

College Preparatory Elective – Laboratory Science Subject Template

(Required Information needed to prepare for course submission)

- **Course Guidance**

GENERAL COLLEGE PREP ELECTIVE GUIDANCE

The intent of the college preparatory elective requirement is to encourage prospective UC students to fill out their high school programs with courses that will meet one or more of a number of objectives:

- To strengthen general study skills, particularly analytical reading, expository writing, and oral communications
- To provide an opportunity to begin work that could lead directly into a major program of study at the University, and
- To experience, in some depth, new areas of academic disciplines that might form the basis for future major or minor studies at the University

Quality. All courses selected to meet the “g-College Prep Elective – Laboratory Science” elective requirement are expected to meet standards of quality similar to those required for the “d-Laboratory Science” requirement. Courses acceptable for the “g” elective area should be advanced courses designed for the 11th and 12th grade level and/or have appropriate prerequisites, although laboratory science courses intended for 9th or 10th graders (e.g., earth science, physical science, integrated science) are accepted as an exception to the advanced policy regulation. Elective courses should present material at a sufficient depth to allow students to achieve mastery of fundamental knowledge that prepares them for University work or a future career path.

Examples of Acceptable Elective Courses. Typical courses acceptable to fulfill the “g-College Prep Elective – Laboratory Science” area include astronomy, agricultural science, biotechnology, earth science, environmental science, physical science, introductory integrated science, veterinary science, and others.

COLLEGE PREP ELECTIVE: LABORATORY SCIENCE GUIDANCE

Acceptable laboratory science courses should cover topics from the biological or physical sciences and include laboratory activities. A terminal course designed only to meet graduation requirements is not an acceptable science elective. In this subject area only, lower level courses (e.g., physical science, earth science) are often accepted as electives.

- **Course Content**

NOTE: The following questions are subject specific and ask for detailed information regarding the course curriculum. Since UC has developed their own criteria for the review of curricula, it is not necessary (and preferred) that the State Standards are not listed when submitting course descriptions to the University. When preparing the course submission, keep in mind that your audience is the UC High School Articulation unit and UC faculty. Include relevant information that would assist those reviewing the course and provide UC a better understanding and clarity about the intent of the curriculum. UC expects to see information that would show specific, detailed evidence of the course rigor and development of essential skills and habits of mind. Course template components need to be more expository and illustrative of the integration of each course component and how the overarching goals are being accomplished. The text boxes below will expand to accommodate additional text.

Course Purpose: *What is the purpose of this course? Please provide a brief description of the goals and expected outcomes. (How these will be accomplished should be reserved for the Course Outline, Key and Written assignments, Assessments, and/or Instructional Methods.)*

NOTE: More specificity than a simple recitation of the State Standards is needed.

Assessment of student performance will include but not limited to:

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|--|-----|
| • Test | 30% |
| • Quizzes | 20% |
| • Scientific lab reports/lab notebooks | 20% |
| • Daily homework | 10% |
| • Essays, simulations, class participation | 10% |
| • Final Exam | 10% |

Unit 1: Historical Introduction and Overview of Forensic Science

- Timeline of Forensic Science Poster Project
 - Students will be allowed to choose a scientist from a list of 150 notable forensic scientists.
 - They will create a poster about their scientist including the following:
 - Scientist Name
 - Dates of Life
 - Important Contributions to Forensic Science
 - Students then present their posters to the class and then create a giant time line with 11 of the posters on the classroom walls.
- WebQuest
 - Students will use the tutorial of a crime scene lab to identify the functions of the different types of labs in a crime laboratory
 - The WebQuest also gives the students a chance to watch clips of interviews with actual forensic scientist and other members to the forensic science lab teams.
 - Students will use the information in the WebQuest to write an overview of the purpose of crime laboratories
- College Report
 - Students choose a local college that offers a forensic science degree program and create a brochure with the following information:
 - Degree option
 - Cost of Program
 - Length of time to complete program
 - Pre-requisites to be accepted into the program
 - Career/job you can get once you have completed the program.

