



CAMBRIDGE ASSESSMENT

## **Assessment Instruments over Time**

**Evaluation & Psychometrics team  
Research Division**

**December 2008**

Introduction.....	3
Method .....	3
Background .....	4
Junior Local Examinations.....	4
School Certificate Examinations.....	5
GCE and GCSE.....	5
A caveat.....	6
References .....	6
Section 1: Mathematics.....	7
Structure of Mathematics examination papers .....	7
Rubric .....	26
Style of questions/papers .....	26
Topics .....	27
References .....	29
Section 2: Geography.....	30
Structure of the papers .....	30
Summary of topic areas over time from 1927 (School Certificate) onwards.....	34
References .....	35
Section 3: Physics.....	36
Structure of examination papers.....	36
Physics topics assessed.....	41
Commentary .....	46
General impressions.....	46
Rubric .....	47
Topics .....	49
Commentary on other changes in the question papers over time .....	50
Section 4: Art.....	52
Structure of the papers .....	52
Early papers.....	52
Compulsory elements and candidate choice .....	52
Preparation work.....	53
Section 5: Food Technology/Home Economics .....	60
Evolution of the practical component.....	60
Topic areas on the theory paper.....	65
Section 6: French .....	67
Structure of the papers .....	67
Development of topic areas .....	72
References .....	72
Section 7: English Literature .....	73
The place of literature in the overall curriculum .....	73
The place of Shakespeare in the English Literature curriculum .....	73
Changes in the choices of authors and texts.....	81
Changes in the skills tested over time .....	83
Routes through a specification .....	85
Summary and discussion.....	86
Looking to the future.....	86

## Introduction

This project has been carried out as a part of Cambridge Assessment's 150<sup>th</sup> Anniversary celebrations. The project is a departure from the usual qualitative and quantitative methods used by the Evaluation Team, and instead takes the form of a semi-structured investigation of the development of a number of assessments through the questions presented upon the written examination papers.

What is the point of looking backwards, whilst education continues to move forwards? In the 150 years since Cambridge Assessment has been in existence, there has been a great deal of educational change – without a pause from time to time, to look back, it is possible to lose some of the awareness of how far assessment in the UK has come.

The context for change is also an important cornerstone of comparability research into standards over time. When comparisons are made between the performance of one generation with another, any findings must be modified by a consideration of changes in curricula, in education systems and in life in general. However, a consideration of question papers alone is not sufficiently rigorous to provide answers to questions such as whether standards over time have changed. This is because such a comparison would need to be made in the light of details of the curriculum, evidence from candidates' scripts, information from mark schemes and a sound knowledge of the nature of the cohorts in question. So this project cannot tell us about standards over time. But it can give us insight into the topics that were popular, and how assessments have developed over time. This project is all about contexts for assessment, a perspective upon the development of assessments in the UK and a celebration of 150 years of Cambridge Assessment.

In this project, details of the question papers and examples of questions are used to illustrate the development of seven different subjects. In each case the following research questions are addressed:

- Has the assessment structure altered over time?
- Has the emphasis on different topic areas changed over the years?

A selection of subjects has been examined in this study. These are:

Mathematics	investigated by Milja Curcin and Nat Johnson
Geography	investigated by Tim Gill
Physics	investigated by Tom Bramley
Art	investigated by Jo Ireland
Food Technology	investigated by Gill Elliott
French	investigated by Gill Elliott
English Literature	investigated by Beth Black

## Method

Each of the studies followed a similar method: question papers for the seventh year of every decade (1867, 1877 and so on, through to 2007) were obtained from the archives department of Cambridge Assessment. Initial scrutiny of the question papers included tabulating information about the duration and structure of each assessment, as well as notes on the rubric and examples of questions. Where appropriate, other sources of information, including the regulations for the year in question, examiners' reports and mark schemes were consulted. However, a complete examination of all these materials for every year would have been beyond the scope of this study, and, for many of the years studied, some of the materials do not exist. Therefore, where there seemed to be a 'story' to tell, additional materials were consulted if available. Once the initial tables of information were complete, the authors of each subject area were able to follow the issues which seemed most of interest within that subject. This has worked very well in practice, enabling issues which might have become laboured if examined in each subject, to be covered in depth in

just one. Thus, for example, Tom Bramley (Physics) leads a discussion of developments in the rubric, and Beth Black (English Literature) looks at the way in which source material has gradually become more contemporary over the years. Whilst each of these discussions is specific to the subjects those authors were investigating, there are clear parallels in other subjects.

## Background

In this section, we give a brief overview of the development of the UCLES/MEG/OCR<sup>1</sup> examinations that can be considered to be a predecessor of the contemporary GCSE examinations, and the circumstances in which they developed. This is in order to provide at least a partial backdrop against which the development of the relevant examinations (mainly in terms of structure and content) can be analysed. Obviously, it is particularly important to take this contextual information into account when attempting to make any direct comparisons of different papers over the years. The purposes for which the papers were set, and the purposes, characteristics and circumstances of the entire qualifications of which they were a part could be vastly different in different periods, inevitably affecting among other things the topics tested, the paper style and structure, and ultimately, the perceived 'difficulty' of the paper. For this reason, it should be borne in mind that the papers for notional 16-year-olds,<sup>2</sup> which we analyse below, are only broadly comparable, as are different qualifications to which the papers belong.

Watts (2008) provides a useful overview of the development of Cambridge Local Examinations from 1858 to 1945, mentioning some elements of the context in which the examinations developed. In this paper we will only focus on the examinations that we consider to be predecessors of the GCSE exams.

### *Junior Local Examinations*

A system of **Junior Local Examinations** for pupils under 16 was established in 1857, covering Mathematics, English Language and Literature, History, Geography, Geology, French, German, Latin, Greek, Chemistry, Physical Sciences, Zoology and Comparative Anatomy, Drawing, Music and Religious Knowledge. Of these, only parts of Mathematics (i.e. Arithmetic), reading aloud a passage from some standard English author, writing from dictation, and English Grammar were compulsory. From 1897 in our sample, the only compulsory parts of the Junior Examination were writing from dictation and Arithmetic.

Watts (2008) cites a report written for the fortieth year of the first Syndicate which states that 'The main object of those who promoted the [local examinations] scheme was to improve the state of education in the schools which lay between the Elementary schools and the great Public [independent] Schools.' Describing the circumstances in which the local examinations emerged, Watts notes that the majority of children at that time did not get a chance to go beyond Elementary School, which they would have left by the age of fourteen at the latest. On the other hand, the rapidly expanding middle class expected more from education than that. Middle-class schools did not attract government support but were privately run and parents paid fees, though they may have been supported by endowments. Some of the private secondary schools were good, but in many cases they were poor, so the hope was that they could improve if they had a standard against which to compare themselves. The general idea was to raise standards of education for secondary students.

---

<sup>1</sup> University of Cambridge Local Examinations Syndicate/Midlands Examining Group/Oxford, Cambridge and RSA Examinations

<sup>2</sup> 'Notional' age refers to the age at which a test or examination is pitched. Thus, an examination for a notional 16 year old aims to test their subject knowledge pitched at what one might expect from an 'average' 16 year old having undertaken a suitable course of study, taking into account ideas of the 'average' 16 year old relevant to an examination such as comprehension and understanding of context in which questions may be framed. Of course, some candidates may sit the exam either early or late, but will be judged against this notional developmental age group.

As Watts (2008) further notes, opponents of the local examinations had always had reservations about the fact that they encouraged the examining of individuals, not whole classes or schools. This was a widely held view in the public schools (i.e. private schools in England), along with fears of state interference. These schools argued for a combined system of examining and inspection, administered by the ancient universities rather than the government.

### *School Certificate Examinations*

In 1911 the Board of Education had proposed that a School Certificate Examination system should be set up, but this process stalled during the First World War and it was not until 1918 that the first **School Certificate Examinations** were held (Watts 2008). It was, as envisaged by the Bryce Commission, a national system, with the Board of Education, through a Secondary School Examinations Council, being the co-ordinating authority. The system was designed to produce evidence of general educational attainment which could replace the qualifying examinations of the different providers, including the universities' own matriculation examinations. The School Certificate system was the first unified secondary school examination system for the country and it considerably simplified the situation for schools and students (Watts 2008).

School Certificate was a group certificate, and in order to obtain it, the student had to reach the required standard in five subjects, with at least one of the subjects being chosen from a selection of Humanities, Languages and Mathematics/Science. By 1950, this requirement had been adapted to five subjects which must include English, a language and Mathematics/Science. As Watts (2008) notes, group examinations were later abandoned in the face of evidence that for instance in 1932, 30% of the candidates who failed the School Certificate exam did so because of failure in one subject.

### *GCE and GCSE*

The **General Certificate of Education** was introduced in 1951. Its ordinary level was taken at age 16. Pupils could take any combination of subjects, and would get credit for every subject passed. GCE O-level was designed for the top 20 per cent of the ability range,<sup>3</sup> and initially the majority of candidates came from selective grammar schools (Patrick and Patrick 2008). As observed by Patrick and Patrick (2008), from the introduction of GCE onwards, the Syndicate had an ongoing programme of development and revision for existing syllabuses, often involving new approaches to assessment. As alternative syllabuses became accepted as mainstream, more traditional versions were phased out. There were experiments with innovative systems of examining, including graded objectives, records of achievement and modular syllabuses. Syllabuses became more informative and the style of examination papers began to change. New formats were introduced, with clearer layouts and larger, simpler fonts. There were more tables, diagrams, pictures and photographs and, by 1980s, there was a small number of papers where candidates wrote their answers on the question paper.

According to Patrick and Patrick (2008), the **GCSE** examination, introduced in 1988, had several novel features. It was much more tightly controlled than O-level, with national and subject criteria and regulations. As GCSE developed, the degree of regulation increased and some of the approaches, such as 100% coursework schemes, which were permitted in 1988, were subsequently outlawed. Aiming to supersede both GCE and CSE and cater for all students, GCSE was available across the whole ability range and most syllabuses had two tiers. Syllabuses were no longer lists of set books or content headings, but included assessment objectives and criteria, along with detailed information about skills, concepts and knowledge to be tested (Patrick 1996).

---

<sup>3</sup> In 1965, CSE was introduced to cater for students of somewhat lower levels of attainment, notionally the next 40 per cent (Patrick 2007: 14). This qualification was not provided by UCLES/MEG/OCR.

## A caveat

These studies cannot be used to provide a commentary on *standards* over time, for several reasons:

- Firstly they do not contain sufficient salient information about the mark schemes, the curriculum and the exact nature of the work produced in response to the questions (scripts). Without **all** of these pieces of information, most of which no longer exist, comparisons about whether a particular era is 'better' simply cannot be made.
- Secondly, examination questions have changed over the years. For example, advances in technology have made it possible to routinely calculate statistics about questions (e.g. facility values) which can provide question writers with important feedback about the performance of that question. Additionally, much development has occurred around question writing and question writer training. Older questions which may seem difficult to 21<sup>st</sup> century readers may have been difficult for reasons which would nowadays be challenged on the grounds of fairness or validity. Finally, the regulation and oversight of all Awarding Bodies has changed beyond recognition in 150 years. Therefore, simplistically comparing questions from one era with another as evidence of changes in standards over time is flawed.
- Thirdly the nature of the cohort has altered over the years and examination questions do not show this. So for example, the candidates sitting a School Certificate examination in 1907 might have been only a tiny proportion of the 16 year old population, whereas the vast majority of 16-year-olds enter for GCSEs in the current context. As a consequence the level of accessibility of the questions differs – modern questions must be worded in such a way that all students being targeted can make some attempt at answering. The target candidature of past questions (particularly those from the earliest years sampled) was undoubtedly very different.

## References

Patrick, H. and Patrick, J. (2008). Home examinations after 1945. In S. Raban (Ed.), *Examining the World. A History of the University of Cambridge Local Examinations Syndicate*. 71–105. Cambridge: Cambridge University Press.

Patrick, H. (1996). Comparing Public Examination Standards over Time. BERA.

Watts, A. (2008). Cambridge Local Examinations 1858-1945. In S. Raban (Ed.), *Examining the World. A History of the University of Cambridge Local Examinations Syndicate*. 36–70. Cambridge: Cambridge University Press.

## Section 1: Mathematics

### *Structure of Mathematics examination papers*

Table 1.1 shows the structure of the Mathematics papers offered to pupils at age 16 (equivalent of Year 11) by UCLES/MEG/OCR. The sample includes papers from every tenth year from 1867 to 2007 inclusive, obtained from Cambridge Assessment archives. The table shows the year and qualification name, the title and structure of the paper, the time allowed, the number of questions, the rubric (instructions/information to the candidate), and example questions from the paper.

As can be seen from the table, the structure of the papers changed, and passed through several relatively distinct stages broadly corresponding to the change in qualifications. Initially, during the era of Junior Local Examinations, from 1867 until 1917, the Mathematics exam consisted of 5 papers (Arithmetic, Algebra, Euclid/Geometry, Trigonometry, and Mechanics). The year 1867 differed slightly in that Mechanics was not included in the Mathematics papers. Arithmetic, Algebra and Euclid/Geometry papers typically consisted of two sections each, while Trigonometry was not split into parts. Generally, apart from Arithmetic, candidates could pass if they satisfied the Examiners in the first section of each paper.

Arithmetic was always compulsory for all students and belonged to Part I of the Junior Examination, alongside reading aloud a passage from some standard English author, writing from dictation, and English Grammar. From 1897 in our sample, the only compulsory parts of the Junior Examination were writing from dictation and Arithmetic. The remaining four papers belonged to Part II. In order to pass in the latter, students were required to satisfy the Examiners in Algebra and Euclid (later Geometry).

School Certificate was introduced in 1918 replacing Junior Examination, and is represented in our samples by papers from 1927, 1937, and 1947. Over this period, the papers were gradually changing their structure.

In 1927, the Mathematics exam consisted of Arithmetic (still compulsory for everyone alongside writing from dictation), Geometry, and Algebra. There were no questions set on Mechanics as part of the Mathematics exam. In this year, only the Arithmetic paper consisted of two parts, both of which were compulsory for a pass. As before, in order to pass the second part of the exam, students had to satisfy the Examiners in Geometry and Algebra. 1927 was also the first year in our sample when Additional Mathematics was introduced as a separate optional paper.

By 1937, Arithmetic was no longer compulsory, the entire Mathematics exam being optional. The Arithmetic paper contained a number of optional questions on numerical Trigonometry, which no longer constituted a separate paper. Both in 1937 and 1927, candidates were required to attempt all the questions in all papers, unlike in previous years.

By 1947, Alternative A and Alternative B papers were introduced. Alternative A consisted of the usual Arithmetic, Algebra and Geometry papers, each of them consisting of two sections. The Arithmetic paper still included some alternative questions on numerical Trigonometry. By 1947, we see the return to the practice common before 1927 of candidates being required to attempt all questions in Section I, and only two to four questions from Section II of each paper.

The alternative B paper introduced an altogether different structure – questions involving arithmetic, geometry and algebra were integrated into the same paper. Candidates sat two such papers, each of them consisting of two sections and each of them compulsory. In the Scheme of Papers for 1957 (p. 3) it was stated that each paper may contain questions on any part of the syllabus, and that the solution of any question may require knowledge of more than one branch of the syllabus. A high standard of accuracy was expected. It was also stated that the first section of each paper would contain questions on the more elementary parts of the syllabus, while the

second section would include a variety of questions. Typically, it was required that candidates attempted all of the questions in Section I and any four questions in Section II.

The Alternative B syllabus was introduced following the publication, in 1944, of the Jeffrey report. This report was issued after discussions between representatives of the Examining Boards, the Teachers' Associations, and the Mathematical Association, and recommended an alternative syllabus in Mathematics as distinct from syllabuses in the separate sections. One of the aims of the authors of the new syllabus was to bring Mathematics more closely into relation with the life and experience of the pupils; another was to reduce the amount of formal geometry, but with items of trigonometry and practical geometry being added.

This structure remained the same in all respects in 1957 and 1967, although the qualification had changed from School Certificate to GCE O-level (introduced in 1951). One notable difference was that by 1957 and afterwards each section of each paper contained information regarding how many marks it brought, given in brackets next to each section title. GCE O-level was designed for the top 20 per cent of the ability range,<sup>4</sup> and initially the majority of candidates came from selective grammar schools (Patrick and Patrick 2008). These pupils followed a mathematics course leading to O-level which included arithmetic, algebra, geometry and trigonometry; some of these pupils also studied 'additional mathematics' as a second mathematical subject at O-level before entering the sixth form (Cockroft 1982).

In 1977 in addition to Alternative A and B (similar in all respects to the ones from 1957 and 1967), Alternative C was introduced. It was similar to Alternative B in that it consisted of two integrated papers with two sections in each. However, according to the 1977 Subject Syllabus (p. 19), the emphasis of the Alternative C examination was on the understanding of basic mathematical concepts and their application, rather than on skill in performing lengthy manipulations. Importance was to be attached to clear expression and careful reasoning.

1987 was the last year for GCE O-level exams in our sample (and in general). Already in this year the GCSE exams were piloted in some schools in preparation for the launch in 1988. In 1987 there was only one version of the Mathematics paper – similar in all respects to the Alternative C paper from 1977. The 1987 syllabus continued to attach importance to skills in algebraic manipulation and to numerical accuracy in calculations. The emphasis was still on the understanding of basic mathematical concepts and their applications, together with an ability to show this by clear expression and clear reasoning.

1997 was the first GCSE year in our sample. We analysed the Mathematics option without coursework as this option was taken by the majority of the candidates that year (according to Inter-group Statistics, Summer 1997). By this time tiers were introduced, called basic, central and further in 1997. In each tier there were two papers containing two sections each. Both papers in each tier resembled the integrated alternatives B and C of 1947-1987. By 1997 candidates were required to answer all the questions in each paper, unlike in the previous years represented in our sample.

In 2007 coursework was compulsory in all options. At that point the tiers were called foundation, intermediate and higher. Again, each of them consisted of two papers with two sections; the candidates were required to attempt all the questions in each paper.

---

<sup>4</sup> In 1965, CSE was introduced to cater for students of somewhat lower levels of attainment, notionally the next 40 per cent (Patrick 2007: 14). This qualification was not provided by UCLES/MEG/OCR.

Table 1.1: Mathematics examination papers 1867-2007.

Year/ Qualification	Paper title/structure	Time	No of Qs	Rubric	Example question
1867 Junior Local Examination	Preliminary Arithmetic (belongs to Part I, Section 4)	1 hr	8	- Every student is required to satisfy the Examiners in this paper. The WHOLE WORKING of the sums is to be sent up: answers without the working will not do.	Find the sum, difference, product, and quotient of 537152 and 763.
	Arithmetic (belongs to Part II, Section 7)	1 hr	7	- The working of the sums is to be sent up; the answers without the working will not do.	A tourist just before leaving London has £23. 12s. 6d., and on his arrival at Paris he exchanges what remains for 23nap. 12fr. 50c.; if 1 napoleon = 20 francs, and 1 franc = 100 centimes, find what he has already spent, the rate of exchange being 25 fr. 20 c. per pound sterling.
	Euclid (Books I, II, III, IV, VI) (belongs to Part II, Section 7)  Parts I and II	2 hrs	8 (4 in each part)	- All the students in this Section must satisfy the Examiners in the first part of this paper.	Define a rectangle. Divide a given straight line into two parts, so that the rectangle contained by the whole and one of the parts may be equal to the square of the other part.
	Pure Mathematics. Algebra (belongs to Part II, Section 7)	3 hrs	15	- All students in this Section must answer five questions at least in the first nine.	Solve the following equations: (1) $\frac{2x}{3} + \frac{x+1}{4} - \frac{x-1}{2} = x - 8.$ (2) $a\left(\frac{x}{2} - 1\right) + x = 3 + \frac{a}{2}.$ (3) $\begin{cases} y - x = \frac{1}{3}(y + x) + 2, \\ 3x - y = \frac{1}{11}(2y + x) - 3. \end{cases}$
	Trigonometry (belongs to Part II, section 7)	1 ½ hrs	7	/	Define the trigonometrical functions of an angle. From what were these names derived? Express the sine, cosine, and secant of an angle in terms of the cotangent.
1877 Junior Local Examination	Arithmetic (belongs to Part I, Preliminary)	2 hrs	12	- Every student must satisfy the Examiner in this paper. - The WHOLE WORKING of sums is to be sent up. Answers without the working will not count.	In building a viaduct of one hundred and one arches, ninety thousand and nine bricks are used for each arch. How many bricks are used altogether? Express the answer in words.
	Euclid (Books I, II, III, IV, VI) (belongs to Part II, Section 7)  Parts I and II	2 ½ hrs	12 (Part I: 7 Part II: 5)	- Every student in this section must satisfy the Examiner in the first part of this paper.	Triangles upon the same base and between the same parallels, are equal to one another. Any point $P$ is taken in the line joining an angular point $A$ of a triangle to the middle point of the opposite side $BC$ : prove that the triangles $APB$ , $APC$ are equal.

Year/ Qualification	Paper title/structure	Time	No of Qs	Rubric	Example question
	Algebra (belongs to Part II, Section 7)  Parts I and II	3 hrs	13 (Part I: 9 Part II: 4)	- Every student in this section must satisfy the Examiner in the first part of this paper.	State the rule for finding the L.C.M. of two algebraical quantities. Prove that the product of any two quantities is the same as the product of their L.C.M. and G.C.M. Find the L.C.M. of $x^3 + 2ax^2 + a^2x + 2a^3$ and $x^3 - 2ax^2 + a^2x - 2a^3$
	Trigonometry (belongs to Part II, section 7)	1 ½ hrs	7	/	Prove  (i) $1 + \sec 2\theta = \tan 2\theta \cdot \cot 2\theta$ .  (ii) $\frac{\cos 3\theta + \sin 3\theta}{\cos \theta - \sin \theta} = 1 + 2 \sin 2\theta$  and find all values of $\theta$ which satisfy the relation $\sin \theta + \cos \theta = \sin 2\theta + \cos 2\theta$ .
	Mechanics (belongs to Part II, section 7)	2 hrs	7	/	A body is in equilibrium on a horizontal plane, shew that the vertical through the centre of gravity of the body must fall within the 'base.'
1887 Junior Local Examination	Arithmetic (belongs to Part I, Preliminary)  Parts A, B, C, D	2 hrs	12 (3 in each part)	- Every student must satisfy the Examiner in this paper. - The WHOLE WORKING of sums is to be sent up. Answers without the working will not count.	If 6 compositors in 16 days of $10 \frac{1}{2}$ hours each can set in type 720 pages, each of 60 lines with 40 letters in a line; in how many days of 7 hours each will 9 compositors set 960 pages, each of 45 lines with 50 letters in a line?
	Euclid (Books I, II, III, IV, VI) (belongs to Part II, Section 7)  Parts A and B	2 ½ hrs	12 (Part A: 7 Part B: 5)	- Every student in this section must satisfy the Examiner in the part of this paper marked A	DEFINE a straight line, a plane angle, a circle, a rhombus, and parallel straight lines.
	Algebra (belongs to Part II, Section 7)  Parts A and B	3 hrs	12 (Part A: 7 Part B: 5)	- Candidates must satisfy the Examiners in the part of this paper marked A	Extract the square root of $4(x-1)(x^3-1) + 9x^2$
	Trigonometry (belongs to Part II, section 7)	1 ½ hrs	8	/	Prove that in any triangle the sides are proportional to the sines of the opposite angles. Express the sine of half of one of the angles of a triangle in terms of the sides.
	Mechanics	2 hrs	7	/	Find the condition of equilibrium in that system of pulleys where the same string passes around all the pulleys.
1897 Junior Local	Arithmetic (belongs to Part II, Section	2 hrs	12 (6 in each	- Students must satisfy the Examiner in this paper.	Find the simple interest on £389. 6s. 8d. for 75 days at $3 \frac{1}{2}$ per cent per annum.

