Course *Principles of LPSCS* ***Unit IX*** *High School and Beyond* ***Essential Question*** *What use does math and science have in LPSCS?* ***TEKS*** *§130.292(c)(1)(A)(B)(C)* ***Prior Student Learning*** *None* ***Estimated Time*** *3 to 4 hours*	**Rationale** Math and Science skills are used frequently in Law, Public Safety, Corrections, and Security (LPSCS) careers. It is important for students to make this connection early while they are learning math and science subjects. **Objectives** The student will be able to: 1. Identify the types of math and science skills used in the LPSCS field. 2. Demonstrate how math and science skills are used in specific situations and jobs. 3. Create a resume for a LPSCS job posting relating to math and science. 4. Evaluate another student's resume. **Engage** Use the following scenario and questions for a class discussion. Use the possible answers to guide the students and the Discussion Rubric for assessment. *Scenario:* Imagine yourself as a criminal investigator. You are working a case in which a patrol officer discovered a car that ran into a creek. There are skid marks on the road leading to the location where the car ran off of the road and into the creek. There is a decomposing, dead body in the driver's seat. *Questions:* What needs to be determined by you and what type of math and science skills do you think you will be using? *Possible answers:* Math to measure the skid marks in order to determine how fast the vehicle was traveling when it ran off the road, science to determine how long ago this accident occurred based on the stage of decomposition of the dead body, and science to determine if there are any alcohol or drugs in the driver's blood.

Key Points
I. Definitions
    A. Math – the science of numbers and their operations, interrelations, combinations, generalizations, and abstractions; and of space configurations and their structure, measurement, transformations, and generalizations
    B. Science – knowledge or system of knowledge covering general truths or the operation of general laws especially as obtained and tested through scientific method
    C. College – institution that many agencies in the criminal justice system require a person to go to that requires a person to graduate from high school and take tests that cover math and science skills

II. Math and Science in Law Enforcement Services
    A. General ideas

1. Math and science can be an integral part of the criminal justice system
2. Suspects can be identified and guilt can be assigned based on how criminal justice professionals implement math and science
3. Math and science are most often implemented in the process of investigating a crime, whether it is a crime that occurs in public or in a prison cell
4. All findings have to hold up in court. This may require math and science experts to testify

B. Traffic Accident Investigations
1. Officers can determine how fast vehicles were travelling at the moment of impact by measuring the skid marks. They use the formula S=15.9√df
    a) S = speed
    b) D = the distance of the skid marks
    c) F = the coefficient of friction

2. The coefficient of friction is $f = \dfrac{F}{W}$
    a) The amount of force acting upon the tires
    b) The influence of the weight of the vehicle
    c) The type of surface
    d) The weather conditions
3. Officers have to use more algebraic formulas to determine the coefficient of friction, such as
    a) The Law of Conservation of Momentum
        (1) Says that energy is neither created nor destroyed
        (2) If specialists know the weights and angles of the incoming vehicles they can determine the speeds at which the vehicles were moving
4. Investigators can also use formulas to determine the driver of a vehicle that has rolled over and thrown the occupants out. This is done by
    a) Looking at where the victims landed
    b) Measuring and then deducing the angles

C. Math and Blurred Images
(http://plus.maths.org/content/os/issue37/features/budd/index)
1. Math can be used to unscramble digitally blurred images such as a bad photo of a suspect's license plate or a blurred fingerprint
2. This formula is based on the various pixels in an image
$$h(x) = \int f(x - y)g(y)d^2y.$$
    a) x describes the various pixels in the image
    b) Each pixel has its own number (*pixel value)* which gives information on its color and brightness
    c) The function $f(x)$ gives the pixel value of each pixel x before blurring
    d) $h(x)$ is the pixel value after blurring
    e) Running the formula above backwards will give us the unblurred

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image given by $f(x)$ from the blurred image $h(x)$
      f) This formula only works if the blurring function g is known

D. Measurement and Police Work
1. Officers routinely have to measure confiscated drugs to determine the quantity of the drug and the level of punishment
2. This may include converting units of measurements since the unit of measurement on a scale may be different than the unit of measurement described in the law
3. At a crime scene with a dead body, officers will take two measurements from two different corners of the room to show exactly where the body was located on a diagram
4. Officers measure the distance cars are from nearby intersections in accident investigations
5. Blood splatter at a crime scene may be measured to determine the location of a violent confrontation
6. Different types of bullets found at a crime scene may be matched to different guns depending on their weight and unique markings (this is known as ballistics)

