Course report 2026

National 5 Physics, SCQF level 5

We've written this report for teachers and lecturers. We recommend you read this with the published course assessment documents and marking instructions.

Note: we've made changes to the course assessment from session 2026–27. Check your subject page for more information.

The report:

- provides a summary of how each course component performed
- highlights areas of the question paper and coursework where candidates performed well and areas where they did not perform well
- has advice you might find useful when preparing candidates for assessment

We collect and prepare the statistics in course reports before we complete the appeals process.

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Statistical and grade boundary information

Course entries

Number of resulted entries in 2025: 13,678

Number of resulted entries in 2026: 13,821

Distribution of course awards (including minimum mark to achieve each grade)

Course award	Number of candidates	Percentage	Cumulative percentage	Minimum mark required
A	4,407	31.9	31.9	83
B	2,971	21.5	53.4	68
C	2,618	18.9	72.3	54
D	2,243	16.2	88.6	39
No award	1,582	11.4	100	Not applicable

We've not applied rounding to these statistics.

In this report:

- 'Most' means greater than or equal to 70%.
- 'Many' means 50% to 69%.
- 'Some' means 25% to 49%.
- 'Few' or 'a few' means less than 25%.

You can find statistical reports on our website.

General commentary on grade boundaries

Our main aim when setting grade boundaries is to be fair to candidates across all subjects and levels, and to maintain comparable standards across the years, even as arrangements evolve and change.

For most National Courses, we aim to set examinations and other external assessments and create marking instructions that allow:

- a competent candidate to score a minimum of 50% of the available marks (the notional grade C boundary)
- a well-prepared, very competent candidate to score at least 70% of the available marks (the notional grade A boundary)

It's very challenging to get the standard on target every year, in every subject, at every level. Therefore, we hold a grade boundary meeting for each course to bring together all the information available (statistical and qualitative) and make final decisions on grade boundaries based on this information. Senior Qualifications Scotland staff normally chair these meetings.

Principal assessors use their subject expertise to evaluate the performance of the assessment and propose suitable grade boundaries based on the full range of evidence. We can adjust the grade boundaries as a result of the discussion at these meetings. This allows the pass rate to be unaffected in circumstances where there is evidence that the question paper or other assessment has been more, or less, difficult than usual.

- We can adjust the grade boundaries downwards if there's evidence that the question paper or other assessment has been more difficult than usual.
- We can adjust the grade boundaries upwards if there's evidence that the question paper or other assessment has been less difficult than usual.
- If levels of difficulty are comparable to previous years, we maintain similar grade boundaries.

Every year, we evaluate the performance of our assessments in a fair way, while ensuring standards are maintained so that our qualifications remain credible. To do

this, we measure evidence of candidates' knowledge and skills against the national standard.

For full details of the approach, please refer to the Awarding and Grading for National Courses Policy.

How the course assessment performed

Question paper

All questions were answered correctly by at least a proportion of the candidates, and there was a spread of performance across the range of available marks.

Feedback from centres and markers indicated that it was a fair question paper with a good balance of straightforward and more challenging questions, allowing discrimination between candidates performing across all grades.

Section 1 (objective test) was more demanding than expected.

In section 2 (restricted and extended-response questions), questions 4(d), 5(b)(ii), 8(a), and 8(d)(ii) were more demanding than expected.

As a result, we adjusted the grade boundaries to reflect the impact of these questions and section 1 being more demanding than intended.

Some candidates may have been presented at an inappropriate level, as they did not perform well across many questions.

Assignment

Markers commented that candidates had the opportunity to achieve marks for all the skills, knowledge and understanding assessed. In addition, markers noted that many candidates achieved high marks while few achieved low marks.

Average marks for the assignment were similar to those achieved in 2024 and 2025.

We did not make any adjustments to grade boundaries for this part of the assessment.

Most candidates appear to be following the advice contained in the ‘Instructions for candidates’ section of the National 5 Physics Assignment Assessment Task, which is available under the ‘Coursework’ heading on the National 5 Physics subject page. The ‘Instructions for candidates’ gives detailed advice and guidance for both stages

of the assignment. It also contains a checklist that details the marks available for each aspect of the report.

How candidates performed

Areas where candidates performed well

Question paper

In general, candidates performed particularly well in questions that required them to select a relationship, carry out a calculation, and give a final answer.

Section 1: objective test

Question 1 Most candidates identified that force is a quantity fully described by its magnitude and direction.

Question 2 Many candidates calculated the instantaneous speed of the trolley at the specified point correctly, given the information provided.

