



APPLIED SCIENCE

LEVEL 3 BTEC



YEAR 12



PRACTICAL SCIENTIFIC PROCEDURES AND TECHNIQUES (COURSEWORK)

1. IDENTIFYING UNKNOWN CONCENTRATIONS (2A)

- Calibration
- Standard solution
- Titrations
- Beer-Lambert's Law
- Colorimetry

2. HEATING AND COOLING (2B)

- Melting points
- Cooling curves
- Rate of cooling
- Measuring temperature changes

3. CHROMATOGRAPHY (2C)

- Plant pigments
- Amino acid chromatograms
- Paper chromatography
- Thin layer chromatography
- Identifying unknown substances

4. PERSONAL DEVELOPMENT (2D)

- Personal reflection
- Skills audit
- Application of scientific skills



PRINCIPLES AND APPLICATIONS OF SCIENCE (EXAMINED CONTENT)

1. BIOLOGY 1: CELLS

- Cell ultrastructure
- Microscopy
- Specialised cells
- Prokaryotic cells
- Bacterial staining

2. BIOLOGY 2: TISSUES

- Epithelial tissue
- Muscle tissue
- Nervous tissue

3. CHEMISTRY 1: STRUCTURE AND BONDING

- Electron configuration
- Ionic bonding
- Covalent bonding
- Metallic bonding
- Intermolecular forces

4. CHEMISTRY 2: PRODUCTION AND USES OF CHEMICAL SUBSTANCES

- Quantitative chemistry
- Physical properties
- Chemical properties

5. PHYSICS 1: WORKING WITH WAVES

- Transverse and longitudinal waves
- Diffraction gratings
- Stationary waves
- Resonance

6. PHYSICS 2: WAVES IN COMMUNICATION

- Principles of fibre optics
- Electromagnetic waves

YEAR 13



PHYSIOLOGY OF HUMAN BODY SYSTEMS (COURSEWORK)

1. THE MUSCULOSKELETAL SYSTEM (8A)

- Muscles
- Bones
- Musculoskeletal conditions and treatments
- Joints

2. THE LYMPHATIC SYSTEM (8B)

- Lymph and tissue fluid
- Lymphatic conditions and treatments

3. THE DIGESTIVE SYSTEM (8C)

- Food tests
- Malnutrition
- Micronutrients
- Digestive conditions and treatments

SCIENCE INVESTIGATION SKILLS (EXAMINED CONTENT)

1. BIOLOGY

- Enzymes as biological catalysts
- Diffusion of molecules
- Factors that affect the growth and distribution of plants

2. CHEMISTRY

- Diffusion of molecules
- Arrangement and movement of molecules
- Energy content of fuels

3. PHYSICS

- Use of electrical components
- Parallel and series circuits
- Energy usage

4. PLANNING A SCIENTIFIC INVESTIGATION

- Developing a hypothesis
- Using standard procedures
- Health and safety in the laboratory
- Identifying key variables
- Collecting data

5. DATA COLLECTION, PROCESSING, ANALYSING AND INTERPRETATION

- Data tabulation
- Statistical analysis
- Graphical representations of data
- Critical evaluation

6. DRAWING CONCLUSIONS

- Interpreting data
- Primary and secondary data
- Qualitative and quantitative sources of error
- Making recommendations for improvements.

