



Higher Physics: Understanding the next steps for session 2016–17

Early in 2016, each subject area was reviewed and the results published in individual [Subject Review Reports](#) in May. Some actions applied immediately for candidates in session 2016–17, other actions were for later years.

This Guidance note explains the impact on assessment for candidates being presented in session 2016–17 and must be read in conjunction with the Subject Review Report as the principal guide to arrangements for this year.

(Previously published subject documents affected by the subject changes will be amended in due course. There may be a period of misalignment.)

Session 2016–17

Unit assessment

Higher

- ◆ Introduce a threshold to the number of Assessment Standards that all candidates must meet to achieve Outcome 1. This threshold will be five out of the six Assessment Standards for Outcome 1, excluding the *Researching Physics* Unit.
- ◆ Unit assessment support packs to be revised during this session to introduce a single test for Assessment Standards 2.1 (KU) and 2.2 (PS), that will contain marks and a cut-off score and which better reflect the skills and knowledge requirements of physics. Two tests to be produced; one for assessment, one for re-assessment.
- ◆ Guidance will be produced to provide advice on how to adapt current Unit assessment support packs — Assessment Standards 2.1 (KU) and 2.2 (PS) — into one test, with marks and a cut-off score. This will act as an interim measure until the single tests are available.
- ◆ Introduce the same transfer of evidence facility as has been adopted at Advanced Higher, ie where the candidate's evidence meets the standards for the Outcomes and Assessment Standards of the *Researching Physics* Unit, this can be used as evidence for Outcome 1 of the other Units, without the need to match the evidence against the Assessment Standards. (The converse does not apply).

It should be noted that there will still be the requirement for candidates to be given the opportunity to meet all Assessment Standards. The above threshold has been put in place to reduce the volume of re-assessment, where that is required.

Unit assessment

Transfer of evidence

The same transfer of evidence facility as has been adopted at Advanced Higher has been introduced for Higher, ie where the candidate's evidence meets the standards for the Outcomes and Assessment Standards of the *Researching Physics* (Higher) Unit (H4L1 76), this can be used as evidence for Outcome 1 of the other Units, without the need to match the evidence against the Assessment Standards. (The converse does not apply).

This means that where a candidate's record of work or 'daybook' for the *Researching Physics* Unit satisfies the evidence requirements for Outcome 1 Assessment Standard 1.1 and Outcome 2 Assessments Standards 2.1 and 2.2 of that Unit, they can be credited with passing Outcome 1 in the *Physics: Electricity*, *Physics: Particles and Waves* and *Physics: Our Dynamic Universe* Units.

For the vast majority of candidates, ie those who successfully complete the *Researching Physics* Unit assessment, it will therefore be unnecessary to assess Outcome 1 in the other Units. This effectively removes an element of assessment for most candidates and the re-assessment that often accompanies it.

It would only be necessary to assess Outcome 1 of the *Physics: Electricity*, *Physics: Particles and Waves* and *Physics: Our Dynamic Universe* Units in the case of a candidate who is taking these as standalone Units or who has not passed the *Researching Physics* Unit, if they wish to achieve those Units.

The experimental data generated in the *Researching Physics* Unit should then be used in the Assignment report.

- ◆ **Outcome 1**
(*Physics: Electricity, Physics: Particles and Waves and Physics: Our Dynamic Universe Units*)

Where candidates need to be assessed on this Outcome, they are no longer 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.

Assessment Standard	Achieved (✓ or x)					
	1.1	x	✓	✓	✓	✓
1.2	✓	x	✓	✓	✓	✓
1.3	✓	✓	x	✓	✓	✓
1.4	✓	✓	✓	x	✓	✓
1.5	✓	✓	✓	✓	x	✓
1.6	✓	✓	✓	✓	✓	x
Pass/Fail	Pass	Pass	Pass	Pass	Pass	Pass

Important note: If assessing Outcome 1, there is still the requirement for candidates to be given the opportunity to meet all Assessment Standards. The above threshold has been put in place to reduce the volume of re-assessment, where that is required.

Re-assessment

Candidates may be given the opportunity to re-draft their original Outcome 1 report or to carry out a new experiment/practical investigation.

- ◆ **Outcome 2**
(*Physics: Electricity, Physics: Particles and Waves and Physics: Our Dynamic Universe Units*)

Assessment Standards 2.1 and 2.2

Assessment Standards 2.1 (making accurate statements) and 2.2 (solving problems) are no longer required to be passed independently. Assessment Standards 2.1 and 2.2 can now be assessed by means of a single assessment for each Unit.

During session 2016–17, centres have two possible options when assessing Outcome 2 (AS 2.1 and 2.2). Option 1 is detailed on pages 4–7 and Option 2 is on page 8.

Option 1: Assessment

Candidates can be assessed by means of a single test that contains marks and a cut-off score. A suitable Unit assessment will cover all of the key areas (AS 2.1) **and** assess each of the problem solving skills (AS 2.2).

Where a candidate achieves 50% or more of the total marks available in a single Unit assessment they will pass Outcome 2 for that Unit. Existing Unit assessment support packs can be used during session 2016–17. Guidance on the use of each pack is noted below.

(a) Unit assessment support pack 1 (Unit-by-Unit approach)

As these packages contain questions on all of the key areas (AS 2.1) and questions covering each of the problem solving skills (AS 2.2), Unit assessment support pack 1 **may be adapted** for use as a single assessment for its associated Unit.

The number of marks available for each question should be combined to give the total number of marks available. A cut-off score of 50% should be applied to each of these Unit assessments.