Question 4 Many candidates calculated the speed of the car correctly, given its mass and kinetic energy.

Question 5 Most candidates identified that the Sun is an example of a star, that a natural satellite of a planet is called a moon, and that a group of planets that orbit a star is called a solar system.

Question 7 Many candidates determined the equivalent distance in metres to the distance to the star stated in light-years.

Question 8 Many candidates selected the correct statements based on the information about the distance from the Sun, the mass, and the gravitational field strength of the planets provided in the table.

Question 9 Many candidates calculated the time taken for the specified amount of charge to pass a point in the conductor correctly, given the current in the conductor.

Question 11 Many candidates calculated the reading on the voltmeter correctly, given the supply voltage and the resistances of the resistors in the circuit shown.

Question 13 Most candidates calculated the operating voltage of the heater correctly, given its power rating and resistance.

Question 14 Most candidates identified the state of the substance at the points in the graph specified.

Question 15 Many candidates calculated the mass of ice converted to water at the same temperature correctly, given the energy supplied to the ice at its melting point.

Question 16 Many candidates identified that, when the volume of a fixed mass of gas in a container is reduced at a constant temperature, the pressure of the gas increases because the gas particles collide more frequently with the walls of the container.

Question 19 Most candidates identified the labels representing the amplitude and wavelength of the wave shown.

Question 20 Most candidates selected the correct statements about the diffraction of waves.

Question 21 Most candidates identified that the largest curved reflectors are used in telescopes that detect radio waves, given the information provided about how the diameter of the curved reflector required depends on the wavelength of the radiation detected.

Question 22 Many candidates identified that a photodiode is a suitable detector for infrared radiation.

Question 24 Many candidates calculated the equivalent dose received by the pilot due to cosmic radiation during flights in one year correctly, given information about the equivalent dose rate due to cosmic radiation and duration of flights completed by the pilot in one year.

Question 25 Many candidates identified that particle X in the diagram is a neutron, and that the diagram represents a fission reaction.

Section 2: restricted and extended-response questions

Question 1(a)(i)(A) Many candidates determined the magnitude of the resultant displacement of the student.

Question 1(a)(ii) Many candidates determined the magnitude of the average velocity of the student. However, few candidates also included the direction in their final answer, which is required for a vector quantity.

Question 1(b) Most candidates attempted to determine the distance travelled by the student by calculating the area under the velocity-time graph provided. However, some did not do so for all the required sections.

Question 2(a) Many candidates sketched an acceptable path taken by the volleyball.

Question 2(b)(i) Most candidates calculated the time the volleyball is in the air correctly, given its horizontal velocity and horizontal distance travelled until it hit the ground.

Question 4(a) Many candidates showed all the forces acting vertically on the rocket and named them correctly. A few candidates demonstrated a lack of precision in the naming of the downward force (for example, simply ‘gravity’, or ‘gravitational field strength’).

Question 4(b)(i) Most candidates showed the correct relationship and substitutions to determine the weight of the rocket and satellite at launch, as required for a ‘show’ question (see issue 23 of the ‘Physics: general marking principles’ on the National 5 Physics subject page).

Question 4(c)(i) Most candidates selected the correct relationship to determine the time for the satellite to complete one orbit of Earth. However, only some candidates substituted in the correct distance travelled

by the satellite in one orbit, based on the information provided in the graph.

Question 4(c)(ii) Many candidates determined how many orbits of the Earth the satellite makes in 1 day, consistent with their answer to the previous question for the time taken for the satellite to complete one orbit of the Earth.

Question 5(a) Most candidates selected an appropriate relationship to determine the voltage across the 24 Ω resistor. However, only some candidates made the correct substitutions into this relationship to determine the correct value of this voltage.

Question 5(b)(i) Most candidates calculated the total resistance of the circuit using the relationships for resistances in series and resistances in parallel. A few candidates did not achieve marks because they stated an incorrect relationship between the resistances. For example:

$$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + R_3 \qquad \text{or} \qquad R_T = \frac{1}{R_1} + \frac{1}{R_2}$$

Question 6(b)(ii) Most candidates selected the correct rating of the fuse fitted in the plug of the dishwasher, and many justified this with an appropriate calculation.

Question 6(c)(i) Most candidates selected the correct relationship to determine the minimum energy required to increase the temperature of the water. However, some candidates did not show how the value of the change of temperature was determined, based on the information provided in the question about the initial and final temperatures, as required for a ‘show’ question (see issue 23 of the ‘Physics: general marking principles’ on the National 5 Physics subject page).

