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|  | Forensic Science Curriculum Guide  SCI 303  2022-2023 |

<http://grading.dmschools.org>

<http://science.dmschools.org>

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| **Evidence shows the student ...** | **Topic Score** |
| Demonstrates proficiency (AT) in all learning targets and success at Level 4 | 4.0 |
| Demonstrates proficiency (AT) in all learning targets with partial success at Level 4 | 3.5 |
| Demonstrates proficiency (AT) in **all** learning targets | 3.0 |
| Demonstrates proficiency (AT) in **at least half** of the learning targets | 2.5 |
| Demonstrates some success criteria (PT) toward **all** learning targets | 2.0 |
| Demonstrates some success criteria (PT) towards **some** of the learning targets | 1.5 |
| Does not yet meet minimum criteria for the targets. | 1.0 |
| Produces no evidence appropriate to the learning targets at any level | 0 |

**Standards-Referenced Grading Basics**

**Our purpose in collecting a body of evidence is to:**

* Allow teachers to determine a defensible and credible topic score based on a representation of student learning over time.

**Start at Level 3 when determining a topic → score.**

* Clearly communicate where a student’s learning is based on a topic scale to inform instructional decisions and push student growth.
* Show student learning of targets through multiple and varying points of data
* Provide opportunities for feedback between student and teacher.

**Scoring**

A collaborative scoring process is encouraged to align expectations of the scale to artifacts collected. Routine use of a collaborative planning and scoring protocol results in calibration and a collective understanding of evidence of mastery. Enough evidence should be collected to accurately represent a progression of student learning as measured by the topic scale. Teachers look at all available evidence to determine a topic score. All topic scores should be defensible and credible through a body of evidence.

**Guiding Practices of Standards-Referenced Grading**

1. A consistent 4-point grading scale will be used.
2. Student achievement and behavior will be reported separately.
3. Scores will be based on a body of evidence.
4. Achievement will be organized by learning topic and converted to a grade at semester’s end.
5. Students will have multiple opportunities to demonstrate proficiency.
6. Accommodations and modifications will be provided for exceptional learners.

**\*\*\*Only scores of 4, 3.5, 3, 2.5, 2, 1.5, 1, and 0 can be entered as Topic Scores**.

**Multiple Opportunities**

Philosophically, there are two forms of multiple opportunities, both of which require backwards design and intentional planning. One form is opportunities planned by the teacher throughout the unit of study and/or throughout the semester. The other form is reassessment of learning which happens after completing assessment of learning at the end of a unit or chunk of learning.

Students will be allowed multiple opportunities to demonstrate proficiency. Teachers need reliable pieces of evidence to be confident students have a good grasp of the learning topics before deciding a final topic score. To make standards-referenced grading work, the idea of “multiple opportunities” is emphasized. If after these opportunities students still have not mastered Level 3, they may then be afforded the chance to reassess.

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| Timeline | | |
| *Topic* | *Description* | *Rough Timeline* |
| 1. Introduction to Forensic Science | Students engage with a mock crime scene, collect evidence, and evaluate types of information | 3 Weeks |
| 1. Hair and Fingerprints | Evaluate and defend the value of hair and fingerprints as evidence | 3 Weeks |
| 1. Forensic Serology | Analyze and evaluate evidence derived from blood. | 3 Weeks |
| 1. The Data of Death | Use models to interpret the dead remains of an organism | 3 Weeks |
| 1. Non-Biological Evidence | Analyze evidence that is non-living | 3 Weeks |
| 1. Crime Scene Investigation | Investigate a crime and create a claim based on collected evidence and reasoned argument | 3 Weeks |

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| Topic: Introduction to Forensic Science | | | |
| Level 4 | Level 3 | Level 2 | Level 1 |
| In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. | ***In response to observed phenomena, students will…***   1. Implement the 7 S’s(secure the scene, separate the witnesses, scan the scene, seeing the scene, sketching the scene, searching for evidence, securing and collecting evidence) in a mock crime scene 2. Analyze a crime scene and generate questions based on informative pieces of evidence. 3. Distinguish between relevant and irrelevant evidence and discuss the validity and value of different types of information including eye witness testimony. | ***In response to observed phenomena, students will…***  Recognize or recall specific vocabulary such as:   1. Forensics, CSI Effect, Locard’s Exchange Principle, types of evidence: physical, testimonial, class, individual, circumstantial, direct.   Basic knowledge such as:   1. Explain the impact of the CSI Effect on people’s perceptions. 2. Classify different types of evidence 3. Describe the participants of forensic investigations | Student’s performance reflects insufficient progress towards foundational skills and knowledge. |

