



**Forensic Science / AP Psychology-Ms. Allender  
STEM School, 2018-19  
Classroom Management Plan**



My teaching philosophy is to get people excited about science and engage the mind. Because I am certified in Career and Technology Education (CTE), I am able to teach AP Psychology as a science teacher and highlight the importance of scientific inquiry in a social science class. Subsequently, you are really getting an education in Bio-Psychology. You will be using neuroscience to understand and predict behavior. This will benefit you as you cultivate your leadership skills and work with teams to solve current engineering and scientific problems. This syllabus outlines three of the largest problem based learning assignments that you will do in the Forensics / AP Psychology signature lab. You can also see a monthly outline detailing more of the content that is covered throughout the year at the end of this syllabus.

**Central Sound Regional Science and Engineering Fair**

In AP Psychology, students will be competing in the Central Sound Regional Science and Engineering Fair (CSRSEF) on March 11. All students will engineer the Tools for Scientific Discovery by developing innovative ideas or conducting scientific experiments that produce viable solutions or new understanding in the realm of engineering and science. All students will find a mentor that helps guide you through the process of scientific inquiry or engineering design. Mentors may assist you with providing lab space to complete your research, reviewing the experimental procedure or design process and/or help in securing participants, equipment or technology to conduct your research. For **engineering projects**, students will engage in the following process:

1. Define a need
2. Do background research
3. Establish and rank your design criteria and consider design tradeoffs
4. Make a materials list and prepare a preliminary design
5. Build and test a prototype
6. Redesign and retest as necessary
7. Present results

For **science projects**, students will utilize the scientific method by following these steps:

1. Identify a problem
2. Perform extensive research
3. Formulate a hypothesis
4. Create the experimental procedure-be sure to clearly define variables, manipulating only one at a time, and create an extensive list of materials
5. Test the hypothesis through your experiment or correlational study, repeating the investigation with multiple trials
6. Results will be analyzed and quantified using appropriate statistical analysis such as chi square, p values and correlational coefficient (R values)

All students will automatically qualify to compete at the Washington State Science and Engineering Fair (WSSEF) at the end of March. Students will have the opportunity to qualify for the International Science and Engineering Fair (ISEF) at either CSRSEF or WSSEF. For many students, competing in these competitions require preapproval by an Institutional Review Board (IRB) and subsequently, class time will be designated each month for check-ins, assistance with paperwork, and guiding student research.

**Neuroscience Curriculum-Autopsy lab final**

In Forensics, the University of Washington (UW) in the High School Bio 100: Brain and Addiction curriculum will be introduced in October and will end in April. Students can achieve 5 college credits from UW after completing this coursework. The UW course entails a detailed understanding of neuroscience and brain pathways. This

knowledge, in addition to pharmacology, enzymes, molecular structure and genetic inheritance, will be applied to understand multiple drugs and their effects on the brain and behavior associated with addiction. Lab investigations include dissecting a sheep brain, enzyme analysis, extracting DNA from hair, patterns of inheritance, worms on drugs, intoxication lab, dissecting a cow eyeball and a special Senses/Perception lab. Students will perform a problem based learning (PBL) autopsy lab final that requires students to synthesize their understanding of drugs and the effects on the brain and body to determine cause, manner, mechanism and time of death. The lab final requires students to work in groups and demonstrate leadership and communication skills to synthesize and present their findings. This curriculum also relates to some of the Grand Challenges in Engineering. The deep understanding of the brain and neural pathways and how they can be controlled is necessary if students choose to create and design technology solutions to Reverse Engineer the Brain through their participation in CSRSEF. Additionally, on-going neuroscience research and mathematical methods or algorithms, which are taught in the learning and intelligence units in AP Psychology, are two areas of critical research that are necessary for engineering a solution to Advance Personal Learning. Students will delve into glutamate and the learning pathway to understand the behavior of criminals as well as different types of learning modes and this knowledge can be used in CSRSEF projects to produce new technology based designs or solutions to explain or assess learning.

### **NAS report-Engineering Projects**

One final curriculum component is an engineering assignment in forensics. In 2007, the National Academies of Science (NAS) came out with a report entitled "Strengthening Forensic Science in the United States: A Path Forward." The report analyzed several areas of forensic science that are prone to error, maintain a lack of standardization and/or are affiliated with human observer bias or the administrative control of law enforcement agencies or prosecuting attorney offices. The areas of Forensic Science that have been called into question include, but are not limited to:

1. Analysis of Controlled Substances
2. Friction Ridge Analysis
3. Other Pattern/Impression Evidence: Shoeprints and Tire Tracks
4. Tool mark and Firearms Identification
5. Analysis of Hair Evidence
6. Analysis of Fiber Evidence
7. Questioned Document Analysis
8. Analysis of Paint and Coatings Evidence
9. Analysis of Explosives Evidence and Fire Debris
10. Forensic Odontology
11. Bloodstain Pattern Analysis
12. Digital and Multimedia Analysis