E. Measurement and Traffic Enforcement
1. Tractor trailers and commercial vehicles are routinely weighed at various checkpoints and weigh stations to determine their legality
2. Headlights and tail lights have to be within a certain height range from the ground. Officers may be required to measure them if/when they are suspected of being in violation

F. Math and Science in Traffic Enforcement
1. A radar that police use to detect the speed of vehicles uses frequencies and concepts such as the Doppler Effect
      a) A Doppler shift is a scientific principle that an audio, radio, or light wave will increase or decrease in frequency upon movement of the source
      b) In the case of police radar, the transmitted signal's frequency will increase if the target is moving toward the radar transmitter and decrease if it is moving away from it

G. Math and Speeding Tickets
1. In most jurisdictions, the amount a person has to pay for a speeding ticket is based on how fast he or she was going
2. A court official (or sometimes the officer) must be able to calculate the amount of a violator's fine based on his or her speed
3. Court costs and other fees may need to be considered in the final sum

H. Statistics and Probability in Police Work
1. Police use statistics and probability to analyze crime rates and the effectiveness of crime fighting programs
2. Programs are kept or cut based upon positive or negative statistical results
3. A patrol officer will determine at the beginning of his or her shift where to patrol using crime reports from the previous shift

4. The officer is predicting where crime is likely to occur based on the numbers
5. Probability is also useful in criminal profiling
    a) Investigators attempt to construct a profile of the type of person likely to have committed certain crimes or a particular class of crime
    b) Math helps investigators determine the characteristics of likely suspects and perpetrators

I. Patterns and Comparisons in Police Work
1. Officers can use fingerprints left at a crime scene to solve crimes
    a) This is done by lifting the fingerprint and comparing it with other fingerprints that are already on file
    b) Officers are looking for similar patterns, ridges, loops, and distinguishing marks to make a positive identification
2. Shoeprints and tire tracks are handled in the same manner
3. These positive identifications are unique; uniqueness is recognized as a single solution in math
4. Glass can be compared by considering its type and how exposure to the elements may affect it

J. Math and Science in Driving While Intoxicated (DWI) Cases
1. The legal drinking limit for an adult is a Blood Alcohol Content (BAC) of .08%
2. The measurement of .08 means .08 grams of alcohol per 100 milliliters (ml) of blood
3. The mouth absorbs alcohol, so the alcohol on the driver's breath is related to the amount of alcohol in his or her blood
4. The ratio of breath alcohol to blood alcohol is 2100 to 1
5. This means that the alcohol content of 2100 ml of exhaled air is the same as the amount of alcohol in 1 ml of blood
6. Alcohol is then expressed as a percentage amount in the blood, where the legal limit is .08%
7. A breathalyzer is used to determine the BAC of a driver suspected of DWI

K. Math and Poison
1. Math formulas can be used to determine the location that someone has poisoned a drinking supply
2. Investigators must determine
    a) The amount of time that the poison has been in the water
    b) The pipe structure including the volume that the pipes hold
3. The formulas will take into consideration pipe decay and chemical reactions
4. Investigators can then pinpoint the exact location of contamination or, if the water supply is large, give a range of possible locations
5. After the location is known, investigators can view video that is taken of the areas or interview possible witnesses to discover the identity of and try to apprehend the suspect

L. Forensic Science – has become a major field in criminal justice; it uses many forms of science and math; the following are just a few examples:
1. Deoxyribonucleic acid (DNA)
   a) DNA is an important factor in solving many cases
   b) Every person (except identical twins) has his or her own DNA that can be matched with evidence that is left at a crime scene
   c) DNA is found in hair and many bodily fluids that may be found at crime scenes
   d) Biology is the main science used to decipher DNA evidence
2. Drugs and Toxicology
   a) Investigators and scientists may have to determine what legal or illegal drugs were in a person's body at the time of death
   b) This is determined by running tests on the body and the blood
3. Forensic Anthropology
   a) The study of physical anthropology as it applies to human skeletal remains in a legal setting
   b) It is used to determine the identity of unidentified bones
4. Forensic Entomology
   a) The study of insects as they pertain to legal issues
   b) It is often used to determine the time of death
      (1) This is done by observing the types of insects that are on the body while it decomposes
      (2) Different types of insects are attracted to different stages of the decomposition process
      (3) A scientist must be able to properly identify the insects found on a body in order to determine the stage of decomposition and to deduce the time of death
5. Soil
   a) Different locations and environments have different types of soil
   b) A body found with a different type of soil on it than is native to that location can help an investigator determine where the murder location
   c) This skill requires knowledge of geology