Unit 2: the Crime Scene and Physical Evidence

- Crime Scene Investigation
 - Students will collect evidence at the mock crime scene using different search patterns.
 - Students will collect the evidence in collection bags and then list all items of evidence so that they can begin the chain of command
 - Students will write a report describing the details of their investigation.
- Case Study – The Wayne Williams trail; circumstantial fiber evidence and probability determination
- Case Study – Enrique Camarena (jurisdiction and evidence)
- Crime scene sketch kit – Sirchie Laboratories Evidence: The True witness (<http://library.thinkquest.org/17049/gather/>)

Unit 3: Physical Properties of Glass and Soil

- Measuring using the metric system practice:
 - Students will use rulers to measure different objects in the classroom to get an understanding about size and the metric system.
- Glass Lab (see above)
- Students will write a summary regarding the guest speaker's presentation on soil casting of footprints and ways to read the crime scene.

Unit 4 Organic and Inorganic Analysis

- Candy Chromatography Lab (see above section)
- Thin-Layer Chromatography of Ink Lab (see above section)
- Read: FDA's Forensic Center: Speedy, Sophisticated Sleuthing (http://www.fda.gov/fdac/features/695_forensic.html); describe their uses of spectrometry, electrophoresis, and chromatography
- Calculations: Chemistry and Forensics WS (teacher created)
- Case Study – The assassination of President Kennedy: the use of neutron activation analysis

Unit 5: Hairs, Fibers, Paint and The Microscope

- Forensic Analysis (see above section)
- Hit and Run Crime Scene Investigation
- Case study – Microscopic Trance Evidence; wood evidence in the Lindbergh kidnapping

Unit 6: Drugs and Toxicology

- Drug ID virtual lab.
(http://wps.prenhall.com/chet_faferstein_criminalistics_9/48/12532/3208430.cw/index.html)
- Opinion paper – what to do think about legalizing marijuana on a state level? What about at the federal level? What is the difference?

Unit 7: Arson and Explosives

- Dollhouse Fire Lab (see above section)
- Demo: Flame Colors (the Fire Rainbow)
- Nova video: Hunt for the Serial Arsonist

Unit 8: forensic Serology

- Vomit lab (see above section)
- Blood Spatter Evidence (see above section)
- Bloodstain Analysis Lab (see above section)
- Case Study – The “Bobby Joe” Long Serial Murder Case: A study in Cooperation

Unit 9: DNA Fingerprinting

- Case Study – OJ Simpson Case Study
- Case Study – The Forensic Community’s Response to 9/11
- Activity: Creating Pedigrees from Electropherograms; students use electropherogram results to create a family pedigree
- Activity: Identifying the Remains of the Romanovs
<http://www.shodor.org/workshops/forensic/cases/romanov.html>

Unit 10: Fingerprinting

- Quiz from anatomy teacher of overview of anatomy
- Fingerprinting Lab (see above section)
- Case Study – Attempted Assassination of Archbishop Makarios

Unit 11: Trace Evidence, Impressions, Firearms, and Tool Marks

- Position Paper – How do you feel about gun control? Students will argue for or against it and then we will have a class discussion.
- Tool Mark Analysis Lab (see section above)
- LAPD Investigator Crime Scene search activity and guest speaker reflection paper.

Unit 12: Human Remains and Entomology

- Forensic Anthropology Lab (see above section)
- Forensic Entomology Lab (see above section)
- Read – Body Farm article and complete questions
- Fetal Pig Autopsy Dissection – Carolina Biological Supply Company offers a kit to teach students the cuts commonly used in an autopsy. It gives students an idea of how the procedure is done and gives them another look at physiology and anatomy that we covered earlier in the year.

Course Outline: A detailed descriptive summary of all topics covered. All historical knowledge is expected to be empirically based, give examples. Show examples of how the text is incorporated into the topics covered. A mere listing of topics in outline form is not sufficient (i.e. textbook table of contents or California State Standards).

This class meets every day for one hour.

Introduction to Forensic Science (1 month)

- I. Historical Introduction and Overview
 - A. *Timeline of forensic science (Scientist Poster Timeline Project)*
 - B. *Creating unique connections using physical, chemical, and biological foundations*
- II. What is forensic science?
 - A. *History and development of forensic science labs in the U.S.*
 - B. *Crime lab organizations and services*
 - 1) *Private vs. public labs*
 - 2) *Departments*
 - 3) *State/local lab vs. federal*
 - C. *Areas of forensic science*
 - 1) *Criminalist, pathologist, medical examiner, coroner, accident reconstruction, odontologist,, pathologist, anthropologist, mental health profiler, document examiner, toxicologist, artist, accountant, ballistics expert, arson investigators, entomologist, geologist, computer examiner, linguist (Job Profiling poster project)*
 - 2) *WebQuest using the textbook's accompanying website to discover the workings of each of the unit's labs*
- III. What is a forensic scientist: education, training, and expert testimony
 - A. *Schools with forensic degree programs in the area*
 - B. *Pre-requisites to studying it in college*
- IV. How did this become a science?
 - A. *Locard's principle*
 - B. *Scientific method*
 - C. *Lab Analysis Techniques (preview of the different types of experiments used in the upcoming chapters)*
- V. Court room decisions that have impacted the admissibility of evidence
 - A. *Jacalevich Case Study*
 - B. *Camarena Case Study (dealing with jurisdiction problems)*