The only area of forensic science that was deemed valid and suitable for use in court was Biological evidence, or DNA. According to the NAS report, because DNA has been subjected to more scrutiny, rigorous experimentation and validation studies, "the probative power of DNA is high." However, it is important to recognize that DNA evidence is subject to errors in handling, and in those cases, other forensic techniques must be applied. In this signature lab, you will engineer a technology-based solution or design to strengthen the accuracy and validity of Fingerprints (Friction Ridge Analysis) or design a new method for Analysis of Hair Evidence and/or come up with an engineering design or technology-based solution to any of the other components of the NAS report. Students will work in teams of three and engage in the engineering design process outlined above for the CSRSEF projects. Each team member will be assigned a specific role in one of the following areas: Project Manager, Researcher (all students will participate as a researcher), Statistician and Technology/Lab Manager. The following outline describes the sequence and content of this signature lab in more detail.

**\*In Forensics: UW in the High School Bio 100: Brain and Addiction curriculum will be introduced in October \*In AP Psychology: Students will be competing in the Central Sound Regional Science and Engineering Fair in March. Research will be conducted outside of class, but at least one day each month will be designated for check-ins.**

I. General Rules

- A. **Respect.** Respect your peers, your teacher, and yourself. I have no tolerance for lack of respect in my classroom. Listen when others are speaking.
- B. **Ready to learn.** The second you walk into my classroom, you are ready to learn. I am ready to teach, so come prepared so that you can participate and contribute in class.
- C. **Responsibility.** You have the awesome responsibility of coming to class *on time*, turning in quality work *on time*, and above all, learning.

II. Lab Safety

- A. Follow lab instructions. Ask for clarification when confused and wear appropriate personal protective equipment (such as safety goggles).
- B. Use equipment for intended purposes only. Be aware of people, equipment, and materials around you. Look where you are going and do not engage in horseplay.

III. Accountability

- A. School handbook and behavior infractions will be dealt with according to the school handbook. You will be held accountable for your own actions.

IV. Supplies

- A. Each student must bring to class every day:
  - 1. Black/white comp book for labs and notes
  - 2. Pen, pencil, scientific calculator

V. Attendance

- A. The school policy on absenteeism will be followed, which includes the loss of credit after the tenth absence.

VI. Homework/Notes

- A. In Forensics, all work (unless otherwise noted) is completed IN YOUR COMP BOOKS.
- B. Comp books are collected every few weeks. I do mass gradings, and pass everyone's book back at the same time. ONCE THEY ARE PASSED BACK, I CANNOT ACCEPT A LATE COMP BOOK. Bottom line: don't miss a comp book collection day.
- C. In AP Psychology, I choose 1 assignment per unit that is "essential homework" and that is calculated into 10% of the total grade.
- D. In case of an absence, copies of notes and power points can be found on the haiku website and are accessible to all students.

VII. Tests/Quizzes

- A. Due to an excused absence on test day, you have the number of days that you missed to make up the exam. For example, if you were absent on Monday and Tuesday, and the exam was one Tuesday, you are excused for two days before you need to make up the exam and the makeup exam will need to be taken by Thursday. *It is the student's responsibility to arrange with the teacher when the best time is to make up the exam.* The makeup exam is an alternative test. I do not recommend missing the test day.

VIII. Make-up Work

- A. Once comp books have been graded and passed back in Forensics, I cannot accept those comp books for full credit. Students will know at LEAST a week ahead of time when comp books will



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Classroom Management Plan**

**Student** and **parent** should sign and return this form to indicate that they have received and read Ms. Allender's Classroom Management Plan. Parents can contact me via email at [kallender@lwsd.org](mailto:kallender@lwsd.org).

**Students: Please sign below indicating that you have accessed Ms. Allender's Haiku website and have accessed the online calendar for upcoming discussions, due dates, and test dates in September.**

Student's name (please print): \_\_\_\_\_

Student's signature/date: \_\_\_\_\_

**Parents: Please sign below indicating that you have accessed Ms. Allender's Haiku website and have accessed the online calendar for upcoming discussions, due dates, and test dates in September.**

Parent's name: \_\_\_\_\_

Parent's signature/date : \_\_\_\_\_

Parent's telephone number(s): \_\_\_\_\_

Parent's email address(es): \_\_\_\_\_

Parent's mailing address: \_\_\_\_\_

Please note any relevant learning disability or special independent educational plan here. (You do not need to include a copy of the plan, as I should receive a copy from the school.)

