Pathologists study the body when there is flesh (soft tissue left on the body).  
Anthropologists come in when there are only bones left.*

### **Ch 5**

1. What is Brennan's initial estimate of the postmortem interval?  
*Could be a month, could be a decade but doubt it's less than a week*
2. Why was the body in such good shape?  
*The asphalt created an airtight seal and kept scavengers away*
3. What is Charlotte Motor Speedway's interest in the case?  
*They don't want negative publicity during race week.*
4. Where did the first ever NASCAR race take place?  
*In Daytona Beach, FL in 1948.*

### **Ch 6**

1. Who is Eddie Rinaldi and why is he important to the story?  
*The original detective on the Gamble case; he kept meticulous notes.*
2. What was the name of Cale Lovette's right-wing group of friends?  
*The Patriot Posse*
3. Why was the FBI involved in a local missing persons case?  
*Because of Cale's ties to white supremacist groups; domestic terrorism*

### **Ch 7**

1. What are the five possible manners of death?  
*Accidental, suicide, homicide, natural and unknown*
2. What three features of the deceased's bones did Dr. Brennan use to determine the age of the victim?  
*Skull sutures, pubic symphyseal faces, epiphysis of collar bones*
3. What was the purpose of FBI Agents Williams and Randall stopping Dr. Brennan and talking to her about the Gamble case?  
*To try to convince her that the FBI would cooperate with any investigation she started so that no one would go to the press.*

### **Ch 8**

1. What happened that upset Detective Slidell and Dr. Brennan?  
*The FBI confiscated the police file on the Gamble case.*
2. Do you think Ethyl Bradford was being entirely truthful? Why do you think that?  
*Answers will vary*
3. Who was Cyndi's lunch buddy?  
*Lynn Hobbs*

### **Ch 9**

1. Why did Summer visit Tempe?  
*To ask her to talk to Pete about being more involved in the wedding planning.*

## Ch 10

1. What do they call male unidentified bodies at the Mecklenburg County Medical Examiner's Office (MCME)?  
*John Doe*
2. What is an immunoassay?  
*A type of chemical test designed to detect organic substances*
3. What are antibodies?  
*Proteins that attack and neutralize foreign invaders*
4. What did the immunoassay test discover in the body from the barrel?  
*Ricin*
5. What is ricin?  
*A naturally occurring toxin derived from the beans of the castor oil plant*

## Ch 11

1. What did Grady Winge see back in 1998 at the Speedway?  
*He saw Cyndi Gamble and Cale Lovette argue with a man and then drive off with him around 6:00 in the evening*
2. Who did Grady identify as the leader of the Patriot Posse?  
*J.D. Danner*
3. Does Grady believe the Posse had anything to do with Cyndi and Cale's disappearance?  
*No*

## Ch 12

1. What information did the bartender at the Double Shot give to Tempe and Detective Slidell?  
*He said that J.D. Danner lived in Cornelius*
2. What is Lynn Nolan's connection to the case?  
*She used to eat lunch with Cyndi at A.L. Brown High School*

## Ch 13

1. What was the name of Cyndi's STEM friend?  
*Maddy Padgett*
2. What did Lynn think happened to Cyndi and Cale?  
*She thought Cale killed Cyndi and ran away*
3. When did Owen Poteat say he saw Cale Lovette at the Charlotte Airport?  
*Ten days after his disappearance*
4. What did forensics find in the analysis of the asphalt in the barrel?  
*Rosphalt, a material that strengthens asphalt at racing tracks*

## Ch 14

1. What did the FBI do with the body in the barrel?  
*They had it cremated.*
2. What did J.D. Danner want when he showed up at Tempe's house?  
*To get her to stop looking into the Posse*
3. What are Bandolero cars?  
*Race cars for beginners*

### Ch 15

1. What did Wayne Gamble think had happened to Cyndi and Cale's relationship?  
*He thought that Cyndi dumped Cale*
2. Why does Slidell hate Cotton Galimore?  
*Because he dishonored the badge (he was a bad cop)*

### Ch 16

1. What was Galimore convicted of?  
*Taking a bribe from a drug dealer*
2. Who is Eugene Fries and why is he important to the story?  
*He was a food vendor at the Speedway who said he sold Cyndi and Cale corn dogs at the Speedway at 8 pm, 2 hours after they supposedly left*