The Crime Scene and Physical Evidence (2.5 week)

- I. Defining a crime scene: artifacts and evidences
- II. How to collect evidence
- III. Investigator guest speaker about how to collect and record evidence
- IV. Review the metric system and appropriate units of measurement
 - A. *How scale is determined in forensic photos of crime scenes.*
 - B. *Examples of scales (rulers in photos) from autopsy reports.*
- V. Uses for and information from physical evidence in criminal investigations
- VI. Kinds of evidence:
 - A. *Individual vs. class, circumstantial, conclusive, conflicting, corroborating, presumptive, Prima facie, probative, tainted*
 - B. *Sample/Reference Evidence from the scene.*
 - C. *Eye witness basics*
 - 1) *How to make better observations on the scene*
 - 2) *Things that cause witnesses to misidentify people*
 - 3) *The Innocence Project*

- VII. General crime scene procedures (ARISN)
 - A. Approach
 - B. Render medical aid
 - C. Identify additional victims or witnesses
 - D. Secure the scene and physical evidence.
 - E. Notifications made appropriately
- VIII. Chain of custody
- IX. Safety: universal precautions, protective equipment, handling of hazardous materials (OSHA Standards)

Physical Properties: Glass and Soil (2.5 weeks)

- I. Errors and estimates in lab measurements
- II. Significant figures
- III. Metric systems
- IV. Physical properties:
 - A. *Temperature, Weight vs. mass, density, refractive index*
 - B. *Compare and Contrast Physical Properties vs. Chemical Properties*
 - C. *Analyzing evidence using density*
- V. Glass:
 - A. *Interactions of light and matter*
 - B. *Applications of spectrometry*
 - C. *Characteristics of glass*
 - D. *Refractive index and the forensic applications of glass*
 - E. *The effect of projectiles on glass*
- VI. Types of Fractures
 - A. *Interactions of light and matter*
 - B. *Applications of spectrometry*
 - C. *Characteristics of glass*
 - D. *Refractive index and the forensic applications of glass*
 - E. *The effect of projectiles on glass*
- VII. Soil
 - A. *Composition of color analysis*
 - B. *Climate and soil formation*
 - C. *Analysis of humic fractions of soils*
 - D. *Microorganisms and their effects on evidence*
- VIII. Labs
 - A. Forensic Glass Analysis Lab (from Lab Book)
 - B. Coke vs. Diet Coke Demo
 - C. Demo: Samples of bullet holes from Guest Speakers

Organic & Inorganic Analysis (6 weeks)

- I. Chemistry Overview:
 - A. *Elements and compounds (inorganic and organic)*
 - B. *Modern atomic theory*
 - C. *Isotopes – calculating mass and their role in scientific research*
 - D. *Balancing chemical equations and gram-mole conversions*
 - E. *Nuclear Chemistry*
 - F. *Types of reactions*

- II. An Overview of Physics
 - A. *The electromagnetic spectrum*
 - B. *Properties of waves and mathematics of light*
- III. Analytical Techniques
 - A. *Physical separation of solid mixtures*
 - B. *Chemical separation of solid mixtures: solubility and pH*
 - C. *Chromatography: separating small amounts of material*
 - D. *Electrophoresis: separating very similar substances*
 - E. *Spectrometry: identifying unknowns by their mass*
 - F. *The emission and absorption spectrum of elements*
 - G. *Neutron activation analysis*
 - H. *X-ray diffraction*
- IV. Labs:
 - A. *Candy chromatography*
 - B. *Thin-Layer Chromatography of Ink (from Lab Textbook)*

Hair, Fibers, and Paint and the Microscope (3 weeks)