Question 6(c)(ii)(A) Many candidates selected the correct relationship to calculate the minimum time taken to heat the water. However, only some candidates made the correct substitutions into this relationship and stated a correct final answer with unit.

Question 6(c)(ii)(B) Many candidates explained why, in practice, it takes longer to heat the water than the time calculated in the previous part of the question.

Question 7(b) Many candidates stated the effect that decreasing the temperature of the gas has on the particles in the capillary tube.

Question 7(d) Most candidates calculated the upward force exerted on the bead of liquid by the gas correctly, given the cross-sectional area of the capillary tube and the pressure of the gas in the tube.

Question 8(b)(i) Most candidates produced graphs with suitable scales, labels, and units. Most candidates plotted their points accurately to within half a division. However, a few candidates used overly large markers or ‘blobs’ to indicate their points, so the accuracy of the plotting could not be determined. Using a neat ‘×’ to indicate their points would avoid this. A few candidates drew a suitable curved line through their points. However, the lines drawn by some candidates were either straight (which was not appropriate for the data provided in the question) or too carelessly drawn to be awarded any marks (for example, passing too far above or below many of the points, or having multiple or bifurcating lines).

Question 8(b)(ii) Most candidates determined an angle of refraction for the stated angle of incidence, consistent with the graph they drew in the previous part of the question.

Question 8(d)(i) Most candidates selected the correct relationship to calculate the frequency of the light from the green LED, given its peak wavelength. However, some candidates failed to deal

appropriately with the ‘nano’ prefix stated in the value of the wavelength (see issues 5a and 5b of the ‘Physics: general marking principles’ on the National 5 Physics subject page).

Question 10(a) Many candidates determined the distance between the bat and the wall, given the time between the sound being emitted and detected by the bat.

Question 10(c)(ii) Most candidates made the correct substitutions into the relationship, given the information provided, to calculate the frequency of the sound incident on the wall. However, a few candidates did not round their final answer to an appropriate number of significant figures (see issue 6 of the ‘Physics: general marking principles’ on the National 5 Physics subject page).

Question 11(b)(ii)(A) Many candidates determined the half-life of the radioactive source, given the graph showing how the corrected count rate of the source varies with time.

Question 11(b)(ii)(B) Many candidates identified the correct number of half-lives in order to determine the time taken for the corrected count rate to reach one sixteenth of its original value. However, only some candidates stated a correct final answer and unit.

Question 11(b)(iii) Many candidates stated an appropriate safety precaution that the technician must follow when handling a radioactive source. A few candidates who stated responses in terms of protective clothing (other than gloves) did not make it clear what the factor was that makes them protective (for example, that they are lead-lined).

Question 12(b)(ii)(A) Many candidates determined the energy, in joules, of the beta particle, given the information provided about its energy in MeV and the conversion factor from MeV to joules.

Question 12(b)(iii) Many candidates calculated the equivalent dose received by the tissue correctly, consistent with the value of the absorbed

dose received by the tissue determined in the previous part of the question.

Assignment

Section 1: Most candidates devised an appropriate aim for their investigation. A few candidates stated aims that could be answered with a simple yes or no conclusion, for example, ‘To find out if voltage affects current in a resistor.’ These are not acceptable as an aim for a National 5 assignment.

There were a few assignments for which the aim was not at a level commensurate with National 5 Physics, for example, ‘To find out how the mass of an object affects its weight’ or ‘To investigate how the height from which an object is dropped affects the time taken for it to reach the ground’.

There were also a few assignments where the aim stated was not compatible with the experimental work carried out by the candidate, for example ‘To investigate Ohm’s law’ when the experiment involved measuring the current in and voltage across a lamp, or ‘To investigate how mass affects acceleration’ when the candidate actually changed the mass used to produce the unbalanced force rather than the mass of the object being accelerated.

Section 3(a): Many candidates provided a brief description of the approach used to collect experimental data. Some candidates produced overly long descriptions that amounted to a full procedure. A few candidates did not identify either what was being changed in their experiment or what was being measured.

Section 3(b): Most candidates included sufficient raw data from their experiment. A few candidates did not provide the raw results and only included their average values. There were also a few instances of candidates not repeating readings. A few candidates did not include data that allowed calculation of quantities derived later in the report to be

checked, for example, the mass of material being heated in an investigation to determine the specific heat capacity of the material.

Section 3(c): Many candidates gained the mark for presenting data in a correctly produced table. A few candidates did not gain this mark because the overarching heading for the data columns did not extend to include the mean column. A few candidates did not provide units for all columns in their table. A few candidates omitted prefixes or included incorrect prefixes in the units for their data, for example, an Ohm's law experiment where the candidate's data indicated measurements of current in the order of tens or hundreds of amps rather than in milliamps.

