



## Access 3 Physics

---

## Draft National Course Specification

---



**Valid from August 2013**

This edition: October 2011, draft version 1.0

This specification may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged. Additional copies of this Course Specification can be downloaded from SQA's website: [www.sqa.org.uk](http://www.sqa.org.uk).

Please refer to the note of changes at the end of this Course Specification for details of changes from previous version (where applicable).

© Scottish Qualifications Authority 2011

# Contents

<b>Course outline</b>	<b>1</b>
Recommended entry	1
Progression	1
Equality and inclusion	1
<b>Rationale</b>	<b>2</b>
Relationship between the Course and Curriculum for Excellence values, purposes and principles	2
Purpose and aims of the Course	3
Information about typical learners who might do the Course	3
<b>Course structure and conditions of award</b>	<b>4</b>
Course structure	4
Conditions of award	4
<b>Skills, knowledge and understanding</b>	<b>5</b>
<b>Assessment</b>	<b>6</b>
Unit assessment	6
<b>Development of skills for learning, skills for life and skills for work</b>	<b>7</b>
<b>Administrative information</b>	<b>8</b>

## Course outline

**Course title:** Access 3 Physics

**SCQF:** level 3 (18 SCQF credit points)

**Course code:** to be advised

### Mandatory Units

Physics: Energy (Access 3)	6 SCQF credit points
Physics: Technology (Access 3)	6 SCQF credit points
Physics: Space (Access 3)	6 SCQF credit points

### Recommended entry

Entry to this Course is at the discretion of the centre. However, learners would normally be expected to have attained the skills, knowledge and understanding required by the following or equivalent qualifications and/or experience:

- ◆ Access 2 Science in the Environment

In terms of prior learning and experience, relevant experiences and outcomes may also provide an appropriate basis for doing this Course. Further information on relevant experiences and outcomes will be given in the *Course Support Notes*.

### Progression

This Course or its components may provide progression to:

- ◆ other qualifications in Physics or related areas
- ◆ further study, employment and/or training

Further details are provided in the Rationale section.

### Equality and inclusion

This Course Specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence. For further information please refer to the *Course Support Notes*.

## **Rationale**

All new and revised National Courses reflect Curriculum for Excellence values, purposes and principles. They offer flexibility, provide more time for learning, more focus on skills and applying learning, and scope for personalisation and choice.

In this Course, and its component Units, there will be an emphasis on skills development and the application of those skills. Assessment approaches will be proportionate, fit for purpose and will promote best practice, enabling learners to achieve the highest standards they can.

This Course provides learners with opportunities to continue to acquire and develop the attributes and capabilities of the four capacities as well as skills for learning, skills for life and skills for work.

All Courses provide opportunities for learners to develop breadth, challenge and application, but the focus and balance of the assessment will be appropriate for the subject area.

## **Relationship between the Course and Curriculum for Excellence values, purposes and principles**

Science is vital to everyday life, and allows us to understand and shape the world in which we live and influence its future. Scientists play a key role in meeting society's needs in areas such as medicine, energy, industry, material development, the environment and sustainability. It is important that everyone has an informed view of science.

Through learning in physics, learners are given opportunities to develop an interest in and understanding of the world. They engage in a wide range of investigative tasks which foster an enjoyment of physics and allow them to develop important skills which will be useful across all sectors of society.

The Physics Course will encourage resourcefulness, which leads to becoming a confident individual. Successful learners in physics think creatively, analyse and solve problems. Physics can produce responsible citizens, through studying the impact it makes on their lives, on the environment, and on society.

The Access 3 Physics Course allows learners to understand and investigate the world in an engaging and enjoyable way. It develops learners' ability to think analytically and independently, and to make basic evaluations. The Course provides opportunities for learners to acquire and apply knowledge and develop an informed and ethical view of topical issues. Learners will develop skills in communication, collaborative working and leadership, and apply thinking in familiar contexts to solve problems.

## **Purpose and aims of the Course**

The Course is an up-to-date selection of ideas relevant to the central position of science within our society. It is practical and experiential and develops scientific understanding of issues relating to physics. It aims to generate curiosity, interest and enthusiasm in physics, and enable learners to develop confidence in recognising the importance of physics ideas in society.

The Course 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. This Course allows learners to appreciate and contribute to topical scientific debate.

The Course will therefore encourage learners to become scientifically literate citizens, while developing their literacy and numeracy skills. It will also develop learners' investigative and experimental skills in a physics context. Learners will recognise the impact physics makes on their lives, the environment and society. Through this Course, learners can develop relevant skills for learning, for use in everyday life, and across all sectors of employment.

The main aims of this Course are for learners to:

- ◆ acquire and apply knowledge and understanding of basic physics concepts
- ◆ develop understanding of the role of physics in scientific issues and relevant applications of physics in society
- ◆ develop scientific inquiry and investigative skills
- ◆ develop scientific analytical thinking skills in the context of physics
- ◆ use technology, equipment and materials safely in practical scientific activities
- ◆ develop problem solving skills in a physics context
- ◆ describe aspects of everyday life in terms of physics
- ◆ establish the foundation for more advanced learning in the sciences

## **Information about typical learners who might do the Course**

The Course may be suitable for those wishing to study physics for the first time.

