

Forensics
Curriculum 2009

Credits: 2.5

Length: Half year

Open: Grades 11 & 12

Pre-Requisite: Biology, Chemistry, and approval of instructor

FORENSICS

2009

Course Description:

This curriculum is designed for students to explore the world of forensics and solving crimes. Students will utilize high-tech experimentations which will enable them to develop skills in observation and data analysis. The activities are designed to reinforce previously learned concepts in biology, chemistry, and scientific inquiry in addition to encouraging students to investigate careers in science.

CORE CURRICULUM CONTENT STANDARDS:

STANDARD 5.1 (SCIENTIFIC PROCESSES)

ALL STUDENTS WILL DEVELOP PROBLEM-SOLVING, DECISION-MAKING AND INQUIRY SKILLS, REFLECTED BY FORMULATING USABLE QUESTIONS AND HYPOTHESES, PLANNING EXPERIMENTS, CONDUCTING SYSTEMATIC OBSERVATIONS, INTERPRETING AND ANALYZING DATA, DRAWING CONCLUSIONS, AND COMMUNICATING RESULTS.

Suggested activities that address these standards (5.1) may include but are not limited to:

1. Safety lab
2. Tools of the Forensic Scientist
3. Microscope lab
 - a. Stereoscope
 - b. Compound
 - c. Dissecting
4. The Crime Scene
 - a. Processing the Crime Scene
 - b. Legal Issues at the Crime Scene/ good lab techniques and safety
5. Physical Evidence
 - a. Types of Physical Evidence
 - b. Significance of Physical Evidence
6. Hair and Fiber Analysis labs
7. Serology labs
8. DNA fingerprinting labs
9. Anthropological labs

Instructional Strategies:

- Power point presentations
- Board Activities
- Guest speaker
- Visit NJ State Police Labs at Hamilton NJ
- Lab work

- CSI: DVD
- Case studies

Evaluation/Assessment of Students:

- All labs will be graded for accuracy
- Quizzes

Evaluation/Assessment of Curriculum: Resources and References

- Saferstein, Richard, *Criminalistics: An introduction to forensic science.* Pearson. 2007

Cumulative Progress Indicators

5.1.12.A.1.2.3.4.B.1.2.C.1

CORE CURRICULUM CONTENT STANDARDS:

STANDARD 5.2 (SCIENCE AND SOCIETY)

ALL STUDENTS WILL DEVELOP AN UNDERSTANDING OF HOW PEOPLE OF VARIOUS CULTURES HAVE CONTRIBUTED TO THE ADVANCEMENT OF SCIENCE AND TECHNOLOGY, AND HOW MAJOR DISCOVERIES AND EVENTS HAVE ADVANCED SCIENCE AND TECHNOLOGY.

Suggested activities that address these standards (5.2) may include but are not limited to:

1. Case studies
2. Time line of history of forensic science
3. Guest speaker
4. Field trip to Hamilton NJ (NJ crime lab)
5. Field trip to Washington DC (Museum of Crime and Punishment)
6. View forensic databases
7. Review and discussion of book *Stiff*

Instructional Strategies:

- Power point presentations
- Board Activities
- CSI: DVD
- Case studies
- The book *Stiff*

Evaluation/Assessment of Students:

- All labs will be graded for accuracy
- Quizzes

- Tests
- Case Studies

Evaluation/Assessment of Curriculum: Resources and References

- Saferstein, Richard, Criminalistics: An introduction to forensic science. Pearson. 2007

Cumulative Progress Indicators

5.2.12. B.1.2.3

CORE CURRICULUM CONTENT STANDARDS:

STANDARD 5.3 (MATHEMATICAL APPLICATIONS) ALL STUDENTS WILL INTEGRATE MATHEMATICS AS A TOOL FOR PROBLEM – SOLVING IN SCIENCE, AND AS A MEANS OF EXPRESSING AND/OR MODELING SCIENTIFIC THEORIES.