Section 3(d): Many candidates calculated mean and/or derived values correctly. There were a few instances of candidates not rounding calculated values correctly or stating calculated values to an inappropriate number of significant figures. A few candidates who included derived variables in their aim did not calculate values for these derived variables, for example, resistance from experimental values of current and voltage. A few candidates who did not put their mean or derived values into a table did not include units with their calculated values. A few candidates who calculated the gradient of the line in their graph made incorrect substitutions, using values from their data rather than points on their line.

Section 3(e): Most candidates provided data from an internet/literature source that was comparable to their experimental data.

Section 3(f): Most candidates provided a suitable reference for the source of their internet/literature data. A few candidates who listed their references elsewhere in the report did not clearly identify which reference referred to their source of internet/literature data by citing it appropriately.

Section 4(a): Most candidates produced a graph of an appropriate format for their experimental data. A few candidates did not gain this mark because

they connected their data points with straight-line segments to produce a line graph when a scatter graph was the appropriate presentation format.

Section 4(b): Most candidates produced a graph with suitable scales. A few candidates produced graphs with non-linear scales that did not gain any marks for this section and also prevented markers from awarding marks for accuracy of plotting in section 4(d).

Section 4(c): Most candidates included suitable labels and units for the axes of their graph.

Section 5: Many candidates made a valid comparison between their experimental data and the data from their internet or literature source. Some candidates made claims about the comparison that were not justified, for example, ‘both sources show that pressure is directly proportional to temperature’, where at least one of the sources did not support this claim.

Section 6: Although many candidates gained the mark for stating a valid conclusion, a few did not gain the mark because their conclusion did not address their aim in sufficient detail. For example, when candidates stated an aim of demonstrating a ‘relationship’ between two variables, they did not identify this relationship in their conclusion, for example, ‘For a fixed mass of gas at constant temperature, pressure is inversely proportional to volume’ or ‘The braking distance and velocity-squared of an object have a linear relationship’.

A few candidates did not gain this mark because their conclusion was not supported by all the data presented in their report.

A few candidates, whose aim was to find the value of a particular quantity, did not gain the mark because they did not acknowledge both the value given in their internet or literature source and the value they obtained experimentally.

Section 8(a): Most candidates provided an informative title.

Section 8(b): Most candidates produced a clear and concise report.

Areas where candidates did not perform well

Question paper

In general, questions requiring justifications, descriptions or explanations are intended to be more demanding for candidates. Candidates' responses often lacked precision, especially when using physics terminology and principles. Candidates who successfully answered questions that required justifications, descriptions or explanations structured their answers to present information that was clear and relevant to the question being asked. They used correct terminology and referred to appropriate physics concepts, for example, in question 5(b)(ii), when explaining the effect that closing the switch has on the voltage across the specified resistor.

The quality of written English was sometimes low. Some candidates did not use appropriate scientific terminology, and incorrect spelling or the quality of their handwriting sometimes made it difficult to determine whether a response was correct.

Section 1: objective test

Question 3 Few candidates determined the distance travelled by the car in the time it accelerated at a constant rate from rest to the stated final speed. Many candidates determined an incorrect distance by multiplying the final speed of the car by the time taken instead of using its average speed.

Question 6 Few candidates selected the correct statements about the motion of the rocket during its launch. Although many candidates identified that the acceleration of the rocket increases because its mass decreases as fuel is used up and the acceleration of the rocket increases because the unbalanced force acting on the rocket increases, some also selected the incorrect statement that the rocket moves upwards because the exhaust gases exert a downward force on the Earth.

Question 10 Only some candidates selected the graph showing how the potential difference across a lamp varies with the current in the lamp. Many candidates selected the graph showing how potential difference varies with current for an ohmic component.

Question 12 Only some candidates determined the reading on the ammeter, given the information provided about the circuit shown.

Question 17 Only some candidates calculated the pressure of the gas at the new temperature, given its initial pressure and temperature. Some candidates did not convert the temperatures stated in degrees Celsius to kelvin before carrying out the calculation.

Question 18 Few candidates calculated the speed of the waves given the information provided. Many candidates assumed that the time stated in the question for the boat to rise from the lowest point of a wave to the highest point was the time for a complete wave to pass, rather than that for half a wave.

Question 23 Few candidates determined how many radioactive nuclei decay in one hour in the specified mass of the sample of the radioactive material, given the mass and activity of the other part of the sample.