Year/ Qualification	Paper title/structure	Time	No of Qs	Rubric	Example question
Examination	1)  Parts A and B		part)	- The WORKING of the answers is to be sent up. Answers without the working will not count.	
	Euclid (belongs to Part II, Section 9)  Parts A and B	2 ½ hrs	15 (Part A: 10 Part B: 5)	- Candidates can pass in this subject by doing sufficiently well in Books I and II.	Prove that, if from a point within a circle more than two equal straight lines can be drawn to the circumference, that point must be centre of the circle.
	Algebra (belongs to Part II, Section 9)  Parts A and B	2 ½ hrs	13 (Part A: 7 Part B: 6)	- Candidates can pass in this subject by doing sufficiently well in the A part of the paper	Divide $x^5 + x - 6$ by $x^2 - x + 2$ .  Determine the value of $a$ in order that $x^3 + ax - 10$ may be divisible by $x - 2$ .
	Trigonometry (belongs to Part II, Section 9)	1 ½ hrs	7	/	Define the cosine of an angle of any magnitude, and prove that $\tan^2 A = \sec^2 A - 1$ . If $8 \sin \alpha - \cos \alpha = 8 \operatorname{cosec} \alpha - \sec \alpha$ , prove that $\tan \alpha = 2$ .
	Mechanics	2 hrs	6	/	Define the <i>centre of gravity</i> of a body. Having given the centre of gravity of a body and also that of a given part of it, find the centre of gravity of the remaining part.
1907 Junior Local Examination	Arithmetic (belongs to Part I. Compulsory)  Parts A and B	2 hrs	12 (Part A: 7 Part B: 5)	- Candidates can pass in Arithmetic by doing sufficiently well in Part A of this paper. - The WORKING of the answers is to be sent up. Answers without the working will not count. - The use of algebraical symbols and processes is permitted.	If an area of one acre is represented in a map by one square inch, find the scale of the map, in inches to the mile, to the nearest tenth of an inch.
	Geometry (belongs to Part II, Section 9)  Parts A and B	2 ½ hrs	15 (Part A: 5 Part B: 10)	- Candidates can pass in Geometry by doing sufficiently well in the A part of this paper. - Figures should be drawn accurately with a hard pencil; but the letters attached to the figures, and the written answers, must be in ink. In questions 2, 5, 7, and 8, <b>all lines required must be shewn clearly.</b>	Prove that any point on the line bisecting a given angle is equidistant from the lines containing the angle. Construct a triangle $ABC$ having $AB = 7.1$ cm, $AC = 6.8$ cm, and $BC = 8$ cm. then find the point within the triangle $ABC$ which is equidistant from $AB$ and $AC$ and is also 2 cm. distant from $BC$ , describing the steps of your construction.
	Algebra (belongs to Part II, Section 9)  Parts I and II	2 ½ hrs	12 (6 in each part)	- Candidates can pass in this subject by doing sufficiently well in Part I of the paper.	Simplify: $1 + \frac{2y^2 - x^2}{(x+y)(x-y)} + \frac{1}{1 - (1 + \frac{y}{x+y})(1 - \frac{y}{x-y})} + \frac{1}{6(1 + \frac{2y}{x})(1 - \frac{2y}{x}) + 24 \frac{y^2}{x^2}}$
	Trigonometry (belongs to Part II, Section 9)	1 ½ hrs	7	-Tables of logarithms etc. can be obtained from the Presiding Examiner	Find by geometrical reasoning the values of $\sin 30^\circ$ and $\cos 90^\circ$

A regular pentagon is inscribed in a circle of one inch radius. Shew that the

Year/ Qualification	Paper title/structure	Time	No of Qs	Rubric	Example question
					perimeter of the pentagon is 5.878 inches. Find also the perimeter of a regular pentagon circumscribed about the circle.
	Mechanics	2 hrs	7	/	What is meant by the velocity of one body relative to another? Two motor cars are moving uniformly on two straight roads perpendicular to each other at 40 miles an hour and 20 miles an hour respectively. At a certain instant they are both 5 miles from the point of intersection of their paths and are moving towards it: how much time will elapse before they are at their shortest distance from each other, and what is that shortest distance?
1917 Junior Local Examination	Arithmetic	2 hrs	10	- Candidates can pass in Arithmetic by doing sufficiently well in Part A of this paper. - The WORKING of the answers is to be sent up. Answers without the working will not count. - The use of algebraical symbols and processes is permitted.	A man sells £1420 of $4\frac{1}{2}$ per cent. War Loan at 95, and invests the proceeds in French Republic 5 per cent. Rentes at $88\frac{3}{4}$ . Find the change in his income, neglecting brokerage.
	Geometry Parts A and B	2 hrs	8 (4 in each part)	- Candidates can pass in Geometry by doing sufficiently well in the A part of this paper. - The letters attached to all figures and the written answers must be in ink. In the answers to questions A1, A2 (b) and B8 the figures should be drawn accurately and <b>visibly</b> with a fairly hard pencil, and <b>all the construction lines must be shewn clearly</b> . In the answers to the remaining questions the figures may be drawn freehand, provided that they are neat and reasonably correct.	Prove that the tangents which can be drawn to a circle from an external point are equal. Two unequal circles are drawn to touch each other externally, and straight line AB touches them and A, B respectively. Prove that the tangent to the circles at their point of contact bisects AB.
	Algebra Parts I and II	2 ½ hrs	12 (Part A: 7 Part B: 5)	- Candidates can pass in this subject by doing sufficiently well in Part I of the paper.	Plot, with the same axes, the graphs from $x = -2$ to $x = +2$ of (i) $y = 2 - \frac{3}{2}x$ , and (ii) $y = \frac{3}{2} + \frac{1}{2}x - x^3$ . Find from your diagram the roots of the equation $2x^3 - 4x + 1 = 0$ [Take one inch as the unit both for $x$ and $y$ .]
	Trigonometry	1 ½ hrs	7	- Squared paper and tables of logarithms etc. can be obtained from the Presiding Examiner (Logarithmic tables attached)	Prove that, if A be any angle, $\sec^2 A = 1 + \tan^2 A$ . Find the values of $\sec A + \tan A$ when A is an acute angle whose sine is 0.28.
	Mechanics	2 hrs	8	/	A body whose mass is one cwt. rests on a smooth inclined plane. It is maintained in position by two forces, one of 20 lb. acting vertically upwards and one of 50 lb. acting horizontally. Find the angle of inclination of the plane.
1927 School Certificate	Arithmetic Sections I and II	2 hours	10	- The WORKING of the answers is to be sent up. Answers without working will not count. The use of algebraical symbols and processes is permitted.	From equal areas English and French farmers obtain the same amount of hay. From a field of area one acre 30 cwt. of hay can be obtained. Find in kilograms to the nearest integer the weight which can be obtained from a square field of side 100m.

Year/ Qualification	Paper title/structure	Time	No of Qs	Rubric	Example question
				- Squared paper is not provided; but candidate may use graphical methods on ordinary paper. - Candidates are warned not to use logarithmic tables in the solution of any questions, unless they are satisfied that the answer can be obtained to a sufficient degree of accuracy by this means.	[Take 1 lb. to be 454 grammes and 1 sq. metre to be 1.196 sq. yds.]
	Geometry	2 hrs	8	- Tables of logarithms etc. can be obtained from the presiding Examiner.	Prove that a straight line, drawn from the centre of a circle to bisect a chord which is not a diameter, is at right angles to the chord. $ABCD$ is a rectangle; $X$ is any point in $AB$ ; $DY$ is drawn perpendicular to $DX$ cutting $BC$ produced in $Y$ ; and $V$ is the mid-point of $XY$ . Prove that $V$ is equidistant from $B$ and $D$ . What is the locus of $V$ as the position of $X$ in $AB$ changes?
	Algebra	2 hrs	10	- Squared paper and tables of logarithms can be obtained from the Presiding Examiner.	Find the product of $x^2 - xy - 2y^2$ and $x^2xy - 2y^2$ . A cricketer has an average of $a$ runs after $b$ completed innings. How many runs must he make in his next innings to get an average of $a+1$ , assuming that he is out?
1937 School Certificate	Arithmetic  Section I and Section II	2 hrs	11 (Section I: 7 Section II: 4)	- Mathematical tables may be obtained from the Supervisor. - Candidates are warned that misreading a question may lead to considerable loss of marks. - All working must be clearly shewn; it should be done as far as possible on the same sheet as the rest of the answer. - Answers without working will not count.	A rectangular block of metal 37.40 cm. by 21.75 cm. by 10.50 cm. is drawn into wire of radius 0.175 cm. find, in kilometres correct to 3 significant figures, the length of the wire. [Take $\pi$ to be $\frac{22}{7}$ .]
	Geometry	2 ½ hrs	7	- Candidates are warned that misreading a question may lead to considerable loss of marks. - In the first part of Question 1 and the second part of Question 4 all construction lines must be clearly shewn. Explanations and proofs of constructions are <b>not</b> to be given <b>unless demanded</b> .	Draw a triangle $ABC$ with $BC = 2.3$ inches, $\angle B = 66^\circ$ and $\angle C = 51^\circ$ . Using ruler and compasses only, construct the line from $A$ perpendicular to $BC$ to meet $BC$ at $D$ , and produce it to $P$ so that $DP = AD$ ; also construct the line from $B$ perpendicular to $AC$ to meet $AC$ at $E$ , and produce it to $Q$ so that $EQ = BE$ . <b>Prove</b> that $AQ = BP$ .
	Algebra	2 hrs	10	- Candidates are warned that misreading a question may lead to considerable loss of marks. - Squared paper and mathematical tables can be obtained from the Supervisor.	(i) Solve the equations: $\left. \begin{aligned} 5(x - y) - 3(x + y) &= 41 \\ 5(x + y) - 3(x - y) + 31 &= 0 \end{aligned} \right\}$ (ii) If the roots of the equation $px^2 - 4x + q = 0$ are $-2$ and $3\frac{1}{3}$ , find the values of the coefficients $p, q$ .
1947 School Certificate	Elementary Mathematics. Alternative A.				

Year/ Qualification	Paper title/structure	Time	No of Qs	Rubric	Example question
	Arithmetic  Sections I and II	2 hrs	12 (Section I: 7 Section II: 5)	<p>- Mathematical tables and squared paper can be obtained from the Supervisor.</p> <p>- Candidates are warned that misreading a question may lead to the loss of a number of marks.</p> <p>- All working must be clearly shown; it should be done on the same sheet as the rest of the answer. No marks will be given for answers without working.</p> <p>FOR SECTION I</p> <p>- You may answer all the questions in Section I, but you <b>must not use Mathematical tables</b> in working the <b>first six questions</b>.</p> <p>FOR SECTION II</p> <p>- Answer <b>two</b> questions only in Section II.</p>	<p>(i) Multiply 59.08 by 0.07608. Give your answer (a) correct to two places of decimals, (b) correct to four significant figures.</p> <p>(ii) Divide 0.1414 by 17.32 and give your answer correct to 3 significant figures.</p>
	Geometry  Sections I and II	2 ½ hrs	13 (Section I: 8 Section II: 5)	<p>- Candidates are warned that misreading a question may lead to the loss of a number of marks.</p> <p>FOR SECTION I</p> <p>- Answer all the questions in Section I.</p> <p>FOR SECTION II</p> <p>- Answer any <b>three</b> questions in Section II.</p>	<p>If <math>P</math> is a point on the line joining <math>A</math> to <math>D</math>, the mid-point of the side <math>BC</math> of a triangle <math>ABC</math>, prove that the triangles <math>ABP</math>, <math>ACP</math> are equal in area.</p>
	Algebra  Sections I and II	2 hrs	14 (7 in each section)	<p>- Mathematical tables and squared paper can be obtained from the Supervisor.</p> <p>- Candidates are warned that misreading a question may lead to the loss of a number of marks.</p> <p>- All working must be clearly shown; it should be done on the same sheet as the rest of the answer. No marks will be given for answers without working.</p> <p>FOR SECTION I</p> <p>- Answer all the questions in Section I.</p> <p>FOR SECTION II</p> <p>- Answer <b>four</b> questions only in Section II.</p>	<p>If <math>P = \frac{at}{t-3}</math>, express <math>t</math> in terms of <math>P</math> and <math>a</math>, and <math>t</math> when <math>P = 2.4</math>, <math>a = 0.9</math>.</p>
	Elementary Mathematics.				

Year/ Qualification	Paper title/structure	Time	No of Qs	Rubric	Example question
	Alternative B				
	Paper I Sections I and II	2 ½ hrs	12 (Section I: 5 Section II: 7)	- You may attempt <b>all</b> of the questions in Section I and any <b>four</b> of the questions in Section II. - All working must be clearly shown; it should be done on the same sheet as the rest of the answer. - Mathematical tables and squared paper may be obtained from the Supervisor.	(i) Solve the equation $\frac{3x}{5} + 3 = \frac{x-2}{3}$ .  (ii) Factorise (a) $p^3q - p^2q^2 + 3p^2q$ , (b) $3y^2 - 12t^2$ , (c) $2x^2 + 5x - 12$ .  (iii) A person buys $(a - 2)$ articles at $b$ pence each, and $(a + 2)$ articles at $(b + 1)$ pence each. Find an expression in its simplest form for the total cost of all the articles.
	Paper II Sections I and II	2 ½ hrs	12 (Section I: 5 Section II: 7)	- You may attempt <b>all</b> of the questions in Section I and any <b>four</b> of the questions in Section II. - All working must be clearly shown; it should be done on the same sheet as the rest of the answer. - Mathematical tables and squared paper may be obtained from the Supervisor.	(i) The diagonals of a rhombus are 8 cm. and 10 cm. long. Calculate the length of a side of the rhombus, correct to two decimal places.  (ii) Draw a triangle $ABC$ in which $AB = 3.2$ in., $BC = 1.8$ in., and the angle $ABC = 79^\circ$ . Find by construction a point $X$ which is equidistant from the sides $AB$ and $AC$ , and which is also equidistant from the vertices $A$ and $C$ . Measure and state the length of $XB$ . ( <i>No explanation or proof is required.</i> )
1957 GCE Ordinary Level	Elementary Mathematics. Alternative A.				
	Arithmetic Section I [76 marks] Section II [24 marks]	2 hrs	11 (Section I: 7 Section II: 4)	- Mathematical tables and squared paper can be obtained from the Supervisor. - Candidates are warned that misreading a question may lead to the loss of a number of marks. - All working must be clearly shown; it should be done on the same sheet as the rest of the answer. No marks will be given for answers without working.  FOR SECTION I - Answer all the questions in this section.  FOR SECTION II - Answer <b>two</b> questions only in Section II.	(i) Working 8 hr. a day at the same average rate, 45 men could do a job in 12 days. If they only work $7\frac{1}{2}$ hr. a day and the job must be done in 9 days, find how many men should be employed.  (ii) A tennis court 78 ft. long and 36 ft. wide is to be surrounded by a rectangular fence of wire-netting 9 ft. high, erected 6 ft. away from each long side and 10 ft. away from each short side. If the wire-netting is sold only in complete rolls 10 yd. long and 4 ft. 6 in. wide, find the number of rolls which should be bought.

Year/ Qualification	Paper title/structure	Time	No of Qs	Rubric	Example question
	Geometry  Section I [61 marks] Section II [39 marks]	2 ½ hrs	12 (Section I: 7 Section II: 5)	- Candidates are warned that misreading a question may lead to the loss of a number of marks.  FOR SECTION I - Answer all the questions in this section.  FOR SECTION II - Answer <b>three</b> questions in Section II.	If there are three or more parallel straight lines, and the intercepts made by them on any straight line that cuts them are equal, prove that the corresponding intercepts on any other straight line that cuts them are also equal. [It is not necessary to assume any theorem on proportion or similarity, but if such a theorem is used it must be proved.]
	Algebra  Section I [56 marks] Section II [44 marks]	2 hrs	13 (Section I: 7 Section II: 6)	- Mathematical tables and squared paper can be obtained from the Supervisor. - Candidates are warned that misreading a question may lead to the loss of a number of marks. - All working must be clearly shown; it should be done on the same sheet as the rest of the answer. No marks will be given for answers without working.  FOR SECTION I - Answer all the questions in Section I.  FOR SECTION II - Answer <b>four</b> questions only in Section II.	(i) The diameter of a cycle wheel is $d$ inches. Find, in its simplest form, an expression for the speed of the cycle in feet per second when the wheels are making $n$ complete revolutions per minute. [Take $\pi$ to be $3\frac{1}{7}$ .]  (ii) Find the L.C.M. of $a^3 - 4ab^2$ and $a^2 - 4ab + 4b^2$ leaving your answer in factors.  (iii) Solve the equation $\frac{3}{5}(2t - 5) = 1 - \frac{2}{5}(t + 1).$
	Elementary Mathematics. Alternative B.				
	Paper I  Section I [52 marks] Section II [48 marks]	2 ½ hrs	11 (Section I: Section II: 6)	- Answer <b>all</b> the questions in Section I and any <b>four</b> in Section II. - All working must be clearly shown; it should be done on the same sheet as the rest of the answer. No marks will be given for answers without working. - Mathematical tables and squared paper are provided. - Mathematical tables must not be used in Question 1.	(i) In the triangle $ABC$ , $AB = 3$ in., $BC = 4$ in. and the angle $B = 40^\circ$ . Calculate the area of the triangle and the length of the third side.  (ii) Given that $x$ is an angle between 0 and 180 degrees and that $\sin x = \frac{4}{5}$ , calculate, without using tables, the possible values of $\cos x$ .
	Paper II  Section I [52 marks] Section II [48 marks]	2 ½ hrs	16 (Section I: 5 Section II: 11)	- Answer <b>all</b> the questions in Section I and any <b>four</b> in Section II. - All working must be clearly shown; it should be done on the same sheet as the rest of the answer. No marks will be given for answers without working.	A man in a boat pulls himself towards the vertical wall of a harbour by means of a rope fastened to a point on the wall 15 ft. above the level of his hands. Calculate the length of rope which he hauls in while moving from a position 30 ft. away to 10 ft. away from the wall. Calculate also the change in the angle which the rope, assumed straight, makes with the vertical.

Year/ Qualification	Paper title/structure	Time	No of Qs	Rubric	Example question
				- Mathematical tables and squared paper are provided. - Mathematical tables must not be used in Question 1.	
1967 GCE Ordinary Level	Mathematics. Alternative A.				
	Arithmetic  Section I [70 marks] Section II [30 marks]	1 ½ hrs	9 (Section I: 5 Section II: 4)	- Mathematical tables and squared paper are provided. - Candidates are warned that misreading a question may lead to the loss of a number of marks. - All working must be clearly shown; it should be done on the same sheet as the rest of the answer. No marks will be given for answers without working.  FOR SECTION I - Answer all the questions in Section I.  FOR SECTION II - Answer <b>two</b> questions only in Section II.	(i) A boy who was asked to find $3\frac{1}{2}\%$ of a sum of money misread the question and found $5\frac{1}{2}\%$ of it. His answer was £247. 10s. Find what the answer should have been.  (ii) A man invested £8,000 and, after paying income tax at 8s. 3d. in the £ on the first year's interest, he had £282 of the interest left. Calculate the rate per cent at which interest was paid.
	Geometry  Section I [70 marks] Section II [30 marks]	2 hrs	10 (Section I: 6 Section II: 4)	- Candidates are warned that misreading a question may lead to the loss of a number of marks. - In questions involving calculations, no proofs are required but essential steps of the working must be shown.  FOR SECTION I - Answer all the questions in Section I.  FOR SECTION II - Answer <b>two</b> questions only in Section II.	$WXYZ$ is a parallelogram. A line through $W$ meets $ZY$ at $T$ and $XY$ produced at $U$ . Prove that the triangles $WZT$ , $UYT$ are similar.  Given that $\frac{ZT}{TY} = \frac{3}{2}$ and the area of the parallelogram is 20 sq. in., calculate (i) the area of the trapezium $WXYT$ ; (ii) the area of $\triangle UIT$
	Algebra  Section I [70 marks] Section II [30 marks]	1 ½ hrs	11 (Section I: 7 Section II: 4)	- Same as in Arithmetic	Solve the equations (i) $(2x + 1)^2 = 4$ ; (ii) $2x^2 + 7x + 1 = 0$ , giving your answers correct to two decimal places.
	Mathematics. Alternative B.				
	Paper I	2 ½ hrs	11 (Section I:	- Answer <b>all</b> the questions in Section I and any <b>four</b> questions in Section II.	(i) A product may be bought at 1s. 4d. per lb. or £6. 10s. 8d. per cwt. Express, in its simplest form, the ratio of the costs.

Year/ Qualification	Paper title/structure	Time	No of Qs	Rubric	Example question
	Section I [52 marks] Section II [48 marks]		5 Section I: 6 Section II:	- All working must be clearly shown; it should be done on the same sheet as the rest of the answer. - Mathematical tables, squared paper and plain paper are provided.	(ii) Find the percentage reduction when the price of eggs goes down from 5d. each to 4s. 4 $\frac{1}{2}$ d. dozen.  (iii) The average of three numbers is 58. The average of two of them is 40. Find the third number.
	Paper II  Section I [52 marks] Section II [48 marks]	2 ½ hrs	11 (Section I: 5 Section I: 6 Section II:)	- Answer <b>all</b> the questions in Section I and any <b>four</b> questions in Section II. - All working must be clearly shown; it should be done on the same sheet as the rest of the answer. - Mathematical tables are provided.	(i) Simplify $(3\frac{3}{4} \times 1\frac{1}{5}) - 2\frac{5}{9}$ .  (ii) Given that 8 kilometres are equivalent to 5 miles and that there are 640 acres in a square mile, calculate the number of acres in a square kilometre.  (iii) A rectangular block is $f$ in. long, $g$ in. wide and $g$ in. high. Write down an expression for the total surface area of the block.
1977 GCE Ordinary Level	Mathematics. Syllabus A.				
	Arithmetic  Section I [70 marks] Section II [30 marks]	1 ½ hrs	9 (Section I: 5 Section I: 4 Section II:)	- Mathematical tables and squared paper are provided. - All working must be clearly shown; it should be done on the same sheet as the rest of the answer. - You must not use mathematical tables in working Questions 1-4.	(a) Simplify $\left(1\frac{7}{9} \div 1\frac{2}{3}\right) - \frac{2}{5}$ $1\frac{7}{9} + \left(1\frac{2}{3} \times \frac{2}{5}\right)$ , giving your answer as a fraction in its lowest terms.  (b) In order to buy a new bicycle, a boy saves half of his weekly pocket money for a period of 40 weeks. He has then saved four-sevenths of the cost of the bicycle. The remaining £18 of the cost is paid by the boy's uncle. Calculate the amount of pocket money the boy receives each week.
	Geometry  Section I [70 marks] Section II [30 marks]	2 hrs	10 (Section I: 6 Section I: 4 Section II:)	- In questions involving calculations, no proofs are required but essential steps of the working must be shown.  FOR SECTION I - Answer all the questions in Section I.  FOR SECTION II - Answer <b>two</b> questions only in Section II.	(a) $PQ$ and $QR$ are adjacent sides of a regular polygon. $S$ is the point on $PQ$ produced such that $QS = PQ$ . Given that $\hat{QSR} = 70^\circ$ , calculate $\hat{SQR}$ and the number of sides of the polygon.  (b) $FG$ is a diameter of a circle, centre $O$ , and $H$ is a point on the circumference of the circle. $FH$ is produced to the point $K$ such that $FG = GK$ . Prove that (i) triangles $FHG$ , $KHG$ are congruent, (ii) $OH$ is parallel to $GK$ .
	Algebra  Section I [70 marks] Section II [30 marks]	1 ½ hrs	11 (Section I: 7 Section I: 4 Section II:)	- Mathematical tables and squared paper are provided. - All working must be clearly shown; it should be done on the same sheet as the rest of the answer.	(a) Without using tables, calculate the values of (i) $(-3)^{-3}$ , (ii) $(\frac{9}{16})^{-\frac{1}{2}}$ , (iii) $\frac{\lg 32}{\lg 16}$

Year/ Qualification	Paper title/structure	Time	No of Qs	Rubric	Example question
				FOR SECTION I - Answer all the questions in Section I.  FOR SECTION II - Answer <b>two</b> questions only in Section II.	(b) Given that $\lg 2 = a$ and $\lg 3 = b$ , obtain expressions in terms of $a$ and $b$ for (i) $\lg 6$ , (ii) $\lg 1.5$ , (iii) $\lg 150$ .
	Mathematics. Syllabus B.				
	Paper 1  Section I [52 marks] Section II [48 marks]	2 ½ hrs	11 (Section I: 5 Section II: 6)	- Answer <b>all</b> the questions in Section I and any <b>four</b> questions in Section II. - All working must be clearly shown; it should be done on the same sheet as the rest of the answer. - Mathematical tables and plain paper are provided.	(a) Find the value of $3x^2y^2$ when $x = -1$ and $y = 4$ .  (b) Solve the simultaneous equations $3x + 5y = 6$ $6x - 2y = 48$ (c) Simplify the expression $\frac{7}{(x-4)(x+3)} - \frac{4}{(x+3)(x-1)}$ giving your answer as a single fraction in its lowest terms.
	Paper 2  Section I [52 marks] Section II [48 marks]	2 ½ hrs	11 (Section I: 5 Section II: 6)	- Answer <b>all</b> the questions in Section I and any <b>four</b> questions in Section II. - All working must be clearly shown; it should be done on the same sheet as the rest of the answer. - Mathematical tables, squared paper and plain paper are provided. - Silent electronic calculators may be used except in questions where their use is specifically forbidden. Slide rulers may not be used.	<b>Calculators must not be used in this question.</b>  Use tables to evaluate correct to three significant figures (i) $\sqrt{429000} + \sqrt{429}$ (ii) $10^{2.7490} \div 10^{1.3490}$ (iii) $\sqrt[5]{0.077}$
	Mathematics. Syllabus C.				
	Paper 1  Section I [60 marks] Section II [40 marks]	2 ½ hrs	32 (Section I: 20 Section II: 12)	- You should attempt all the questions in Section I (60 marks); you may attempt all the questions in Section II (40 marks) but marks will be given only for your best <b>eight</b> answers. - Answers are to be written on the question paper in the spaces provided, and the question paper is to be handed in at the end of the examination. - If working is needed for any question, it must be shown in the space below that question. - Mathematical tables are provided. - Slide rulers may be used, where appropriate.	The radius of a circle is measured as 11 mm correct to the nearest millimetre. (i) Write down the least possible value of the radius. (ii) Taking $\pi$ to be $\frac{22}{7}$ , calculate the least possible value of the circumference.

