

## **SCIENTIFIC STUDIES**

### **SUBJECT**

**BIOLOGY**

**PRINCIPAL TEACHER (Teaching & Learning /  
Pastoral Care) SCIENCE**

**R Pearson**

### **LEVEL OF STUDY**

**National 4 and 5**

### **AIM OF COURSE**

The purpose of the course is to develop learners' interest and enthusiasm for Biology in a range of contexts. The skills of scientific inquiry and investigation are developed, throughout the Course, by investigating the applications of Biology. The course is a broad and up-to-date selection of concepts and ideas relevant to the central position of life science within our society. An experimental and investigative approach is used to develop knowledge and understanding of Biology's key areas.

### **COURSE CONTENT**

The course covers major areas of Biology ranging from cellular to whole organism and up to ecosystems. The key areas of biodiversity, interdependence, body systems and cells and inheritance are developed through the course. The course allows flexibility and personalisation within each Unit and within the Assignment of the course by offering choice in the contexts studied.

### **ASSESSMENT**

#### **National 4**

The course is assessed internally. Course assessment will involve sampling skills, knowledge and understanding.

#### **National 5**

The course is assessed by a combination of internal assessment by the teacher/lecturer and an external examination, set and marked by the SQA. The course assessment will consist of two components: a question paper and an assignment. The question paper will have two Sections. The assignment will have one Section.

#### **Component 1 – question paper**

The purpose of the question paper is to assess breadth and depth of knowledge and understanding from across the Units. The paper will assess scientific inquiry skills, analytical thinking skills and the impact of applications on society and the environment.

#### **Component 2 – assignment**

The purpose of the assignment is to allow the learner to carry out an in depth study of a Biology topic. The topic will be chosen by the learner, who will investigate/research the underlying Biology and the impact on society/the environment.

## **SCIENTIFIC STUDIES**

### **SUBJECT**

**CHEMISTRY**

**PRINCIPAL TEACHER (Teaching & Learning /  
Pastoral Care) SCIENCE**

**R Pearson**

### **LEVEL OF STUDY**

**National 4 and 5**

### **AIM OF COURSE**

The purpose of the course is to develop learners' curiosity, interest and enthusiasm for chemistry in a range of contexts. The key skills of scientific inquiry and investigation are integrated and developed throughout the course. It offers a broad, versatile and adaptable skills set which is valued in the workplace, and forms the basis for progress onto study of Chemistry at a higher level, while also providing a knowledge base useful in the study of all of the sciences.

### **COURSE CONTENT**

The course covers a variety of contexts relevant to chemistry's impact on the environment and society through the chemistry of the Earth's resources, the chemistry of everyday products and environmental analysis. The course allows flexibility and personalisation by offering choice in the contexts studied. The key areas of bonding, the mole and balanced chemical equations are integrated throughout the course.

### **ASSESSMENT**

#### **National 4**

The course is assessed internally. Course assessment will involve sampling skills, knowledge and understanding.

#### **National 5**

The course is assessed by a combination of internal assessment by the teacher/lecturer and an external examination, set and marked by the SQA. The course assessment will consist of two components: a question paper and an assignment. The question paper will have two Sections. The assignment will have one Section.

#### **Component 1 – question paper**

The purpose of the question paper is to assess breadth and depth of knowledge and understanding from across the Units. The paper will assess scientific inquiry skills, analytical thinking skills and the impact of applications on society and the environment.

#### **Component 2 – assignment**

The purpose of the assignment is to allow the learner to carry out an in-depth study of a Chemistry topic. The topic will be chosen by the learner, who will investigate/research the underlying Chemistry and the impact on society/the environment.

## SCIENTIFIC STUDIES

### SUBJECT

### PHYSICS

PRINCIPAL TEACHER (Teaching & Learning /  
Pastoral Care) SCIENCE

R Pearson

### LEVEL OF STUDY

National 4 and 5

### AIM OF COURSE

The purpose of the course is to develop learners' interest and enthusiasm for physics in a range of contexts. The skills of scientific inquiry and investigation are developed, throughout the course, by investigating the applications of Physics. This will enable learners to become scientifically literate citizens, able to review the science-based claims they will meet.

