# Forensic Investigations

Exam Board: Pearson

Qualification: BTEC Level 3 National Foundation Diploma

Longdean School
'Rejoice in thy youth'

In September, you will be starting the Forensic Science. Please see below the task you need to complete for this subject.

Read through the information forensic awareness. Write a 350 word report on:

***The importance of forensics and how it can be used to support criminal investigations***

You should carry out additional reading to support your understanding and if you use these in your report they should be referenced using the Harvard referencing system.

**MURDER INVESTIGATION - MANUAL**

**CHAPTER 3 - FORENSIC AWARENESS**

Forensic science invariably plays a pivotal role in the investigation of murder. It follows that investigators should be aware of the advantages forensic science can bring to each investigation. Investigators need to adopt a holistic approach to managing forensic material recovered from crime scenes. As professional investigators, SIOs (Senior Investigating Officers) must be able to optimise the benefits of forensic science. This can only be achieved if the SIO not only understands the significance of material that may be found at crime scenes but is also able to access its potential and interpret the findings. The SIO can only hope to maximise forensic potential if they harness their own knowledge of the subject with other experts; eg. SOCOs, (Scene of Crime Officers) Scientific Support Managers and Forensic Scientist.

An SIO has overall responsibility for crime scenes and should, to be capable of directing scene activities, interpreting the forensic potential of the scene, assessing the worth of material recovered and ultimately using the results derived from the scientific results of the material to the best advantage of the investigation. To achieve these aims, the SIO must not only have a thorough working knowledge of what the advantages of forensic science are, but, equally, what are its limitations. For example, in the case of fibres, not only should the SIO be aware of the importance of recovering fibres from a crime scene, and those sites where they are most likely to be recovered from, but that fibres are rapidly lost from the surface of a suspect's clothing when handled or worn, so that the prospect of recovering such evidence diminishes further as each day goes by. An awareness of forensic science can be built around the following key questions:

1) What is forensic science?

2) How can forensic science be used?

3) How can forensic science be best exploited?

4) How can we recover evidence?

5) What types of physical evidence are there?

6) What is the value of a forensic overview?

7) How should forensic science be used?

8) What specialist services can the FSS provide?

This chapter seeks to provide answers to the above questions and in doing so hopefully starts to establish a foundation upon which SIOs (Senior Investigatind Officer) can build the knowledge and expertise that will enable them to confidently manage a Forensic Strategy. It is worth reinforcing that the quality of any Forensic Strategy will be greatly enhanced if relevant experts are used to work with the SIO to manage the strategy.

3.1.1 1) What is Forensic Science?

Forensic science can be defined as the interpretation of scientific results in the context of the individual circumstances of a particular investigation. It is not purely the results scientific test. Forensic science allies scientific methodology to the principle that every contact leaves a trace and every interpretation provides information. An SIO should therefore ensure that the scientist assessing the material recovered from crime scenes is provided with sufficient knowledge of each case. This should include access to the scene when appropriate, together with other material likely to assist the scientists; for example, scene photographs and copies of relevant statements.

Forensic science can also be taken to mean all of those activities in the forensic process, that is to say, from recovery of material from scenes to the presentation of findings at court, which involve the scientific examination of items or material in connection with an investigation.

An SIO should be aware that forensic science is absolutely 'context sensitive'. This means the forensic potential of any case will only be maximised if the scientist is able to assess the significance of any observations and interpretations made in the full context of the circumstances of the investigation. Investigators must work, therefore, in harmony with scientists and not in isolation of each other. Further, to achieve the maximum use of items, the SIO must ensure the whole needs of the investigation are conveyed regularly and with

clarity to the scientist so that any forensic information can be supplied as widely and as rapidly as possible.

A broad appreciation of the potential value and limitations of various types of forensic material is important to an investigator particularly when prioritising action at crime scenes and setting criteria for forensic submissions. Never forget, however, that each murder investigation is unique in its own right and as forensic science is 'context sensitive', the result of any scientific test or observation must be regularly reviewed in the light of the emerging facts of the investigation and may become critical at a later stage of the enquiry.

3.1.2 2) How Can Forensic Science be Used?

Forensic science and other physical items can be used to provide an SIO with:

• information to assist the investigation

• information which can be used as intelligence

• information capable of being adduced as evidence.

Information provided by the Forensic Science Service (FSS) is commonly used to confirm that a crime has been committed and what has happened at the scene. Through visits to the scene by an FSS scientist and subsequent laboratory examinations, it is possible to determine the probable sequence of events at the scene. For example, examination of blood distribution can not only advise the SIO as to probable events at the scene, but also the likelihood of the offenders clothes being blood stained and where the blood may be found. Such information can also be used to provide critical fact and interview leverage, direct resources, corroborate or negate information from witness statements or other sources.

As important as implication are, forensic science is actually more often used to eliminate the innocent from an enquiry. In DNA screens, forensic science will eliminate those suspects whose DNA profile does not match that of material recovered from the crime scene. The subject of elimination will be discussed in greater detail later.