III. Math and Science in Security and Protective Services
   A. Internet Security
      1. The Internet draws heavily on a wide variety of mathematical tools ranging from data and error compression techniques and methods for routing messages to security issues
      2. Examples
         a) Safety of Internet financial transactions
         b) Protecting emails from third party monitoring
         c) Protection from malware such as worms and viruses
   B. Decrypting messages over the Internet (such as emails or financial interactions) relies heavily on
      1. Prime numbers that are used to keep personal information secure when

buying something over the Internet with a credit card. They are like the building blocks of deciphering plain text

2. Factoring that is used to break down large numbers into the prime numbers that are used to translate the encryption. The larger the number, the more effort it requires to factor it. Without using the computer speed to do the factoring, breaking the codes could take millions of years

3. Algorithms and theorems
   a) The RSA algorithm is a formula used to assign meaning to the prime numbers which become the key to deciphering the original message. It is a public key that anyone has access to
   b) However, which prime numbers are being used must be known to use the key
   c) The RSA algorithm was developed in 1978 and uses Fermat's Little Theorem, developed by Pierre de Fermat in the 17th century, which is the foundation of modern number theory
   d) Fermat's Little Theorem is $x_n + y_n = z_n$
   e) Other theorems, like Euler's Theorem and Chinese Remainder Theorem, can also be used in place of Fermat's Little Theorem
   f) The theorems consist of mathematical proofs
   g) Proofs are proven to be true and can be used to prove other things and concepts
   h) So once the factoring of the prime numbers has been accomplished, the numbers can be plugged in the theorem to generate the key which will be an accurate way to decrypt the message

IV. Math and Science in Legal Services
   A. Math and Science are used in trials when
      1. Expert witnesses are called to testify
      2. The attorneys and witnesses have to explain math and science concepts to the jury or judge so they can make an informed judgment
   B. Many of the concepts in this lesson are things that would be explained in court by the witnesses

V. Math and Science in Correction Services
   A. Many of the concepts discussed already may also be applied to math and science in the corrections. They come into play when crimes are investigated in the correctional facilities like they are in the public
   B. In addition to this, math and science are used when doing inmate counts or when probation officers are examining drug tests their subjects have had

VI. Math and Science in Emergency and Fire Management Services
   A. Science in Firefighting
      1. Firefighters must understand the chemistry of a fire in order to stop it
         a) It takes three elements for a fire to work

          (1) Oxygen
          (2) Heat
          (3) Fuel
     b) At least one of these elements must be taken away to stop the fire.
     c) Firefighters must understand the nature of the fire they are fighting to know which one of the elements they can safely take away. This can occur through extinguishing agents or methods such as
          (1) Water – acts like a sponge by absorbing heat from the fire
          (2) Firefighting Foam
               (a) The foam contains carbon dioxide which pushes the oxygen away from the fire
               (b) Example: a gasoline fire cannot be extinguished with water because it does not mix with oil-based fuels. Water would spread the gasoline, thus spreading the fire. In this situation, the oxygen needs to be removed from the fire by spraying it with firefighting foam
          (1) Starving a Fire – cutting off the fuel source, such as propane
          (2) Breaking up the Fuel – breaking up the fuel into smaller, more manageable chunks, like a group of tires
          (3) Counterburning – a controlled burning technique used to destroy dry shrubs or vegetation before the fire reaches them

B. Math in Firefighting
   1. When fighting a tall structure fire, the correct ladder angle is essential to reach the fire with the spray safely. This is done by using right triangles and trigonometric functions
     a) The firefighters determine
          (1) How high the ladder needs to be to disperse water effectively on the structure
          (2) What angle to extend the ladder using the sine, cosine, and tangent functions
   2. When fighting a fast spreading fires such as a grass fire
     a) Example: grass fires can spread up to 30 or 40 miles per hour. Firefighters use this information to calculate the amount of distance in front of the fire they need to implement techniques such as counterburning