This Course has a skills-based approach to learning. It takes account of the needs of all learners and provides sufficient flexibility to enable learners to achieve in different ways.

Physics Courses are offered from SCQF level 3 to SCQF level 7. Vertical progression is possible through these levels, while lateral progression is possible to other qualifications in the sciences. The qualification can also assist entry to employment, training and further education.

## **Course structure and conditions of award**

### **Course structure**

The Course is practical and experiential and will foster skills in scientific thinking, set in context and developed through application-led learning.

Learners will acquire basic knowledge of concepts in physics and be able to apply their understanding to practical situations. They will develop skills in making informed decisions and reasoned evaluations on environmental and scientific issues. They will develop investigative and experimental skills in a physics context.

Units are statements of standards for assessment and not programmes of learning and teaching. They can be delivered in a variety of ways.

#### **Physics: Energy (Access 3)**

In this Unit, learners will investigate the sources and uses of energy in our society, in particular heat energy and electrical energy, while developing practical skills. It will look at some methods of producing electricity, and introduce some simple electronic systems and components.

#### **Physics: Technology (Access 3)**

In this Unit, learners will investigate the application of physics relevant to electrical and mechanical equipment in use in society, while developing skills in experimentation. It will focus on the use of electromagnetic waves and sound waves in areas such as medicine and communications, and on the basic study of motion.

#### **Physics: Space (Access 3)**

In this Unit, learners will investigate forces and their effects in everyday life, including collisions and safety. It will develop practical skills in investigation. It will look at how the principles of physics explain the workings of the solar system and how we find out about other planets.

### **Conditions of award**

To achieve the Access 3 Physics Course, learners must pass all of the required Units. The required Units are shown in the Course outline section.

Access 3 Courses are not graded.

## **Skills, knowledge and understanding**

Full skills, knowledge and understanding for the Course will be given in the *Course Support Notes*. A broad overview of the subject skills, knowledge and understanding that will be covered in the Course is given in this section.

This includes:

- ◆ applying, with guidance, physics knowledge and understanding
- ◆ solving simple problems and making decisions
- ◆ applying, with guidance, experimental/investigative skills, including planning, carrying out and evaluating
- ◆ applying, with guidance, information handling skills, including collecting, presenting and processing information
- ◆ making basic generalisations from evidence/information
- ◆ drawing valid conclusions and communicating findings

Skills, knowledge and understanding to be included in the Course will be appropriate to the SCQF level of the Course. The SCQF level descriptors give further information on characteristics and expected performance at each SCQF level ([www.sqa.org.uk/scqf](http://www.sqa.org.uk/scqf)).

## Assessment

Further information about assessment for the Course will be included in the *Course Support Notes*.

### Unit assessment

All Units are internally assessed against the requirements shown in the Unit Specification.

They can be assessed on a Unit-by-Unit basis or by combined assessment.

They will be assessed on a pass/fail basis within centres. SQA will provide rigorous external quality assurance, including external verification, to ensure assessment judgments are consistent and meet national standards.

The assessment of the Units in this Course will be as follows:

#### **Physics: Energy (Access 3)**

Learners who complete the Unit will be able to:

- ◆ draw on knowledge, understanding and scientific skills to investigate physics related to energy
- ◆ explore the environmental/sustainability/ethical issues related to electricity and heat

#### **Physics: Technology (Access 3)**

Learners who complete the Unit will be able to:

- ◆ draw on knowledge, understanding and scientific skills to investigate physics related to technology
- ◆ explore the environmental/sustainability/ethical issues related to waves and motion

#### **Physics: Space (Access 3)**

Learners who complete the Unit will be able to:

- ◆ draw on knowledge, understanding and scientific skills to investigate physics related to space
- ◆ explore the environmental/sustainability/ethical issues related to space

Exemplification of possible assessment approaches for these Units will be provided in the *National Assessment Resource*.

## Development of skills for learning, skills for life and skills for work

*(Note: The information given below reflects the initial thinking on significant opportunities for development of skills for learning, skills for life and skills for work. These may be subject to change as the development process progresses.)*

It is expected that learners will develop broad, generic skills through this Course. The skills that learners will be expected to improve on and develop through the Course are based on SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work* and drawn from the main skills areas listed below. These must be built into the Course where there are appropriate opportunities.

### **2 Numeracy**

- 2.1 Number processes
- 2.2 Money, time and measurement
- 2.3 Information handling

### **5 Thinking skills**

- 5.2 Understanding
- 5.3 Applying

Amplification of these skills is given in SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work*. The level of these skills will be appropriate to the level of the Course. Further information on building in skills for learning, skills for life and skills for work for the Course is given in the *Course Support Notes*.

## Administrative information

---

**Published:** October 2011 (version 1.0)

**Superclass:** to be advised

---

## History of changes to National Course Specification

Course details	Version	Description of change	Authorised by	Date

© Scottish Qualifications Authority 2011

This specification may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged. Additional copies of this Unit can be downloaded from SQA's website at [www.sqa.org.uk](http://www.sqa.org.uk).

Note: You are advised to check SQA's website ([www.sqa.org.uk](http://www.sqa.org.uk)) to ensure you are using the most up-to-date version of the Course Specification.