Year/ Qualification	Paper title/structure	Time	No of Qs	Rubric	Example question
				- Silent electronic calculators may be used, except in questions where their use is specifically forbidden.	
	Paper 2  Section I [50 marks] Section II [50 marks]	2 ½ hrs	12 (Section I: 6 Section II: 6)	- Answer any <b>five</b> questions in Section I and any <b>four</b> questions in Section II. - All working must be clearly shown; it should be done on the same sheet as the rest of the answer. - Omission of essential working will result in loss of marks. - Mathematical tables, squared paper and plain paper are provided. - Slide rulers may be used where appropriate. - Silent electronic calculators may be used, except in questions where their use is specifically forbidden.	(a) A sum of money is divided between three men A, B and C in the ratio 7:3:2. If A has £36 more than B, calculate how much C has. (b) A man bought a car for £3300. He made a first payment of £1200 and borrowed the remaining money from a bank at a rate of interest of 10% per annum. At the end of one year he repaid a certain sum to the bank after which he still owed £900. Calculate the sum he repaid.
1987 GCE Ordinary Level (Transitional year. GCSEs piloted in some schools)	Mathematics. Syllabus D  Paper I	2 ½ hrs	28	- All questions may be attempted. - Answers are to be written on the question paper in the spaces provided, and the question paper is to be handed in at the end of the examination. - If working is needed for any question, it must be shown in the space below that question. - Omission of essential working will result in loss of marks. - NEITHER MATHEMATICAL TABLES NOR SLIDE RULERS NOR CALCULATORS MAY BE BROUGHT INTO THE EXAMINATION ROOM. - Questions 1 to 20 carry 3 marks each. - Questions 21 to 28 carry 5 marks each.	There are 25 children in a class. Of these, 12 are in the School Play and 18 are in the School Choir. It is given that $\mathcal{E} = \{\text{children in the class}\}$ $P = \{\text{children in the School Play}\}$ And $C = \{\text{children in the School Choir}\}$ . (i) Find $n(P)$ . (ii) Find the smallest possible value of $n(P \cap C)$ . (iii) Express in set notation $\{\text{children who are in neither the School Play nor the School Choir}\}$ .

Year/Qualification	Paper title/structure	Time	No of Qs	Rubric	Example question
	Paper II Sections A [52 marks] and B [48 marks]	2 ½ hrs	12 (Section A: 5 Section B: 7)	<ul style="list-style-type: none"> <li>- Answer <b>all</b> the questions in Section A, and any <b>four</b> questions in Section B.</li> <li>- The intended marks for questions or parts of questions are given in brackets [ ].</li> <li>- All working must be shown. It should be done on the same sheet as the rest of the answer. Omission of essential working will result in loss of marks.</li> <li>- If the degree of accuracy is not specified in the question, and if the answer is not exact, three figure accuracy is required.</li> <li>- Mathematical tables or electronic calculators may be used to evaluate <b>explicit</b> numerical expressions.</li> <li>- Mathematical tables, graph paper and plain paper are provided.</li> </ul>	(a) Given that $p = 2, q = 3$ and $r = -5$ , evaluate <ul style="list-style-type: none"> <li>(i) <math>4q^2</math>,</li> <li>(ii) <math>(p - q)(q - r)</math>.</li> </ul> (b) Solve the equation $x - 2 = \frac{x}{5} + 4.$ (c) Show that the equation $(y - 4)^2 = 2y - 5$ reduces to $y^2 - 10y + 21 = 0.$ Hence solve the equation $(y - 4)^2 = 2y - 5.$
1997 GCSE	Mathematics (without coursework)				
	Basic Tier  Papers 1 and 4 (sections A and B each)	2 hrs each	47 (Paper 1: 27 Paper 4: 20)	Instructions of the following kind given: <ul style="list-style-type: none"> <li>- Write your name, centre number and candidate number in the spaces at the top of this page.</li> <li>- Answer all questions</li> <li>- Write your answers in the spaces provided on the question paper</li> <li>- Show all your working. Marks may be given for working which shows that you know how to solve the problem, even if you get the answer wrong.</li> </ul> Information of the following kind given: <ul style="list-style-type: none"> <li>- The number of marks is given in brackets [ ] at the end of each question or part of question</li> <li>- You are expected to use an electronic calculator for this paper</li> <li>- Unless otherwise instructed in the question, take <math>\pi</math> to be 3.142 or use the <math>\pi</math> on your calculator.</li> <li>- A sheet containing appropriate formulae included.</li> </ul>	<b>Paper 1</b> Solve the equations <ul style="list-style-type: none"> <li>(a) <math>3x - 6 = 21</math></li> <li>(b) <math>5t + 11 = 2t + 2</math></li> </ul> <b>Paper 4</b> In a show-jumping competition, points are awarded as follows: 1 point for the first fence jumped, giving a total of 1 point plus 3 points for the second fence jumped, giving a total of $1 + 3 = 4$ points plus 5 points for the third fence jumped, giving a total of $1 + 3 + 5 = 9$

(a) Find the connection between the total number of points scored and the number of fences jumped.

(b) Test your answer to part (a).

Year/ Qualification	Paper title/structure	Time	No of Qs	Rubric	Example question
	Central Tier Papers 2 and 5 (sections A and B each)	2 ½ hrs each	37 (Paper 2: 23 Paper 5: 14)	- Same	<p>system above and a score of 8 points for each fence jumped. How should a rider decide which points system to choose? Explain your reasons clearly.</p> <p><b>Paper 2</b> (a) Use your calculator to work out <math>\sqrt{R^2 - r^2}</math>, where R = 4.57 and r = 1.34.</p> <p>Give your answer</p> <p>(i) showing all the figures on your calculator display, (ii) to an appropriate degree of accuracy.</p> <p>(b) Use your calculator to work out the number of centimetres in 12 inches, given that 0.394 inches = 1 cm.</p> <p>Give your answer</p> <p>(i) showing all the figures on your calculator display, (ii) to an appropriate degree of accuracy.</p> <p><b>Paper 5</b> (a) 1 bag of crisps and 3 chocolate bars cost 57p. 2 bags of crisps and 1 chocolate bar cost 59p.</p> <p>(i) Take x as the price in pence of a bag of crisps. Take y as the price in pence of a chocolate bar. Write down two equations to represent the information given. (ii) Solve your equations to find the price of one bag of crisps.</p> <p>(b) Mrs McKenzie bought a large box of bags of crisps for her family. She told the children that the box should last 3 weeks if they ate 12 bags per week between them.</p> <p>(i) How many weeks should the box last if the children eat 9 bags per week between them?</p> <p>If the children eat n bags per week between them, the box will last W weeks. (ii) Write down a formula which connects W and n.</p>
	Further Tier Papers 3 and 6 (sections A and B each)	2 ½ hrs each	38 (Paper 3: 23 Paper 6: 15)	- Same	<p><b>Paper 3</b> 'MOGGIE MEAT' cat food is sold in tins. Sanjay, who works in a factory making 'MOGGIE MEAT', takes a sample of 50 tins from a day's production and checks the weights of the contents.</p>

Year/ Qualification	Paper title/structure	Time	No of Qs	Rubric	Example question
					<p>(a) Give one precaution Sanjay should take to ensure that his sample is representative of the factory's production. The total weight of the contents of the 50 tins is 20 300 grams. The sum of squares of the weights of the contents (<math>\sum x^2</math>) is 8 242 000 grams<sup>2</sup>.</p> <p>(b) (i) Calculate the mean weight, <math>\bar{x}</math>, of the contents of the 50 tins. (ii) Use the formula</p> $\text{standard deviation} = \sqrt{\frac{\sum x^2}{n} - \bar{x}^2}$ <p>to calculate the standard deviation of the weights of the contents.</p> <p>At another 'MOGGIE MEAT' factory the weight of the contents follows a Normal distribution with mean 415 grams and standard deviation 5 grams.</p> <p>(c) (i) Sketch this distribution on the axis below.</p> <p>The tins are filled by a machine. The mean weight of the contents of the tins can be set by the machine operator but the standard deviation is fixed for that machine. The label on each tin states that the weight of the contents is 400 grams.</p> <p>(ii) Explain why the mean is set as high as 415 grams.</p> <p><b>Paper 6</b> Pythagorean triples are the sets of three whole numbers which satisfy Pythagoras' Theorem. For example the triple (3, 4, 5) satisfies Pythagoras' Theorem since</p> $3^2 + 4^2 = 5^2$ <p>(a) Verify that (5, 12, 13) is also a Pythagorean triple, (b) A group of these Pythagorean triples are all of the form (y, x, x + 1) where y is the smallest of the three values. (i) <b>Prove</b> that in this case y is always odd. (ii) Hence find the Pythagorean triple that has a y value of 11.</p> <p>(c) Investigate the group of Pythagorean triples (y, x, x + 2) where y is the smallest of the three values.</p>

Year/ Qualification	Paper title/structure	Time	No of Qs	Rubric	Example question
2007 GCSE	Mathematics. Syllabus A. (with coursework; no option without coursework)				
	Foundation Tier  Papers 1 and 2	1 ½ hrs each	38 (19 each)	<ul style="list-style-type: none"> <li>- Write your name, centre number and candidate number in the boxes above.</li> <li>- Answer <b>all</b> the questions.</li> <li>- Use blue or black ink.</li> <li>- Read each question carefully and make sure you know what you have to do before starting your answer.</li> <li>- Do not write in the bar code.</li> <li>- Do not write outside the box bordering each page.</li> <li>- WRITE YOUR ANSWER TO EACH QUESTION IN THE SPACE PROVIDED. ANSWERS WRITTEN ELSEWHERE WILL NOT BE MARKED.</li> <li>- Show your working. Marks may be given for working that shows that you know how to solve the problem even if you get the answer wrong.</li> <li>- The number of marks is given in brackets [ ] at the end of each question or part of question.</li> <li>- NO CALCULATOR for Paper 1</li> <li>- Calculator allowed for Paper 2.</li> </ul>	<p><b>Paper 1</b></p> <p>(a) Work out.</p> <p>(i) <math>2^3 + 5^2</math></p> <p>(ii) <math>10^4</math></p> <p>(b) Simplify.</p> $5x + 2y - 3x + 4y$ <p>(c) Katie was asked to simplify this expression</p> $t \times t \times t \times t \times t \times t$ <p>She gave the answer <math>6t</math>. Katie's answer is wrong.</p> <p>(i) What has she done to get her wrong answer?</p> <p>(ii) What should the answer be?</p> <p><b>Paper 2</b></p> <p>(a) Factorise these expressions.</p> <p>(i) <math>7x + 14</math></p> <p>(ii) <math>x^2 - 5x</math></p> <p>(b) Multiply out.</p> $5(2x - 3)$ <p>(c) Solve.</p> $8x + 5 = 6x + 12$
	Intermediate Tier  Papers 3 and 4	2 hrs each	37 (Paper 3: 18 Paper 4: 19)	- Same	<p><b>Paper 3</b></p> <p>Calculate an <b>estimate</b> of each of the following. Show clearly how you obtained your estimates.</p>

Year/ Qualification	Paper title/structure	Time	No of Qs	Rubric	Example question
					<p>(a) <math>\frac{39 \times 101}{82}</math></p> <p>(b) <math>\frac{9.8^2}{0.47}</math></p> <p><b>Paper 4</b> Use trial and improvement to find the value of <math>x</math>, correct to <b>one</b> decimal place, when <math>x^3 + 4x = 48</math></p> <p>Show clearly your trials and their outcomes.</p>
	Higher Tier Papers 5 and 6	2 hrs each	35 (Paper 5: 18 Paper 6: 17)	- Same	<p><b>Paper 5</b> The diagram shows a triangular prism. The end is a right angled triangle with a base of 6 cm and a height of 4 cm. The length of the prism is 10 cm. (a) Work out the volume of the prism. Give the units of your answer.</p> <p>The cylinder has the same volume as the triangular prism. The base of the cylinder has an area of <math>20 \text{ cm}^2</math>. (b) Work out the height of the cylinder.</p> <p><b>Paper 6</b> (a) Calculate. <math>2 \times \pi \times \sqrt{\frac{12.6}{3.94}}</math> Give your answer correct to 3 significant figures.</p> <p>(b) Calculate. <math>\frac{4.8 \times 10^9}{2.75 \times 10^4 - 2.5 \times 10^3}</math> Give your answer in standard form.</p> <p>(c) David invested £5000 for 3 years at a rate of 4.75% per year Compound Interest. Calculate the value of the investment at the end of 3 years. Give your answer to an appropriate degree of accuracy.</p>

### *Rubric*

The wording and content of the rubric for the Mathematics exam did not change much over the years until the introduction of GCSE, when it changed considerably to reflect a substantial change in structure of the papers and in the approach to marking.

As can be seen from Table 1, until 1977 the rubric had very similar wording and content for all papers: it mentioned the requirement for the whole working to be shown alongside the answers or else marks would be lost; it specified which questions/paper sections were compulsory or sufficient to pass; it specified whether any mathematical tables, logarithm tables, etc. were allowed for the relevant section of the paper. The Alternative C paper in 1977, which resembled to a great extent the GCSE paper structure, asked candidates to write answers on the question paper itself, which became standard in GCSE era, but was not required before.

Regarding period/qualification differences, it is notable that over the years candidates were provided with an ever larger number of 'memory aids' in the shape of mathematical and logarithm tables, formulae sheets, calculators, etc. In our sample, logarithm tables were unavailable before 1907; mathematical tables became available by 1937, while formulae sheets were first recorded in our sample in 1997. Electronic calculators were allowed for the first time in 1977, and have remained available to be used with the appropriate questions as specified on question papers ever since.

One important difference between the first available GCSE papers in our sample (1997) and all previous papers that we analysed lies in the approach to marking as reflected in the rubric. In previous papers, showing all or essential working was a condition for getting a mark irrespective of whether the final answer was right or wrong. In the GCSE papers, however, candidates were advised to show working because, if correct, the working itself could bring them marks even if the final answer was wrong. This represents a shift towards positive marking in the GCSE period.

By 2007, electronic marking became widespread, and this is reflected in the rubric emphasising that answers needed to be written only in the spaces provided, as otherwise they would not be marked. The part of the rubric for this year referring to working continued to testify to the positive marking approach, reading similarly to the one from 1997.

### *Style of questions/papers*

It is generally recognised that more structure is given to the candidate in modern examinations, by breaking down questions into parts, providing space to write the answers, and indicating how many marks are available. This observation applies to the Mathematics papers, one of the early examples of such a structure being the Syllabus C paper from 1977. Such a structure later became well-established in the GCSE papers. Some short, structured questions, however, appeared also in the earliest papers we analysed, although the layout was not as clear and structured, nor the language as simple as in the GCSE papers.

In our sample, figures and diagrams made their appearance for the first time in 1937 in the Geometry paper, and appeared with increasing frequency over the years in all other papers. In the GCSE papers in particular it is difficult to find any questions without associated figures, diagrams, or other illustrations.

It is interesting to note that as early as 1957 one of the regulations sections stated that some of the questions may be set on the application of certain arithmetical processes to problems of everyday life in the home and the community. This appears to be one of the early explicit statements indicating a trend that became prevalent in testing all topic areas of mathematics in

the GCSE papers, although it was present even in the 19<sup>th</sup> century papers to some extent, especially in the area of Arithmetic.

### *Topics*

The topics from all previous years were matched against the National Curriculum topic descriptors (QCA, 1999) that form the basis of the 2007 specification.

The analysis has shown that certain elements that might be termed 'core mathematics' occurred in all years:

- basic number operations (numeration, addition, subtraction, multiplication, division)
- proportion
- fractions
- quadratic equations
- elements of geometry

The contribution of geometry across the years has waxed and waned, with the earliest syllabuses simply prescribing "Euclid Books I, II, III and IV". Geometry stayed with Euclid for the next half-century, with specific propositions within each book being specified by 1907. With the introduction of School Certificate geometrical requirements were spelt out explicitly. Through the 20<sup>th</sup> century progressively more emphasis was allocated to the calculation aspects of geometry, with less time on techniques of geometrical construction as more aids to technical drawing appeared, culminating with the encouragement of computer aided drawing at the turn of the 21<sup>st</sup> century.

The first large changes came in the period up to 1927 at the time of the introduction of the School Certificate. The following topics were introduced:

- simultaneous equations and the elementary theory of logarithms (appeared slightly before in 1917)
- fractional and negative indices
- calculations by means of logarithms
- graph drawing appeared for the first time along with simple applications of graphical analysis

The move to O-level in 1951 heralded the next major changes. The engineering developments of WWII fed through into maths examinations by 1957 and 1967 leading to examinations that appeared to support wider use of engineering mathematics. Geometry moved from the strictly theoretical towards more practical settings, involving:

- problems that could be easily solved by the use of the right-angled triangle and trigonometric tables
- simple three dimensional problems
- use of sine and cosine formulae for a triangle and the formula  $\frac{1}{2}bc \sin A$

Topics such as these seem to indicate a move towards a more employment focussed content for the examinations. However, the general approach up until 1977 was little changed from 1867.

1997 brought a further move into a work focussed approach, but 30 years on the focus was not engineering mathematics of the fifties and the sixties but communication and transferable skills along with topics that appear designed to support the increased computerisation of the workplace that had occurred in the previous decade. The 1997 syllabus put a great deal of emphasis on data handling and interpretation, particularly in relation to computer use and

database operations. The explanatory notes for the 1997 syllabus place emphasis on investigative project work where students explore relationships between areas of mathematics within a project framework.

Explicit areas surrounding abstract logical thought seemed to focus on the development of computer ability in 1997:

- sort objects using mathematical criteria and give reasons
- recognise and explore patterns using computer facilities
- use networks to solve problems
- transform shapes using a computer

A large area involved exploiting computers for data analysis:

- organise and analyse data
- access information in a simple database
- use a computer database to draw conclusions
- interrogate and interpret data in a computer database
- design and conduct a survey
- use sampling to investigate a population
- understand and use the basic ideas of correlation

The 2007 specification consolidated these skills, but with possibly greater focus on the transferable basic numeracy that is required in the workplace:

- problem specification
- planning and strategy selection
- make mental estimates for calculation checking
- identify appropriate statistical methods
- discuss how data relate to a problem
- discuss implications of findings within the context of the problem
- interpret social statistics

The explicit statement of these skills may emphasise their increasing importance or may indicate that they were previously assumed but are now seen as key requirements by employers and so are now more clearly stated.

The mathematical subject areas present in past years that no longer appear have either been sidelined by the ubiquity of electronic calculators and computers or cover specific theoretical areas that now appear in AS level, A-level, or have been moved into other science syllabuses. The latter applies to elementary Newtonian mechanics, which was included in the mathematics syllabus from 1907 to 1927. This area did not appear from 1937 onwards, probably due to its appearance in the physics syllabus. More recently mechanics has been displaced to the beginning of the A-level specification due to the need for space to teach statistics, which is arguably part of more employment settings than mechanics. Subject areas that have moved to A-level are sets (union/intersection), permutations and combinations, and introductory aspects of Newtonian mechanics now covered in mechanics units in Mathematics A level, or within Physics A level. The areas that have been sidelined due to the rise in the use of electronic calculators and computers are logarithmic and trigonometric tables and techniques of geometric construction, superseded by the use of computer aided design packages for almost all technical drawing.

Further topics that were not explicitly mentioned in the syllabuses before the National Curriculum, and thus unmatched with certain categories therein, dealt with skills surrounding mathematical competence, rather than specific mathematical subject areas. The National

Curriculum emphasises 'specifying a problem and planning' along with 'selecting appropriate methods, operations and strategies'. Students are also required to discuss how data relate to problems, the implications of findings and the interpretation of social statistics.

### *References*

Cambridge Assessment Archives, *Bound Volume 1957*, Scheme of Papers.

Cambridge Assessment Archives, *Bound Volume 1977*, Subject Syllabus.

Cockcroft, W. H. (1982). *Mathematics Counts. Report of the Committee of Inquiry into the Teaching of Mathematics in Schools (under the Chairmanship of Dr W H Cockcroft)*. London: HMSO.

Patrick, H. and Patrick, J. (2008). Home examinations after 1945. In S. Raban (Ed.), *Examining the World. A History of the University of Cambridge Local Examinations Syndicate*. 71–10. Cambridge: Cambridge University Press.

The Joint Council for the General Certificate of Secondary Education (Summer 1997). *Inter-group Statistics, Volume I*.

The Education (National Curriculum) (Attainment Targets and Programmes of Study in Mathematics) (England) Order 2000, The Stationery Office.

## Section 2: Geography

### *Structure of the papers*

Table 2.1 shows the structure of the Geography papers offered by OCR, from 1927 to 2007. The first available papers from the archives were from 1867, but the discussion that follows is largely based on the period from 1927 onwards. Paper details from 1867 are shown in table 2.1, but the level of detail needed to categorise all questions from this early period into topic areas was prohibitive. It is, however, interesting to note the introduction of Physical Geography as a separate paper in 1897.

The structure of the papers remained remarkably similar from 1927 to 1987. There was only one paper in 1927, which was split into three sections: Section A, with questions on map skills and analysis of data; section B with questions on the British Isles and Europe (both physical and human geography); and section C, with questions on the rest of the world (both physical and human geography). From 1937 to 1987 there were two papers, both of which had essentially the same structure throughout. Paper 1 consisted of three sections. Until 1977 these sections were on map skills, physical geography and human geography relating to different areas of the world. In 1977 and 1987 there was one section on map skills and two sections on physical geography.

Paper 2 between 1937 and 1987 was divided into sections by Geographical region. For most years the structure was the same with section A on the British Isles or UK, section B on Europe and section C on North America. The exceptions were in 1937 when section B was on Europe, Asia and North America and section C on the British Empire, and 1977 when an extra section was included on Tropical Africa. Throughout, there was at least one question in each section on map skills or analysis of data. The 1937 paper had a good balance between questions on purely physical geography and those on human geography, but otherwise the focus tended to be on human geography (although often the human geography questions necessitated some background knowledge of physical geography).

Over this period there were seemingly few changes in the aims and purposes of studying geography (certainly no great theoretical or conceptual shift). The main changes to the papers were, necessarily, based on developments in knowledge and teaching methods. Thus the introduction of questions about weather systems and forecasting in 1947, fieldwork in 1967, environmental damage and pollution in 1977 and greenhouse gases and climate change in 2007.