VII. Math and Science in Postsecondary Education
  A. Most criminal justice agencies' job requirements include a minimum of some college experience
  B. To get into college, students must
   1. Achieve or surpass a minimum score on their SAT and/or ACT tests, which includes the math and science components
   2. Graduate high school (or the equivalent), which requires the completion of math and science courses
  C. Almost all college degrees require that a student take a certain number of math and science courses in order to graduate, regardless of the degree

program
  D. In addition, most law enforcement agencies require applicants to take a test that covers general knowledge including English, Math, and Science

Activities
1. Completion of the Math and Science in LPSCS Quiz. The quiz may be open-note and used as a study guide for the Math and Science in LPSCS Exam. Use the Math and Science in LPSCS Quiz Key for assessment.

2. Have students select an LPSCS career. Have students research and present how math and/or science is used in the career and the hiring requirements for the occupation. Use the Presentation Rubric for assessment.

3. Have students research college entrance requirements and give a brief summary of the types of math and science that the SAT and ACT exams assess. Use the Summary Rubric for assessment.

4. Have students create a job opening for an LPSCS career that relies heavily on math or science. Then have them create mock résumés to apply for another student's job posting. The résumés must show how the mock applicant's math or science education, or experience aligns with the job requirements. The students may assess each other using the Résumé Rubric.

Assessments
Math and Science in LPSCS Exam and Key
Math and Science in LPSCS Quiz and Key
Discussion Rubric
Presentation Rubric
Résumé Rubric
Summary Rubric

Materials
Math and Science in LPSCS computer-based presentation
Computers with Internet access

Resources
0131961411, Forensic Science an Introduction, Richard Saferstein, Prentice Hall, 2008
Webster's Dictionary
http://mathcentral.uregina.ca/beyond/articles/RCMP/traffic.html
http://plus.maths.org/content/os/issue37/features/budd/index
http://www.ams.org/samplings/feature-column/fcarc-internet
http://en.wikipedia.org/wiki/Radar_gun
http://members.cox.net/reconokc/radar.html#Doppler
http://www.claymath.org/posters/primes/
http://www-gap.dcs.st-and.ac.uk/~history/HistTopics/Fermat's_last_theorem.html

Do an Internet search for the following:
- How are Math & Criminal Justice related by Shane Hall
- RSA Security
- How does a laser speed gun work to measure a car's speed
- Forensic Anthropology Definition by K Kris Hirst
- Discovery education
- How Breathalyzers work by Craig Freudenrich Ph.D.

Accommodations for Learning Differences
For reinforcement, students will interview their math and science teachers to get the teachers' input on how the subjects might be used in the LPSCS field. Have the students summarize the interview in writing. Use the Summary Rubric for assessment.

For enrichment, students will read an article about the breathalyzer test and summarize how science is used to make it work. To find an article do an Internet search for the following: How Breathalyzers work by Craig Freudenrich Ph.D.
Use the Summary Rubric for assessment.

State Education Standards
Texas Essential Knowledge and Skills for Career and Technical Education
§130.292. Principles of Law, Public Safety, Corrections, and Security (One-Half to One Credit).
    (1)   The student achieves academic knowledge and skills required for a career and postsecondary education opportunities associated with law, public safety, corrections, and security. The student is expected to:
        (A)   apply English language arts knowledge and skills required for career and postsecondary education opportunities;
        (B)   apply mathematics knowledge and skills required for career and postsecondary education opportunities; and
        (C)   apply science knowledge and skills for career and postsecondary education associated with law, public safety, corrections, and security.

College and Career Readiness Standards
Mathematics Standards
VIII. Problem Solving and Reasoning
    A. Mathematical problem solving
        1. Analyze given information.
        2. Formulate a plan or strategy.
        3. Determine a solution.
        4. Justify the solution.
    B. Logical reasoning
        2. Use various types of reasoning.

Name_____ Date_____

Math and Science in LPSCS Exam

Matching:

_____1. What is the science of numbers and their operations, interrelations, combinations, generalizations, and abstractions; and of space configurations and their structure, measurement, transformations, and generalizations?

_____2. What is knowledge or a system of knowledge covering general truths or the operation of general laws especially as obtained and tested through scientific method?

_____3. What institution do many agencies in the criminal justice system require a person to go to that requires a person to graduate from high school and take tests that cover math and science skills?

