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| Forensic Science Curriculum Overview | 2019-2020 |
| <http://science.dmschools.org> <http://grading.dmschools.org> |  |



Proficiency Scale

**Standards-Referenced Grading Basics**

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| **Evidence shows the student can...** | **Topic Score** |
| Demonstrate all learning targets from Level 3 and Level 4 | 4.0 |
| Demonstrate all learning targets from Level 3 with partial success at Level 4 | 3.5 |
| Demonstrate all learning targets from Level 3 | 3.0 |
| Demonstrate at least half of the Level 3 learning targets | 2.5 |
| Demonstrate all learning targets from Level 2 but fewer than half of the learning targets from Level 3 | 2.0 |
| Demonstrate at least half of the Level 2 learning targets and none of the Level 3 learning targets | 1.5 |
| Demonstrate fewer than half of the learning targets from Level 2 and none of the Level 3 learning targets | 1.0 |
| Produce no evidence appropriate to the learning targets at any level | 0 |

The teacher designs instructional activities that grow and measure a student’s skills in the elements identified on our topic scales. Each scale features many such skills and knowledges, also called **learning targets**. These are noted on the scale below with letters (A, B, C) and occur at Levels 2 and 3 of the scale. In the grade book, a specific learning activity could be marked as being 3A, meaning that the task measured the A item at Level 3.

When identifying a Topic Score, the teacher looks at all evidence for the topic. The table to the **right** shows which Topic Score is entered based on what the Body of Evidence shows.

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

**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.

**Multiple Opportunities**

*It’s not about going back to do a retake, or back to redo something; it’s about going forward, continually scaffolding student learning through multiple opportunities, and noting that improved learning.* Our curriculum builds on itself. “Multiple opportunities” are about taking an assessment and connecting it to past topics. It’s about allowing students to demonstrate their learning multiple times in units subsequent to their current unit, or when learning is scaffolded into future units.

Multiple Opportunities will be noted in the guide to the right of the scales. Here you will see initial thinking of connections to other topics. This is also a place where teachers can add connections through their PLCs.

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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. |