Section 2: restricted and extended-response questions

Question 1(a)(i)(B) Only some candidates determined the direction of the resultant of the displacement correctly. Some candidates did not express their answer as a three-figure bearing or as an angle relative to a compass point. A few candidates' responses started with incorrect statements of trigonometric relationships, for example, by stating $\theta = \tan\left(\frac{39}{80}\right)$, rather than $\theta = \tan^{-1}\left(\frac{39}{80}\right)$,

for which no marks could be awarded.

Question 2(b)(ii) Although most candidates attempted to determine the vertical velocity of the volleyball as it reaches the ground using the relationship between acceleration, initial speed, final speed, and time, some made errors in the substitution of the values into this relationship. In particular, a few candidates substituted the horizontal velocity of the volleyball (13 m s^{-1}) into the relationship, rather than its initial vertical velocity (0 m s^{-1}).

Question 2(c) Few candidates stated that the time the volleyball is in the air is the same as the time calculated in the previous part of the question and provided a correct justification. As this is a 'must justify' question, candidates who did not attempt to justify their statement or included incorrect physics in their justification did not gain any marks (see issue 25b of the 'Physics: general marking principles' on the National 5 Physics subject page).

Question 3 Although many candidates made some correct statements about the motion of satellites in orbit (for example, 'Satellites stay in motion because there is no air in space to slow them down'), some made incorrect statements about gravity in space (for example, 'There is no gravity in space', or 'Satellites stay in motion because they have escaped gravity'). A few candidates demonstrated a good understanding of the physics involved by accurately describing the vertical and horizontal motion of satellites with reference to the curvature of the Earth. A few candidates demonstrated good understanding by relating the period of orbit of a geostationary satellite to the time taken for the Earth to rotate on its axis.

Question 4(b)(ii) Although most candidates determined the initial unbalanced force acting on the rocket by multiplying the mass of the rocket by its initial acceleration, few then determined the initial upward thrust acting on the rocket by considering that the unbalanced force equals the difference between the thrust of the rocket and the weight of the rocket stated in the previous part of the question.

Question 4(d) Few candidates provided a complete explanation of why the satellite appears as a bright light moving across the sky as it re-enters the atmosphere, in terms of both friction and the energy change involved.

Question 5(b)(ii) Only some candidates stated the effect that closing the switch has on the voltage across the 24 Ω resistor. Few candidates provided a complete justification of this effect.

Question 6(a) Only some candidates explained what is meant by alternating current (a.c.) in terms of electron flow. Some candidates did not make clear the repeated changing of direction of the electrons in their response.

Question 6(b)(i) Only some candidates explained how the fuse fitted to the plug prevents the flex from overheating in terms of the fuse breaking when the current becomes too great. Some candidates confused the concepts of current and voltage in their responses

Question 6(d) Few candidates provided a complete explanation of how the circuit operates to switch off the heating element.

Question 7(a) Few candidates provided a complete explanation of why the graph does not demonstrate a directly proportional relationship in terms of the line of best fit not passing through the origin, as the temperature has not been plotted in kelvin.

Question 7(c) Only some candidates explained why stirring the water is good experimental practice.

Question 8(a) Only some candidates labelled all the required aspects of the diagram. Some candidates did not label the normal.

Question 8(c) Although most candidates selected the correct relationship to determine the resistance of the resistor in series with the LED, only some identified that the voltage to substitute into the relationship was the voltage across the resistor, which was

determined by subtracting the voltage across the LED from the supply voltage.

Question 8(d)(ii) Few candidates stated the colour of LED that will produce angles of refraction less than those obtained by the first student, together with a correct justification. Some candidates did not consider that smaller angles of refraction are produced when there is a greater amount of refraction.

Question 9 Although many candidates identified how some observations of the students could be used to discuss the properties of different types of waves, only a few candidates went on to develop their responses and demonstrate any depth of understanding. Some candidates focused on the difference between longitudinal and transverse waves as they related to the sound, light and/or motion of the crowd, but only a few of these candidates demonstrated a good understanding by discussing these differences accurately. Other candidates focused on the difference between the speed of sound and light. Again, only a few of these candidates demonstrated a good understanding by accurately relating this concept to the observations made by the students.

Question 10(b) Only some candidates stated that forces acting on the bat are balanced (or equal and opposite) when the bat is hovering at a constant height. Some candidates did not identify that the forces are in opposite directions, simply stating that the forces were ‘the same’.

Question 10(c)(i) Only some candidates stated what is meant by a frequency of 64 kHz. A few candidates did not include the required numerical value in their response.