Suggested activities that address these standards (5.3) may include but are not limited to:

1. Crime scene sketch
2. Guest speaker
3. Field trip to Hamilton NJ (NJ crime lab)
4. Field trip to Washington DC (Museum of Crime and Punishment)
5. DNA fingerprint graphing band distance to determine molecular mass of sequence

Instructional Strategies:

- Power point presentations
- Board Activities
- CSI: DVD
- Case studies
- Graphing activities

Evaluation/Assessment of Students:

- All labs will be graded for accuracy
- Quizzes
- Tests

- Case Studies

Evaluation/Assessment of Curriculum: Resources and References

- Saferstein, Richard, Criminalistics: An introduction to forensic science. Pearson. 2007

Cumulative Progress Indicators

5.3.12. A.1.D.1

CORE CURRICULUM CONTENT STANDARDS:

Standard 5.4 Nature And Process Of Technology

All students will understand the interrelationships between science and technology and develop a conceptual understanding of the nature and process of technology.

Suggested activities that address these standards (5.4) may include but are not limited to:

1. Tools of the scientist
 - a. Overview of equipment, the evolution of its discovery and the impact of its discover

Instructional Strategies:

- Power point presentations:
- Board Activities
- CSI: DVD
- Case studies
- Time line
- Tool scavenger hunt

Evaluation/Assessment of Students:

- All labs will be graded for accuracy

- Quizzes
- Tests
- Case Studies

Evaluation/Assessment of Curriculum: Resources and References

- Saferstein, Richard, *Criminalistics: An introduction to forensic science*. Pearson. 2007
- NCIS: episode

Cumulative Progress Indicators

5.4.12.A.1.B.1.C.1

CORE CURRICULUM CONTENT STANDARDS:

Standard 5.5 Characteristics of Life

All students will gain an understanding of the structure, characteristics, and basic needs of organisms and will investigate the diversity of life.

Suggested activities that address these standards (5.5) may include but are not limited to:

1. Characteristics of life lab
2. Overview of the cell and its various functions
3. Overview of the Integumentary system and how fingerprints are made and determined
4. Overview of the Integumentary system and compare various hair samples
5. Jumping genes activity
6. DNA extraction (mitochondrial DNA) and analysis
7. Overview of blood
 - a. Blood simulation lab
8. Overview of the human skeleton
 - a. Bone measuring
 - b. Sex determination
 - c. Race determination

Instructional Strategies:

- Power point presentations
- Board Activities
- Mutter museum (College of Physiand)
- CSI: DVD
- Case studies

Evaluation/Assessment of Students:

- All labs will be graded for accuracy
- Quizzes
- Tests
- Case Studies

Evaluation/Assessment of Curriculum: Resources and References

- Saferstein, Richard, Criminalistics: An introduction to forensic science. Pearson. 2007
- CSI: DVD

Cumulative Progress Indicators

5.5.12.A.1.4.C.1.2.3

CORE CURRICULUM CONTENT STANDARDS:**STANDARD 8.1 (COMPUTER AND INFORMATION LITERACY)**

ALL STUDENTS WILL USE COMPUTER APPLICATIONS TO GATHER AND ORGANIZE INFORMATION AND TO SOLVE PROBLEMS.

Suggested activities that address these standards (8.1) may include but are not limited to:

1. Accessing databases in order retrieve required information to solve crimes
2. Create a presentation of a selected forensic science topic

Instructional Strategies:

- Power point presentations
- Board Activities
- Fingerprint data base (AFIS)
- CSI: DVD

Evaluation/Assessment of Students:

- All labs will be graded for accuracy
- Presentation

Evaluation/Assessment of Curriculum: Resources and References

- Saferstein, Richard, Criminalistics: An introduction to forensic science. Pearson. 2007
- AFIS

Cumulative Progress Indicators

8.1.12.A.1.5.9.B.1-12 *5

CORE CURRICULUM CONTENT STANDARDS: STANDARD 8.2 (Technology Education)

All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world as they relate to the individual, society, and the environment

Suggested activities that address these standards (8.1) may include but are not limited to:

1. Accessing databases in order retrieve required information to solve crimes
2. Research how technology plays a role in Forensic Science
3. Research the change in technology in Forensic Science and the impact that has made on crime and the criminal
4. Discuss and debate how technology plays a role in Forensic Science

Instructional Strategies:

- Power point presentations
- Board Activities
- Fingerprint data base (AFIS)

- CSI: DVD
- Research paper
- Debate

Evaluation/Assessment of Students:

- All labs will be graded for accuracy
- Research paper
- Debate

Evaluation/Assessment of Curriculum: Resources and References

- Saferstein, Richard, Criminalistics: An introduction to forensic science. Pearson. 2007
- AFIS

Cumulative Progress Indicators

8.2.12.A.1.2.3.