### Ch 17

1. Who did Tempe and Galimore go to see?  
*Eugene Fries*

### Ch 18

1. What are Tempe's 5 theories of what happened to Cyndi and Cale?  
*1.They voluntarily ran away to get married 2.Cale killed Cyndi and then went into hiding. 3.They were working undercover for the FBI and the Posse found out and killed them. 4.The FBI put them in witness protection. 5.Cale and the Posse did something illegal and they went into hiding.*

### Ch 19

1. Is ricin poisoning contagious?  
*No*
2. What is adipocere?  
*Body tissue turned crumbly and waxy due to the hydrolysis of fats.*
3. What is the coded message in Det. Rinaldi's notes?  
*ME/SC 2X13G-529 OTP FU  
Wi-Fr 6-8*

### Ch 20

1. What was Owen Poteat's full name? What were his daughters' names?  
*Owen Timothy Poteat, Mary Ellen and Sarah Caroline*
2. What is a 529?  
*A 529 is an investment vehicle designed to encourage savings for college expenses*

### Ch 21

1. What happened to Wayne Gamble?  
*An accident in the garage at the Charlotte Motor Speedway crushed his head.*
2. Who are the people likely to be found at a death crime scene?  
*The medical examiner, detectives, uniforms (police officers), the crime scene unit, morgue techs*
3. What equipment did Dr. Brennan bring to the body?

*A tyvek jumpsuit, camera, latex gloves, plastic specimen containers, Ziplock baggies, tweezers and a Sharpie*

## **Ch 22**

1. How was Wayne Gamble feeling before his death? Why was that information important to the FBI agents?

*Like he had the flu; they suspected poisoning*

2. What is the Fifth Estate?

*Journalists with outlying views*

3. Why did Dr. Brennan boil the fragments of Gamble's skull?

*To remove the flesh so she could reassemble the bones*

4. What was Wayne Gamble's cause of death?

*Exsanguination due to massive cranial trauma and decapitation*

## **Ch 23**

1. What is abrin? How does it work?

*It is a highly toxic lectin found in the seeds of the rosary pea plant. It attacks cells from the inside, inhibiting protein synthesis and causing the cells to die.*

2. What are some possible routes of exposure to abrin?

*One could touch a surface with abrin on it, or it could enter through the skin or eyes, one could inhale it or ingest it, it could be injected*

3. How much abrin is required to kill a person?

*One seed*

## **Ch 24**

1. What is the name of Craig Bogan's company?

*CB Botanicals*

2. Describe Reta's bracelet.

*It looked like a string of ladybugs doing the conga.*

3. Was the body in the barrel Bogan's son Cale?

*Unlikely - the age doesn't match up.*

## **Ch 25**

1. What were some comments Bogan made that led Brennan to think he was a bigot?

*"Before diversification", "back then men were men"*

2. How did Bogan feel about Cyndi Gamble? How is that different from other peoples' reactions to her?

*He didn't like her, he didn't think she should drive for NASCAR; everyone else thought she had a good chance of one day driving for NASCAR*

## **Ch 26**

1. What is the threat Brenna received by phone message?

*"You're next."*

2. How do the symptoms of abrin poisoning compare to those of ricin poisoning?

*They are identical but abrin is much more toxic*

3. How much abrin does it take to kill?

*Less than 3 micrograms*

**Ch 27**

1. What science did Brennan use to deal with Summer and her wedding plans?  
*Psychology*
2. What information did the anonymous caller leave with Brennan?  
*That the body in the barrel from the landfill was Eli Hand*

**Ch 28**

1. Who was the Bhagwan Shree Rajneesh?  
*A 1980's Indian guru who moved several thousand followers to a ranch in Oregon and established his own city.*
2. What did the followers of the Bhagwan do? Why?  
*Put salmonella in the salad bar in the town to poison the adverse voters*
3. What was Charlotte known for before the Bhagwan was captured here?  
*School integration and mandatory busing*

**Ch 29**

1. How did the FBI agents know that there was a grave where Grady Winge went into the woods?  
*Ground slump*
2. What did they use to confirm the presence of bodies?  
*A cadaver dog*

**Ch 30**

1. What is a BOLO?  
*Be on the lookout for*
2. What piece of evidence from Cale's conversation at the Double Shot sparked something in Brennan's memory?  
*The baseball hat with the large number and the pin of a cowboy hat*