The 1997 paper (the 1<sup>st</sup> GCSE paper of this sample) marked a considerable shift in the structure. It was a tiered exam (three tiers, foundation, intermediate and higher), with questions on each tier being based on the same resources, but more depth of analysis required on the higher tiers. There was no longer a split into physical and human geography, or into different regions. There was also no choice for many candidates (only higher tier candidates had any choice). Questions consisted of more sub-parts, and were generally related to a resource presented at the beginning of the question. The focus was mainly on human geography (and some of this was environmental, economic or developmental), although with some items on physical geography. However, there were significant changes in the main aims of the papers which required candidates to look in more depth at a particular issue, often considering the impact of humans on physical geographical features, or the impact of physical features on humans. There was also a greater emphasis on requiring candidates to give specific examples, which they had studied, of these impacts.

By 2007 the OCR board offered three different specifications, each consisting of two papers. The questions in paper 1 in each case were split into three or four different themes. Only specification C had themes that related to the historical split between human and physical geography (A – Places, B – Physical Themes, C – Human themes). For specifications A and B the themes all included the word ‘people’ (e.g. People and the Physical World; People and the

Environment ; Water, Landscape and People), demonstrating again the focus on human geography, and in particular the impact of human activity on the world. As with 1997 the focus was on looking in depth at a particular issue, then showing knowledge of a particular case study.

The second paper in specifications B and C was a decision making exercise. Using a variety of resources and some of their own knowledge, candidates were required to weigh up the arguments in favour of, and against particular actions and come to a conclusion. Thus the focus was again on the impacts of human activities on the world. Paper 2 in specification A was much more locally focussed, with several questions on map skills and had a descriptive, rather than analytical flavour.

Table 2.1: Structure of Geography examinations from 1867-2007.

Year	Structure of paper
<b>1867</b> Junior Local Examination; <b>Paper details:</b> 2 written papers	Geography I – One hour. Three questions at least must be attempted, of which the first must be one. <i>Example – Mark in the accompanying outline map of England, (1) the courses of the rivers Tamar, Dee, Severn, Trent, Tweed and Mersey; (2) the Cheviot and Mendip Hills, Skiddaw and Ingleborough; (3) the positions of Oxford, Macclesfield, Sunderland, Plymouth, Preston, Durham, Chichester, Maidstone, Bangor, and Lynn.</i> Geography II – One hour. Six questions. <i>Example – What are the Trade Winds? Explain how they are produced.</i>
<b>1877</b> Junior Local Examination <b>Paper details:</b> 2 written papers	One and three-quarter hours. Paper A – Four questions. Paper B – Four questions. <i>Example – Derive and define Continent, Ecliptic, Equator, Latitude, Longitude, Plateau, Tropic, Zone.</i>
<b>1887</b> Junior Local Examination <b>Paper details:</b> 2 written papers	One and a half hours. Paper A – Five questions. Paper B – Five questions. <i>Example – Name in order the towns passed in sailing from the point where the Ohio first becomes navigable to the mouth of the Mississippi, and name the states on the right bank of the latter after the junction.</i>
<b>1897</b> Junior Local Examination <b>Paper details:</b> Geography (3 written papers) Physical Geography (1 written paper)	<b>Geography</b> One and a half hours. Paper A – Three questions. Paper B – Three questions. Paper C – Four questions. <i>Example – Give a geographical account of Cape Colony, describing its physical features, its chief towns, and its principal products. What form of government has it?</i> <b>Physical Geography</b> Two hours. Ten questions. <i>Examples – Explain the terms fixed star, comet, nebula. Give some account of the formation of (i) sand-dunes, (ii) sea-cliffs.</i>

Year	Structure of paper
<p><b>1907</b> Junior Local Examination <b>Paper details:</b> Geography ( 3 written papers) Physical Geography (1 written paper)</p>	<p><b>Geography</b> One and a half hours. Paper A – A1 and either A2(a) or A2(b). Paper B – either B1(a) or B1(b) and B2. Paper C – either C1(a) or C1(b) and C2. <i>Example – Mention the chief exports of (i) Brazil, (ii) Chile, (iii) Costa Rica; and state from what parts of Central or South America we get (i) silver, (ii) mahogany, (iii) quinine.</i> <b>Physical Geography</b> Two hours. Ten questions. Only eight questions must be attempted of which the first must be one. <i>Examples –</i> 1. On the accompanying section of a room mark the limits of direct sunshine through the window at mid-day in Midsummer and Midwinter respectively. 6. Describe the appearance of the four principal types of cloud.</p>
<p><b>1917</b> Junior Local Examination <b>Paper details:</b> Geography (3 written papers) Physical Geography (1 written paper)</p>	<p><b>Geography</b> One and a half hours. Paper A – Two of three questions. Paper B – Two of six questions. Paper C – Two questions. <i>Example – Draw a sketch-map of Wales and shade the coalfields. Name the three Southern Counties.</i> <b>Physical Geography</b> Two hours. Eight questions. Only six questions may be attempted, of which the first must be one. <i>Example –</i> Describe the country represented by the accompanying map, and give reasons why an easier route could, or could not have been found for the railway between A and B.</p>
<p><b>1927</b> School Certificate; <b>Paper details:</b> 1 written paper for each of Home, Asiatic, African and West Indian Centres.</p>	<p>Two and a half hours. Answer four questions – 1 from section A, two from section B, and two from section C <i>Example (Home) – Describe the relief, climate, and natural resources of the Scandinavian peninsula in such a way as to bring out the contrasts between Norway and Sweden.</i></p>
<p><b>1937</b> School Certificate; <b>Paper details:</b> 2 written papers. Geography I (Home &amp; Overseas), Geography II (Home &amp; W.Indian)</p>	<p>Geography I – Two hours. Answer four questions – Q1, one question from section B, one from C and one from either B or C Geography II – Two hours Answer four questions – Two from section A and two others, both from section B or from section C. <i>Example – Draw a large sketch map of <b>one</b> of the following: the Northern Plain of Germany, the Roumanian (Wallachian) Plain, the Hungarian Plain, the Plain of Lombardy. Mark and name the bordering highlands, chief rivers and at least three towns. Describe the agricultural activities of the inhabitants living in the plain chosen.</i></p>
<p><b>1947</b> School Certificate; <b>Paper details:</b> 2 written papers. Geography I and Geography II</p>	<p>Geography I – Two and a quarter hours. Answer four questions – Q1, one question from section B, one from C and one from either B or C Geography II – Two hours. Answer four questions – Two from section A, one from section B and one from section C. <i>Example – After studying the Ordnance Survey map, (a) State(i) the direction of Aberdovey Station (B1) from Borth Station (D1), (ii) the distance by railway from Borth Station to Aberdovey Station, (iii) the shortest distance from Borth Station to Aberdovey Station when road, footpath and ferry are used.... [continues]</i></p>

Year	Structure of paper
<b>1957</b> O Level; <b>Paper details:</b> 2 written papers. Geography O I and Geography O II	Geography O I – Two and a quarter hours. Answer four questions – Q1, one question from section B, one from C and one from either B or C Geography O II – Two hours. Answer four questions – Two from section A and two others, both from section B or from section C. <i>Example – Coal, oil and hydro-electric power provide the three main sources of power for industry. For each of these three: (a) name and locate an area which uses the source of power for industry; (b) state briefly why the source of power is used in the area you have named.</i>
<b>1967</b> O Level; <b>Paper details:</b> 2 written papers. Geography O I and Geography O II	Geography O I – Two and a quarter hours. Answer four questions – Q1, one question from section B, one from C and one from either B or C Geography O II – Two hours. Answer four questions – Two from section A, two others, both from section B or from section C. <i>Example – With the aid of separate sketch maps to show position, account for the importance of <b>three</b> of the following: Belfast, Bristol, Edinburgh, Hull, Southampton.</i>
<b>1977</b> O Level; <b>Paper details:</b> 2 written papers. Geography Paper 1 and Geography Paper 2	Geography O I – Two and a quarter hours. Answer four questions – Q1, one question from section B, one from C and one from either B or C Geography O II – Two hours. Answer four questions – Two from section A, two others from one of sections B, C or D. <i>Example: For <b>one</b> country of Tropical Africa: (a) Name, locate and describe the traditional native industries and explain the advantages of the region for their development. (c) Explain the advantages and disadvantages of the country for industrial expansion.</i>
<b>1987</b> O Level; <b>Paper details:</b> 2 written papers. Geography Paper 1 and Geography Paper 2	Paper 1 – Two hours 10 mins. Answer four questions – Q1, one from each of sections B and C and one from either B or C Paper 2 – Two hours 10 mins. Answer four questions – Two from section A, two others both from section B or section C <i>Example: (a) With reference to Map A, state (i) the definition of a regional centre, naming an example; (iii) why some of the town functions shown are usually found only in regional centres; (iii) two other functions characteristic of a regional centre not shown on the map.</i>
<b>1997</b> GCSE; <b>Paper details:</b> 3 written papers. Paper 1, 2 and 3	Paper 1 (foundation) & 2 (intermediate) – Two and a quarter hours. 8 questions, no choice. Paper 3 (Higher) – Two and a quarter hours. Q1, then three out of seven <i>Example: (b) (i) Describe two ways that modern farming may cause river pollution. (ii) How might these pollutants get into a river? (iii) Describe how farming pollutants affect a river ecosystem.</i>

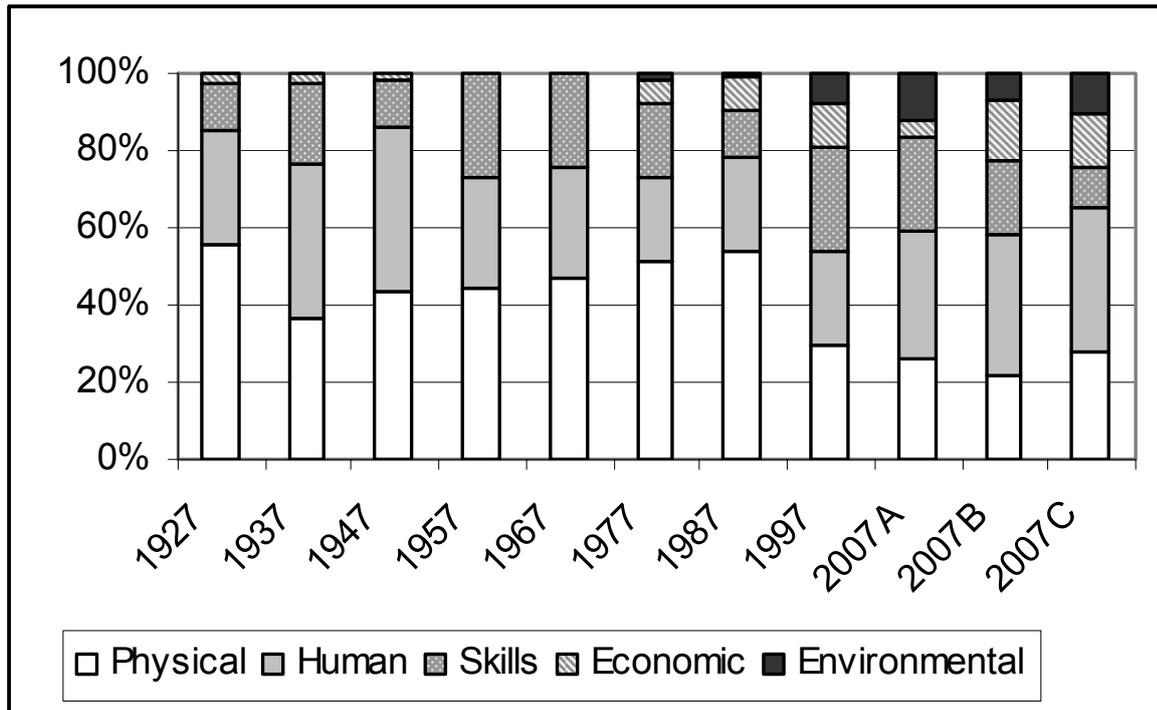
Year	Structure of paper
<p><b>2007</b> GCSE; <b>Paper details:</b> Choice of 3 specs, Geography A (papers 1 and 3 on Foundation tier, 2 and 4 on Higher tier), B (ditto) or C (decision making exercise and terminal paper).</p>	<p><b>Specification A</b> Paper 1 (foundation) – 2 hours. 4 questions, no choice. Paper 2 (higher) – 2 hours. 1 question out of 2 in each of 4 sections. Papers 3 (foundation) and 4 (higher) – 1 hour. 2 questions, no choice <i>Example: (b) Study figure 7. (i) Name one input into the tropical rainforest system. (ii) What is meant by the following terms: A leaching, B transpiration?</i> <i>(d) Name an area in an MEDC which you have studied where mining or quarrying takes place. Describe the processes involved in this activity and their impacts on the natural environment.</i></p> <p><b>Specification B</b> Papers 1 (foundation) and 2 (higher) – 1 and a half hours. 1 question out of 2, in each of 3 sections. Papers 3 (foundation) and 4 (higher) – 1 and a half hours. 3 questions, no choice <i>Example: (c) (i) Suggest and explain two ways that the loss of jobs at the Longbridge car factory may have affected the workers and their families. (ii) Explain how the closure of the car factory may have affected the local and regional economy.</i> <i>(d) CASE STUDY: (i) Name and locate an economic activity. (ii) Describe the location of the economic activity. You may draw a sketch map. (iii) Explain the advantages and disadvantages of the location of the economic activity.</i></p> <p><b>Specification C</b> Terminal paper (foundation &amp; higher) – 2 and a quarter hours. 4 questions out of 7. Decision making exercise (foundation and higher) – 1 hour and 3 quarters. 7 questions, no choice. <i>Example: Use resources 9, 10 and 11. Consider the following two options and give a reason for and against each proposal: (a) A Chilean mineral company wishes to mine copper and uranium below the ice. They would transport it by train to the coast. (b) An Argentinean cruise company wishes to set up a summer resort in Antarctica by building a hotel and convention centre for tourists.</i></p>

### Summary of topic areas over time from 1927 (School Certificate) onwards

Another way to look at the structure of the papers was to divide them up by topic areas in order to consider any trends over time. Each question was allocated to one of five broad topic areas: geography as a subject was traditionally divided up into **physical** geography (natural features of the world as it is, including rock formations, plants and animals, climate and natural resources) and **human** geography (human activity, including agriculture, industry, and urban development). In recent years there has been a move towards a more inter-disciplinary approach with a recognition that economic, political and environmental issues can all have a geographical aspect. Thus two other topic areas included were **economic** and **environmental** geography. The final topic area relates to questions requiring geographical **skills** to be applied, such as understanding and drawing maps or analysing data.

Figure 2.2 gives the breakdown over time:

Figure 2.2: Summary of topic areas over time.



As noted above, the structures of the papers from 1927 to 1987 were very similar. In terms of content in these years there was a fall in the proportion of questions on physical geography in 1937 followed by a trend of increasing physical geography and falling human geography. This is partially explained in later years by the change in paper 1 in 1977 which meant there was no longer a human geography element to this part of the exam. The proportion of questions in the skills topic varied somewhat in these years, being between approximately 10 and 25%.

The first significant appearance of questions on economic geography was in 1977. This was, according to Michael Naish (1997), due to the 1960s and 1970s seeing a shift from regional geography to “systematic specialisms”; for example economic, urban or agricultural geography.

As Naish goes on to note, there were more significant changes in the late 1980s and 1990s which saw a move towards a ‘people-environment’ approach. Geography became a study of the interaction between people and the environment. There was also recognition of the scope of geographical study – social, economic, political and environmental issues can all have a geographical aspect. Thus the 1997 and 2007 question papers were more about the interaction between human and physical geography and the impact of each on the other. There was more in depth analysis of a particular issue and less emphasis on descriptions of physical features or human activities.

This analysis is backed up by the data in figure 1.2. The 1997 and 2007 papers concentrated far more on human geography, and a larger proportion of questions were on economic or environmental topics. There were far fewer questions about purely physical geography.

### References

Naish, M. (1997) The scope of school geography: a medium for education. In D. Tilbury & M. Williams (Eds.) *Teaching and Learning Geography* (pp 49-58). London: Routledge

## Section 3: Physics

### Structure of examination papers

Table 3.1 shows the structure of the Physics papers offered to pupils around age 16 by UCLES/MEG/OCR, from 1927 to 2007. The first available papers from the archives under the title of Physics were from 1927, with the advent of the School Certificate. The table shows the year, the title of the paper, the time allowed, the total number of questions (note: this may be different from the number the candidates were required to attempt), the rubric (instructions to the candidate), and an example question from the paper.

There was some limited history of Physics prior to 1927. From 1867 to 1917, the Junior Local Examination offered papers in Mechanics, Natural Philosophy, Statics, Dynamics and Hydrostatics and Heat, all of which are topics which might later be found in Physics examinations. There was also an examination in Experimental Science, which required knowledge of Physics, Chemistry and Mathematics. e.g. In the 1907 Experimental Science, one question was: *State the parallelogram of forces, and describe a method by which it may be verified experimentally.*

Table 3.1: Physics examination papers 1927-2007.

Year	Paper	Time	# Qs	Rubric	Example question
1927	Physics I	2 hrs	12	Not more than <b>six</b> questions are to be attempted. Mathematical tables and squared paper may be obtained from the Presiding Examiner.	Explain the phenomenon of dew, and discuss the conditions which favour its formation. How is the dew point determined, and how can the relative humidity of the atmosphere be calculated when the dew point is known?
1927	Physics II	2 hrs	12	Not more than <b>six</b> questions are to be attempted. Mathematical tables and squared paper may be obtained from the Presiding Examiner.	Draw diagrams to show how (a) a real, (b) a virtual image may be formed by a convex lens. An object is placed 20 cm. from a lens, and the image formed by the lens is found to be erect and magnified four times. Find the focal length of the lens.
1927	Practical Physics	2 hrs	4	Not more than <b>two</b> experiments may be attempted. Full details of the observations made, together with a statement of the precautions taken to avoid error, are to be given. The working of the answers is to be sent up. Mathematical tables and squared paper may be obtained from the Presiding Examiner.	Use a specific gravity bottle to determine the mean coefficient of apparent expansion of water between 20°C and 60°C.
1937	Physics I	2 hrs	10	Not more than <b>five</b> questions are to be attempted. Mathematical tables and squared paper may be obtained from the Supervisor. Candidates taking the paper Additional Mathematics III are reminded that they may not answer questions 1,2 and 3 below. [g = 32 ft./sec. <sup>2</sup> ]	State Newton's laws of motion. A motor car of 2000 lb. weight is found to free-wheel at a uniform speed of 30 m.p.h. down a slope of 1 in 40. Calculate the resistance to the motion, and hence find the H.P. that the engine must develop to keep the car going at 30 m.p.h. on a level road, assuming that the resistance to motion remains the same.
1937	Physics II	2 hrs	10	Not more than <b>five</b> questions are to be attempted. Mathematical tables and squared paper may be obtained from the Supervisor. Candidates taking the paper Additional Mathematics III are reminded that they may not answer questions 1 and 2 below. [g = 981 cm./sec. <sup>2</sup> ]	Describe and explain how the potentiometer may be used to compare the E.M.F.'s of two voltaic cells. Draw a circuit diagram.
1937	Practical Physics	2 hrs	4	Not more than <b>two</b> experiments may be attempted. {More detailed instructions followed}.	Find the specific heat of the given liquid. You are provided with a metal of known specific heat.

Year	Paper	Time	# Qs	Rubric	Example question
				Mathematical tables and squared paper may be obtained from the Supervisor.	
1947	Science II Version A Section I	1½ hrs	7	(Version A is for candidates not offering the subject Chemistry or the subject Physics-with-Chemistry.) [You are strongly advised to spend at least ten minutes reading the directions and the questions before you begin to write.] Choose your questions as follows, according to the science subjects you are offering: {List of subjects, number of questions to be answered, time allowed}.	How do you account for the following facts? (a) Iron becomes magnetised when placed in a coil carrying direct current. (b) Bar magnets lose their magnetism when heated strongly. (c) Steel makes better permanent magnets than soft iron. (d) Keepers help to prevent magnets losing their magnetism.
1947	Science IV	2 hrs	10	Candidates offering <b>Physics</b> but not <b>General Science</b> are required to answer <b>five</b> questions in 2 hours. They must write PHYSICS at the head of their first sheet of answers. {Equivalent instructions for candidates offering other combinations.} Mathematical tables and squared paper may be obtained from the Supervisor. $g = 32 \text{ ft./sec./sec.} = 981 \text{ cm./sec./sec.}$	State the <i>principle of Archimedes</i> , and describe an experiment, based on the principle, to determine the <i>total</i> volume of an irregularly shaped object which floats in water. A sealed hollow metal cylinder, weighing 250 kgm., and whose external volume is 1500 litres, is kept submerged under sea-water by an anchor and chain. If the density of sea-water is 1.025 gm./c.c., find the tension in the chain.
1947	Science IVA (Practical)	2¼ hrs	4	Identical to 1937.	With the thread and weight provided, set up a simple pendulum 100 cm. long. Measure the time, in seconds, required for the pendulum to make <i>at least</i> 20 complete oscillations, and deduce the time $T$ for 1 oscillation. Repeat the experiment for values of the length, $l$ , of the pendulum equal to 90, 80, 60, 40 and 20 cm. in turn. Plot a graph of $T^2$ against $l$ , and deduce the acceleration, $g$ , due to gravity, given that $g=4\pi^2l / T^2$
1957	Physics Ordinary Level Theoretical Paper	2½ hrs	7, 10	Answer <b>all</b> the questions in Part I and <b>five</b> questions from Part II including at least <b>one</b> question from each of the Sections A, B, C. Candidates are advised to spend <b>not more than half an hour</b> answering Part I.	{From Part I}: What is the freezing-point of water on the Fahrenheit scale? Express, in °C, a temperature which is 45 degrees below the freezing-point of water on the Fahrenheit scale.
1957	Physics Ordinary Level Practical Test	2¼ hrs	4	Do <b>two</b> of the following experiments. You will not be allowed to start work with the apparatus for the first quarter of an hour. {Similar blurb about recording observations to 1937 & 1947, but not quite identical.} Mathematical Tables and squared paper are provided.	{Questions now too lengthy to give here. Two had a diagram.}
1957	Physics Ordinary Level Alternative to Practical	1½ hrs	4	Answer <b>two</b> questions. Mathematical Tables and squared paper are provided. A good quality ruler in centimetres and a protractor in degrees will be required.	Long questions, most with Figures provided.
1967	Physics Ordinary Level Theoretical Paper	2½ hrs	7, 10	Answer <b>five</b> questions from Part I and <b>five</b> questions from Part II, including at least <b>one</b> question from each of Sections A, B and C. (Mathematical Tables and squared paper are provided.) <b>All</b> working must be shown.	{From Part II}. State two pieces of evidence which suggest that light travels in straight lines. Describe carefully a laboratory experiment to produce further evidence of this property of light, and indicate the accuracy with which your experiment establishes this result. Draw a ray diagram to illustrate an eclipse of the moon. Describe the appearance of the moon, observed without a telescope, during the period of the eclipse.
1967	Physics Practical A Ordinary Level	2¼ hrs	4	Identical to 1957 practical.	Lengthy questions, one with a diagram, one giving the layout of the table in which results were to be recorded.
1967	Physics	1½	4	Answer <b>two</b> questions.	Long questions, each with a figure.