Question 11(a) Only some candidates stated at least one reason why the experiment does not allow the technician to conclude that the source emits alpha particles. Few candidates stated two reasons.

Question 11(b)(i) Only some candidates explained why the technician measures the background count rate before carrying out the experiment.

Question 12(a) Only some candidates explained why the sample will be less effective after 48 hours, in terms of the decreased activity of the source (or fewer radioactive particles emitted per second). Often candidates made vague statements such as ‘the source will be weaker’ or ‘it won’t be radioactive enough’, which could not be awarded any marks.

Question 12(b)(i) Only some candidates stated what is meant by a beta particle.

Question 12(b)(ii)(A) Although most candidates selected the correct relationship to determine the absorbed dose received by the tissue, few substituted in the correct value for the total energy absorbed by the tissue. Some candidates did not identify that that the total energy absorbed is determined by multiplying the energy of a single beta particle by the number of beta particles.

Assignment

Section 2: Few candidates achieved all the marks available for this section. Many candidates demonstrated only a limited understanding of relevant physics. Candidates who gained marks for reasonable or good understanding related relevant physics concepts and/or principles to their topic and provided explanations that demonstrated depth of understanding. When candidates selected topics for which the underlying physics was at a level above National 5, for example, light-dependent resistors (LDRs), thermistors or solar cells, they often struggled to demonstrate either reasonable or good understanding of the physics involved. The same was true when candidates selected topics for which the underlying physics was at a level below National 5, for example, the time taken for objects to fall.

Section 4(d): Only some candidates gained the mark for this section. There were often errors in plotting data points and a few candidates used overly large markers for their data points that made it impossible to determine the accuracy of their plotting. Some candidates did not draw a suitable line of best fit, instead drawing a straight line when a curve was more appropriate, forcing a straight line through the origin, drawing a ‘wobbly’ curve that did not show a consistent trend, or drawing overly heavy, bifurcating or ‘hairy’ lines.

Section 7: Only some candidates identified a factor that could have been expected to have a significant effect on the reliability, accuracy or precision of the experiment and explained this factor. Some candidates simply stated that they would repeat the experiment more often or take more data points in order to improve it, without recognising that there was little evidence for this statement in their experimental results. In addition, a few candidates did not use the terms ‘reliability’, ‘accuracy’, and ‘precision’ correctly in their explanation of the factor they identified. There is no requirement to use these terms, but, when used, candidates must use them correctly.

Preparing candidates for assessment

Question paper

Each year, the question paper samples from the full range of course content. Candidates should be familiar with all aspects of the course.

Candidates sometimes did not give any answer to particular questions, which may suggest lack of familiarity with the relevant course content. The question paper assesses application of knowledge and understanding, and application of the skills of scientific enquiry, scientific analytical thinking, and problem solving. Candidates must have opportunities to practise these skills regularly to familiarise themselves with the type and standard of questions that may be asked.

You **must** give candidates opportunities to take an active part in a wide range of practical work to develop the necessary knowledge and skills. This will help candidates answer questions about experiments and practical contexts. While demonstration of experiments, videos, and computer simulations may be useful additional tools, they cannot replace active experimental work and do not develop the knowledge and skills associated with practical work.

Frequent use of physics terms and language will help candidates develop their communication skills when answering questions.

Candidates should be familiar with the various command words used in physics questions and how to respond to them. For example, when candidates are asked to ‘show’ a particular answer is correct, they should start their response with an appropriate relationship, show the correct substitutions, and end with a final answer, including the correct unit, to obtain all the marks available. In a 'must justify' question, candidates must not only state or select the correct response, but also provide supporting justification to gain marks.

For questions requiring calculations, the final answer sometimes had the wrong unit, or the unit was missing. Remind candidates that a final answer usually requires both a value and a unit. Candidates should also be familiar with the full range of units used for quantities covered in the National 5 Physics course.

In calculations, some candidates did not provide a final answer with the appropriate number of significant figures (or to round these correctly). A few candidates confused significant figures with decimal places. Ensure that candidates understand and can use significant figures correctly.

Advise candidates not to copy answers from their calculator containing a large number of significant figures, or to use ellipses, as the penultimate stage in their response before stating their final answer, as this can often introduce transcription or rounding errors into their calculations. Encourage candidates to show only the selected relationship, the substitution and the answer, including units, to the appropriate number of significant figures.

You should give candidates opportunities to practise open-ended questions at appropriate points throughout the course. Encourage them to state relevant physics concepts and relate them to the situation described in the question. After attempting these questions, candidates may benefit from considering a range of responses and discussing how marks would be awarded for these responses. These responses could be produced by their peers or are available from sources such as our Understanding Standards website.