_____4. David is a State Trooper stationed at a weigh station. At this station he also confirms that all of the lights of tractor trailers are at the proper length. What type of math does he use?

  a) College
  b) Math
  c) Measurements
  d) Science

_____5. In what area do prime numbers, factoring, algorithms, and the like play a big role?

_____6. Statistics can be used in what type of situation?

_____7. Geometry can be used in what type of situation?

_____8. Susan is a detective. She is sketching a crime scene involving a dead body. She wants to accurately show on the diagram where the body is located. What type of math will she be using to determine this?

  a) Internet Security
  b) Accident Investigation
  c) Patrol
  d) Measurements

_____9. In criminal profiling, what function of math is applicable?

_____10. What is recognized as a single solution in math?

_____11. Vanessa is a crime scene investigator who lifted fingerprints on a window at a crime scene. She will return to the police station to see if they match any fingerprints the

police department has on file. What type of math will she use to find a positive identification of the fingerprints?

_____12. Trooper Smith is investigating a traffic accident. He measures the skid marks to help determine who is at fault. What type of math will he use to determine this?

    a) Patterns and Comparisons
    b) Uniqueness
    c) Algebra
    d) Probability

_____13. What scientific device is used to determine the blood alcohol content in a person's blood?

_____14. What does the Law of Conservation of Momentum apply to?

_____15. What scientific principle applies to police radar guns?

_____16. Jim is a patrol officer who finds a large amount of marijuana. What type of math will he use to determine the exact punishment of the suspect who possessed this marijuana?

    a) Accident Investigation
    b) Doppler Effect
    c) Breathalyzer
    d) Measurements or Conversions

_____17. Detective Tom finds hair at a crime scene. What type of unique biological thing will Tom analyze to try to determine the identity of the owner of the hair?

_____18. Julie is a detective. She responds to a call involving a dead body. She suspects it is a drug overdose. What kind of science will she need to determine if this is true?

_____19. Scott is a detective who responds to a call where a skeleton has been dug up at a construction site. What kind of science will he use to determine the age and sex of this skeleton?

_____20. Bob is a detective working on a murder case. The murder weapon is dropped off at the police station for him by a person who refuses to be identified. Bob notices that there is a lot of dirt on the weapon. What type of science will Bob need to use to determine where the weapon might have come from?

    a) DNA
    b) Geology
    c) Forensic Anthropology
    d) Toxicology

_____21. Fire Captain Joe is in charge of extinguishing a fire on the highway that involves an overturned tractor trailer carrying oil. Which extinguishing agent should he choose to fight the fire?

_____22. Fire Captain Joe is in charge of fighting a huge, grass fire. What would be his best method of fighting the fire?

_____23. Fire Captain Joe arrives on the scene of a fire that is being fueled by a gas line. What would be the best method of fighting this fire?

_____24. Fire Captain Joan is in charge of fighting a fire that is consuming a house. What is the best thing to use to fight this fire?

_____25. Fire Captain Joan is in charge of fighting a fire at a junk yard that is mostly contained within the limits of the property by a steel fence. What would be the best method for her to command her firefighters to fight this fire?

  a) Starving a Fire
  b) Firefighting Foam
  c) Breaking Up the Fuel
  d) Counterburning
  e) Water

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Math and Science in LPSCS Exam Key

1. B
2. D
3. A
4. C
5. A
6. C
7. B
8. D
9. D
10. B
11. A
12. C
13. C
14. A
15. B
16. D
17. A
18. D
19. C
20. B
21. B
22. D
23. A
24. E
25. C

Name_____ Date_____

Math and Science in LPSCS Quiz

What is the science of numbers and their operations, interrelations, combinations, generalizations, and abstractions; and of space configurations and their structures, measurements, transformations, and generalizations?

1._____

What is knowledge or a system of knowledge covering general truths or the operation of general laws, especially as obtained and tested through scientific method?

2._____

An accident investigation uses what types of math?

3._____

4._____

What is used during accident investigations and says energy is neither created nor destroyed?

5._____

List the different types of law enforcement activities that use measurements.

6._____

7. _____

8._____

What scientific principle applies to police radar guns?

9._____

Before an officer patrols, what might he consider in order to determine how he will patrol for that shift?

10._____

Probability helps in what type of profiling?

11._____

Name at least one kind of thing that can be compared based on their patterns?

12._____

What is recognized as a single solution in math?