Year	Paper	Time	# Qs	Rubric	Example question
	Ordinary Level Alternative to Practical	hrs		Mathematical tables and squared paper are provided. Candidates should provide themselves with a <b>good quality</b> ruler, with metric scale graduations; inch scales must <b>not</b> be used. A protractor and a set square will also be required. Candidates should show clearly how any deductions from graphs have been made. Figures 2,4,5(a), 5(b),7,8, and 10 are printed on a detachable sheet, which is to be handed in with your answer papers.	
1977	Physics Paper 1 (532/1)	2 hrs	15, 4	This question paper contains two parts: Part I is allotted 60 marks (4 marks for each question), Part II is allotted 30 marks. Candidates are advised not to spend more than about 80 minutes on Part I. Answer <b>all</b> the questions. Answers to Part I must be written on the question paper, and are to be handed in with the answers to Part II. The answers to both parts should be tied together <b>loosely</b> . Part II of the question paper should be detached and not handed in. Mathematical tables and squared paper are provided. <b>All</b> working must be shown. In Part II the marks shown indicate the relative credit it is intended to give for each part of each question.	{Part I was more structured, shorter questions than on previous papers. Most had 2-3 sub-parts}  State <b>one</b> property which is common to infra-red and ultra-violet radiations, and <b>one</b> difference between them. Give <b>one</b> method by which you could detect infra-red radiation.  {The Part II questions were also structured, but longer (15 marks). Mark totals for some sub-parts were given in square brackets.}
1977	Physics Paper 2 (532/2)	2½ hrs	6,6	This question paper contains two parts each allotted 50 marks. Answer <b>five</b> questions from Part I and <b>three</b> questions from Part II. {Then same as Paper 1.}	A tyre originally completely flat is inflated by using a pump. (a) Write down two reasons why the pump gets hot when the tyre is inflated. [2] (b) Explain in terms of moving molecules (i) how the atmosphere exerts a pressure on the outside of the inflated tyre, (ii) why the air inside the tyre exerts a greater pressure, the temperature of the air in the tyre being the same as that of the air outside. [5] (c) A tyre contains 2000 cm <sup>3</sup> of air at atmospheric pressure P. The volume of air in the pump is 100 cm <sup>3</sup> . What will be the pressure in the tyre after one stroke of the pump, assuming the volume of the tyre and temperature of the air do not change? [3]
1987	5054/1 Physics Paper 1	1½ hrs	15	<b>Instructions to candidates:</b> <b>Answer all the questions. Write your answers on the question paper. All working must be shown. Mathematical tables are provided. The intended marks for each question or part of a question are given in brackets [ ]. Answer all the questions.</b>	{All questions were worth 4 marks.} A torch uses 3 cells, each of .m.f. 1.5V and negligible internal resistance, to light a lamp rated 4.5V, 0.5A. In the space below draw a circuit diagram of the cells and lamp when the torch is switched on. [2]  Calculate (i) the resistance of the filament of the lamp when lit, [1] (ii) the charge flowing through the filament of the lamp per minute. [1]
1987	5050/2, 5054/2 Physics Paper 2	2½ hrs	6,6	Similar rubric to 1977, but without the bit about detaching the Part II question paper.	
1987	5054/3 Physics Paper 3 Practical A	2¼ hrs	3	<b>Instructions to candidates:</b> <b>Answer Question 1 and one other question. You will not be allowed to start work with the apparatus or write for the first fifteen minutes.</b> {Similar blurb to other years}.	All three questions were introduced by a sentence explaining the purpose of the experiment, e.g.: 'This experiment is an investigation of the swinging motion of a rule on a pivot.' 'In this experiment the refractive index of a transparent medium is determined.' 'This experiment is to compare the resistances per unit length of two wires.'

Year	Paper	Time	# Qs	Rubric	Example question
1987	5054/6 Physics Alternative-to-practical Paper 6	50 min	5	Instructions to candidates: Answer all the questions. <i>The intended marks for each question or part of a question are given in brackets [ ]. Mathematical tables are provided.</i> <i>Graph paper is available.</i>	One questions was about Vernier callipers!
1997	1782/3 Science: Physics Further Tier	2¼ hrs	14	See notes. Page 2 contained a list of formulae. 120 marks in total.	A drop hammer is used to drive a hollow steel post into the ground. The hammer is placed inside the post by a crane. The crane lifts the hammer and then drops it so that it falls onto the baseplate of the post. {Large diagram} The hammer has a mass of 1800kg. Its velocity is 5m/s just before it hits the post. (a) Calculate the kinetic energy of the hammer just before it hits the post. [3] (b) How much potential energy has the hammer lost as it falls? Assume that it falls freely. [1] (c) Calculate the distance the hammer has fallen. [3] (d) The steel post has a mass of 1200kg. The hammer strikes the post and remains in contact with it. The post is driven into the ground. Use the principle of conservation of momentum to calculate the speed of the hammer and post immediately after the impact. [3]
1997	1782 Coursework			Internal assessment, externally moderated. Weighting 25%	
2007	1982/2 Science: Physics (Options A and B) Higher Tier	1½ hrs	9	See notes. Paper out of 100 marks. Wide range of mark totals per question, going from 6 to 16.	(a) David is looking at a goldfish in his fish tank. The diagram shows the paths of two rays of light from the goldfish to David's eye. (i) by extending the rays, show clearly on the diagram where David sees the image of the fish. Mark the position of the image with an X. [3] {diagram} (ii) Finish the following sentences. The bending of light at the water-air boundary is called ..... This happens because the speed of light ..... as it leaves the water. The image of a fish is a ..... image. [3]
2007	1982/4 Science: Physics extension option A Paper 4 Higher Tier	45 mins	5	Same as 1982/2. Paper out of 50 marks.	This question is about generating electricity. In 2005 the Prime Minister, Tony Blair, called for a 'National Debate' on nuclear power, climate change, and renewable energy sources. (a) Explain what is meant by a <b>renewable energy source</b> . [2] (b) More nuclear power stations could be built. (i) Suggest <b>two</b> arguments <b>for</b> building more nuclear power stations. [2] (ii) Suggest <b>two</b> reasons <b>against</b> building more nuclear power stations. [2]
2007	1982/6 Science; Physics extension option B Paper 6 Higher Tier	45 mins	5	Same as 1982/2. Paper out of 50 marks.	Richard has a computer and needs to store data. (a) Richard stores his data on compact discs (CDs). Describe how data is recorded onto a compact disc. In your answer you should describe <ul style="list-style-type: none"> <li>o the type of signal used to transmit data</li> <li>o how the data is transferred to the CD</li> <li>o how the CD is changed. [4] {7 lines to write answer}</li> </ul> (b) Richard used to store data on magnetic floppy discs. Describe and explain the <b>disadvantage</b> of storing data on a magnetic disc, rather than on a CD. [2]
2007	1982/7 Coursework			Internal assessment, externally moderated. Weighting 20%	

The two units listed below were each part of larger 'unitised' GCSEs assessments, examined for the first time in June 2007. The information given thus does not contain all the examinations necessary to obtain the GCSE in Physics.

Year	Paper	Time	# Qs	Rubric	Example question
2007	A331/02 21 <sup>st</sup> Century Science Physics A Unit 1 Higher Tier	40 mins	7	42 marks paper total. Range from 3 to 9 marks per question. Objective questions, nothing about QoWC in the rubric, otherwise same as above.  {Note: this paper had a weighting of 16.7% of the whole GCSE}	(c) Here are some suggested ways of disposing of high-level radioactive waste. A Send it into space in rockets. B Bury it in deep underground mines. C Bury it under the ocean bed where the ocean is deep. D Store it in tanks near the power station until it is no longer radioactive. (i) Which of these methods could release waste if there was an earthquake? Put a tick (✓) in <b>each</b> correct box. [1]
2007	B651/02 Gateway Science Physics B Unit 1 Higher Tier	1 hr	14	60 marks paper total. Rubric same as 21 <sup>st</sup> C with extra: "A list of physics equations is printed on page two."  {Note: this paper had a weighting of 33% of the whole GCSE}	(a) Ewan listens to music from his CD player. The CD player contains a laser. Laser light is different from the light given out by a filament lamp. What is different about laser light? Write down two differences. [2]  (b) The sound from Ewan's CD travels at 330 m/s in air. The frequency of a sound is 256 Hz. The frequency of the sound increases to 412 Hz. What happens to the <b>wavelength</b> ? Choose from: <b>decreases increases stays the same</b> [1]

*Physics topics assessed*

Table 3.2 below gives an indication of the topic areas covered by the questions on the sampled examination papers. Obviously these are only indicative, because there is considerable overlap among some of the listed topics. An initial list of topics was obtained from the syllabus in 1947 (which was available in the archive). This list was supplemented by additional topics that appeared on the later papers. It is therefore possible that the table does not include topics that have been taught since 1947 but that were not examined in the years sampled.

A judgment was made as to which topic best fitted the question. The table does not allow for any question choice that was available – all questions were included in the table.

Table 3.2: Topic areas covered in the examination papers from 1927 to 2007 (not including the two new specifications in 2007).

Key: T=Examination questions mainly theoretical, A=Examination questions mainly had a specific application as the focus, p=practical, d=(mainly) descriptive, c=(mainly) calculation

Topic	Theory / Applicn.	1927	1937	1947	1957	1967	1977	1987	1997	2007	Count
Measurement of length	A				p	p					2
Measurement of volume	A			d		p	d				3
Measurement of weight	A			d							1
Pendulum	A		p	p				p			3
Density of solids, liquids and gases	T				dc	p	d		c		4
Pressure in liquids and gases	T	dc				c	d	cdc		d	5
Mercury and aneroid barometers	A			dc	dc			c			3
Bicycle pump / force pump / lift pump / vacuum pump	A		d				dc			d	3
Solids, liquids and gases - molecules and forces	T							d			1
The syphon	A										0
Archimides principle / flotation	T	c		dc	c						3
The common hydrometer	A			d		dc					2
Ships, airships, balloons	A										0
Surface tension, capillarity, diffusion and osmosis (+explanation in terms of molecular forces)	T				d	d	d				3
Hooke's Law, elastic limit, breaking strength	T									dc	1
Spring balance	A										0
Force producing acceleration, movement against friction / gravity	T	dc	dc	c	c	d	c	cd		dc	8
Space-time curve; velocity-time curve	T	d				d					2
Equations of uniformly accelerated motion	T					c	dc	c		dc	4
Momentum	T	c					d		c		3
Forces in equilibrium	T	d				dc	d				3
Principle of moments	T	dc	dc					cd		dc	4
Vector quantities	T					d					1

## Assessment Instruments over Time

Topic	Theory / Applicn.	1927	1937	1947	1957	1967	1977	1987	1997	2007	Count
Centre of gravity. Examples of stable, unstable and neutral equilibrium	T	p		d	dcp		dc				4
Common balance and steelyard	A										0
Levers, wheel and axle, simple pulley systems (including velocity ratio, mechanical advantage, and efficiency)	A	dc									1
Work, power, energy	T			d	c	dc	cd	c	cc	d	7
Horse power	T					c					1
Resolution and composition of velocities and forces	T		dc		dc			cd		c	4
Circular motion	T							d			1
Inertia: non-mathematical explanation of centripetal acceleration and force with applications	T										0
Spring - oscillation	T								cd	d	2
Thermal expansion of solids, liquids and gases	T		d			d					2
Thermometers	A	d					d	d			3
Railway lines, compensated pendulums & balance wheels, thermostats, riveting	A					d	d				2
Maximum density of water and its application to the freezing of ponds	T			d							1
Use and determination of coefficient of linear expansion of solids and volume coefficient of liquids and gases	T	dp	c			dc					3
Absolute temperature, Fahrenheit to Centigrade/Celsius	T				d	d		c			3
Quantity of heat; specific heat	T	c	dc			c	cd		c		5
Change of state	T						dc				1
Boiling and melting points and influence of pressure on them	T		d				d				2
Latent heat	T	c	dc	dc			d				4
Cooling by evaporation	T		d								1
Humidity of air	T					d					1
Dew, hoar frost, mist, sweating of walls	A	d							d		2
Transmission of heat by conduction, convection and radiation	T	d		d	d			d	d	d	6
Thermos flask, insulation, conductivity of common materials in relation to use	A	d		d				d		d	4
Davy lamp	A										0
Ventilation, motor car cooling system	A										0
Land and sea breezes	T										0
Heat as a form of energy, mechanical equivalent of heat	T	dc	dc								2

Topic	Theory / Applicn.	1927	1937	1947	1957	1967	1977	1987	1997	2007	Count
Steam and internal combustion engines	T										0
Relationships between volume, pressure and temperature of a gas, Boyle's law, Charles' law	T		dc		dc			c		dc	4
Determination of specific heats of solids and liquids, and latent heats	A	dc	p	p	dc	p	d	dc			7
Use of calorimeter	A				p						1
Relation of saturation vapour pressure to boiling point	T			dc		d					2
Evaporation and boiling	T		d	d							2
Elementary (descriptive) treatment of wave motion, transverse & longitudinal	T						d	d		d	3
Propagation of infra-red radiation, light and sound	T										0
Rectilinear propagation of light, shadows, eclipses	T					d		d			2
Reflection of light; plane mirrors	T		d		d	d		d			4
Concave and convex mirrors	T	d	dc			p				d	4
Refraction at a plane surface	T	p	d	d	c	d	d	dp	c	d	9
Snell's law, critical angle, total internal reflection	T	d					dc		c		3
Converging and diverging lenses	T	d	p	p	p	dc	d	dc		d	8
Camera, human eye, spectacles, magnifying glass, telescope, prismatic binoculars, projection lantern	A			d		d	d				3
Dispersion of white light by a prism	T	d		d			d	d		d	5
Mixing coloured lights	T			d							1
Determination of refractive index by a parallel glass block	T										0
Real and virtual images	T	d	d			d		d		d	5
Focal length of a converging lens / graphical constructions & formulae	T	c									1
Combination of 2 lenses to form compound microscope, Galilean telescope, astronomical telescope	A		dc	dc	dc						3
Production and nature of a continuous spectrum	T		d		d						2
Emission spectra given by elements, the uses of spectra	T			d							1
Simple properties of infra-red radiation, detection, its use in photography	T						d				1
Simple absorption spectra (coloured filters / solutions)	T										0
Electromagnetic radiation	T					d	d	d		d	4

## Assessment Instruments over Time

Topic	Theory / Applicn.	1927	1937	1947	1957	1967	1977	1987	1997	2007	Count
Speed, frequency, wavelength of light in different media	T						dc		d	c	3
Diffraction, interference	T							d	d	d	3
Production of sound by vibration in a material medium	T	d					d				2
Determination of the velocity of sound in open air	A	d						cd			2
Determination of the frequency of a tuning fork	A		d		d						2
Echoes (inc. ultrasound)	T									d	1
Relation between pitch and frequency	T	d		d		d					3
Relation between loudness and amplitude	T		d			d					2
Vibration of strings and air columns + applications to musical instrument	T			d					d		2
Resonance	T			dc	d				d		3
Relation between frequency, wave length and velocity	T	dc		d		d	c	c			5
Path of sound wave, factors affecting	T							d			1
Shock wave / earthquake	T									d	1
Simple phenomena of magnetism	T		d	d	d			d			4
Magnetic properties of iron and steel	T	d		d	d						3
The magnetic field of the earth	T	d			d						2
Determination of strength of magnetic field	A		c	p							2
Determination of declination (or variation)	A				d						1
Any one good form of compass	A										0
Magnetic effects of an electric current	T			d	d		d	d			4
Electromagnets, electric bell, simple galvanometers	A	d									1
Magnetic field round bar magnet, solenoid	T					d	d				2
Electrical capacity	T	d									1
Heating effect of electric current	T		d		d						2
Electric irons, stoves, lamps and fuses	A										0
Electrolysis of dilute sulphuric acid and copper sulphate	T		d								1
Electroplating	A		c								1
The volt and ampere; Ohm's law; the ohm	T			dc		d	d			d	4
Resistances in series and in parallel	T	c	p		c	dc	c	c		c	7
Electrical power and energy; the watt, kilowatt and kilowatt hour	T		c	c		c	cdc	c	c		6

Topic	Theory / Applicn.	1927	1937	1947	1957	1967	1977	1987	1997	2007	Count
Use of ammeters and voltmeters	A	d			d						2
Wiring of buildings, switches and fuses, short circuit	A			d				dc			2
Measurement of current electrolytically	T										0
Cells in series and parallel	T			d		d		d			3
Measurement of internal resistance of cells	T										0
EMF and PD of cells	T	cp	d								2
Dry cells	T					d					1
Resistivity	T					p		p			2
The metre bridge and the potentiometer	A		dp		p	cd					3
Practical details involved in the proper use of accumulators, including charging and discharging	A			d	dc		d	d			4
Laws of electrolysis, electrochemical equivalent	T			dc	d	dc					3
Laws of electromagnetic induction and experiments to illustrate them qualitatively	T	d		d				d			3
Principles of the induction coil and the ignition system of an internal combustion engine	T										0
Simple AC generator and transformer	T		d	d	d		d	dc		dc	6
Moving coil galvanometer	A			d							1
Grid system of transmission of electrical energy	T			d						d	2
Electrical power generation, sources of energy, efficiency	T							d	c	dcd	3
DC dynamo and motor	T					d			d		2
Simple telephone transmitter and receiver	A										0
Electrostatics	T						d	d		d	3
Thermistor / LDR	A									d	1
Radioactivity - properties of alpha particles, beta particles, gamma rays	T						d	d			2
Radioactivity - detection, half-life	T						dc	dc	dcdc	dc	4
Atomic physics - atomic structure, isotopes	T						d	d	d		3
Mass/energy equivalence	T							c			1
Cathode ray tube, oscilloscope	A						dc	d			2
X-rays: generation, photography	T								d		1
Logic gates	A								d	d	2
Data storage media	A									d	1
Digital v analogue signals	T									dd	1
Astronomy (space physics)	T								d	d	2

## *Commentary*

### *General impressions*

The content and style of the papers did not appear to change very much from 1927 to 1977. The biggest contrast between the more recent examinations and the older examinations seemed to be in the context of the questions. In the more recent examinations, the questions tended to be given a relevant real-world context. In the older examinations, the main context seemed to be the school laboratory. There seems to have been an understanding that pupils would have been taught the relevant theory and where appropriate applied it themselves with laboratory equipment that was common across all schools. There was much more reference to specific pieces of equipment (e.g. potentiometers, galvanometers, calorimeters) in the older papers.

It is generally recognised that more structure is given to the candidate in modern examinations, in terms of breaking down questions into parts, providing space to write the answers, and indicating how many marks are available. This observation applies to the Physics papers, although it was interesting to note that some short, structured questions appeared as early as 1957. It was not until the 1977 paper in this sample that mark allocations were provided.

In more recent years, coursework has replaced the practical assessment. Although coursework includes the assessment of practical skills, it covers a much wider range of skills. The impression given was that for pre-1990 candidates the practical examination might have functioned similarly to an examination for performing on a musical instrument – i.e. a chance to show that certain skills/knowledge have been practised/learnt, and can be reproduced under stress.

No conclusions about standards over time can be drawn from this survey, because it does not include enough relevant information (e.g. about grade boundaries, pass rates, cohort characteristics, specification content, and teaching time – to name but a few factors). However, it is possible to make an impressionistic judgment about how examination demands have changed over the years – although this is a subjective exercise and different people may have different impressions. Bearing this in mind, the older papers seemed to require a slightly greater level of mathematical ability, a much greater level of recall of facts and theory, and a greater ability to communicate in written English. The more recent papers seem to require greater ability to apply knowledge and understanding to novel contexts (assuming that the topics are not taught in the same ‘novel’ contexts). It would probably be easier for an adult who had not studied Physics at school to gain marks on the modern papers, because more marks can be obtained using general knowledge and common sense.

*Rubric*

One very noticeable feature of the examinations from Table 3.1 is how complex the rubrics were in the older examinations. In particular in 1947, and on a pilot examination in 1967 (not shown in Table 3.1), it would appear to have been quite an achievement merely to work out which questions could be attempted, as shown below:

1947 Science II. Version A.

(Version A is for candidates not offering the subject Chemistry or the subject Physics-with-Chemistry.)

*[You are strongly advised to spend at least ten minutes reading the directions and the questions before you begin to write.]*

*Choose your questions as follows, according to the science subjects you are offering:*

Science subjects offered	Number of questions to be answered	Time allowed
Physics alone Physics and Biology	4 from Section I	1½ hours
General Science alone (one or two subjects) General Science and Biology	5, including at least 3 from Section I and at least 1 from Section II	1¾ hours
General Science and Physics	5 from Section I and 2 from Section II	2¼ hours

In 1967 the pilot theoretical paper had the following structure: Part I contained 7 questions. Part II contained 10 questions (3 in Section A, 3 in Section B, and 4 in Section C, 2 of which were marked '\*').

The rubric stated:

“Answer Question 1 and **four** other questions in Part I and **five** questions from Part II including at least **one** question from each of the Sections A and B, and at least **one** of the questions marked \* in Section C.”

The basic rubric for the practical examination showed very little change from 1927 to 1967:

“Candidates must send up the record of their observations and measurements put down in the order and at the time that they were made. The record may be in pencil provided that it is sufficiently neat to be intelligible. A fair copy is **not** wanted. A full account of the method of carrying out the experiments with a detailed description of the apparatus is **not** required. Candidates should however note any special precautions they have taken and it must be clear (by diagrams or otherwise) exactly what the readings mean and how they were obtained. The arithmetical working out of the answers from the readings should be done on the examination sheets and sent up. The theory of the experiments is **not** required.”

In 1957 detailed separate instructions for the supervisor on how to set up and run the experiments were provided (or just included in the archive for the first time). There was an interesting section called ‘Assistance to candidates’ which is worth quoting in full:

“The purpose of the Practical Physics test is to find out whether the candidates can carry out simple practical work themselves. The Examiners are aware that a candidate may sometimes be unable to show his practical ability through failure to understand some point in the theory of the experiment. If an Examiner were present in the laboratory, he would be prepared to give such a candidate a hint to enable him to get on with the experiment. In order to overcome this difficulty, the Supervisor is asked to co-operate with the Examiners to the extent of being ready to give (or allow the Physics teacher to give) a hint to a candidate who is unable to proceed.

The following regulations must be strictly adhered to:

- i) No hint may be announced to the candidates as a whole.
- ii) A candidate, who is unable to proceed and requires assistance, must come up to the Supervisor and state his or her difficulty. Candidates should be told that the Examiners will be informed of any assistance given in this way.
- iii) A note must be made, on the Form for Report on Apparatus Supplied, of any assistance given to any candidate, with the name and index number of the candidate.

It is suggested that the following announcement be made to the candidates:

“The Examiners do not want you to waste your time through inability to proceed with the experiment. Any candidate, therefore, who is unable to get on with his experiment after he has spent 15 minutes at it, may come to me and ask for help. I shall report to the Examiners any help given in this way, and some marks may be lost for the help given.”

1957 was the first year in our sample where advice was given on how much time to spend on part of the examination. The 1947 rubric had contained advice to spend time reading the questions.

In 1967 the rubric contained the instruction:

“Answers and working for this part of the paper must be put **on this sheet.**”

This could be the first instance in our sample of candidates answering on the question paper, but Part I of 1957 looked as though it was supposed to have the answers written on it – though there was no rubric to that effect.

In 1977 Part II of Paper 1 was effectively a restricted choice of two questions from four – the candidate had to choose either part A or part B of Q1 and Q2, but A and B were completely different questions.

In 1997 (the first GCSE in the sample) the rubric was longer, but simpler and clearer, being divided into ‘instructions to candidates’ and ‘information for candidates’:

**"Instructions to candidates**

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer all questions.

Read each question carefully and make sure you know what you have been asked to do before starting your answer.

Show all your working when answering numerical questions.

Answers to numerical questions should be given to a suitable number of significant figures.

Write your answers in the spaces provided on the questions paper.

**Information for candidates**

You will find formulae on page 2.

The number of marks is given in brackets [ ] at the end of each question or part question.

The marks allocated and the spaces provided are a good indication of the length of answers required.

You may use a calculator.

This question paper consists of 24 printed pages.”

In 2007 the 1982/2 paper was designed to be marked on screen, and some of the rubric reflected this. Also, marks were awarded for quality of written communication, and candidates were notified of this in the rubric:

“Where you see this icon (  ) you will be awarded marks for the quality of written communication in your answer. This means, for example, you should

- Write in clear, ordered sentences,
- Use correct spelling, punctuation and grammar,
- Use correct scientific words.”

### Topics

Inspection of Table 2 gives a rough idea of which topics have been examined across the years. The count at the right hand column shows the number of times in the nine years sampled that a question on that topic appeared either on a written paper or on a practical assessment.

The most consistently assessed topics across the years were:

- ‘Refraction at a plane surface’ (9 times)
- ‘Forces producing acceleration, movement against friction/gravity’ (8 times)
- ‘Converging and diverging lenses’ (8 times)
- ‘Work, power, energy’ (7 times)
- ‘Determination of specific heats of solids and liquids, and latent heats’ (7 times)
- ‘Resistances in series and in parallel’ (7 times).