The results of forensic examination may also provide answers to a specific question which, although important, do not necessarily progress the enquiry against suspects. For example, a blood alcohol determination may confirm a deceased victim had consumed alcohol but, if these same findings are considered in the context of the investigation, it may also be possible for the scientist to determine with some degree of accuracy the time the victim

died. The same information may also be used in the investigation to disprove an alleged sighting of the victim based upon proving they were already dead at this time. These types of examples further emphasise the necessity for the full needs of the investigation to be communicated to the scientist as well as communication of the full circumstances of each case.

Forensic Intelligence can be used to prioritise lines of enquiry or indicate whether the offence is linked to others. For example, DNA profiles obtained from material left at a crime scene should be placed on the National DNA Database and will then indicate a series of offences or a serial offender. Similar linking information can be identified by the comparison of unique footwear marks left at different scenes, although investigators should be aware that, if footwear is regularly worn, the likely benefit of a footmark dependent upon wear may be limited to as little as four weeks. Fingermarks left at scenes have the same potential to link crime scenes and identify serial offenders.

Accepting the fact that forensic material can be used to either eliminate or implicate forensic evidence can be classified as:

Inceptive that which identifies an unknown.

Corroborative that which confirms or denies an existing hypothesis.

Mandatory that which is statutory requirement.

In the ideal world a suspect would always leave evidence which is unique to that individual. The reality is that forensic science often only provides moderately strong corroborative evidence, is rarely inceptive and is almost never conclusive on its own. It can, however, almost always provide evidence of exclusion.

3.1.3 3) How Can Forensic Science be Best Exploited?

It is imperative that an SIt maximises the benefits that forensic science can bring to an investigation. This is achieved using a team approach to identify and investigate problems and, by utilising the expertise and experience of team members, to provide innovative solutions. An SIt ought to consider constructing a Forensic Management Team (FMT) to assist and advise concerning forensic science issues and to consist of:

• Slt

• Deputy SIt

• Scientific Support Manager (SSM) • Crime Scene Co-ordinator

• Crime Scene Manager • Exhibits Officer.

Additionally an SIt ought to consider involving:

• FSS Specialist Advisor

• Home Office Pathologist

• Other experts as required by the needs of the enquiry.

It may be beneficial if the roles of some of the key personnel on the FMT are outlined. The role of the SSM is fully detailed in an FSS publication Using Forensic Science Effectively and it is not replicated it in this publication. In essence, however, their responsibilities fall into 4 main groups:

, Management of scientific support resources.

• Provision of scene management, co-ordination and operational advice.

• Strategic and tactical management of scientific support services to meet investigative needs.

• Consultant/advisor on forensic science matters to the Force.

The Crime Scene Manager should normally be a senior SOCO responsible for advising the team about the requirement of specialist services in addition to playing an active role in managing all aspects of the scene examination. The Crime Scene Manager should ensure the strategy agreed with the SIt is delivered.

Frequently the Crime Scene Co-ordinator will be a police officer, but there is no reason why it cannot be an experienced civilian colleague. Dependent upon the scale of the case under investigation there may be some cases when the Crime Scene Manager can also carry out this role. Whoever performs the role should be responsible for ensuring that all staff attending a crime scene are briefed and debriefed. Furthermore the Co-ordinator will chair meetings whereby forensic exhibits and issues are discussed. The meetings (which should be attended by either the scientist attending the scene or the specialist advisor) will ensure that the overall Forensic Strategy is being implemented and that any deviations that affect the strategy are communicated to the SIO. It is also important for any forensic information

to be communicated to officers interviewing suspects as such information may have a bearing upon the overall Interview Strategy.

A SIO may consider using the services of a Specialist Advisor (SA) who has a broad knowledge of forensic science. In the case of the Forensic Science Service the SA s are situated within the Major Crime Service. This has been put in place to provide a specific service to SIO's in the investigation of serious crime. The role is different to that of the 'Byford' scientist who may be employed in a series of cross border crimes. The SA will also attend the scene if requested not only as an expert in their own field, but also to provide advice and co-ordinate the FSS response. Like all members of the FMT, the SA must have a clear understanding of the investigative needs of the enquiry. Their role is primarily one of communication and problem solving and they represent the SIO within the FSS.

Early forensic advice is essential because major contributions from forensic science are most likely when all the available options can be properly assessed. The SSM has responsibility for the provision of appropriate arrangements for handling and processing the scene, but early advice from a generalist forensic scientist is often desirable.NCF Liaison Officers act as facilitators and maintain close contact with all SAs, the NCF Consultant Scientist and Offender Profiler. This will ensure a rapid response for early forensic issues whether for a second opinion, advice on procedures, or to simply evaluate what assistance they may be able to suggest. Where necessary the NCF will research unusual requests for expert support with the aim of identifying creditable sources of expertise.

Early scene attendance by a forensic scientist is often vital in clarifying the sequence of events and maximising the recovery of physical trace evidence. It may also be cost effective in facilitating the selection of appropriate items for analysis and will often allow firmer interpretation of subsequent results as well as the anticipation of possible lines of defence. It is not good practice to call the scientist three or four days after discovery of the scene.