- I. Microscopes
 - A. *Lenses: how objects are magnified*
 - B. *Using the compound microscope, stereomicroscope, and comparison microscope*
 - C. *Mechanics of a scanning electron microscope in forensics*
- II. Hair:
 - A. *Human vs. animal hair comparison*
 - B. *Structure, growth, color, treatment and damage of hair*
 - C. *The morphology hair and its forensic implications*
 - D. *DNA analysis of hair*
- III. Polymer composition and structure
 - A. *Guest speaker: Fire Chief talking about Kevlar and Nomax*
- IV. Fiber:
 - A. *Morphology*
 - B. *Analysis and interpretation of synthetic fibers*
- V. Paint and other coating compositions
 - A. *How cars are painted*
- VI. Identification of fiber and paint trace evidence using refractive index and fluorescence
- VII. Labs:
 - A. *Forensic Hair Analysis (Lab Textbook)*
 - B. *Hit and Run Crime Scene Investigation*

Drugs and Toxicology (3 weeks)

- I. Chemistry Overview
 - A. *Organic compounds*
 - B. *Solubility and acid-base properties*
 - C. *Classes and Schedules of Drugs*
 - D. *Effect on the human body*
 - E. *Dependency Issues*
 - F. *Testing process*
 - G. *Ethyl alcohol and measurement of blood alcohol content*
 - H. *Pharmaceutical materials*
 - I. *Nonmedical agents*
 - J. *Metal analyses*

- II. Analytical methods:
 - A. *Color tests*
 - B. *Microcrystalline test*
 - C. *Spectroscopy*
 - D. *Chromatography*
- III. Drug control laws
- IV. Applications of forensic toxicology
- V. Collection and Perseveration of Drugs
- VI. Labs:
 - A. *Drug Dog Demo (Drug Dogs come and visit and the K9 Officers will do demonstrations and speak)*

Arson and Explosives (3 weeks)

- I. Chemistry Overview
 - A. *Thermal equilibrium*
 - B. *Balancing chemical equations for combustion*
 - C. *Redox reactions*
 - D. *Thermochemistry of fire*
 - E. *Heat capacity and phase changes*
 - F. *Kinetic molecular theory of gases*
- II. Deliberately set fires: arson and incendiary
- III. Collection and preservation of arson evidence
- IV. The role of accelerants and types of explosives
- V. Collection and analysis of explosives
- VI. Labs:
 - A. *Dollhouse Fire*
 - B. *Guest Speaker: Fire Chief*

Forensic Serology (3 weeks)

- I. Anatomy and Physiology Overview
 - A. *Circulatory system – structures and functions*
 - B. *The nature of blood – cell types and function*
 - C. *Antigens, blood types, and antibodies*
 - D. *Principles of heredity of blood characteristics*
 - E. *Blood*
- II. Immunoassay Techniques
- III. Species origin determination in bloodstains
 - A. *Size, shape and directionality of bloodstains*
 - B. *Stain patterns of blood; spatter angle of impact and velocity*
 - C. *Interpretation of bloodstains on clothing and footwear*
- IV. Use of luminal photography of bloodstain pattern analysis
- V. Identification of other biological fluids: semen, saliva, urine, feces, vomitus, and vaginal secretions
- VI. Labs:
 - A. *Crime Scene Investigation*
 - B. *Vomit lab*
 - C. *Blood Spatter Evidence Lab (Lab Textbook)*
 - D. *Bloodstain Analysis (lab Textbook)*
 - E. *Guest Speaker: Police Detective*

DNA Fingerprinting (3 weeks)

- I. Biology Overview
 - A. *DNA Base Pairing*
 - B. *The structure of DNA*
 - C. *Replicating DNA*
 - D. *Recombinant DNA*
 - E. *Repeating units of DNA*
- II. History of DNA Fingerprinting
 - A. *Electrophoresis*
 - B. *CODIS*
 - C. *Population genetics support via statistical data*
- III. Challenges in court:
 - A. *The admissibility of DNA evidence, discovery and legal procedures*
 - B. *Convicted offenders databases*
 - C. *Protecting the innocent*
- IV. DNA in noncriminal cases
 - A. *The future of DNA typing*
 - B. *Probability statistics*
- V. Case Studies:
 - A. *OJ Simpson Case Study*
 - B. *Forensic Community's Response to 9/11*

Fingerprints (2 weeks)