Topics that only appeared in the earlier years (1927 to 1957) were:

- ‘Archimedes principle / flotation’
- ‘Heat as a form of energy / mechanical equivalent of heat’
- ‘Evaporation and boiling’
- ‘Combination of two lenses to form a compound microscope / Galilean telescope / astronomical telescope’
- ‘Production and nature of a continuous spectrum / emission spectra / uses of spectra’
- ‘Determination of the frequency of a tuning fork’
- Most topics relating to magnetism except ‘The magnetic effect of an electric current’
- ‘E.M.F and p.d. of cells’

Topics that only appeared in the later years (1977 to 2007) were:

- ‘Spring – oscillation’
- ‘Elementary treatment of wave motion, transverse & longitudinal’
- ‘Speed, frequency, wavelength of light in different media’
- ‘Diffraction, interference’
- ‘Electrical power generation, sources of energy, efficiency’
- ‘Electrostatics’
- Topics relating to atomic/nuclear physics
- ‘Logic gates’

– ‘Space physics’

These lists back up the general impression of a move away from understanding the workings of laboratory equipment. They also reflect, of course, the appearance on the syllabus of topics that are of current scientific and everyday interest.

*Commentary on other changes in the question papers over time*

In 1927 the questions were grouped on the paper with three questions on each of the following topics: Experimental mechanics, Heat, Sound & Light, and Electricity & Magnetism.

In 1947 there was a complex set of ‘general science’ options, rather than a simple breakdown into separate science subjects. The candidate had to choose the appropriate papers and sections within those papers. The examination paper contained the first appearance of a diagram (in the practical paper) among the years sampled. The word ‘show’ first appeared as such here – previously it was ‘shew’!

In 1957 (the first O-level in this sample) the Part I questions were shorter and more direct. The Part II questions of the theoretical paper were quite long, and often contained a choice of sub-part. Instructions for the practical exam were much more detailed (see section 3 above).

A pilot scheme for a new theoretical paper was examined in 1967. The content of the paper seemed slightly more ‘modern’ with a question on cathode rays, and one on alpha particles.

In 1977 mark allocations for the individual questions and the papers as a whole were given for the first time. It seems that SI units were uniformly used here for the first time in our sample, for example lengths were given in metres rather than centimetres, and masses in kilograms rather than grams.

In 1987 the specification code was prominently displayed on the paper. There were more diagrams on the question paper. There also seemed to be more synopticity – i.e. bringing together different topics within the same question. The practical tasks in particular had some fairly complex diagrams, with detailed descriptions in one case of what to draw. The detailed instructions on setting up apparatus and about giving hints to candidates who get stuck were very similar to previous years.

1997 was the first GCSE in the sample. We took the Further Tier of specification 1782 as being most comparable to the O-level. Available in the archive, but beyond the scope of this report, is the syllabus – which gives a detailed description of the coursework/internal assessment requirements.

The paper contained a wide variety of question types, from very structured to quite open-ended. One question involved comprehension questions about a passage on astronomy. More of the questions were set in a real-world (as opposed to a laboratory) context.

In 2007 there were three OCR physics specifications at GCSE level – the ‘old’ specification (code 1982) in its last year, the ‘new’ Gateway specification (code J645) and the ‘new’ 21<sup>st</sup> Century Science specification (code J635). Again Table 3.1 shows higher tier options only.

In the exam papers from specification 1982, there did not seem to be any list of formulae given – perhaps these were taken in separately by the candidates?

More named characters (e.g. Dan, Emily, Peter, Jane, David) appeared in the question stems than in previous years. The questions were quite long and structured, sometimes containing several physics contexts with linked themes.

There were two higher tier extension options – A (Paper 4) and B (Paper 6). Candidates would have been taught/entered for only one of these.

Paper 4 had a question including sources of scientific information for the public (a topic not listed in Table 2). It also had an interesting context for a question on motion under gravity – the trajectory of a parcel of food aid dropped from a plane!

Paper 6 had some photographs of experimental apparatus (these were not seen in Paper 2 & Paper 4) e.g. a momentum trolley, a weight on a spring.

The specification (including coursework requirements), the published mark scheme, and the examiners' report on the units are all available in the archive.

Section E of the specification – 'opportunities for teaching' – showed how ICT, citizenship, spiritual / moral / ethical / social / cultural issues, health / safety / environmental issues, European issues (!) and Key Skills could be integrated with the topics.

Only one unit of each of the new specifications J635 and J645 was examined in June 2007. The full GCSE had one or two more written papers, plus internally assessed 'skills assessment'.

21<sup>st</sup> C A331/02 consisted entirely of objective questions. Named characters were used in one question only: (Abul, Beth, Clive, David).

Gateway B651/02 consisted mostly of short answer questions. Named characters were used throughout (Anya, Ewan, Fiona, Amrit, Megan, Emma, Cathy, Colin, Elaine).

2007 was the first year in our sample with a published mark scheme for the entire question paper. Numerical answers to the questions involving calculations were included in the archive for all years from 1927 to 1987.

## Section 4: Art

### *Structure of the papers*

Table 4.1 shows the structure of the Art papers offered by UCLES/MEG/OCR, from 1867 to 2007. The first available papers from the archives were from 1867.

The title 'Art' was first used to cover the examinations in drawing and painting in 1927, with the introduction of the School Certificate. From this time the subject broadened to include many media and to allow candidates' creativity to guide them. Previously, the sole focus of the examination papers was drawing, with the emphasis on technical drawing.

### *Early papers*

Geometrical Drawing, Linear Perspective and Mechanical Drawing required candidates to use calculations and instruments in their work. Elements of technical drawing were included in the examination until 1927.

Model Drawing required candidates to produce an outline drawing consisting of 'solids', typically the cube, cone, cylinder, hexagonal prism, common objects and a drawing board. The 1887 Model Drawing paper stated:

'Let four bound 8vo volumes be laid upon a table with their corners touching, or nearly touching, one another and their backs outwards so as to leave a square space in the middle; in this space place an inkstand with two or three quill pens in it.

Candidates may sit all round this subject five or six feet from it.

The drawing should fairly fill the paper issued to the Candidate.'

In 1927, Model Drawing was renamed Object Drawing, although the task format remained the same.

The 1907 regulations stated that the purpose of the Freehand Drawing (also known as 'Drawing from the Flat') paper was 'to test the power of the candidates to draw accurately and intelligently in outline'. The task would usually be to copy an outline drawing e.g. of a saw used for woodworking, and increase or decrease the size.

Colour was first introduced in 1907, when for the Design paper 'either the background or the pattern, but not both, may be tinted in a wash of any one colour'. Painting was first included in 1927.

Memory Drawing featured between 1917 and 1937, the paper being split into two tasks. Early papers required the candidates to draw entirely from memory; in later years they would be shown an object for a few minutes before being asked to draw it, then the exercise would be repeated with a group of objects.

Design appeared in every paper from 1907 onwards, although it was called 'Crafts' in 1967. In early years candidates were restricted by very specific requirements, for example, being given the template to use rather than designing it themselves. From 1927 onwards, the paper was greatly expanded to include leatherwork, pottery, posters, book illustrations, lettering, embroidery, fabric painting, stage décor and interior decoration.

### *Compulsory elements and candidate choice*

After the first major change in 1927, the next shift seemed to come between 1967 and 1977. In 1967 and earlier examinations, painting and/or drawing were compulsory elements. By 1977, drawing and painting were no longer compulsory: candidates were required to submit an objective study - with the following guidelines in the syllabus: 'Whilst any medium may be used for the work, it should be understood that this paper is intended primarily as a test of

the candidates' appreciation or analysis of form, structure, colour, pattern, etc., carried out in their own terms'.

With the introduction of the GCSE, Art and Design was expanded to allow students to work entirely in their medium of choice. Along with the medium-specific 'Art and Design: Painting and Drawing' and 'Art and Design: Photography' (among others), there was also simply 'Art and Design', allowing candidates the freedom to work in a variety of media.

In 1947, there were early signs of candidate choice in the paper – for the Original Imaginative Composition in Colour task, the students were given a list of subjects e.g. fetching the poultry eggs first thing in the morning, and advised to respond after considering which suited their style of work best.

The 1997 and 2007 papers adopted this format for the entire paper with the use of starting points. Broad-based themes allowed the candidates to respond in a variety of media, although some starting points appeared to lend themselves to certain media more than others. For example, starting point 3 from the 2007 paper, 'Street Wear' would most obviously link to the 'Art and Design: Textiles' qualification, although candidates working towards any of the other Art and Design qualifications could take the theme as a starting point too.

#### *Preparation work*

Again, the first move towards this change was in 1947, with the introduction of the 'Original Imaginative Composition in Colour' question. Candidates received the paper 'at least one week in advance'. In 1977, instructions were given to candidates two weeks before the examination to allow them time to make preliminary sketches. The sketches could be taken into the examination room, but were not submitted with the final piece of work. More recently, it has been one of the assessment objectives that students should change or modify their work as it develops (2007 paper). The 2007 examiners' report states that 'many candidates make excellent use of sketchbooks, journals and diaries to support and enhance their outcomes'.

#### *Practical concerns*

Prior to the GCSE, candidates were restricted not only by the question papers but also by the size of paper, and for any 3D work, by weight and size.

In 1937, for instance, the Life Study question required candidates to use drawing paper sized 14½ " x 10½ " and stated: 'The drawing is to measure at least 10 inches in height'.

The 1947 paper recognised 3D work by allowing candidates to write and illustrate a description of a piece of craft work created during the school year. By 1957, candidates were allowed to submit their craft work (not just a description of it), although this also brought restrictions. For example, the 1977 specification stated: 'Pieces of pottery must not exceed 12 ins. in any dimension, nor exceed 7 lbs. in weight. Pieces of sculpture or carving must not exceed three feet in any dimension nor exceed 20 lbs. in weight.'

The work was sent to Cambridge and displayed in the Craft Hall at 1 Hills Road for marking. Now that schools themselves display candidates' work and examiners make visits to the schools, students' artwork is not limited in this way.

History of Art and Architecture was included as an option in the question papers from 1927 through to 1987, with hardly any changes made to this area of the syllabus during that time. The introduction of the GCSE removed this study area and instead expected candidates to make connections with others' work to inform their own. This gives candidates the opportunity to explore others' work in their own field more extensively.

Table 4.1: Structure of Art papers from 1867 to 2007.

Year	Structure of the paper
<p><b>1867</b> Junior Local Examination</p> <p><b>Paper details:</b> Students may also offer themselves for Examination in</p> <ol style="list-style-type: none"> <li>1. Geometrical Drawing, and Linear Perspective.</li> <li>2. Drawing from the Flat and from Models.</li> </ol>	<ol style="list-style-type: none"> <li>1. Geometrical Drawing <i>Either</i> Paper A (1hr) – Six tasks. <i>Or</i> Paper B (1hr) – Six tasks.  Linear Perspective (1hr) – Three tasks.</li> <li>2. Model Drawing (1hr) [Drawing from the Flat task not published]</li> </ol> <p>Example question <i>Model Drawing</i> The student is required to make a pencil Drawing in outline of some single article of household furniture, or of some agricultural or industrial implement of well-defined form. The object must be so placed that some of its forms may be seen obliquely by the student in as clear a light as possible. The drawing should not be less than six inches in its longest dimension.</p>
<p><b>1877</b> Junior Local Examination</p> <p><b>Paper details:</b> unknown, but probably as 1867</p>	<ol style="list-style-type: none"> <li>1. Geometrical Drawing Paper A (1hr) – Six tasks. Paper B (1hr) – Six tasks.  Linear Perspective Paper A (1hr) – Six tasks. Paper B (1hr) – Six tasks.</li> <li>2. Model Drawing (1hr) Freehand Drawing (1hr)</li> </ol> <p>Example question <i>Linear Perspective (A)</i> [These problems are to worked to a scale of half an inch to the foot, the distance of the spectator from the picture being, in each case, 12 feet, and the horizon 5 feet above the ground plane. The lines by which each problem is solved must appear on the paper sent up to the Examiner.] 1. The dimensions of a rectangular block are, length 8 feet, width 4 feet, and thickness 3 feet. Put this solid into perspective lying on one of its widest faces on the ground plane with its longest edges vanishing towards the left at an angle of 40° with the picture plane. The nearest corner of the block on the ground is 1 foot to the right of the spectator, 1 foot from the picture line. 2. Across the middle of the upper face of this block, and at right angles to it, place a second, of the same dimensions, projecting equally over each side of the first block, and having its widest faces parallel to the ground plane.</p>
<p><b>1887</b> Junior Local Examination</p> <p><b>Paper details:</b> (1) or (2).</p>	<ol style="list-style-type: none"> <li>(1) Geometrical Drawing Paper A (1hr) – Five tasks. Paper B (1hr) – Five tasks.  Linear Perspective Paper A (1hr) Paper B (1hr)</li> <li>(2) Model Drawing (1hr) Freehand Drawing (no time limit stated)</li> </ol> <p>Example question <i>Freehand Drawing</i> The Students were required to copy a symmetrical outline ornament altering the dimensions.</p>

Year	Structure of the paper
<p><b>1897</b> Junior Local Examination</p> <p><b>Paper details:</b> Two of four subjects. No more than three.</p>	<p>a) Freehand Drawing (no time limit stated) b) Model Drawing (1hr) c) Geometrical Drawing     Paper A (1hr) – Six tasks     Paper B (1hr) – Six tasks d) Linear Perspective     Paper A (1hr)     Paper B (1hr)</p> <p>Example question <i>Geometrical Drawing (A)</i> 1. Describe a triangle the sides of which are 2 inches, 3 inches, and 4 inches. Bisect the greatest angle of the triangle, and measure and write down the lengths of the segments into which the bisecting line divides the opposite side.</p>
<p><b>1907</b> Junior Local Examination</p> <p><b>Paper details:</b> Two of four subjects. May not take I and (d).</p>	<p>(a) Freehand Drawing (1hr) (b) Model Drawing (1hr) I Geometrical Drawing (1hr) (d) Design (2hrs)</p> <p>Example question <i>Design</i> Candidates were instructed to draw a rectangle of 10 x 5 inches, and to make a design to fill it, using the oak leaf and acorn, of which a drawing was provided. They were informed that either the background or the design, but not both, might be tinted in a wash of any one colour.</p>
<p><b>1917</b> Junior Local Examination</p> <p><b>Paper details:</b> Two of six subjects. (a) or (b) must be one. Not more than two of (c), (d), (e), (f).</p>	<p>(a) Freehand Drawing (1hr) (b) Model Drawing (1hr) I Geometrical Drawing (1hr) (d) Design (2hrs) (e) Memory Drawing (1hr) (f) Mechanical Drawing (1hr 30m)</p> <p>Example question <i>Memory Drawing</i> No instruments or ruling allowed. You are required to make memory drawings of two of the following objects: A basket. A table-knife. A hair-brush. A toy sailing boat. A sprig of ivy. A 2-foot rule partly open. Both drawings are to be done on one side of the same sheet of paper. The drawings should be on a large scale and with little shading, if any. They may be executed in any medium. The object must be represented as it would appear from the point of view selected by the candidate. An "elevation" will not be accepted.</p>
<p><b>1927</b> School Certificate Examination</p> <p><b>Subject title:</b> Art</p> <p><b>Paper details:</b> Not less than three and no more than five papers to be taken. Paper a) or paper b) must be among those taken.</p> <p><b>Total exam time:</b> 4.5 hours minimum 11.5 hours maximum</p>	<p>a) Object Drawing (1hr 30m) b) Memory Drawing (1hr 30m) c) Drawing from the Flat (1hr 30m) d) Design and Decorative Composition (3hrs) e) Figure Composition (2hrs) f) Plant Drawing from Memory (1hr 30m) g) Painting in Water-Colours (3hrs) h) Perspective Drawing (1hr 30m) i) Mechanical Drawing (2h) j) History of Art and Architecture (2hrs)</p> <p>Example question <i>Flat Drawing</i> The print on the next page is from an English Bell Metal Jug of the 14<sup>th</sup> century. Copy it in pencil, increasing the size so that the paper may be tastefully filled without being overcrowded. No ruling or measuring is allowed, nor may any lines be drawn on the example. Little shading should be used. The whole jug is to be drawn, but the detail on the body of the jug is not to be attempted.</p>

Year	Structure of the paper
<p><b>1937</b> School Certificate <b>Subject title:</b> Art</p> <p><b>Paper details:</b> Three papers including at least two of (a) to (h) and at least one paper involving the use of colours. No more than four papers. At least one, but no more than two from Section I. No more than two from Section II.</p> <p><b>Total exam time:</b> 6 hours minimum 11 hours maximum</p>	<p><b>Section I Representational</b> a) Object Drawing (2hrs) b) <i>Either</i> Nature Drawing (2hrs) <i>or</i> Painting in Water-Colours (3hrs) c) Drawing from Observation and Memory (2hrs) d) Drawing from the Flat (1hr 30m) e) Life Study (2hrs)</p> <p><b>Section II Creative</b> f) Design and Decorative Composition (3hrs) g) Illustration (3hrs) h) Manuscript writing (3hrs)</p> <p><b>Section III Historical</b> i) History of Architecture (2hrs 30m) j) History of Painting (2hrs 30m)</p> <p>Example question <i>Painting in Water-Colours</i></p> <p>Objects: A tumbler filled with coloured water. Five water-colour paint brushes. A water-colour paint box, a small sketch book, and a sponge.</p> <p>Arrange the objects, as in the sketch, on a drawing board covered with a sheet of brightly coloured paper, 18 inches from the ground. The background to be a piece of dark brown paper. The light should fall upon the group from above and from the left. Exclude direct rays of sunlight from the room.</p> <p>The painting should fill a 14 by 10 inches thin water-colour board, or a piece of thick paper cut to that size. The drawing board should be drawn with the group.</p>
<p><b>1947</b> School Certificate <b>Subject title:</b> Art</p> <p><b>Paper details:</b> Three papers including (d) or (e) and at least one other of (a) to (e). At least one paper must involve the use of colours. No more than four papers.</p> <p><b>Total exam time:</b> 8 hours minimum 11 hours maximum</p>	<p>a) Drawing or Painting from Objects (2hrs 30m) b) Drawing or Painting from Plant Life (2hrs 30m) c) Drawing or Painting from the Figure (2hrs 30m)</p> <p>d) Original Imaginative Composition in Colour (3hrs) (paper to candidate at least one week in advance)</p> <p>e) Design for Applied Arts and Crafts (3hrs) A. Lettering B. Embroidery C. Fabric Printing D. Book Production E. Poster, Advertisement, etc. F. Stage Décor, Display, Interior Decoration</p> <p>f) Description of Craft-work (2hrs 30m)</p> <p>g) Art: History of Architecture (2hrs 30m) h) Art: History of Painting (2hrs 30m)</p> <p>Example question <i>Drawing or Painting from Objects</i> The candidates should be instructed that the paper may be used with either the long or the short edge at the top, but that each candidate's index number must be written in the top right-hand corner.</p> <p>Subject: The Dressing-table. On a table, not more than 2 feet high, place a coloured tablecloth, folded to measure 20" x 25". On the cloth, against a coloured background, group objects likely to be found on a man's or woman's dressing-table, e.g. hair brushes, glass stoppered bottles, comb, powder-puff, nail scissors, shaving materials, a standing framed photograph, etc. Not more than five objects, varying in size and shape, should be introduced in the group. Candidates are to draw the table-cloth but not the table.</p>

Year	Structure of the paper
<p><b>1957</b> Ordinary Level <b>Subject title:</b> Art</p> <p><b>Paper details:</b> Three papers including at least one of O.I-O.III and at least one of papers O.IV-O.VI</p> <p><b>Total exam time:</b> 7.5 hours minimum 8.5 hours maximum</p>	<p>I. Drawing or Painting from Still Life (2hrs 30m) II. Drawing or Painting from Nature (2hrs 30m) III. Drawing of Painting from a Living Person (2hrs 30m)</p> <p>IV. Original Imaginative Composition in Colour (3hrs) V. Design (3hrs) VI. Craft-work (no written paper will be set) VII. Study of Buildings (2hrs 30m) VIII. History of Painting (2hrs 30m)</p> <p>Example question <i>Original Imaginative Composition in Colour</i> This paper is to be given to the candidate at least one week in advance. N.B. The use of rulers or other mechanical means is not allowed.</p> <p>You are required to make an original composition based on one of the subjects given overleaf. In making your choice you should consider which subject seems best suited to your style of work, i.e. realistic representation, illustration, formal design, etc., bearing in mind that quality of composition and originality are the main objects of the paper.</p> <p>Before starting work, take careful note of the following instructions: (a) You must on no account base your composition on any picture you have seen. (b) Except for the number of the question and your name and index-number, you must not write on the front of your picture, but you may write anything you wish on the back. I Your picture should fill, or approximately fill, your sheet of paper.</p> <ol style="list-style-type: none"> <li>The winter is over and the family clean out the shed where the animals are kept.</li> <li>Imagine that you and your friends are visiting a famous building towards evening, only to find that the caretaker has lost the key. Base your picture on some place you have actually seen or visited.</li> <li>"The tired emigrants arrive."</li> <li>Depict the story of Naomi and her daughters-in-law. In Chapter I of the Book of Ruth, one of the daughters-in-law leaves Naomi after the famine but the other, Ruth, entreats to go with her to the land of Judah.</li> <li>Make a composition based on Keats' poem on the gipsy "Meg Merrilies": "And, every night, the dark glen yew She wove, and she would sing. And with her fingers, old and brown, She plaited mats of rushes, And gave them to the cottagers She met among the bushes."</li> <li>"Caught in the shower."</li> </ol>
<p><b>1967</b> Ordinary Level <b>Subject title:</b> Art</p> <p><b>Paper details:</b> Three papers including at least one of papers 1-3 and at least one of papers 4-6.</p> <p><b>Total exam time:</b> 5.5 hours minimum 8.5 hours maximum</p>	<ol style="list-style-type: none"> <li>Drawing or Painting from Still Life (2hrs 30m)</li> <li>Drawing or Painting from Nature (2hrs 30m)</li> <li>Drawing or Painting from a Living Person (2hrs)</li> </ol> <p>4. Original Imaginative Composition in Colour (3hrs) 5. Crafts 'A' (3 hrs) 6. Crafts 'B' (no written paper will be set) 7. Study of Art (2hrs)</p> <p>Example question <i>Drawing or Painting from a Living Person</i> In either alternative, if the work is painted, the background must be included.</p> <p>A. The model, with the body slightly turned to the right, sits in a chair of average height which has arm-rests. The model looks to the front and the hands clasp the arms of the chair where they join the upright supports. The right foot rests on a rung of the chair and the left foot lies flat on the floor. The limbs should be exposed as much as possible. The work must include the whole figure.</p> <p>B. The model sits at a desk or table as though trying to think what to write. The head is turned slightly to the right. The right hand holds a pen and the left hand, with the fingers spread, rests on a sheet of paper on the desk or table. The study should include the head and shoulders and both arms and legs.</p>