I would appreciate some additional requested information to help keep communication lines open throughout the year. I am also interested in getting parents involved with volunteering in/out of the classroom. **Please check one or two sub-areas you are interested in becoming involved with and I will be contacting you sometime in September with a follow-up email or phone call.**

- Help with finding professional contacts (mentors) who might be interested in working with students on their Central Sound Regional Science and Engineering Fair projects
- Helping find/organize guest speakers to come to class or give talk/presentation in the presentation hall
- Help with chaperoning events-Central Sound Science Fair, HOSA state competition, UW library visit
- Helping to create internship program (both during school and summer work opportunities) for juniors and seniors
- Other (Please specify)

## STEM Signature Lab Outline

<b>Forensic Science</b>	<b>AP Psychology</b>
September-ish	
<b>Intro and Fingerprints:</b> subunits of Forensics, History, Ink & Latent Techniques, AFIS comparison lab, Dillinger and Mayfield cases *Introduce NAS report and Forensics research projects for CSRSEF	<b>History and Research Methods:</b> History, Sci method, Intuition, Bias, Types of research, Statistics-Manner and cause stats in WA, Natl. avgs *Intro CSRSEF projects
October-ish	
<b>Trace Evidence:</b> Human and Animal hair (microscope work), fiber analysis <b>Pharmacology:</b> Chemistry, therapeutic index, understand drug combinations as we transition to Toxicology <b>Discuss NAS report more and Engineering Project for January</b>	<b>Social Psychology:</b> attribution theory, social loafing, groupthink, aggression, altruism, Stanford Prison experiment, Milgram shock experiment
November-ish	
<b>Toxicology:</b> CSA Act of 1970, pharmacology, chemistry and therapeutic index, enzyme lab, Introduce Psychedelics -LSD and psilocybin, sensation perception lab, intoxication lab, Opiates and OTC Analgesics, other depressants – alcohol and cannabis	<b>Biological Bases for Behavior:</b> Brain and addiction, split brain research, fMRI scans, dissecting sheep brains and observing real human brains <b>Sensation and Perception:</b> adaptation vs. habituation, absolute thresholds, olfaction, somatosensation and more
December-ish	
<b>Toxicology cont.:</b> stimulants, cocaine, caffeine, MDMA, nicotine, antidepressants, amphetamines, worms on drugs lab	<b>Sensation/Perception cont.:</b> cow eye ball dissection, <b>States of Consciousness:</b> Selective attention, circadian rhythms, Dreams, Hypnotherapy and Pain
January-ish	
<b>Computer Forensics, Questioned Document Analysis:</b> History and current methods for document analysis and decoding, Alan Turing <b>Engineering Project:</b> Design viable solution(s) for problems associated with NAS report, calling for improvements in statistical or procedural analysis in all areas of forensic science (except DNA)	<b>Learning and Memory:</b> Classical and Operant conditioning, brain research, eye witness accounts (Loftus research), short and long-term memory, amnesia, Glutamate and learning pathway
February-ish	
<b>Medical Examiner:</b> Pathology/cellular tissue lab, M.E. and Autopsy, determining manner, cause, mechanism, pre-existing condition and time of death <b>Crime Scene:</b> Evidence collection, photography, eye witness	<b>Cognition and Language Learning:</b> Problem solving, Nature vs. Nurture debate, Chomsky and language acquisition device in brain <b>Intelligence and Heredity:</b> Genetics, more Nature vs. Nurture, achievement vs. aptitude; brain research
March-ish	
<b>Blood:</b> properties of (review from AP Bio), angle of impact lab, blood spatter crime scene PBL, blood typing, OJ Simpson case	<b>Motivation, Emotion and Stress:</b> Case studies, motivational and emotional theories, stress and health <b>Developmental Psychology:</b> Gender development, newborn, infancy, childhood, adolescence, Piaget' stages, social development, brain research
April-ish	
<b>Anthropology, Odontology:</b> Skeletal system, Rwanda Genocide lab, Human Skeleton lab, Teeth analysis, odontology lab with radiographs and teeth molds, Green River Killer case analysis <b>Begin Entomology:</b> Identification of insects and pupae	<b>Personality:</b> Freud's psychoanalytic theory, personality tests, humanistic approach <b>Abnormal Psychology:</b> anxiety, dissociative, mood and personality disorders, schizophrenia, psychotherapy, criminal profiling
May-ish	
<b>Physical Evidence, Entomology:</b> Soil, glass, sand-microscope labs, refractive index labs; decomposition pig study-calculating ADH	<b>AP Exam-May 9<sup>th</sup>!</b> Prepare for National research competitions
June-ish	
<b>Lab Final:</b> Students analyze evidence and solves crime	Research and design solution to solve current societal problem related to Psychology