### COURSE CONTENT

Physics gives learners an insight into the underlying nature of our world and its place in the universe. From the sources of the power we use, to the exploration of space, it covers a range of applications of the relationships that have been discovered through experiment and calculation, including those used in modern technology. An experimental and investigative approach is used to develop knowledge and understanding of physics concepts.

This course will enable learners to develop a deeper understanding of physics concepts and the ability to describe and interpret physical phenomena using mathematical skills. They will develop scientific methods of research in which issues in physics are explored and conclusions drawn.

### ASSESSMENT

#### National 4

The course is assessed internally. Course assessment will involve sampling skills, knowledge and understanding.

#### National 5

The course is assessed by a combination of internal assessment by the teacher/lecturer and an external examination, set and marked by the SQA. The course assessment will consist of two components: a question paper and an assignment. The question paper will have two Sections. The assignment will have one Section.

#### Component 1 – question paper

The purpose of the question paper is to assess breadth and depth of knowledge and understanding from across the Units. The paper will assess scientific inquiry skills, analytical thinking skills and the impact of applications on society and the environment.

#### Component 2 – assignment

The purpose of the assignment is to allow the learner to carry out an in-depth study of a physics topic. The topic will be chosen by the learner, who will investigate/research the underlying physics and the impact on society/the environment.

## SCIENTIFIC STUDIES

### SUBJECT

ENERGY

PRINCIPAL TEACHER (Teaching & Learning /  
Pastoral Care) SCIENCE

R Pearson

### LEVEL OF STUDY

National 5

### AIM OF COURSE

The National 5 Skills for Work: Energy Course provides a basis for progression into further education or for moving directly into training or employment within the energy sector. Learners explore the various UK-based energy industries and develop practical skills by building a small-scale solar hot water system and wind turbine. They also develop their employability skills and review their strengths and weaknesses — which are then used to help suggest the most appropriate career for them within the energy sector.

### COURSE CONTENT

This Course is intended to equip candidates with the necessary knowledge and skills which will enhance their prospects for employment in the wide range of opportunities within energy sectors. The Course will allow candidates to develop a range of employability skills which are of particular relevance to energy industries. Core Skills of *Information Technology* and *Problem Solving* will also be developed throughout the Course where opportunities arise. The Course will offer a variety of approaches to learning and teaching and will include a strong element of experiential learning.

### ASSESSMENT

National 5

It is the intention that the necessary skills and attitudes being developed in this Course are assessed through an involvement in a range of practical activities, although, there are also elements of knowledge and understanding which are important. An important element in the assessment process will be the ability of the candidate to review progress and development throughout the Course. Where possible, assessment should reflect current workplace practice, whether demonstrated through work placement, or simulated environments.

### PROGRESSION

This Course, or its Units, may provide progression to:

- National Progression Award
- a National Certificate programme in Further Education
- training/employment

## SCIENTIFIC STUDIES

**SUBJECT** Laboratory Science

**PRINCIPAL TEACHER (Teaching & Learning / Pastoral Care) SCIENCE** R Pearson

**LEVEL OF STUDY** National 5

### AIM OF COURSE

The National 5 Skills for Work: Laboratory Science Course provides a basis for progression into further education or for moving directly into training or employment within the science sector. Learners explore the various UK-based industries and develop practical skills. They also develop their employability skills and review their strengths and weaknesses — which are then used to help suggest the most appropriate career for them within, among others, the science, pharmaceutical, water, energy and food sectors.

### COURSE CONTENT

This Course is intended to equip candidates with the necessary knowledge and skills which will enhance their prospects for employment in the wide range of opportunities within these sectors. The Course will allow candidates to develop a range of employability skills. Core Skills of *Information Technology* and *Problem Solving* will also be developed throughout the Course where opportunities arise. The Course will offer a variety of approaches to learning and teaching and will include a strong element of experiential learning.

### ASSESSMENT

#### National 5

It is the intention that the necessary skills and attitudes being developed in this Course are assessed through an involvement in a range of practical activities, although, there are also elements of knowledge and understanding which are important. An important element in the assessment process will be the ability of the candidate to review progress and development throughout the Course. Where possible, assessment should reflect current workplace practice, whether demonstrated through work placement, or simulated environments.

### PROGRESSION

This Course, or its Units, may provide progression to:

- National Progression Award
- a National Certificate programme in Further Education
- training/employment