**Ch 31**

1. What happened at the Speedway that threatened the race?  
*A sinkhole opened up*

**Ch 32**

1. What information did Maddie Padgett give to Brennan about Craig Bogan?  
*He was a racist and hates women*
2. What information did the Rev. Honor Grace give to Brennan?  
*An alibi for Grady Winge when Wayne Gamble was killed*

**Ch 33**

1. What is the significance of the "insect bite" Brennan got?  
*It was really a poison dart*
2. Where was Brennan taken?  
*A gardening shed*

3. What did she find in the shed with her?  
*A body*

#### **Ch 34**

1. Who was the body in the shed with her?  
*Cotton Galimore*
2. What connection did Brennan make while in the shed?  
*Reta had a bracelet of rosary pea seeds which is where abrin comes from so Craig Bogan, who is a gardener, had access to abrin.*
3. What did Bogan do with Brennan?  
*Threw her in the sinkhole and attempted to fill it in.*

#### **Ch 35**

1. How did Bogan get Winge to help bury the bodies?  
*They both belonged to the Patriot Posse and Bogan threatened Winge.*
2. Who killed Cyndi Gamble and Cale Lovette?  
*Craig Bogan*
3. Who killed Wayne Gamble?  
*Craig Bogan*

#### **Ch 36**

1. What did Cale tell his father the night he disappeared?  
*That he and Cyndi were leaving town*
2. What souvenir did the killer keep?  
*Cyndi and Cale's shoes*

## Reading Guide – *Flash and Bones* – Student Version

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Block: \_\_\_\_\_

### ***Flash & Bones* Reading Guide**

#### **Ch. 1**

1. What mistakes did the local cops make when they exhumed the body in the sandpit?
2. How does the weather help set the tone for the chapter?
3. Where does Officer Warner lead Temperance Brennan?
4. Why does Tempe respond “I work for the medical examiner” when Weaver Molene asks “You the coroner?”

#### **Ch. 2**

1. Where is the Mecklenburg County Medical Examiner’s office?
2. What information did Tempe record about each of her cases before she even touched the bodies?
3. What tools did Tempe assemble to conduct her investigation of the bodies?
4. What is the hyoid bone and what happens to it during strangulation?

#### **Ch 3**

1. When did Wayne Gamble’s sister disappear? Is that consistent with the body found in the landfill?
2. What are legends cars?
3. Why did Cyndi Gamble’s parents not like Cale Lovette?
4. Why did Tempe ask Wayne if he could access Cyndi’s dental records?

#### **Ch 4**

1. What was the gender of the body found in the landfill?
2. What three things do forensic pathologists attempt to determine when working with dead bodies?
3. Why did Hawkins bag the body’s hands?
4. What is the difference between forensic pathologists and forensic anthropologists?

#### **Ch 5**

1. What is Brennan’s initial estimate of the postmortem interval?
2. Why was the body in such good shape?
3. What is Charlotte Motor Speedway’s interest in the case?
4. Where did the first ever NASCAR race take place?

#### **Ch 6**

1. Who is Eddie Rinaldi and why is he important to the story?
2. What was the name of Cale Lovette’s right-wing group of friends?
3. Why was the FBI involved in a local missing persons case?



**Ch 7**

1. What are the five possible manners of death?
2. What three features of the deceased's bones did Dr. Brennan use to determine the age of the victim?
3. What was the purpose of FBI Agents Williams and Randall stopping Dr. Brennan and talking to her about the Gamble case?

**Ch 8**

1. What happened that upset Detective Slidell and Dr. Brennan?  
Do you think Ethyl Bradford was being entirely truthful? Why do you think that?
2. Who was Cyndi's lunch buddy?

**Ch 9**

1. Why did Summer visit Tempe?

**Ch 10**

1. What do they call male unidentified bodies at the Mecklenburg County Medical Examiner's Office (MCME)?
2. What is an immunoassay?
3. What are antibodies?
4. What did the immunoassay test discover in the body from the barrel?
5. What is ricin?

**Ch 11**

1. What did Grady Winge see back in 1998 at the Speedway?
2. Who did Grady identify as the leader of the Patriot Posse?
3. Does Grady believe the Posse had anything to do with Cyndi and Cale's disappearance?

**Ch 12**

1. What information did the bartender at the Double Shot give to Tempe and Detective Slidell?
2. What is Lynn Nolan's connection to the case?