13._____

What scientific device is used to determine the blood alcohol content of a person's blood?

14._____

What unique biological thing does every person have that might be in evidence found at crime scenes?

15._____

What kind of science determines the substances in a person's blood at the time of death?

16._____

What is the study of the body that will tell an investigator the age and sex of a skeleton?

17._____

What type of science will help an investigator examine soil found on a piece of evidence to determine where that evidence might have originated?

18._____

In what area do prime numbers, factoring, algorithms, and the like play a big role?

19._____

What acts like a sponge and absorbs heat from the fire?

20. _____

What would be used to extinguish a gasoline fire?

21. _____

What method may be used to cut off the fuel source of a fire?

22. _____

What method may be used to break a fire into more manageable chunks?

23. _____

What method is used to destroy dry shrubs or vegetation before a fire reaches them?

24. _____

What institution do many agencies in the criminal justice system require a person to go to that requires a person to graduate from high school and take tests that cover math and science skills?

25. _____

Math and Science in LPSCS Quiz Key

1. Math
2. Science
3. Geometry
4. Algebra
5. Law of Conservation of Momentum
6. Confiscating drugs
7. Crime scene investigations
8. Tractor trailer checkpoints (*Other possible answers* – accident investigations, ballistics)
9. Doppler Effect
10. Statistics
11. Criminal
12. Fingerprints *or* tire tracks *or* glass
13. Uniqueness
14. Breathalyzer
15. DNA
16. Toxicology
17. Forensic Anthropology
18. Geology
19. Internet Security
20. Water
21. Firefighting Foam
22. Starving a Fire
23. Breaking up the Fuel
24. Counterburning
25. College

Name_____   Date_____

Discussion Rubric

Objectives	4 pts. Excellent	3 pts. Good	2 pts. Needs Some Improvement	1 pt. Needs Much Improvement	N/A	Pts.
Participates in group discussion						
Encourages others to join the conversation						
Keeps the discussion progressing to achieve goals						
Shares thoughts actively while offering helpful recommendations to others						
Gives credit to others for their ideas						
Respects the opinions of others						
Involves others by asking questions or requesting input						
Expresses thoughts and ideas clearly and effectively						
Total Points (32 pts.)						

Comments:

Name:_____   Date:_____

Presentation Rubric

Objectives	4 pts. Excellent	3 pts. Good	2 pts. Needs Some Improvement	1 pt. Needs Much Improvement	N/A	Pts.
Topic/Content • Topic discussed completely and in-depth • Includes properly cited sources (if used)						
Creativity/Neatness • Integrates a variety of multimedia effects to create a professional presentation (transition and graphics) or appropriate visual aid used • Title slide, table of contents, bibliography are included, using acceptable format						
Mechanics • Grammar, spelling, punctuation, and capitalization are correct • Image and font size are legible to the entire audience						
Oral Presentation • Communicates with enthusiasm and eye contact • Voice delivery and projection are dynamic and audible						
Audience Interaction • Presentation holds audience's attention and relates a clear message • Clearly and effectively communicates the content throughout the presentation						
Total Points (20 pts.)						

Comments:

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Name_____   Date_____

Résumé Rubric

Objectives	4 pts. Excellent	3 pts. Good	2 pts. Needs Some Improvement	1 pt. Needs Much Improvement	N/A	Pts.
All, and only important, résumé parts are included.						
The order of résumé parts fits the applicant's assets and position.						
Résumé items highlight strengths of the applicant.						
White space, margins, and tabs are used effectively and attractively.						
Strong action verbs are used.						
Information is provided clearly.						
Total Points (24 pts.)						

Comments:

Name_____ Date_____

Summary Rubric

Objectives	4 pts. Excellent	3 pts. Good	2 pts. Needs Some Improvement	1 pt. Needs Much Improvement	N/A	Pts.
The critical analysis has all required parts from introduction to body to conclusion.						
The critical analysis is concise but complete.						
The critical analysis demonstrates that the writer comprehends the content.						
The critical analysis demonstrates accurate spelling, grammar, and punctuation.						
The overall content of the critical analysis emphasizes appropriate points.						
The writer shows an understanding of sentence structure, paragraphing, and punctuation.						
The source of the critical analysis is clearly and accurately documented.						
The critical analysis demonstrates the correct use of terminology.						
Total Points (32 pts.)						

Comments: