ETONBURY ACADEMY

BTEC National Foundation Diploma:

Forensic Investigation

Summer Bridging Work

BTEC Level 3 National Foundation Diploma in Forensic Investigation

The field of analytical and forensic science is vast and is not just limited to crime scene investigation. Scientists use the same skills on a daily basis to attempt to solve current issues. The BTEC Forensic Investigation course is designed to give you a detailed understanding of key scientific principles within Biology, Chemistry and Physics while developing the practical skills and knowledge used in the fields of analytical and forensic science.

The course takes you through a series of assignments and challenging investigations which utilise some of the techniques used by crime scene investigators and analytical and forensic scientists in the workplace including collecting evidence from crime scenes and analysis of evidence through chemical and biological testing. It encourages you to think outside the box and problem solve to form unbiased conclusions.

As well as subject-specific abilities, you have the opportunity to develop a wide range of transferable skills that can be applied to many different sectors and roles. This includes numeracy, communication, reporting, data interpretation, analysis and presentation skills.

You will be able to progress into employment or further study in the field of forensic science and associated industries.

Subject content for the course can be found here:

https://qualifications.pearson.com/en/qualifications/btec-nationals/forensics-and-criminal-investigation-2017.html

Course prerequisite

In order to ensure you have the required work ethos necessary to succeed on the Forensic Investigation course, you must complete the tasks below and bring your completed answers to the **first** Forensics lesson in September.

Before starting in September, you should read an article about an area of forensic science or case that has been solved using forensic science that particularly interests you.

Below you will find a vast list of books, magazines, journals, podcasts, tv shows and websites that would be great for expanding your knowledge of Forensic Science.

Books

- Simon Shawcross: Crime Scene Investigation (2020)
- Jay Siegel: Forensic Science A Beginner's Guide (2016)
- Ian K. Pepper: Crime scene investigation: methods and procedures (2010)
- Richard Feynman: The Pleasure of Finding Things Out

Magazine/Journals

- Journal of Forensic Sciences

- Forensic Science international
- Scientific American
- Science & Justice
- New Scientist Magazine

Podcasts/ Tv Shows/Films

- Forensics: The Real CSI - (Non-Fiction BBC TV series)
- Inside Forensic Science Podcast
- Silent Witness (Fictional TV Series)
- CSI: Crime scene investigation (Fictional TV Series)
- Dexter (Fictional TV Series)
- Bones (Fictional TV Series)
- Body of Proof (Fictional TV Series)
- Sherlock Holmes (Films)
- Enola Holmes (Films)

Places of Interest

- Sherlock Holmes Museum, London
- BODY WORLDS, London
- Gordon Museum of Pathology, London
- Natural History Museum, London
- National Justice Museum London

Websites

- https://library.lsbu.ac.uk/forensicscience/websites#:~:text=Crime%20and%20Clues%3A%20The%20Art%20and%20Science%20of%20Criminal%20Investigation Crime and Clues: The Art and Science of Criminal Investigation
- https://www.fbi.gov/file-repository/handbook-of-forensic-services-pdf.pdf/view - FBI Handbook of Forensic Services
- https://www.le.ac.uk/pa/teach/va/titlpag1.html - The Virtual Autopsy
- www.rsc.org.uk - Royal Society of Chemistry
- https://www.sciencefocus.com/ - BBC Science focus

Task 1 – All About the course

Answer the following questions

Go to the exam board website and find out about the course you will be studying (I recommend looking at the specification- link provided on page 2)

1. Looking at the content overview of each module listed below, which topics are you most excited to learn about?

Unit 1: Principles and Applications of Science I
Unit 2: Practical Scientific Procedures and Techniques
Unit 3: Science Investigation Skills
Unit 4: Forensic Investigation Procedures in Practice
Unit 8: Physiology of Human Body Systems
Unit 9: Environmental Forensics (Entomology)

2. Which topics are you most nervous about?

3. How many exams will you sit over the 2 years? What percentage is each worth?

4. How is your practical work assessed throughout the course?

Task 1 – What is forensics

Answer the following questions

1. What does the term ‘forensic science’ mean?
2. Give 5 careers related to forensics.
3. Why is it important that a forensics team are independent of the police?
4. Suggest why forensics is so important in solving crimes.
5. Describe why you want to study forensics.

Task 2 – Subject knowledge

Answer the following questions

Biology

1. Label the diagram of the cell and describe the organelles functions that you have labelled.
2. Explain 2 specialised cells and how they are adapted to their function.
3. Describe the path blood takes around the body. You should include: heart, lungs, vein, artery, capillary
4. How does the reflex arc work?

Chemistry

1. Describe how chromatography works.
2. Explain the reactivity of group 1 metals.
3. Why is nitrogen a gas at room temperature?
4. Draw the ions in sodium chloride.

Physics

1. Describe the parts of the electromagnetic spectrum.
2. Describe an experiment that could work out the density of an irregular object.
3. Explain how refraction works.
4. How can you calculate the velocity of an object?

Task 3 – Applications of forensics

Research a branch of forensics (From the list below) and make a short information pack about its key points. This should be no longer than 1 x A4

You should include:

1. What the branch is
2. Brief explanation of the science
3. Possible techniques and machines they use
4. Why it is useful / what situations it might be utilised

Branches of forensics *(this list is not exhaustive)*

Anthropology	Digital forensics
Ballistics	DNA analysis
Chemical analysis	Fires and explosives
Collision analysis	Forensic archaeology
Dental forensics	Forensic photography
Forensic Entomology	Medicinal chemistry
Forensic Toxicology	

Task 4 – Research task

Research a crime that was committed in which forensic science was instrumental in convicting the suspect. This should be no more than 1 x A4. Remember, keep it sensible, short, factual and not too gory!

You should include:

1. What was the crime?
2. When did it happen?
3. Who was involved?
4. What evidence was there in the case?
5. How would this evidence have been collected and processed?
6. How did forensic science help solve the crime?

This case should be UK based.

Task 5 – Self assessment

1. In the table below, mark how you would assess **your** confidence in areas A–L using the rating scale of 1 = low and 10 = high.

Learning Factor	1	2	3	4	5	6	7	8	9	10
A. Purpose										
B. Motivation										
C. Relationships										
D. Planning										
E. Practical skills										
F. Memory										
G. Resources										
H. Creativity										
I. Reading										
J. Listening										
K. Note-making										
L. Assessment										

2. Write down the areas where you both feel strongest and the areas where you consider yourself weakest. Think of one way to raise your competence on the weakest factor