Candidates should write as neatly as possible so markers can interpret their answers clearly. They should also check their spelling, particularly of scientific terms such as ‘refraction’, ‘reflection’, ‘diffraction’, ‘fission’, and ‘fusion’.

The published marking instructions contain general marking principles, as well as detailed marking instructions for specific questions. Encourage candidates to become familiar with the allocation of marks and the importance of complete final answers when answering numerical questions. Candidates should have access to specific marking instructions when practising exam-type questions. The marking instructions published on our website illustrate how marks are apportioned to responses.

Centres should also refer to the ‘Physics: general marking principles’ on the National 5 Physics subject page for generic issues related to the marking of question papers in qualifications in Physics at National 5, Higher, and Advanced Higher levels. Centres are advised to adopt these general instructions for the marking of prelim

examinations and centre-devised assessments for any Qualifications Scotland Physics courses.

Centres must ensure candidates are entered at an appropriate level.

Assignment

Centres are advised to consult the National 5 Physics Course Specification, along with the National 5 Physics Assignment Assessment Task, both available on the National 5 Physics subject page. The latter contains full details of the nature of the assignment task, together with advice for teachers and lecturers, detailed marking instructions, and instructions to candidates.

Centres are also advised to consult the generic 'Guidance on conditions of assessment' in the 'Coursework' section of the National 5 Physics subject page for clarification and examples of acceptable conduct during coursework assessments.

Further support and candidate evidence with commentary for the assignment task is available on our Understanding Standards website.

Centres must ensure that a suitable range of topics is available to candidates. For example, in a class of 20, with candidates working in groups of 4 (the maximum permitted), a minimum of five different topics must be available. Teachers and lecturers must minimise the number of candidates in each class investigating each topic, and candidates may therefore not get to investigate their first choice of topic if another group has already chosen it. Teachers and lecturers must not allow two groups in the same class to investigate the same topic.

For clarity, a topic is something such as Ohm's law or specific heat capacity. Having two groups in a class investigating different variables for Ohm's law or the specific heat capacity of different materials would not be acceptable, as both groups would still be investigating the same topic.

When choosing a topic, teachers and lecturers **must** provide advice on the suitability of the candidate's aim, taking into account health and safety considerations, the availability of resources and availability of internet and/or literature data, to ensure

that all aspects of the assessment task are achievable. Candidates should choose a topic at a level commensurate with National 5 Physics.

For the reporting stage of the task, note the following points:

Section 1: The aim should be one that is either experimentally investigable or capable of being modelled by an experiment, for example, the orbits of satellites by rotating masses on the end of a piece of string.

Aims that can be answered with a simple yes or no conclusion (for example, 'To find out if voltage affects current in a resistor') are not acceptable as an aim for a National 5 assignment.

Advise candidates that when they choose to investigate the relationship between two variables, they must establish the relationship to be awarded the conclusion mark later in the report — for example, direct proportionality or linear relationship.

Section 2: To allow candidates to gain all the marks for this section, careful advice on the choice of topic is essential. Some candidates chose topics for which the underlying physics was at a level above National 5, for example, solar cells. Consequently, they struggled to explain the physics involved or copied material verbatim from references.

Section 3(a): Candidates should practise the skill of producing brief descriptions of experiments during normal classroom activities in preparation for the assignment. Brief descriptions should include, as a minimum, an indication of what was being changed and what was being measured.

Section 3(b): Candidates must provide the actual raw results from their experiment rather than only their average values. They must also include repeated measurements.

The data provided in this section must come from an experimental activity carried out either individually or as part of a small group. Data from a computer simulation, such as simulations of half-life or the

stopping distance of cars for various different road conditions, is not acceptable as experimental raw data.

Section 3(c): Centres should advise candidates to check thoroughly that they have included all appropriate headings and units for their data presented in tables. In particular, candidates should ensure that columns for mean values are not separated from overarching headings.

Centres are not permitted to provide a blank or pre-populated table for experimental results.

Section 3(d): Candidates should be familiar with the requirement to calculate mean and/or derived values accurately, including stating values to an appropriate number of significant figures and rounding them correctly. Centres are advised to consult the 'Physics: general marking principles' on the National 5 Physics subject page for further details on these issues.

Encourage candidates to check their calculations carefully, as simple transcription errors often resulted in candidates not gaining marks for this section.

Candidates should be aware that markers consider all the data they process in the report when awarding the mark for this section, including any calculations of gradients and all mean and derived values.