**Ch 13**

1. What was the name of Cyndi's STEM friend?
2. What did Lynn think happened to Cyndi and Cale?
3. When did Owen Poteat say he saw Cale Lovette at the Charlotte Airport?
4. What did forensics find in the analysis of the asphalt in the barrel?

**Ch 14**

1. What did the FBI do with the body in the barrel?
2. What did J.D. Danner want when he showed up at Tempe's house?
3. What are Bandolero cars?

**Ch 15**

1. What did Wayne Gamble think had happened to Cyndi and Cale's relationship?

2. Why does Slidell hate Cotton Galimore?

#### **Ch 16**

1. What was Galimore convicted of?
2. Who is Eugene Fries and why is he important to the story?

#### **Ch 17**

1. Who did Tempe and Galimore go to see?

#### **Ch 18**

1. What are Tempe's 5 theories of what happened to Cyndi and Cale?

#### **Ch 19**

1. Is ricin poisoning contagious?
2. What is adipocere?
3. What is the coded message in Det. Rinaldi's notes?

#### **Ch 20**

1. What was Owen Poteat's full name? What were his daughters' names?
2. What is a 529?

#### **Ch 21**

1. What happened to Wayne Gamble?
2. Who are the people likely to be found at a death crime scene?
3. What equipment did Dr. Brennan bring to the body?

#### **Ch 22**

1. How was Wayne Gamble feeling before his death? Why was that information important to the FBI agents?
2. What is the Fifth Estate?
3. Why did Dr. Brennan boil the fragments of Gamble's skull?
4. What was Wayne Gamble's cause of death?

#### **Ch 23**

1. What is abrin? How does it work?
2. What are some possible routes of exposure to abrin?
3. How much abrin is required to kill a person?

#### **Ch 24**

1. What is the name of Craig Bogan's company?
2. Describe Reta's bracelet.
3. Was the body in the barrel Bogan's son Cale?

#### **Ch 25**

1. What were some comments Bogan made that led Brennan to think he was a bigot?

2. How did Bogan feel about Cyndi Gamble? How is that different from other peoples' reactions to her?

#### **Ch 26**

1. What is the threat Brenna received by phone message?
2. How do the symptoms of abrin poisoning compare to those of ricin poisoning?
3. How much abrin does it take to kill?

#### **Ch 27**

1. What science did Brennan use to deal with Summer and her wedding plans?
2. What information did the anonymous caller leave with Brennan?

#### **Ch 28**

1. Who was the Bhagwan Shree Rajneesh?
2. What did the followers of the Bhagwan do? Why?
3. What was Charlotte known for before the Bhagwan was captured here?

#### **Ch 29**

1. How did the FBI agents know that there was a grave where Grady Winge went into the woods?
2. What did they use to confirm the presence of bodies?

#### **Ch 30**

1. What is a BOLO?
2. What piece of evidence from Cale's conversation at the Double Shot sparked something in Brennan's memory?

#### **Ch 31**

1. What happened at the Speedway that threatened the race?

#### **Ch 32**

1. What information did Maddie Padgett give to Brennan about Craig Bogan?
2. What information did the Rev. Honor Grace give to Brennan?

#### **Ch 33**

1. What is the significance of the "insect bite" Brennan got?
2. Where was Brennan taken?
3. What did she find in the shed with her?

#### **Ch 34**

1. Who was the body in the shed with her?
2. What connection did Brennan make while in the shed?
3. What did Bogan do with Brennan?

#### **Ch 35**

1. How did Bogan get Winge to help bury the bodies?

2. Who killed Cyndi Gamble and Cale Lovette?
3. Who killed Wayne Gamble?

**Ch 36**

1. What did Cale tell his father the night he disappeared?
2. What souvenir did the killer keep?

## Appendix 5

### Reasoning Exercises - KEY

State whether each conclusion is based on deductive or inductive reasoning and state why you think that.