- I. Review from the anatomy teacher as a guest speaker.
 - A. *The integumentary system*
 - B. *Epithelial tissue and histology slides*
 - C. *Skin layers: epidermis, dermis, and hypodermis*
 - D. *Accessory organs: nails, sebaceous glands, sweat glands, eccrine glands, and apocrine glands*
 - E. *Healing of wounds and burns*
- II. Fingerprints as evidence
 - A. *History of fingerprinting*
 - B. *Classification of Fingerprints*
 - C. *Fundamental Principles of Fingerprinting*
 - 1) *Fingerprints are unique*
 - 2) *Fingerprints stay the same throughout a person's lifetime*
- III. Fingerprints have general ridge characteristics
 - A. *Means of fingerprinting*
 - B. *Preservation of developed fingerprints: manually and via computer*
- IV. Forensic Scientist
- V. Fingerprinting Lab (Lab Textbook)

Trace of Evidence, Impressions, Firearms, and Tool Marks (1-2 weeks)

- I. Firearms
 - A. *Issues surrounding gun control*
 - B. *Types of modern firearms, manufacturing, and ammunition*
 - C. *Collection of firearms-related evidence*
 - D. *Gunpowder residues and primer residues on hands*

- II. Vehicles
 - A. *Coefficient of friction – determining a cars speed and direction*
 - B. *Original equipment tires, replacement tires, and tire construction*
 - C. *Tire tread nomenclature an sidewall information*
 - D. *Collecting tire track evidence*
 - E. *Headlamp analysis*
 - F. *Vehicular accident analysis*
- III. Biometrics – lip prints and saliva
- IV. Tools
 - A. *Types of tool marks*
 - B. *Processing of tool mark evidence at the crime scene*
- V. Labs:
 - A. *Tool Mark Analysis (Textbook Lab)*
 - B. *Demos by Guest Speakers*

Human Remains and Entomology (6 weeks)

- I. The Human Body
 - A. *Levels of organization*
 - B. *Four types of tissues*
 - C. *Human body systems overview*
 - D. *The human skeleton and anatomy of bones*
 - E. *Physical anthropology and the sexual dimorphism of bones*
- II. Death
 - A. *Importance in determining time of death and decomposition*
 - B. *Taphonomy (the history of a body after death) and archaeology: human remains in water environments (diatom taxonomy) and buried remains*
- III. Entomology
 - A. *Class Insecta*
 - B. *Metamorphosis and the life cycle of a fly*
 - C. *Collection and challenges of entomological evidence*
- IV. Performing an autopsy
- V. Labs:
 - A. *Forensic Anthropology (Lab Textbook)*
 - B. *Forensic Entomology (Lab Textbook)*
 - C. *Fetal Pig Dissection Autopsy (Carolina Biological Supply Company Kit)*

Character Education and Legal Issues

- VI. Law enforcement and the law
- VII. Forensic scientists, scientific values, and the law
- VIII. How does our Character Counts Program relate to this course?
- IX. Scientifically reliable methods....What happens when science “proves” innocent people guilty?

Laboratory Activities: *Acceptable courses include hands-on scientific activities that are directly related to and support the other classwork, and that involve inquiry, observation, analysis, and write-up. These hands-on activities should account for at least 20% of class time, and should be listed and described in detail. Please itemize and describe each laboratory activity in detail.*

The following labs will be completed during this course:

- Forensic Glass Analysis Lab (from Lab Book)
 - In this lab activity students will
 - Calculate the displacement of water
 - Compare samples of glass using their densities
 - Compares shards of glass using Glass Fracture Analysis
- Candy chromatography
 - In this lab activity students will
 - Use pieces of candy coated candies (M&Ms and skittles) to obtain dye samples.
 - Separate out the individual colors using paper chromatography in class.
- Thin-Layer Chromatography of Ink (from Lab Textbook)
 - In this lab activity students will:
 - TLC is used in the class because it is cheap and simple to perform.
 - Using capillary action students will separate out a mixture of chemicals using size.
- Forensic Hair Analysis (Lab Textbook)
 - In this lab activity students will:
 - Identify the three types of cuticles.
 - Describe the basic morphology of hair
 - Identify samples of hair using the microscope
 - Compare hair evidence using length, color, degree of curl and type of medulla.
- Hit and Run Crime Scene Investigation
 - In this lab activity students will
 - Collect evidence from a mock crime scene
 - Use the glass analysis techniques, Hair analysis techniques and chromatography techniques they learned in the previous labs to solve the crime.
 - The LAPD will be helping out with this activity.
- Dollhouse Fire
 - In this lab activity students will:
 - Make observations about the types of fires set in the building.
 - Note: The Fire Chief who was also an arson investigator has burned the structure for me in advance. He made sure that distinct char patterns and evidence are easily observed. He will also be leading a portion of this lab.
- Vomit Lab
 - In this lab activity students will:
 - Use 3 chemical tests (keytone test, protein test and fat test) to determine the presence of the victim's last meal.
 - Students will gather data and write a lab report to solve the mystery.
- Blood Spatter Evidence Lab (Lab Textbook)
 - In this lab activity students will:
 - Solve the murder of an imaginary case study.
 - Create a cast off spatter to determine the victim's direction of travel.
 - Determine the impact angle of the bullet by creating a model out of cardboard.
 - Calculate the stain shape vs. impact angle in order to determine how the blood evidence landed on nearby objects.
- Bloodstain Analysis (Lab Textbook)
 - In this lab activity students will
 - Design an experiment to test for the presence of blood.
 - Use a Kestle-Meyer Reagent test to determine the presence of blood.