Section 3(e): Candidates should be able to find suitable internet and/or literature data to compare against their experimental data. Ideally, the choice of topic would allow access to a wide range of sources.

Teachers and lecturers must not provide candidates with a set of experimental data to compare with their own data or direct them to specific sources.

Section 3(f): Teachers and lecturers should ensure that candidates know that 'in sufficient detail to allow them to be retrieved by a third party' means

giving the full URL for a website and, for a textbook, the title, author, page number, and either the edition number or ISBN.

Candidates should also be familiar with the requirement to place the reference beside the internet and literature data, or to cite it there and provide the full reference later in the report.

Section 4(a): Candidates should be familiar with selecting an appropriate format for the graphical presentation of their data:

- A scatter graph is appropriate when both the dependent and independent variables are continuous and any change in the dependent variable is brought about by a change in the independent variable. This is usually the case in physics experiments.
- A line graph is appropriate when both the dependent and independent variables are continuous and any change in the dependent variable is not directly brought about by a change in the independent variable. This is not usually the case in physics experiments.
- A bar graph should be used when the independent variable is discrete. This is not usually the case in physics experiments.

Candidates should be aware that there are no marks for presenting the data obtained from an internet and/or literature source, or from a simulation, in a graphical format.

When candidates are hand-drawing graphs, teachers and lecturers must provide them with graph paper that includes major and minor gridlines; blank, lined or squared paper is not appropriate.

Section 4(b): Advise candidates to double-check that graph axes have suitable scales. In particular, they should ensure that the scales are linear over the data range and that they have not inadvertently omitted some values.

Advise candidates to use scales that allow the accuracy of plotting to be checked readily.

Section 4(c): Candidates should be familiar with the requirement to provide suitable labels and units for the axes of their graph. These can often be copied directly from their data table.

Section 4(d): Candidates should be familiar with the requirement to plot data points accurately to within half a minor division on the scale.

Advise candidates to avoid using overly large data markers when plotting points on their graph and to use a neat '×' or '+' instead.

Give candidates opportunities to practise their graph-drawing skills using real experimental data, particularly the skill of drawing a line of best fit that is appropriate for the data.

When using Excel or other software packages to draw graphs, candidates should ensure that markers can ascertain the accuracy of the data points by using small data point markers, making the graphs a suitable size, and including both major and minor gridlines.

Section 5: Candidates should be familiar with the skill of making valid comparisons between sets of data. This is a skill that can be practised during normal classroom activities.

Section 6: Candidates should be aware that their conclusion must relate to their aim and must be supported by **all** the data in their report. Where the data included in their report provides conflicting results, candidates should acknowledge this in their conclusion, for example, 'The internet data shows that the specific heat capacity of water is 4180 J kg^{-1} $°C^{-1}$, but my experiment gave a value of 5600 J kg^{-1} $°C^{-1}$.').

As mentioned previously, candidates should be aware that when they choose to investigate the relationship between two quantities, they

must establish the relationship to gain the conclusion mark later in the report, for example, direct proportionality or a linear relationship.

Section 7: Centres should ensure that candidates have opportunities to develop their skills in evaluating experimental procedures during the course. This can be achieved through regular exposure to practical activities and appropriate questioning about these activities.

Make it clear to candidates that general statements, such as 'repeat more often' or 'increase the number of data points', are unlikely to gain marks for the evaluation unless they are justified by the candidate's experimental results.

Centres should make candidates aware that evaluative statements must be relevant and appropriate to their experimental procedure. Teachers and lecturers should advise candidates not to copy or memorise Understanding Standards materials, as these may not match or be appropriate to the experimental set-up or procedure the candidates used.

Candidates should be able to use the terms 'reliability', 'accuracy', and 'precision' correctly in their explanations.

Section 8: While not required, teachers and lecturers should encourage candidates to follow the structure suggested in the 'Instructions for candidates' section of the National 5 Physics Assignment Assessment Task, which is available under the 'Coursework' heading on the National 5 Physics subject page, to help them produce a clear and concise report. Using headings can help markers identify where to award marks.

Changes to the course assessment from session 2026–27

- We've reduced the question paper marks from 135 to 110 marks.
- We've reduced the duration of the question paper from 2 hours 30 mins to 2 hours.

- We’ve removed the scaling.
- The assignment still has 20 marks, with scaling changed from 25 to 28.

We’ve amended the question paper details in the course specification. Candidates must have the opportunity to carry out a wide range of experimental work. You may wish to update prelims to match the updated format and duration of the question paper.