Year	Structure of the paper
<p><b>1977</b> Ordinary Level <b>Subject title:</b> Art</p> <ul style="list-style-type: none"> <li>• Syllabus A 613</li> </ul> <p>Paper 1 and two other papers, one of which must be paper 2 or paper 3.</p> <hr/> <ul style="list-style-type: none"> <li>• Syllabus B 614</li> </ul> <p>Paper 1 and Paper 2</p> <p><b>Total exam time:</b> 3 hours minimum 9 hours maximum</p>	<p>Paper 0.1 Objective study of one of the following: the human figure, natural forms (e.g. flowers, fruit, bones), man-made objects including parts of interiors of buildings. (3 hrs) Paper 0.2 Base composition on one of 9 themes (3hrs) Paper 0.3 Design (3hrs) Paper 0.4 Study of Art (2hrs 30m) Paper 0.5 Coursework: Internal Assessment Paper 0.6 Coursework: External Assessment Paper 1 (as above)</p> <hr/> <p>Paper 2 Two examples of coursework from one of the following:</p> <ol style="list-style-type: none"> <li>a) sculpture</li> <li>b) pottery and ceramics</li> <li>c) prints</li> <li>d) textile printing</li> <li>e) weaving</li> <li>f) embroidery or collage with materials</li> <li>g) puppets</li> <li>h) architectural models</li> </ol> <p>Example question <i>Paper 0.1</i> Candidates should make a study or studies from sight of one of the subjects from the list below. Not more than two sheets of studies may be submitted; only one side of each sheet may be used. Candidates may make studies of either the whole or only part of their subject. Small specimens or details may be enlarged and aids such as magnifying lenses may be used. Any medium or mixed media may be used.</p> <p>1 Either (i) The model sits astride a form or low bench, with hands resting in front. Or (ii) The model sits at the end of a form or low bench, hands in lap. Or (iii) If a pose with two models is preferred, they should pose as in (i) and (ii) above, back to back. In all the above alternatives, candidates may make studies from any view point they wish. Any of the poses described above may be used for a study of the whole figure or for a study of the head and shoulders or for part of the figure such as ears, hands, etc. 2 A plant with large leaves. 3 Broad beans or peas with the pods open to show the inside, or part of a bean or pea plant with pods forming. 4 A torch and battery. 5 A bird's skull. 6 Seaweed, water plants or pond weed in water. 7 Equipment from the art room, such as sculpture tools, lino-cutters, printing rollers or a press. 8 Looking up a stairwell, or at buildings and trees.</p>
<p><b>1987</b> Ordinary Level <b>Subject title:</b> Art</p> <p><b>Paper details:</b> Paper 1 and two other papers, one of which must be Paper 2 or Paper 3. Colour must be used in one of Papers 1, 2 and 3.</p> <p><b>Total exam time:</b> 6 hours minimum 9 hours maximum</p>	<p>Paper 1: Objective study of one of the following: the human figure, natural forms (e.g. flowers, fruit, bones), man-made objects including parts of interiors of buildings. (3 hrs) Paper 2: Interpretation of themes/subjects (9 offered) (3hrs) Paper 3: Design (3hrs) Paper 4: Study of Art (2hrs 30m) Paper 5: Coursework: Internal Assessment Paper 6: Coursework: External Assessment</p> <p>Example question <i>Design</i> Design a logo for the West of England Tourist Board to be used as part of its letter heading and on its publicity literature. Use as your theme Cathedrals or Fishing Villages and incorporate the initials W.E.T.B. in your design. You may work to a scale larger than that of the intended final product.</p>

Year	Structure of the paper
<p><b>1997</b> GCSE <b>Subject title:</b> 1300 Art and Design 1301 Art and Design: Drawing and Painting 1302 Art and Design: Graphics 1303 Art and Design: Photography 1304 Art and Design: Textiles 1305 Art and Design: 3D Studies</p> <p><b>Paper details:</b> Coursework Examination</p> <p><b>Total exam time:</b> 10 hours</p>	<p>10-hour examination (3 hours must run consecutively) between 3 March and 2 May.</p> <p>Produce a unit of work in response to one of 25 starting points.</p> <p>At least two weeks for preparation work.</p> <p><i>Examples of starting points</i></p> <p>1 Figure in enclosed space 2 Piled high 3 Floral collection 4 Interesting local architectural image(s) 5 Interior 6 Neglected</p>
<p><b>2007</b> GCSE <b>Subject title:</b> 1910 Art and Design 1911 Art and Design: Fine Art 1912 Art and Design: Graphic Design 1913 Art and Design: Photography 1914 Art and Design: Textiles 1915 Art and Design: Three Dimensional Design</p> <p><b>Paper details:</b> 1 examination 2 units of coursework</p> <p><b>Total exam time:</b> 10 hours</p>	<p>10-hour examination (3 hours must run consecutively) between 1 March and 30 April.</p> <p>Produce a unit of work in response to one of 12 given starting points.</p> <p>Up to six weeks for preparatory, research and developmental work.</p> <p><i>Examples of starting points</i></p> <p>1 Memories Happy days gone by, school days, family, holidays, childhood celebrations, loved ones, friends, past events, fondness and love, tears and regrets, first love, occasions, nostalgia, reminiscence...</p> <p>7 After the party Washing up, left-over food, mess, balloons and streamers, banners and bunting, party-poppers, empty glasses, bottles, cleaning up, broken items, bags of rubbish...</p>

Over the decades, the amount of time a candidate spent being examined seems to have varied according to which options they chose, so it is difficult to draw any direct comparisons. However, there appears to be a gradual increase in the amount of time allowed, in line with the expansion of the research and development elements of the subject.

## Section 5: Food Technology/Home Economics

Table 5.1 shows the nature and structure of examinations offered by one UK examination body every tenth year from 2007 back to 1937. The reason for the final date of 1937 is because that is as far back as archive papers for this subject within this awarding body date. The first evidence of cookery as a feature of the housecraft examination was in 1929; in 1927 only Needlecraft and Hygiene were examined.

A number of similarities - and differences - between the examinations become apparent when Table 5.1 is studied. There is a clear progression during this time:

- During 1937-1947 (and this was also the case in 1929) candidates took a written paper and a practical paper. However there was a gradual increase in the amount of time allowed for both parts of the test, and the introduction of specific planning time had been incorporated into the practical test by 1947.
- From 1957 to 1977 the demands of the examination remained very comparable to the earlier years. The length of time allowed for planning the practical work climbed steadily from 70 minutes to 75 minutes to 90 minutes, but all other time allowances remained static.
- By 1987 there were substantial changes to the specification (or syllabus as it was then known). The theory paper, whilst remaining of the same duration, introduced data response questions, where candidates were presented with a table of information, a chart or a facsimile copy of a food label, and had to interpret data from it. It was however in the practical assignments that the greatest change was seen, with coursework assignments spread over weeks, rather than a timed practical examination. Finally there was by this time the introduction of assessed 'self-evaluation' of the piece of practical work produced.

Only one examination was available at this Examination Board until 1987. However, following the introduction of the Design & Technology (D&T) curriculum in 1992, two specifications were on offer – Home Economics and Food Technology.

In 1997 at least three syllabuses within the D&T suite contained a food option. In this paper only syllabus 1455 is described in detail, as evidence from inter-board statistics suggests that this was the most popular. In all D&T syllabuses in 1997 it appears that food was a relatively small optional part of the course – candidates had to take a core written paper which had questions (mainly) about design and resistant materials. None of the optional content (graphic media, textiles or food) featured in the core paper.

Tiering was not applied to this subject by this Awarding Body until 1997, when the relatively new 'Food Technologies' syllabus had three tiers for the written paper: Basic (grades G-C), Standard (grades E to A) and Higher (grades D-A\*). The Home Economics examination in 1997 was not tiered. In 2007 two tiers were in place for the written paper of both Food Technology and Home Economics examinations.

### *Evolution of the practical component.*

From 1947 to 1977 the practical component of the cookery examination remained very consistent. During a planning session, candidates were given a task consisting of a set of general requirements within a given context – e.g. prepare a midday meal for two adults and one schoolchild – and were given instructions about any specific skills that should be

illustrated (e.g. using batter) and were required to plan their choice of menu to meet the requirements. At the examination they were required to complete the plan that they had made.

Most tasks involved making three or four varied dishes, plus (sometimes) small accompaniments/beverages to complement the dishes produced.

From 1987-1997 the practical task became much less a straightforward test of the student's skill in planning a menu and cooking the dishes, and more of a scientific experiment. Students were required to conduct a series of assignments, involving an investigation of a 'food based problem'. More theoretical work was required, and the practical cookery might be said to be less varied, because it would centre around the identified 'problem'. If that was children's diet, then all the practical work would concentrate upon that area.

In 2007 the Food Technology coursework involved the design of a 'product' with the objective of mass-market manufacturing. Students prepared a design brief and the practical cookery tended to involve preparing different versions of the same basic dish. Home Economics students had rather more varied tasks, although investigation was still a requirement.

Table 5.1: Structure of the examinations.

	<b>Structure of written paper</b>	<b>Practical paper/coursework</b>
<p><b>1937</b> Half a School Certificate subject; <b>Subject title:</b> Housecraft, <b>Paper details:</b> Title: Cookery 1 written paper 1 practical paper</p>	<p>45 minutes for cookery section. One written paper section (presented in combination with Laundrywork, Housewifery &amp; Needlework). Two questions to be answered from a choice of three. Questions multi-part. <i>Example:</i> <i>Compare and contrast boiling and steaming as methods of cooking vegetables. Which do you consider the better method? Give reasons for your choice.</i></p>	<p>Two and a quarter hours. One task allotted to the candidate. No preparation time indicated, nor any indication of candidate having advance notice of dishes to be cooked. Tasks included three or four dishes, some of which were related to one another. <i>Example:</i> <i>Make a pulse soup; show two ways of cooking batter, one as a savoury and one as a sweet; make some scones.</i></p>
<p><b>1947</b> Half a School Certificate subject; <b>Subject title:</b> Housecraft, <b>Paper details:</b> Title: Cookery 1 written paper 1 practical paper</p>	<p>One hour for cookery section. One written paper section (presented in combination with Household Management &amp; Needlework). Between two and four questions to be answered from a choice of five. Questions multi-part. <i>Example:</i> <i>Enumerate the advantages of steaming as a method of cooking. By means of labelled diagrams, show three methods of steaming. Give two examples of foods which may suitably be steamed in each of the ways illustrated.</i></p>	<p>One hour planning session. Candidates given test allocated to them, &amp; plan what they wish to cook. They must draw up a plan of work and a list of ingredients. All is handed in at the end of the planning session and is returned to them at the examination. Candidates must stick to their written plan of work. Tasks mostly contained three main dishes, plus a small accompaniment – i.e. a drink, or a sauce. Two hours to complete task. <i>Example:</i> <i>Show your skill in cookery by using batter, short crust pastry and the creaming method to prepare three dishes. A suitable sauce should be served with one of the dishes.</i></p>
<p><b>1957</b> O Level <b>Subject title:</b> Cookery <b>Paper details:</b> 1 written paper 1 practical paper</p>	<p>Single two hour theory paper. Five questions to be answered. Questions divided into two sections. Section A (where candidates were advised to spend 25% of time) had a choice of 2 longish answers; candidates had to answer one. Section B had 6 question choices of which candidates had to answer four. <i>Example:</i> <i>What do you understand by the term 'edible offal'? Name four examples and state one method of cooking suitable for each.</i></p>	<p>One hour and ten minute planning session. A choice of two tests given to each candidate, &amp; had to choose which one to take in first ten minutes. Then spend hour preparing a plan of work and a shopping list. All is handed in at the end of the planning session and is returned to them at the examination. Candidates must stick to their written plan of work &amp; may not bring any additional notes (except recipe book). Tasks contained three or four main dishes –sometimes more smaller dishes. Two and a quarter hours allowed for cooking. <i>Example:</i> <i>Prepare and serve a special tea for the headmistress and two visitors to your school. It should consist of dainty sandwiches, (two savoury fillings), scones, tea and also a Victoria sandwich and a few small cakes, both made from one basic mixture.</i></p>
<p><b>1967</b> O level <b>Subject title:</b> Cookery <b>Paper details:</b> 1 written paper 1 practical paper</p>	<p>Single two hour theory paper. Five questions to be answered. Questions divided into two sections. Section A (where candidates were advised to spend 25% of time) had a choice of 2 longish answers; candidates had to answer one. Section B had 6 question choices of which candidates had to answer four. <i>Example:</i> <i>What is meant by 'fermentation'? Give the ingredients for and method of making a loaf of bread, using ½ lb flour. What are the changes which take place while the loaf is baking?</i></p>	<p>One hour and a quarter planning session. A choice of two tests given to each candidate, &amp; had to choose which one to take. Then prepare a plan of work and a shopping list. All is handed in at the end of the planning session and is returned to them at the examination. Candidates must stick to their written plan of work &amp; may not bring any additional notes (except recipe book). Tasks contained three or four main dishes –sometimes more smaller dishes. Two and a quarter hours allowed for cooking. Some convenience foods permitted generally, and actively encouraged in one task. <i>Example:</i> <i>a) Prepare a two-course family dinner for three people. The main course should show an interesting method of cooking inexpensive meat and the preparation, cooking and serving of a fresh green vegetable.</i> <i>b) Make some interesting biscuits (using not more than 4oz. flour) and serve them on a tray with coffee.</i></p>

	Structure of written paper	Practical paper/coursework
<b>1977</b> O level <b>Subject title:</b> Cookery <b>Paper details:</b> 1 written paper 1 practical paper	Single two hour theory paper. Five questions to be answered. Questions divided into two sections. Section A (where candidates were advised to spend 25% of time) had a choice of 2 longish multi-part answers; candidates had to answer one. Section B had 6 question choices of which candidates had to answer four. <i>Example:</i> a) <i>What advantages are there in making and baking in large quantities?</i> b) <i>Give the basic recipe for making:</i> bi. <i>shortcrust pastry using 400g or 500g (1lb) flour;</i> bii. <i>a creamed mixture using 200g or 250g (1/2 lb) self-raising flour.</i> c) <i>describe briefly how each mixture could be used to make three different dishes.</i>	One hour and a half planning session. A choice of two tests given to each candidate, & had to choose which one to take. Then prepare a plan of work and a shopping list. All is handed in at the end of the planning session and is returned to them at the examination. Candidates must stick to their written plan of work & may not bring any additional notes (except recipe book). Tasks contained three or four main dishes –sometimes more smaller dishes. Two and a quarter hours allowed for cooking. Some convenience foods permitted generally. <i>Example:</i> a) <i>Prepare, cook and serve a two course mid-day meal for a family of three, one of whom is on a light diet after an illness.</i> b) <i>Use some seasonal fruit to make a small quantity of jam or make some lemon curd.</i>
<b>1987</b> Joint O level/CSE <b>Subject title:</b> Home Economics: Food & Nutrition. <b>Paper details:</b> 1 written paper 3 practical assignments	2 hour theory paper divided into two sections. Books containing <i>recipes only</i> were permitted. Section A consisted of ten compulsory short answer/multiple choice questions. Section B presented two structured, two data-response and two free response questions. Three questions had to be attempted, one from each part. <i>Example (free response):</i> <i>Your headteacher is concerned about the amount of so-called 'junk food' eaten by young people today. Evaluate the part 'junk food' plays in their diet and comment on the need for thinking carefully about food and health.</i>	Three practical assignments. First assignment: a food based problem with one factor. Second assignment: Piece of investigation. Third assignment: a complex problem with two main factors, chosen by the candidate from three assignments set by the Board. Each of these carried out within 2 hours and 15 minutes, spread over 2 weeks, (1 hour planning, 1 hour executing (usually a week later) and 15 minutes evaluating. One of the third assignment choices requires the use/evaluation of convenience foods. <i>Example Third assignment:</i> <i>The use of convenience food in our diet is increasing.</i> a) <i>suggest dishes which show the sensible use of convenience food.</i> b) <i>As part of your planning explain how the dishes you have chosen take this point into consideration.</i> c) <i>Draw a chart to show how you would compare a home-made dish with the same convenience food dish.</i> d) <i>Make a selection from your choice in (a).</i> e) <i>Evaluate the outcome</i>
<b>1997</b> GCSE <b>Subject title:</b> Home Economics: Food. <b>Paper details:</b> 1 written paper 3 practical assignments	2 hour theory paper divided into two sections. Section A consisted of ten compulsory short answer/multiple choice questions. Section B presented two structured, two data-response and two free response questions. Three questions had to be attempted, one from each part. <i>Example (free response):</i> <i>Technology has brought about considerable changes for the consumer. Using the following headings, together with your own ideas, explain how the consumer has gained from these changes.</i> a) <i>In the range of food available</i> b) <i>At the supermarket checkout.</i>	Three practical assignments. First assignment: a food based problem with one factor. Second assignment: Piece of investigation. Third assignment: a complex problem with two main factors, chosen by the candidate from three assignments set by the Board. Each of these carried out within 2 hours and 15 minutes, spread over 2 weeks, (1 hour planning, 1 hour executing (usually a week later) and 15 minutes evaluating. One of the third assignment choices requires the use/evaluation of convenience foods <i>Example (from specimen papers)</i> a) <i>What are the essential requirements of a child's diet.</i> b) <i>write about the dietary needs of children including any special information.</i> c) <i>Suggest some suitable dishes and make a selection which you could prepare giving your reasons for choice.</i> d) <i>Plan a course of action.</i> e) <i>Carry out your plan.</i> f) <i>Evaluate the whole assignment.</i>
<b>1997</b> GCSE <b>Subject title</b> Design & Technology Syllabus A: Food Technologies <b>Paper details</b> 1 written paper 2 coursework tasks  Plus 3 other syllabuses available within D&T suite.	Two compulsory theory papers. Part A : Core (basic tier 45 minutes each, standard tier 1 hour each & higher tier 75minutes each) contained compulsory structured questions on the core content. Part B. Compulsory structured questions on the optional content. <i>Example (Part B, standard tier):</i> <i>Sauces and toppings are often used to make fish dishes attractive to young children. Give three reasons why sauces and toppings make fish dishes more appealing. Name a suitable sauce for a child's fish dish. List the ingredients and explain the process needed to make it.</i>	Two coursework tasks, each taking around 20-30 hours to produce. <i>One piece of work must demonstrate the use of construction materials i.e. wood, metal, plastic, clay and components.</i> <i>The other piece of work must demonstrate the use of one other material, chosen from graphic media, food or textiles.</i>

	<b>Structure of written paper</b>	<b>Practical paper/coursework</b>
<p><b>2007</b> GCSE <b>Subject title:</b> Food Technology <b>Paper details:</b> 4 written papers, comprising 2 Foundation and two higher tier. Coursework.</p>	<p>Two theory papers to be taken by each candidate. Foundation tier candidates had 1 hour for each paper, higher tier candidates had 1 hour 15 minutes. Papers 1/2 contained a product analysis question on any theme. Papers 3/4 contained a product analysis on the published theme for the year, which for 2007 was 'frozen food'. All papers contained short answer/data response type questions.</p>	<p>The coursework consisted of the creation of a three dimensional product, plus a portfolio of supporting material. The portfolio must include the identification of a consumer need, the formulation of a design brief to meet that need, research into and around the brief, the generation of ideas and development of a product, plus evidence of the evaluation and testing of the finished product.</p> <p>The specification recommends 40 hours work to be spent on the coursework.</p>
<p><b>2007</b> GCSE <b>Subject title:</b> Home Economics: Food. <b>Paper details:</b> 2 written papers comprising 1 Foundation and 1 Higher tier. 3 practical assignments</p>	<p>One theory paper to be taken by each candidate. All questions on both papers are compulsory. Both papers contain short answer, structured, data response and free response questions. <i>Example (common question to both tiers):</i> <i>Food eaten at school is an important part of a teenager's diet. Describe the nutritional requirements of teenagers. Explain how schools can help meet these requirements in the provision of food and drink.</i></p>	<p>Three tasks: One investigative task – 12-14 hours. Two resource tasks “short focused tasks with the emphasis on the implementation of practical skills.” Each task should take 2-3 hours, and it is expected that ‘a number’ are conducted throughout the course, but only two be submitted for the assessment. <i>Example: Resource task</i> <i>Low fat spreads are often used for spreading onto toast or onto bread when making a sandwich.</i> <i>a) Plan a test to look at the spreadability of low fat spreads compared to margarine or butter.</i> <i>b) Carry out the test.</i> <i>c) Evaluate which is the most suitable and why.</i></p>

*Topic areas on the theory paper.*

Figure 5.1 illustrates the way that topic areas on the theoretical paper have changed over the years. This is a useful method of identifying trends within the subject. Each separately identifiable question part<sup>5</sup> was coded according to the criteria shown in Table 5.2

Table 5.2: Topics within cookery examinations.

A	Practical cookery skills – <i>‘describe how to...bake a cake’, make a list of ingredients, how do you use baking powder?,</i>
B	Plan a meal or set of meals – <i>plan a day’s meals for a teenager, describe the accompaniments normally served with, sketch a product.</i>
C	Describing specific food items – <i>what is flour? What does yeast do? Not minerals/vitamins etc (E).</i>
D	Biology of human digestive process, energy conversion, calories etc. Scientific questions – e.g. <i>What is the unit of energy?</i>
E	Theory of nutrition, food groups, balanced diet, 5-a-day, needs of particular groups of people, vitamins, minerals, illness, anorexia, vegetarianism/veganism, dieting. e.g. <i>Name one ingredient that contains saturated fat.</i>
F	Chemistry/properties of cooking processes – heat transfer, advantages of different methods, reasons for cooking food, process of boiling. e.g. <i>Give the advantages of steaming.</i>
G	Food storage/preservation/disposal. Food poisoning, micro-organisms.
H	Equipment for cooking & storage of foodstuffs. Choosing & using equipment.
I	Shopping patterns; shopping for food, selecting good food, economy, healthy ingredients.
J	Socio-economic changes/reasons for dietary/cooking decisions.
K	Packaging/country of origin. Sell-by dates.
L	Industrial food processes/ manufacturing/catering. Marketing. Public health regulations.
M	Kitchen safety, including special groups/toddlers etc
N	Adaptation of kitchen for special users e.g. wheelchair, kitchen equipment unrelated directly to cooking (e.g. <i>choice of materials for teatowels, ‘dream’ kitchen.</i> )
O	Other: household management – e.g. <i>labelling fuses, unblocking sinks etc.</i> Also data response questions where no knowledge required.

The topic areas identified fall into broad categories. A-C are concerned with the description of practical cookery skills, ranging from A where the candidate must describe a process or make a list of ingredients, B where they must plan a meal or series of meals and C where they comment on specific food items and their purpose within a recipe. Question parts coded A-C are likely to reflect closely the ‘practical’ skills which many fear are becoming lost. Codings D-G are the more scientific background to food – ranging from the biology of digestion to the bacterial processes of food decay. Also within this section are minerals/vitamins, food groups and the chemistry of cooking. H to K deal broadly with shopping (both for food and equipment), interpreting packaging and the sociology of cooking. L is devoted to industrial processes. M-N include questions about more general kitchen management, and O (other) is used to categorise question parts which are either about very general domestic issues (identifying parts of a fuse, unblocking a sink) or are data response questions where the candidate does not need to apply any real knowledge of the subject.

<sup>5</sup> Question parts were identified wherever possible, even when the question was not subdivided into sub-questions, e.g. the question “State the points you would observe in the selection of lettuce, tomatoes and beetroot. Make a list of the ingredients and give clear directions for the preparation and serving of a raw vegetable salad to serve with cold meat. What is the nutritive value of this salad?” would be divided and coded as follows:

State the points you would observe in the selection of lettuce, tomatoes and beetroot. | (I) Make a list of the ingredients and give clear directions for the preparation and serving of a raw vegetable salad to serve with cold meat. | (A) What is the nutritive value of this salad? | (E)

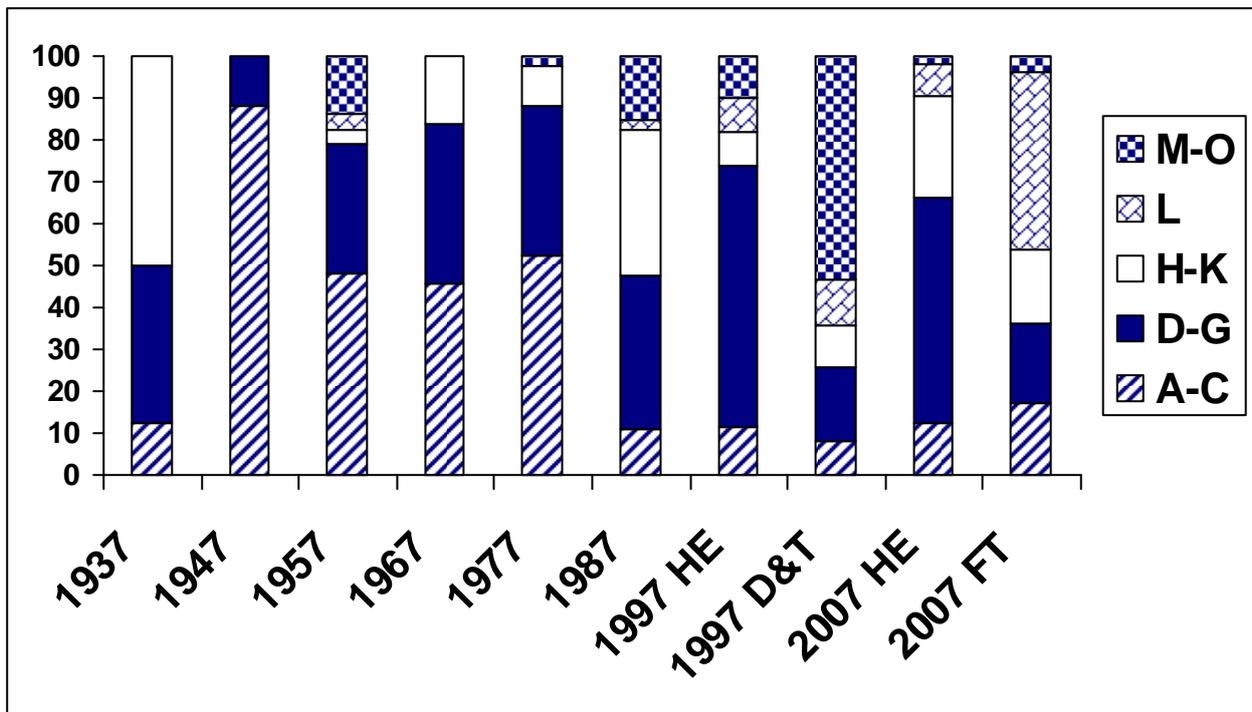
Each question part has been coded into the category it most closely matches. This takes no account of the weight (i.e. the number of marks) given to the various question parts – this information is not available for the early papers. However it provides a broad indication of the proportion of topic areas within each paper.

