

Principal Assessor Report 2003

Assessment Panel:

Physics

Qualification area:

**Subject(s) and Level(s)
Included in this report**

Physics Intermediate 1

Statistical information: update

Number of entries in 2002	
Pre appeal	292

Number of entries in 2003	
Pre appeal	777

General comments re entry numbers

There has been a significant increase in the uptake in 2003, an increase of 166% on pre-appeal figures.

The majority of entries are from S4, so it would appear that Intermediate 1 Physics is increasingly being offered as an alternative to Standard Grade Science. If this trend continues, numbers will rise again next year.

Grade boundaries at C, B and A for each subject area included in the report

Year	Lowest mark out of 84		
	A	B	C
2003	59 (70%)	50 (60%)	41 (49%)

General commentary on passmarks and grade boundaries

- While SQA aims to set examinations and create mark schemes which will allow a competent candidate to score a minimum 50% of the available marks (notional passmark) and a very well-prepared, very competent candidate to score at least 70%, it is almost impossible to get the standard absolutely on target every year, in every subject and level
- Each year we therefore hold a passmark meeting for each subject at each level where we bring together all the information available (statistical and judgmental). The Principal Assessor and SQA Qualifications Manager meet with the relevant SQA Business Manager and Statistician to discuss the evidence and make decisions. The meetings are chaired by members of the senior management team at SQA
- We adjust the passmark downwards if there is evidence that we have set a slightly more demanding exam than usual, allowing the pass rate to be unaffected by this circumstance
- We adjust the passmark upwards if there is evidence that we have set a slightly less demanding exam than usual, allowing the pass rate to be unaffected by this circumstance
- Where the standard appears to be very similar to previous years, we maintain similar grade boundaries
- An exam paper at a particular level in a subject in one year tends to have a marginally different set of grade boundaries from exam papers in that subject at that level in other years. This is because the particular questions are different. This is also the case for exams set in centres. And just because SQA has altered a boundary in a particular year in say Higher Chemistry does not mean that centres should necessarily alter boundaries in their pre-exam in Higher Chemistry. The two are not that closely related as they do not contain identical questions
- Our main aim is to be fair to candidates across all subjects and all levels and maintain standards across the years, even as syllabuses evolve and change

Comments on grade boundaries for each subject area

The grade boundaries set are very close to the notional 50, 60 and 70%.
The boundaries are the same as those applied in 2002.

Comments on candidate performance

General comments

There was a disappointing lack of knowledge of basic Physics as defined by the Content Statements in the Arrangements Document. Many candidates also had considerable difficulty addressing problem solving questions — for example lack of ability to read data from graphs.

Areas of external assessment in which candidates performed well

In general candidates responded well to the multiple choice questions (except questions 1 and 7).

In the written part of the paper, responses were reasonably good in the following questions:

- Q8 on optical fibres
- Q9 on radio waves
- Q12 on power, current and fuse values
- Q17 on speed and distance
- Q18 on input and output devices

Areas of external assessment in which candidates had difficulty

Candidates had particular difficulty with the following questions:

- Q10
 - a i the position of a voltmeter in a circuit
 - b the increase in current through wet hands
- Q11
 - b the addition of voltages in a series circuit
 - c the addition of currents in a parallel circuit
- Q14
 - b ii problem solving using two readings from a graph
- Q15
 - b i the knowledge of an octave
 - b ii the knowledge of how wind instruments produce different notes
 - c how to draw oscilloscope traces of different frequencies and amplitudes
- Q16
 - a the selection of the correct meter from a choice of three
 - b problem solving using voltage gain
 - c the knowledge that input and output frequencies are equal for an amplifier
- Q19
 - a the knowledge of the symbol for an OR gate
 - b the knowledge of the truth table for an OR gate
 - c problem solving using two linked gates

Recommendations

Feedback to centres

The responses from a few candidates were good.

There were very many candidates, however, who displayed a lack of the most basic Physics. Problem solving also proved to be a difficulty for many candidates.

It is recommended that in addition to the basic Knowledge and Understanding, attention should be given to the following:

Units	Many candidates gave answers with no units or wrong units or unacceptable abbreviations such as mps.
Graphs	Surprisingly few candidates were able to extract data from graphs accurately.
Formulae	There is a very limited number of formulae used at this level (5). Many candidates could not handle these correctly. There were also many candidates who could not handle the division required by the formulae.