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| Topic: Hair and Fingerprints | | | |
| Level 4 | Level 3 | Level 2 | Level 1 |
| In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. | ***In response to observed phenomena, students will…***   1. Compare and contrast fingerprints to deduce whether or not they are from the same source 2. Use proper techniques to obtain fingerprints 3. Investigate the structure of hair to determine what makes it unique 4. Make and defend a claim about the value of fingerprint and/or hair as evidence in the courtroom | ***In response to observed phenomena, students will…***  Recognize or recall specific vocabulary such as:   1. Arch, Loop, Whorl, Minutiae, Latent Fingerprints, Plastic Fingerprints, Visible Fingerprints, Cuticle, Cortex, Medulla   Basic knowledge such as:   1. Describe the anatomy of a fingerprint 2. Classify fingerprints according to their fingerprint type 3. Explain techniques used to obtain fingerprints from a crime scene 4. Describe the anatomy of hair 5. Explain the differences between different hair samples (human/human or human/animal) | Student’s performance reflects insufficient progress towards foundational skills and knowledge. |

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| Topic: Forensic Serology | | | |
| Level 4 | Level 3 | Level 2 | Level 1 |
| In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. | ***In response to observed phenomena, students will…***   1. Use modeling to describe human blood types. 2. Use mathematical techniques to interpret blood spatter at a crime scene. 3. Investigate factors that affect blood spatter and create rules that describe the observed relationship. 4. Create a model to determine the severity of punishment related to different schedules of drugs under the Controlled Substance Act. 5. Make and defend a claim about the value of forensic serology in the courtroom. | ***In response to observed phenomena, students will…***  Recognize or recall specific vocabulary such as:   1. Serology, red blood cells, white blood cells, platelets, plasma, Punnett square, antibodies, antigens, agglutination, point of origin, DNA, blood spatter, angle of impact, gel electrophoresis, toxicology   Basic knowledge such as:   1. Describe basic functions of each component of blood. 2. Describe the varying structures of red blood cells that create the different blood types. 3. Analyze blood spatter. 4. Interpret DNA test results. 5. Classify drugs based on individual characteristics. | Student’s performance reflects insufficient progress towards foundational skills and knowledge. |

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| Topic: The Data of Death | | | |
| Level 4 | Level 3 | Level 2 | Level 1 |
| In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. | ***In response to observed phenomena, students will…***   1. Make a claim about postmortem interval based on quantitative data. 2. Apply knowledge of entomological factors to crime scene investigation. 3. Use models to predict information for a biological profile such as the sex, age, origin, stature, and cause of death of skeletal remains. | ***In response to observed phenomena, students will…***  Recognize or recall specific vocabulary such as:   1. Forensic entomology, postmortem interval (PMI), rigor mortis, algor mortis, livor mortis   Basic knowledge such as:   1. Describe the major changes that happen to a body after death. 2. Describe the progression of entomological activity that occurs after death. (For example: insect life cycle and species succession.) 3. Name/identify the major bones in the human skeleton. 4. Use a graphic organizer to communicate the differences among various types of skeletons. | Student’s performance reflects insufficient progress towards foundational skills and knowledge. |

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| Topic: Non-biological Evidence | | | |
| Level 4 | Level 3 | Level 2 | Level 1 |
| In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. | ***In response to observed phenomena, students will…***   1. Create a rule to describe patterns in a handwriting sample. 2. Compare and contrast handwriting samples to determine whether or not they are from the same source. 3. Analyze the authenticity of questionable documents. 4. Identify the psychology that is at the root of a criminal's specific action. 5. Effectively communicate information gathered through research regarding the psychological behaviors of criminals 6. Compare and contrast impression patterns to determine whether or not they are from the same source. | ***In response to observed phenomena, students will…***  Recognize or record specific vocabulary such as:   1. forgery, handwriting characteristics, counterfeit, forensic psychology, sociopath, MacDonald triad, impression evidence   Basic knowledge such as:   1. Explain factual/measurable characteristics of handwriting 2. Apply chromatography techniques to compare ink samples 3. Describe characteristics of U.S. currency that are designed to prevent counterfeiting. 4. Describe the relationship between criminal behavior and a person's psychology. 5. Describe the conditions that create impression evidence. | Student’s performance reflects insufficient progress towards foundational skills and knowledge. |

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| Topic: Crime Scene Investigation | | | |
| Level 4 | Level 3 | Level 2 | Level 1 |
| In addition to score 3.0 performance, the student demonstrates in-depth inferences and applications that go beyond what was taught. | ***In response to observed phenomena, students will…***   1. Apply investigative techniques to collect, observe, and analyze "evidence" at a mock crime scene. 2. Plan and conduct a scientific test in order to compare known and unknown samples. 3. Evaluate the quality and validity of different types of evidence. 4. Make and defend a claim based on crime scene evidence. | ***In response to observed phenomena, students will…***  Recognize or recall specific vocabulary such as:   1. Claim, evidence, probative value   Basic knowledge such as:   1. Describe the investigative techniques used at a crime scene 2. Understand how jurors weigh evidence in the courtroom | Student’s performance reflects insufficient progress towards foundational skills and knowledge. |