1. At Central High School, one must have a B average to play sports. Joe has a B average, so he concludes that he can play sports.  
ANS: deductive reasoning – based on facts
2. Henry notices that every Sunday afternoon, his neighbor works in his garden. Today is Sunday. Henry concluded that his neighbor will work in his garden this afternoon.  
ANS: inductive reasoning – based on observations
3. Anna notices that Patti has never been on time for class. Anna concludes that Patti will not be on time for class today.  
ANS: inductive reasoning – based on observations
4. One must have a membership to have lunch at the country club. Bill is having lunch at the country club. Therefore, Bill must have a country club membership.  
ANS: deductive reasoning – based on fact
5. If Eduardo goes to the concert tonight, he will miss football practice. Eduardo missed football practice. Therefore, Eduardo went to the concert.  
ANS: deductive reasoning – based on facts
6. Every Wednesday, Linda's mom calls her. Today is Wednesday so Linda concludes that her mom will call her today.  
ANS: inductive reasoning – based on observations

Critique the following logic by stating whether the conclusion is logically valid. State why or why not.

1. If a figure is a square, it has four right angles. Figure ABCD has four right angles.  
Conclusion: Figure ABCD is a square.  
ANS: Invalid. If p is true, then q is true, but if q is true, p is not necessarily true. It could be a rectangle.
2. If you leave your lights on while your car is off, your battery will die. Your battery is dead. Conclusion: You left your lights on while your car was off.  
ANS: Invalid. If p is true, the q is true, but if q is true, p is not necessarily true. Something else could have gone wrong with the car causing it to not start.

3. If 75% of the prom tickets are sold, the prom will be held at the Waldorf Astoria.  
Seventy-five percent of the prom tickets are sold. Conclusion: The prom will be at the Waldorf Astoria.  
ANS: Valid. If  $p$  is true then  $q$  is true.  $P$  is true, so  $q$  is true.
4. If a person is a resident of Missouri, they do not live by a beach. Michelle does not live by a beach. Conclusion: Michelle is a resident of Missouri.  
ANS: Invalid. If  $p$  is true,  $q$  is true, but if  $q$  is true,  $p$  is not necessarily true. Michelle could live anywhere without a beach.

State a valid conclusion for the following statements.

1. If Susy gets a C in this class, she will not get credit for the class. If Susy does not get credit for the class, she will have to repeat the class.  
ANS: If Susy gets a C in this class, she will have to repeat the class.
2. Only tall players are on the team. Mary is on the team.  
ANS: Mary is tall.

Write a pair of statements which can be used to reach a valid conclusion following the examples above. Write the valid conclusion that could be reached.

ANS: Answers will vary.

Sample answer: Jim is a man. All men are mortal. Therefore, Jim is mortal.

## Appendix 6

### Discussion Questions for *The Murders in the Rue Morgue*<sup>16</sup>

1. What purpose does the opening discussion of the analytical mind serve to the story?
2. What do you think of Dupin's analysis of the narrator's thought process while they are walking? How credible is it?
3. What role does the newspaper serve in the story? How effective is it?
4. What is the role of the narrator in the story?
5. How do Dupin and the police compare to each other in the story? Why do you think Poe portrayed them this way?
6. Do you think Poe was serious when he chose the murderer to be an ape, or should the story be viewed as a kind of joke?
7. Why do you think Poe sets the story in Paris rather than in an American city?
8. This story is credited with being the first detective story. In what ways did it influence later writing?

## Appendix 7

### Evidence and Character Tracker for *Flash and Bones*

	Suspects Introduced	Evidence Found	How evidence points to a suspect
Ch 1-4			
Ch 5-8			
Ch 9-12			
What do you think happened at this point in the story? Who is the body in the barrel? Who do you think killed them? Why? What do you think happened to Cyndi and Cale? Why do you think that?			
Ch 13-16			
Ch 17-20			
Ch 21-24			



What do you think happened at this point? Who do you think killed the body in the barrel?  
Why? What happened to Cyndi and Cale? Why do you think that?

Ch 25-28			
Ch 29-32			
Ch 33-36			

What actually happened? Who is the body in the barrel? Who killed them? Why? What  
happened to Cyndi and Cale? Who was responsible for that? Why did they do it?

## Appendix 8

### Seminar Circle Questions

Directions: Everyone must answer question 1. You may then choose two of the remaining four questions to answer. Your answers should thoroughly address the questions and exhibit insight about and deep knowledge of the texts. Your answers should be typed and turned in on Canvas. Be sure you are prepared to discuss your answers to the questions in class.