- Test for the presence of blood using a Hemastix® strip.
 - Determine blood type (Using Carolina Biological Supply Blood typing Kit)
- Fingerprinting (Lab Textbook)
 - In this lab activity students will:
 - Create enlarged fingerprints in order to view the individual characteristics of fingerprints using a balloon and thermoplastic ink.
 - Create graphite prints of their own fingers.
 - Practice taking inked prints onto a paper intake sheet.
 - Compare fingerprints and classify them.
 - Use finger print powder on a mock crime scene.
 - Superglue fuming of a small item.
- Tool Mark Analysis (Textbook Lab)
 - In this lab activity students will:
 - Make observations of tools and tool mark characteristics.
 - Create casting of tool marks and make observations to determine which tool was used in the mock crime.
- Forensic Anthropology (Lab Textbook)
 - In this lab activity students will:
 - Complete a virtual tutorial about how to compare skulls and jaws of primates.
 - Complete on online tutorial about species bone comparison.
 - Complete empirical measurements of Sex Differences in class and graph them
 - Chin to scalp
 - Ear lobe to ear lobe
 - Hand width
 - Create and compare human dentition impressions.
- Forensic Entomology (Lab Textbook)
 - In this lab activity students will:
 - Complete an examination of a model of entomological evidence collected from four crimes scenes.
 - Identify the color, size and developmental stage of each sample.
 - Make observations about the establishment of a blow fly colony over a period of 1 week.
- Fetal Pig Dissection Autopsy (Carolina Biological Supply Company Kit)
 - In this lab activity students will:
 - Dissect a fetal pig using the autopsy techniques describe in the accompanying dissection manual.

Key Assignments: *Detailed descriptions of all Key Assignments which should incorporate activities and projects, as well as, short answers and essay questions. How do assignments incorporate topics? Include all assignments that students will be required to complete. Assignments should be linked to components mentioned in the course outline. It is not appropriate or necessary to include instructions given to students regarding the execution of assignments (formatting, timeliness, etc.). Do not include exams or assessments in this section.*

Instructional Methods and/or Strategies: *Indicate how the Instructional Methods and/or Strategies support the delivery of the curriculum. What portions of the Course Outline are supported by the methods and strategies?*

- Unit Pretests to see how in detail overviews of sciences.
- PowerPoint lectures by teacher
- PowerPoint presentations by students
- Lab experiments and activities
- Case studies – Students complete a worksheet with the following:
 - Basic facts of the case (What is the story)
 - What pieces of evidence are examined?
 - How could the investigation been better?
 - What precedents were set?
 - What are the outcomes of the trial?
- Current events from journals and new sources
- Structured controversy via position paper assignments
- Online tutorials and interactive crime investigations
- Collaboration with LAPD, San Manuel Fire Department for guest speakers and one or more field trips
- Assigned reading and outlining from text to supplement lecture
- Forensic Files (Court TV) and Medical Detectives (TLC); these 30 minute segments offer real-life crime reconstructions and the forensic science behind cracking the case
- Unit/vocabulary study guide puzzles and Memory Cards to complete

Assessments Including Methods and/or Tools: *Indicate the intent of each assessment and a brief description of how each relates to the Course Purpose and goals related to the development of critical thinking and other habits of mind skills.*

For Preparation