Life & Crime

Goals
This unit should enable students to:

• know the common characteristics shared by living organisms;
• understand basic biochemical processes in living things;
• understand cell structure and the relationship between structure and function;
• compare and contrast plant cells and functions with those of animals.
• demonstrate an understanding of how scientific techniques and approaches can be used in Forensic Science;
• evaluate and analyse results according to the Scientific Method;
• outline precautions that may be necessary to ensure accuracy and prevent contamination of samples for analysis;
• identify forensic processes and explain the techniques used by scientists to carry out these processes;
• analyse a crime scene and solve a simulated crime.

Content

• Living Things
  • Properties of Living Things – respiration, excretion, reproduction etc
  • Requirements for life
  • Biochemistry -carbohydrates, lipids, proteins, enzymes, nucleic acids

• Cells
  • Cell structure and function
  • Cell division - asexual reproduction, mitosis
  • Use of light microscope
  • Slide preparation
  • Cell Theory and its history
  • Cell organelles – prokaryotic and eukaryotic

• Plants and Animals
  • Examining plant and animal cells
  • Animal systems, parts and functions – representative examples
  • Plant systems, parts and functions - representative examples

• The work of a forensic scientist
  • Forensic processes used in crime detection
  • Observation and the role of eye witness identification

• Forensic Processes
  • Ballistics
  • DNA profiling
  • Examination of hairs, fibres & paint chips
  • Casts of foot prints, scratches and dents
  • Forgery - Chromatography
  • Blood
    • structure
    • blood groups
    • splash patterns
  • Fingerprints
    • types
    • DNA fingerprinting
  • Entomology
    • insect life cycles
    • characteristics
    • relevance to investigation
  • Soil
    • composition
    • sampling