The balance of knowledge and skills in the current Unit assessment support packs does not always reflect the relative importance of these within physics, since they do not all adequately assess physics based calculations.

Centres should either replace some of the questions in the Unit assessment support packs or supplement the existing questions with additional questions. In particular, centres may wish to replace existing questions with questions testing physics calculations or add additional questions of this type, so that the tests better reflect the relative importance of calculations in physics.

Where a calculation is of the type known as a 'standard three marker', it should be allocated 3 marks and the general marking principles in the National 5 to Advanced Higher exams used.

Marks for questions testing KU would be allocated on a 1 mark for one response basis, using the marking guidance in the Unit assessment support packs.

If centres are replacing questions, it is important that each key area is still sampled.

Centres may wish to adapt the current Unit assessment support pack tests so that the sampling of each Unit is increased, the tests are out of the same total mark and that total is an even number so that the cut-off is actually 50%.

Where centres are adding additional questions, care should be taken that these questions are of an appropriate standard for Unit assessment and are not 'A grade' type questions. For example, two stage calculations involving two formulae should be split into two separate parts rather than being presented as a 5 mark calculation question.

(b) Unit assessment support pack 2 (combined approach)

As these packages contain questions covering only Assessment Standard 2.1 they are **not suitable** for use as a single assessment for their associated Units.

If a centre wishes to use Unit assessment support pack 2 as a single Unit assessment, questions covering each of the four problem solving skills would need to be added, with an emphasis on 'standard three marker' type calculation questions.

Marks for questions testing KU (AS 2.1) would be allocated on a 1 mark for one response basis, using the marking guidance in the Unit assessment support packs.

The marks available for the key areas (AS 2.1) in each of these Unit assessments should be combined with the marks added to assess the problem solving skills (AS 2.2) before the 50% cut-off score is applied.

As with the Unit-by-Unit approach, centres may wish to adapt the current Unit assessment support pack tests so that the sampling of each Unit is increased, the tests are out of the same total mark and that total is an even number so that the cut-off is actually 50%.

Where centres are adding additional questions, care should be taken that these questions are of an appropriate standard for Unit assessment and are not 'A grade' type questions.

(c) Unit assessment support pack 3 (portfolio approach)

It is still acceptable for centres to use this method of assessment.

Candidates should be given the opportunity to make accurate statements for all of the key areas of each Unit (AS 2.1). They must also be given opportunities throughout the Course to answer questions on each of the four problem solving skills (AS 2.2).

Evidence should be collected as candidates progress through the Course. For Assessment Standard 2.1, candidates must achieve 50% or more of the total KU marks available for **each** Unit. For Assessment Standard 2.2, candidates must achieve 50% or more of the **total** marks available for all four problem solving skills.

Examples are given below:

◆ **Example A**

This candidate has passed Outcome 2 for all three Units as they have achieved 50% or more of the total KU marks available for each unit **and** 50% or more of the total marks available for all four problem solving skills across the three Units.

Unit	Assessment Standard (marks achieved)	
	2.1	2.2
H4KX 76 Physics: Electricity	12/15	38/60
H4L0 76 Physics: Particles and Waves	14/20	
H4KY 76 Physics: Our Dynamic Universe	11/18	

◆ **Example B**

This candidate has not passed Outcome 2 for all three Units as, although they have achieved 50% or more of the total KU marks available for **each** Unit, they have not achieved 50% or more of the total marks available for all four problem solving skills across the three Units.

Unit	Assessment Standard (marks achieved)	
	2.1	2.2
H4KX 76 Physics: Electricity	10/15	25/60
H4L0 76 Physics: Particles and Waves	12/20	
H4KY 76 Physics: Our Dynamic Universe	10/18	

Option 1: Re-assessment

SQA's guidance on re-assessment is that there should be one or, in exceptional circumstances, two re-assessment opportunities. Re-assessment should be carried out under the same conditions as the original assessment. It is at a centre's discretion as to how they re-assess their candidates. Candidates may be given a full re-assessment opportunity, or be re-assessed on individual key areas and/or problem solving skills. Regardless of which option is chosen, candidates must achieve 50% or more of each re-assessment opportunity.

Option 2: Assessment

Centres can continue to use the Unit assessment support packs from SQA's secure site or their own centre devised assessments **in the same way as before**.

If this option is chosen, 50% or more of the KU statements (AS 2.1) made by candidates must be correct in the Unit assessment and at least one correct response for each problem solving skill (AS 2.2) is required to pass Outcome 2. However, if a candidate is given more than one opportunity in a Unit assessment to provide a response for a problem solving skill, then they must answer 50% or more correctly.

Option 2: Re-assessment

SQA's guidance on re-assessment is that there should be one or, in exceptional circumstances, two re-assessment opportunities. Re-assessment should be carried out under the same conditions as the original assessment. It is at a centre's discretion as to how they re-assess their candidates. Candidates may be given a full re-assessment opportunity, or be re-assessed on individual key areas and/or problem solving skills. Regardless of which KU option is chosen, candidates must achieve 50% or more of each re-assessment opportunity.

Important note: During session 2016–17 a single test for Assessment Standards 2.1 (KU) and 2.2 (PS), that will contain marks and a cut-off score will be introduced, as outlined in the Physics Review Report. Two tests for each Unit will be produced; one for assessment, one for re-assessment.

These tests will include questions testing each of the problem solving skills as well as questions sampling content from each of the key areas. The focus of the tests will better reflect the importance of skills, such as calculations, in physics.

Course assessment

A word count penalty will **not** be introduced for session 2016–17 for the Higher Physics Assignment.

Understanding Standards packs

Existing Understanding Standards packs will be updated in due course.