1. Compare and contrast Poe's Dupin with Reichs' Brennan. What are the similarities? Differences? What is their approach to crime solving? How do they fit the definitions of the classic detective and the hard-boiled detective in detective fiction?
2. The narrator is Dupin's sidekick in *Rue Morgue*. Who could be considered Brennan's sidekick in *Flash and Bones*? Describe the roles of the two sidekicks to their respective stories. How are they similar? How are they different? How do they contribute to the stories?
3. Explain the reasoning process used by Dupin and Brennan to solve their respective crimes. What type(s) of reasoning is used? Use examples from the texts to illustrate the steps in their reasoning.
4. Describe how the 7 S's of crime scene investigation were used in Wayne Gamble's death in *Flash and Bones*. Compare that to the crime scene in *The Murders in the Rue Morgue*. How have police investigation techniques changed in the last 150 years?
5. Use the steps of the scientific method to break down the investigative process in each book. Illustrate each step with examples from both stories.

## Appendix 9

### Rubric for Newspaper Activity

<b>Item</b>	<b>Excellent (20 points)</b>	<b>Good (15 points)</b>	<b>Fair (10 points)</b>	<b>Poor (5 points)</b>
<b>Content/ Knowledge</b>	4 thorough articles covering all of the topics	4 articles covering most of the topics	4 articles covering some of the topics	4 articles not covering the topics or less than 4 articles
<b>Layout</b>	Visually appealing, includes 4 graphics with captions, 2 advertisements appropriate to the stories and time periods	Visually appealing, missing 1 graphic or caption or an advertisement, or ad is not appropriate to time period	Not very visually appealing, missing more than 1 graphic or caption or advertisement	Visually unappealing, missing three or more graphics, captions or advertisements
<b>Creativity/ Originality</b>	All work is very creative and all original	Most work is creative and all original	Some work is creative or not original	Much of the work is not creative or original
<b>TOTALS ( /60 pts)</b>				

## Appendix 10

### Unit Assessment: Create Your Own Crime Scene

Objectives:

1. You will develop a crime scene by using your prior knowledge.
2. You will build a scale model of your crime scene.
3. You will apply forensic terminology correctly to a scenario.
4. You will evaluate the probative value of evidence in a scenario.

NOTE: You can work in groups of up to four people. **Be sure you document what each group member contributes to the project.**

Procedure:

**A. Create a crime scene scenario.** Be sure to develop the story **before** you start to build your model! Remember, it doesn't have to be a murder. If you are having trouble with this, try researching a real crime and basing your scenario on that. Include the following:

1. **Background information** - who, what, when, where?
  - a. Include background about your victim, any potential witnesses and any possible suspects.
  - b. Use correct forensic terminology.
2. A **small scale model** of your crime scene - the crime can take place anywhere your imagination takes you. A shoe box may be a good base on which to build your crime scene.
3. **Actual samples of evidence** - you should include known (maybe from a suspect or a victim) and unknown (maybe from the crime scene) samples of at least two different pieces/types of evidence.
4. A descriptive **solution** to your crime scene scenario. The solution should make sense and be consistent with the evidence and information you supplied. Any "surprises" should be clearly explained and justified with the evidence and background info provided. The solution should be on its own **separate** piece of paper. **DO NOT GIVE YOUR SOLUTION TO ANY STUDENT OUTSIDE YOUR GROUP!**

**B. Each person in the group** will complete a half-page reflection paper. In this paper, answer the following questions: Did you like the project? Why or why not? What would you do differently? What did you learn? What was the biggest challenge in doing this project? What did you do to overcome this challenge? Did this project help refresh your memory about information learned in class last year? Include documentation of what each person in the group contributed to the overall project.

**C. Grading:**

Your grade will be determined as follows:

20%	How well you utilized forensic terminology and how detailed you were in your background information
10%	How well you worked as a group, including individual contributions to the overall project
30%	Your crime scene: Was it to scale? Did it align with your background information? Were actual evidence samples (knowns and unknowns) included?
20%	Creativity and Logic: Did your crime develop logically and reasonably? Could someone unfamiliar with your crime scene use deductive reasoning to solve it with the information you provided?
10%	Solution Page describing the who, what, when, why and how of the crime - be sure to address motive.
10%	Reflection (individual)

## Appendix 11

### Solving a Crime Scene Solution Sheet and Grading Rubric

Names: \_\_\_\_\_  
\_\_\_\_\_

Block: \_\_\_\_\_ Date: \_\_\_\_\_

Scenario # 1 or 2 by \_\_\_\_\_  
\_\_\_\_\_

What evidence helped you solve the crime? How did it help (what did it tell you)?

