National 4 Unit Specification

Physics: Dynamics and Space (National 4)

SCQF: level 4 (6 SCQF credit points)

Unit code: H258 74

Unit outline

The general aim of this Unit is to develop skills of scientific inquiry, investigation and analytical skills, along with knowledge and understanding of dynamics and space. Learners will apply these skills when considering the applications of dynamics and space on our lives, as well as the implications on society/the environment. This can be done by using a variety of approaches, including investigation and problem solving.

The Unit covers the key areas of speed and acceleration; relationships between forces, motion and energy; satellites; cosmology. Learners will apply scientific skills and communicate information related to their findings, which will develop skills of scientific literacy.

Learners who complete this Unit will be able to:

1 Apply skills of scientific inquiry and draw on knowledge and understanding of the key areas of this Unit to carry out an experiment/practical investigation

2 Draw on knowledge and understanding of the key areas of this Unit and apply scientific skills

This Unit is a mandatory Unit of the National 4 Physics Course and is also available as a free-standing Unit. The Unit Specification should be read in conjunction with the *Unit Support Notes*, which provide advice and guidance on delivery, assessment approaches and development of skills for learning, skills for life and skills for work. Exemplification of the standards in this Unit is given *in Unit Assessment Support*.

The *Added Value Unit Specification* for the National 4 Physics Course gives further mandatory information on Course coverage for learners taking this Unit as part of the National 4 Physics Course.

Recommended entry

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

- National 3 Physics Course or relevant component Units

In terms of prior learning and experience, relevant experiences and outcomes may also provide an appropriate basis for doing this Unit.

Equality and inclusion

This Unit 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 *Unit Support Notes.*

Standards

Outcomes and Assessment Standards

Outcome 1

The learner will:

1 Apply skills of scientific inquiry and draw on knowledge and understanding of the key areas of this Unit to carry out an experiment/practical investigation by:

1.1 Planning an experiment/practical investigation
1.2 Following procedures safely
1.3 Making and recording observations/measurements correctly
1.4 Presenting results in an appropriate format
1.5 Drawing valid conclusions
1.6 Evaluating experimental procedures

Outcome 2

The learner will:

2 Draw on knowledge and understanding of the key areas of this Unit and apply scientific skills by:

2.1 Making accurate statements
2.2 Solving problems

Evidence Requirements for the Unit

Assessors should use their professional judgement, subject knowledge and experience, and understanding of their learners, to determine the most appropriate ways to generate evidence and the conditions and contexts in which they are used.

The key areas covered in this Unit are:

- speed and acceleration
- relationships between forces, motion and energy
- satellites
- cosmology

The table below describes the evidence for the Assessment Standards.

Assessment Standard	Evidence Requirements
Planning an experiment or practical investigation	The plan should include: ♦ an aim ♦ a variable to be kept constant ♦ measurements and/or observations to be made ♦ necessary equipment and/or materials ♦ the method, including safety considerations if appropriate
Following procedures safely	Record showing the learner was observed following procedures safely.
Making and recording observations/measurements correctly	Raw data recorded in a relevant format, for example a table Repeated measurements, where appropriate Where measurements are repeated, averages must be calculated
Presenting results in an appropriate format	Results presented in a scatter graph
Drawing a valid conclusion	A conclusion that includes reference to the aim, and is supported by the data
Evaluating experimental procedures	Suggested at least one improvement to the experimental procedures used
Making accurate statements and solving problems	Achievement of at least 50% of the total marks available in a holistic assessment The assessment must **not** be split into smaller sections, such as individual key areas.

♦ Exemplification of assessment is provided in *Unit Assessment Support.*

Assessment Standards thresholds

Outcome 1
Learners are not required to show full mastery of the Assessment Standards to achieve Outcome 1. Instead, five out of the six Assessment Standards for Outcome 1 must be met to achieve a pass. Learners must be given the opportunity to meet all Assessment Standards.

Outcome 2
Learners are assessed using a holistic test that covers Assessment Standards 2.1 and 2.2. To gain a pass for Outcome 2, learners must achieve 50% or more of the total marks available in the assessment.

Transfer of evidence

Evidence for the achievement of Outcome 1 for this Unit can be used as evidence of Outcome 1 in the National 4 Units *Physics: Electricity and Energy* (H256 74) and *Physics: Waves and Radiation* (H25A 74).

Evidence for the achievement of Outcome 2 for this Unit is **not** transferable between the National 4 Units *Physics: Electricity and Energy* (H256 74) and *Physics: Waves and Radiation* (H25A 74).

Re-assessment

SQA's guidance on re-assessment is that there should be only one or, in exceptional circumstances, two re-assessment opportunities. Re-assessment must be carried out under the same conditions as the original assessment and must be of equal demand.

Outcome 1
Learners can either re-draft their original Outcome 1 report or carry out a new experiment or practical investigation.

Outcome 2
Learners must have a full re-assessment opportunity that consists of a holistic assessment. To achieve Outcome 2, learners must achieve 50% of the total marks available in the re-assessment.

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

It is expected that learners will develop broad, generic skills through this Unit. The skills that learners will be expected to improve on and develop through this Unit 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 Unit where there are appropriate opportunities.

2 Numeracy

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

5 Thinking skills

5.3 Applying
5.4 Analysing and evaluating

Amplification of these is given in SQA's *Skills Framework: Skills for Learning, Skills for Life and Skills for Work*. The level of these skills should be at the same SCQF level of the Unit and be consistent with the SCQF level descriptor. Further information on building in skills for learning, skills for life and skills for work is given in the *Unit Support Notes.*

Administrative information

Published: August 2025 (version 3.0)

Superclass: RC

History of changes to National Unit Specification

Version	Description of change	Authorised by	Date
1.1	Standards section: change to wording in Assessment Standard 1.2 to clarify meaning; 'accurately' replaced with 'correctly'; Evidence Requirements section: wording added/changed to clarify Evidence Requirements	Qualification Development Manager	June 2013
2.0	Assessment Standard 2.2 and 2.3 removed, Assessment Standard 2.4 renumbered as 2.2 Assessment Standard table updated Transfer of evidence updated	Qualifications Manager	April 2018
3.0	Refined guidance on Evidence Requirements; removed option for assessment-standard-specific evidence for Outcome 2. Added 'Assessment Standards thresholds' heading to existing information. Refined guidance on re-assessment. Some changes made to the format throughout the document to improve accessibility. **What you need to do differently** ♦ If you are already assessing outcome 2 holistically at the end of the unit, by using the assessment as a single test with marks and a cut-off score, you don't need to do anything differently.	Qualifications Manager	August 2025

Version	Description of change	Authorised by	Date
3.0 (cont)	♦ If you have been assessing outcome 2 atomistically, by assessing each key area and each problem-solving skill separately, you must change to using the holistic approach for outcome 2. You must do this by administering the test in a single sitting, at the end of the unit, and applying the marks and cut-off score in the unit assessment support pack.	Qualifications Manager	August 2025