\_\_\_\_\_  
\_\_\_\_\_

Write a description of your solution to the crime. Be sure to include who did it, how they did it and why they did it. Use back of sheet if necessary. \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Solving A Crime Scene Rubric

Names: \_\_\_\_\_  
\_\_\_\_\_

### Scenario #1

Item	Pts Available	Score
Thoroughly described what evidence help group to solve crime	10	
Thoroughly described how that evidence helped solve crime/what that evidence told group	10	
Thorough description of solution including: <ul style="list-style-type: none"><li>• Who did it</li><li>• How they did it</li><li>• Why they did it</li></ul>	30	
Subtotal	50	

### Scenario #2

Item	Pts Available	Score
Thoroughly described what evidence help group to solve crime	10	
Thoroughly described how that evidence helped solve crime/what that evidence told group	10	
Thorough description of solution including: <ul style="list-style-type: none"><li>• Who did it</li><li>• How they did it</li><li>• Why they did it</li></ul>	30	
Subtotal	50	

Final grade = Scenario #1 + Scenario #2

\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_/100

## Materials List

Copy of *The Murders in the Rue Morgue* by Edgar Allan Poe for each student

Copy of *Flash and Bones* by Kathy Reichs for each student

Student copies of appropriate materials in the Appendices

## Student Resources

Poe, Edgar Allan. *The Murders in the Rue Morgue and Other Tales*. London, UK: Penguin Books, 2015.

This is the first example of detective fiction and is short enough to be accessible to honors students. Poe thoroughly discusses the process of deductive reasoning and then applies it to a fantastical crime.

Reichs, Kathy. *Flash and Bones*. New York, NY: Pocket Books, 2011.

This Reichs novel is set in Charlotte, North Carolina. Students will enjoy reading about landmarks and locales with which they are familiar. The crime revolves around the world of auto racing which will also engage students' attention as they have all experienced the excitement, or at least the traffic of, race week.

## Teacher Resources

Poe, Edgar Allan, and Calum A. Kerr. "The Murders in the Rue Morgue." *Introduction to Literary Context: American Short Fiction*, November 2014, 135-42.  
<https://search.ebscohost.com/login.aspx?direct=true&AuthType=ip.custuid&custid=s8455861&db=lkh&AN=1-1666188&site=ehost-live&scope=site>.

Excellent article that contains a thorough discussion of the plot of the book and then looks at the story in terms of its historical, societal, religious, scientific and biological contexts. Includes discussion questions and essay ideas for teachers.

Steele, Timothy Reid. "Lawful Meaning, Sinful Fact: A Study of the Sources and Development of Detective Fiction." Order No. 7713389, Brandeis University, 1977.  
<https://librarylink.uncc.edu/login?url=https://proquest-com.librarylink.uncc.edu/dissertations-theses/lawful-meaning-sinful-fact-study-sources/docview/302866069/se-2?accountid=14605>.

A dissertation that lays out the history of detective fiction and discusses the various required elements of the stories. Great for background material. There is some discussion of Poe's Dupin as an early example of the classic detective.



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## Notes

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<sup>1</sup> [www.differentiatedteaching.com/plan-novel-study/](http://www.differentiatedteaching.com/plan-novel-study/).

<sup>2</sup> Ibid.

<sup>3</sup> Steele. p. 23.

<sup>4</sup> Martin.

<sup>5</sup> The Mystery of Marie Roget was published in 1842 and The Purloined Letter was published in 1845.

<sup>6</sup> Steele. P. 24.

<sup>7</sup> Shade.

<sup>8</sup> Shade.

<sup>9</sup> Martin.

<sup>10</sup> [www.encyclopediavirginia.org/entries/southern-literary-messenger/](http://www.encyclopediavirginia.org/entries/southern-literary-messenger/).

<sup>11</sup> [www.eapoe.org/works/editions/mslm001.htm](http://www.eapoe.org/works/editions/mslm001.htm).

<sup>12</sup> Poe, Edgar Allan. Funk & Wagnalls.

<sup>13</sup> Kerr p. 138.

<sup>14</sup> Kerr p. 138.

<sup>15</sup> Kerr p. 138

<sup>16</sup> Adapted from Kerr p. 141.