The graphs provide a visual demonstration of the way in which the topic areas have changed over time.

- There is a clear trend toward a broader area of knowledge over the years – more topic areas feature on the examination paper in later years. These tend also to take the form of more question parts, often more structured (i.e. divided into steps) for the candidate.
- If the number of question parts on the theory paper devoted to practical skills (category A) is used as an indicator of the emphasis placed upon practical skills, there has been one change, with the drop from 30-40% of such questions in the thirty year period between 1957 and 1977 to less than 10% from 1987 onwards.
- The extent of practical questions (Category A) in the earliest years varies a great deal. The very high proportion seen in 1947 seems exceptional – 1929’s exam (which is not illustrated) had around 40% of this category questions.
- The introduction of food manufacturing as a topic is seen clearly in the D&T Food Technology papers.

Figure 5.1 shows how the groups of categories; A-C, D-G, H-K, L and M-O changed over the years. Here two thirty-year eras of examination can clearly be seen; 1987-2007 in Home Economics, and 1957-1977. During both periods topic areas remain fairly stable.

Figure 5.1: Summary of topic areas over the years.



## Section 6: French

### *Structure of the papers*

Table 6.1 shows the structure of the papers in French from 1867 to 2007. There is no attempt to provide an example question for each decade, as the nature of many of the questions (either tied to a substantial piece of narrative text or displayed as a picture) makes them rather lengthy to incorporate in such a way. However, example questions will be given where appropriate in the discussion which follows.

French has existed as an examination subject within this Awarding Body since records began. The early examinations (1867-1907) tended to require candidates to translate large, somewhat dense, pieces of narrative. Often these described historical events or people. Candidates were typically required to translate two or three of these pieces from French to English and just one from English to French. To give a flavour of the type of prose which was to be translated, figures 6.1 and 6.2 quote short extracts from two passages. The only other type of question found within early papers took the form of a series of short questions, requiring candidates to provide specific forms of certain words, or to parse specific words. Figure 6.3 shows an example from 1887.

Figure 6.1: Extract from a passage for translation into English from 1907.

*Cependant le jeune de Vaubert, don't la surprise était pour le moins égale à celle de Stamply, se tenait auprès de sa mère, froid, silencieux, hautain, ne sachant que conclure ni qu'imaginer de la scène qui se passait sous les yeux...*

Figure 6.2: Extract from a passage for translation into French from 1897.

*Alfred the Great was a wise man and a good king. He was never idle. He built several schools and did all he could to encourage the young people in England to love learning. One of the best things he did was to construct a large number of ships....*

Figure 6.3: Question from 1887.

Give the plurals of *bijou, fou, corail, poire-boire, celui-ci*; the genders of *légume, mérite*; and distinguish between *la voile* and *le voile*. Write the feminines of *exécuteur, sec, vengeur, un beau paysan*. Write in full the present indicative of *haïr*, the preterite indicative of *tenir*, the imperfect subjunctive of *promettre*, and, in the negative form, the imperative of *s'en aller*. Give the present and past participles of *valoir, résoudre, éteindre, finir*.

From 1927 to 1957 the School Certificate examination was in place. This still required a great deal of prose translation, but the short questions about specific words were replaced by a candidate-written narrative and, from 1937, by a reading comprehension exercise. In 1947 the rubric for the reading comprehension was in English as follows: '*Answer the following questions in FRENCH. Each answer should be concise but should make a complete sentence, the form and tense of which should suit the question.*'

Between 1957 and 1987 the O level examination introduced listening comprehension, and multiple choice questions began to become a feature of the papers. However, it was not until the introduction of GCSE that a systematic structure of Listening Comprehension, Reading Comprehension, Speaking and Writing was seen.

Dictation exercises appeared in 1917 and again from 1957 to 1977, but do not seem to have been a consistent feature of examinations. It is also sometimes unclear whether they were a mandatory or optional component.

Later assessments were considerably more varied in terms of content compared to their earlier counterparts, and considerably more control was exercised about the nature of the vocabulary that was tested. In the 2007 GCSE Listening and Reading Comprehension exercises, for example, a series of tasks were presented, each of which targeted a particular area of vocabulary and tested it thoroughly, and this approach was also seen in the Writing component. For example, in the 2007 Foundation tier writing paper, the first exercise required candidates to *Make a list in French of 8 different items of food and drink for a picnic*. A series of pictures illustrated potential items, but candidates were reminded that they were only suggestions, and they could use other items.

In general, the nature of the exercises and the vocabulary being tested indicate a clear move from a theoretical knowledge of the language (where it was important to know the names of tenses and identify parts of writing, and to be able to translate accurately long passages of prose) to an assessment which would enable successful candidates to use the knowledge acquired during day to day life in a French speaking environment.

Table 6.1: Structure of the papers in French.

Year	Structure of the paper
1867 Junior Local Two papers exist for the examination in 1867, described in the index as Lower and Higher. There is however, no indication in the regulations or instructions about the relationship of these two papers with one another. Were they an early example of tiering? Whether candidates took both papers, or whether it followed a core and extension model is unclear.	<p><b>French I</b> Translate F-E c.120 words Section asking candidates to parse certain words, give feminine forms, plurals, certain tense forms and English translations. Translate F-E c.100 words. Three further questions on parsing, plural forms and tense forms of specific words.</p> <p><b>French II</b> Translate F-E c.150 words Translate E-F 13 sentences.</p>
1877 Junior Local	<p><b>Section A</b> Translate F-E c. 90 words Translate F-E c. 90 words Give 4 genders, 7 plurals and two feminine forms, translate E-F five short phrases, give genitive forms of two words. Give three adverbial forms.</p> <p><b>Section B</b> Translate F-E c.90 words Give present &amp; imperfect indicative forms of 2 verbs, future indicative of 2 verbs and past and present participles of 3 verbs. Translate E-F c.60 words Translate F-E c. 100 words.</p>
1887 (December) Junior Local	<p><b>Section A</b> Give the plurals of 5 words. Give the genders of 2 words Distinguish between 2 words Give feminines of 4 words Give 4 case forms (e.g. present indicative) Give present and past participles of 4 words Parse 4 words A2. Translate F-E c. 90 words</p> <p><b>Section B</b> B1. Translate F-E c.100 words B2. Translate F-E c.100 words B3. Translate F-E c.100 words</p> <p><b>Section C</b> C1. Translate E-F c.80 words</p>

Year	Structure of the paper
1897 Junior Local One and three quarter hours.  Very strange rubric: In order to pass in French candidates must satisfy the Examiners in questions A1 to A7, and also in A8. They must not neglect the questions in the B and C parts of the paper	<b>Section A</b> Give masculine/feminine alternatives of 6 words Describe the difference in meanings between 3 pairs of words Give plurals of 3 words, plus the meanings of two Translate E→F three phrases. Give meanings/usage of a word when used in different forms. Write out various cases of 9 verbs Parse four words Translate F→E 10 lines (c. 100 words) <b>Section B</b> Translate F→E 10 lines (c. 100 words) Translate E→F 13 lines (c. 150 words)
1907 Junior Local 2 hours	<b>Section A</b> Translate E→F 13 lines (c. 150 words) Give 3 plurals and 4 feminines Translate E→F four phrases. Write 6 sentences illustrating difference in meaning between 3 pairs of words. Give past participle and 1 <sup>st</sup> person singular of present and preterite indicative for 7 verbs. <b>Section B</b> Translate F→E 13 lines (c. 150 words) Translate E – F 5 sentences. Either translate E-F 9 lines, or write 100-120 word composition – choice of 6 topics (3 city descriptions, 3 biographies of historical figures.) <b>Section C</b> Either: Translate F-E 2 passages (c. 100 words each) from set text, plus three long sentences. Or translate F-E 1 passage (c. 120 words) plus either another, similar, translation or translate 10 sentences.
1917 Junior Local 2 hours	<b>Section A</b> Translate E-F 13 lines (c. 150 words) Rewrite 2 sentences changing tense of verbs. Cloze task inserting correct translation of 5 E-F words. <b>Section B</b> Translate F-E 2 passages, each c. 10 lines. <b>Section C</b> Translate E-F 5 sentences. Either translate E-F 10 lines or write composition (100-120 words) on a choice of topics or write a continuation to a story. <b>Spoken French</b> Dictation passage 12 lines.
1927 School Certificate Paper 1 1¼hours Paper 2 1 ¼ hours	<b>Paper 1</b> Translation F-E c.15 lines Translation F-E c.15 lines Translation F-E c.15 lines <b>Paper 2</b> Translate E-F c12 lines Write French narrative of max 150 words
1937 School Certificate Paper 1 1 ½ hours Paper 2 1 ½ hours	<b>Paper 1</b> Translate F-E Translate F-E Read comprehension passage & answer 10 questions in French (both question & answer are in French). <b>Paper 2</b> Translate E-F 12 lines Write in French essay in present tense. brief outline given.
1947 School Certificate Paper 1 1 ½ hours Paper 2 1 ½ hours	<b>Paper 1</b> Translate F-E Translate F-E Read comprehension passage & answer 10 questions in French (both question & answer are in French). <b>Paper 2</b> Translate E-F 12 lines Write in French essay in present tense. brief outline given.

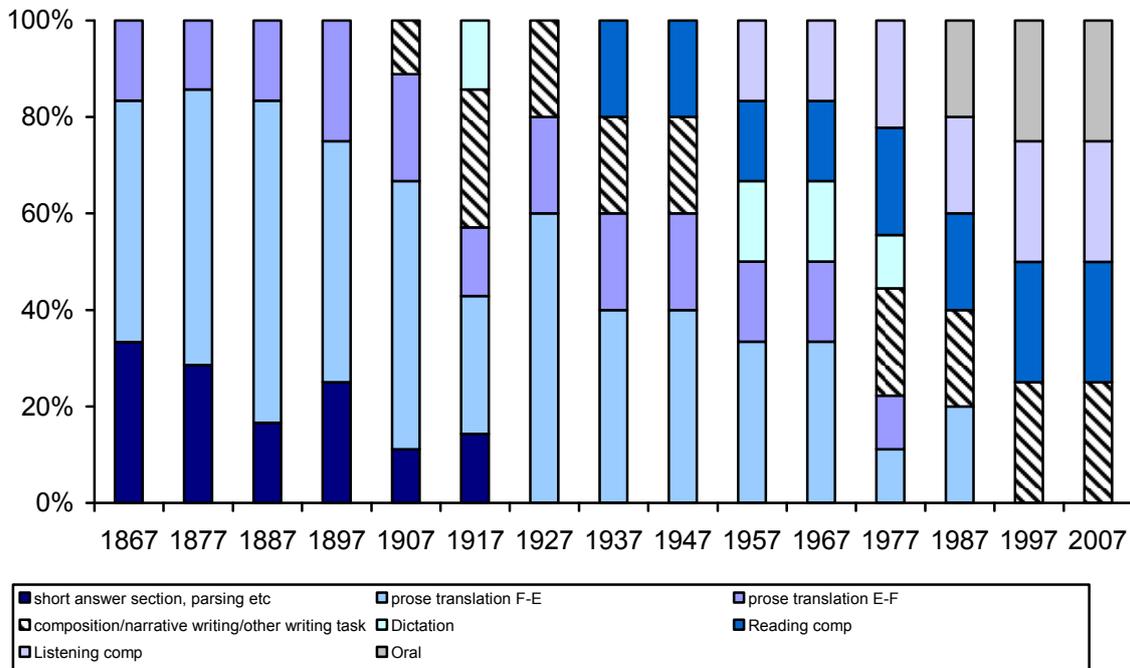
Year	Structure of the paper
1957 O level 2 syllabuses First Alternative Paper O.I 1 ¼ hours Paper O.II 45 mins +  Second Alternative Paper 1 2 ½ hours Dictation paper Oral test  Third alternative a 2 hour paper on parts of the AL syllabus. Not a language qualification, instead French Literature, History & Institutions.	<i>First Alternative</i> <b>Paper O.I</b> Translate F-E c. 250 words Translate F-E c. 265 words Read comprehension passage c. 350 words & answer 10 questions in French (both question & answer are in French). <b>Paper O.II</b> Translate E-F c. 160 words Aural test (listening comprehension). Story of about 240 words read aloud. Brief summary of story presented in French (title given in E). Candidates must retell the story, with marks given both for the quality of the written French and the level of understanding of the text. Dictation 13 lines (c. 150 words)  <i>Second alternative</i> <b>Paper 1 2 ½ hours</b> Translate F-E Translate E-F Precis French passage <b>Dictation paper</b> <b>Oral test</b>
1967 O level Paper 1 1 ½ hours paper 2 1 ¼ hours)	<b>Paper 1</b> Translate F-E 22 c.240 words Translate F-E c.200 words Read comprehension passage 28 lines (c. 300 words) & answer 10 questions in French (both question & answer are in French). <b>Paper 2</b> Aural test (listening comprehension). Story of about 240 words read aloud. Brief summary of story presented in French (title given in E). Candidates must retell the story, with marks given both for the quality of the written French and the level of understanding of the text. Translate E-F c. 175 word Dictation c. 160 words
1977 O level Paper 1 Translation and composition Paper 2 Dictation Paper 3 Comprehension 1 ¼ hours Paper 4 Listening comprehension 30 minutes. Reading comprehension 40 minutes	<b>Paper 1</b> Translate F-E c.230 words Write a story following a series of 6 pictures. 130-150 words. Either write a 130-150 word narrative on a choice of 3 subjects or translate E-F c. 180 words <b>Paper 2</b> 16 lines dictation c. 170 words <b>Paper 3</b> Listening comprehension. Story read twice. No notes to be made 1 <sup>st</sup> time. 2 <sup>nd</sup> time questions open & notes can be made. 10 questions in F to be answered in F. Reading Comprehension. c.400 words. 10 questions in F to be answered in F. <b>Paper 4.</b> 30 multiple choice questions in French for listening comprehension, 30 mc questions for reading comprehension.
1987 O level <b>Paper 1:</b> Translation and composition. <b>Paper 2.</b> Reading Comprehension. <b>Paper 3</b> Listening Comprehension.	<b>Paper 1:</b> Translation and composition. Translate F-E c. 300 words Write 140-150 word story, following a set of 6 pictures. <b>Paper 2.</b> Reading Comprehension. Thirty multiple choice questions in French. <b>Paper 3</b> Listening Comprehension. Listening comprehension alternative. External or internal oral.

Year	Structure of the paper
<p>1997 GCSE</p> <p>Complex rubric. Candidates taking only basic listening, reading and speaking could only access grades G-E. Grades D-A required increasing numbers of higher parts 1 and 2. Basic writing is a requirement at grade C. For an A* to be awarded, all parts had to be completed</p>	<p><b>Listening Comp (basic)</b> 35 questions in English to be answered in English.1 word/tick box. <b>Higher 1</b> 18 questions in English to be answered in English.1 word/tick box. <b>Higher 2.</b> 20 Questions in English to be answered in English.1 word/tick box.</p> <p><b>Reading (basic)</b> 34 questions in English to be answered in English.1 word/tick box. Exercise 1 based on short (1-5 word French phrases signs, c.100 word passage, c.150 word passage, c.200 word passage.c.150 word passage. <b>Higher 1.</b> 200 word passage, 200 word passage, 500 word passage. 19 Questions in English to be answered in English.1 word/tick box. <b>Higher 2.</b> c. 250 word passage, c. 250 word passage, c. 500 word passage. 17 Questions in English to be answered in English.1 word/tick box. <b>Speaking Basic + Higher 1.</b> 3 scenarios in which candidates must make 5 points. <b>Higher 2.</b> Detailed description of events shown in pictures. <b>Writing. (Basic)</b> Write a list of places to visit. Write a postcard Make notes from a telephone call <b>Higher 1</b> Write 100 word letter in response to a choice of topics. <b>Higher 2</b> Write 50 word letter/article in response to a choice of topics.</p>
<p>2007 GCSE Higher tier/ lower tier 4 sections taken as separate examinations</p>	<p><b>Listening comprehension</b> Recorded passages each of which is played twice.</p> <p><b>Foundation tier</b> Various exercises, including single word/ tick box answers to questions in English, matching pets to owners, preferred foods to characters, tourist activities to times, details of a character's school day, details about a summer holiday, teenage activities and opinions about a singer. <b>Higher tier</b> Various exercises, including 5 single word/ tick box answers in English, matching pictures of activity to person's name, matching opinion (tick box) to person's name, matching preferred activity (in French) to person's name.</p> <p><b>Reading Comprehension</b></p> <p><b>Foundation tier</b> Various single word answer/ tick box exercises covering days of the week, menus, activities, tourist destinations and opinions about the last Harry Potter book. <b>Higher tier</b> Similar to foundation (including overlapping sections). Reading material becomes more extensive.</p> <p><b>Writing</b></p> <p><b>Foundation tier</b> Series of exercises comprising list-writing, finishing sentences, short narrative writing task (40 words) and a longer narrative writing task 90-100 words on a choice of 2 topics. Stimulus material in English and pictures. <b>Higher tier</b> Narrative writing task 90-100 words on a choice of 2 topics. Stimulus material in English and pictures. Narrative writing task 140-150 words on a choice of 2 topics. Stimulus material in both English and French and in pictures.</p> <p><b>Speaking</b></p> <p><b>Foundation tier</b> Two role play activities (10 minutes preparation time) A one minute presentation, prepared in advance (a cue card with 5 headings may be used). A discussion of the presentation and general conversation with the teacher. <b>Higher tier.</b> Role play activities, including narrative role play (12 minutes preparation time). A one minute presentation, prepared in advance (a cue card with 5 headings may be used). A discussion of the presentation and general conversation with the teacher.</p>

*Development of topic areas*

The way in which topic areas have developed has been discussed in the previous section, but is shown in figure 6.4.

Figure 6.4 Topic areas in French



Prose translation into English, which was a major feature of early papers last appeared in 1887. The introduction of the speaking component appeared from 1987.

*Summary*

In summary, it is possible to identify several ways in which the question papers of French Assessments have evolved over the years. Probably the most outstanding of these is the expansion of question types and assessments – from the extensive use of translation tasks in the early years to the wide variety of stimulus material (including pictures) and the inclusion of reading, listening and speaking more recently.

It is also interesting to note that the context for assessments in French has become so much closer to real-life situations. The range of vocabulary tested, and the use of facsimile illustrations of emails, instructions, handwritten notes from one person to another, restaurant menus and so on are very different from the prose pieces seen in the early days. In fact, according to Robb (2008) the pure French tested in the first few examinations did not actually exist widely within France itself, so the examination was very much more about theoretical language, rather than active communication.

*References*

Robb, G. (2008) *The Discovery of France*. Pan Macmillan. London.

## Section 7: English Literature

Table 7.1 shows the available papers assessing English Literature at age 16 offered by OCR and its predecessors from 1877 to 2007. The first available paper from the archives was 1877.

The structure of each paper remained remarkably stable from 1877 until 1927. Over this period, there were seemingly few changes in the aims and purposes of studying English Literature. However, between 1927 and the present day, changes of various kinds have taken place.

There are some notable findings from this analysis worth particular mention. These include issues pertaining to:

- The place of literature in the overall curriculum
- The place of Shakespeare in the English Literature curriculum
- Other changes in the choices of texts
- Changes in the skills tested
- The number of possible routes through a specification.

### *The place of literature in the overall curriculum*

We have come to expect that 16 year-olds complete secondary school with some knowledge of English literature. But this has not always been the case. In 1877 candidates wishing to pass Section 2 of the Junior exam had to take the Shakespeare paper, and hence 'English Literature'<sup>6</sup> was effectively obligatory. However, after that, it was an optional part of the Junior examinations (candidates could opt for Geography or Roman or English History instead) until 1907 when once again it became mandatory. Since then, until the present day, English Literature is routinely examined at 16 years of age. In 2007, the majority of candidates took English GCSE, which combined elements of English language and composition with literature. Candidates could also opt in addition to take English Literature as a separate GCSE.

### *The place of Shakespeare in the English Literature curriculum*

Whilst one might imagine that all students have for decades (if not centuries) studied Shakespeare and taken some sort of examined assessment in Shakespeare at 16, this analysis of question papers shows this is not the case. Shakespeare was obligatory in 1877, the first year of this question paper sample. At this point, Shakespeare provided the *only* assessment of English Literature. In 1887, while the only English Literature paper on offer was Shakespeare, candidates did not need to take that paper in order to gain an overall pass and could, for example, opt for Geography or the History of England instead. In 1897, English Literature was not obligatory and therefore, neither was Shakespeare. From 1907 until 1997 while English Literature became mandatory, Shakespeare was only one option amongst others and there was no more imperative to study Shakespeare than any other text on offer. It was at the discretion of the teacher whether Shakespeare formed part of the programme of study. It was only in 2007 that Shakespeare became mandatory (in this sample). Therefore, when press reports express uproar in the face of a rumour that Shakespeare might become optional or removed from GCSE, the implication that Shakespeare has been a permanent and mandatory feature of the educational landscape is erroneous.<sup>7</sup>

<sup>6</sup> It is worth noting that, prior to the foundation of the English faculty at the University of Cambridge, 1919, the study of texts in UCLES school exams was not from a 'literary' point of view, but rather as a manifestation of the history of language and philology.

<sup>7</sup> While Shakespeare has been available in all the sampled years in this study (and probably the intervening non-sampled years), Shakespeare became a mandatory part of the GCSE specification in 1999. During the 1970s and 1980s O level specifications often required the study of Shakespeare, but since other specifications existed (e.g. UCLES English Literature Plain Texts), then non-Shakespeare routes were available and, strictly speaking, Shakespeare was not obligatory.

Table 7.1: Summary of examinations/qualifications available in English literature between 1877 and 2007.

Year	Exam Type	Title of Paper (and Specification)	Time (hours)	# of questions to be answered	Structure	Example Question	Other notes
1877	Junior	Shakespeare – As You Like It	1.5	10 from 10	Two sections, A and B, with no genuine division of skill or content.	In what senses does Shakespeare use the following words:- <i>manage, natural, humorous, warp, parlous, quotidian, point-device, rascal, puisny, carlot?</i>	Candidates had to take this examination in order to pass Section 2 of the Junior examination. Thus Shakespeare is obligatory.
1887	Junior	Shakespeare – A Midsummer Night's Dream	1.5	10 from 10	All questions obligatory, (though some options within questions).	With what unusual or obsolete meaning does Shakespeare employ the following words? <i>Artificial, argument, translated, pensioners, square, glance at.</i>	In order to pass Section 2 (English) of the Junior Examination, candidates had to take and pass two papers from four available <sup>8</sup> . Therefore literature (and Shakespeare) was not obligatory.
1897	Junior	Shakespeare's Tempest	1.5	10 from 10	All questions obligatory, (though some options within questions).	In what senses are the following words used in this play: <i>whist, foison, bourn, stale?</i> Give the derivation of each word, and quote <i>one</i> line from the play to illustrate its use.	In order to pass Section 2 (English) of the Junior Examination, candidates had to take and pass two papers from the 7 available. <sup>9</sup> Therefore literature (and Shakespeare) was not obligatory.
	Junior	Milton – Samson Agonistes	1.5	10 from 10	No sections	Scan (that is, divide into metrical feet, marking the accented syllables) the following lines: (a) My spirits, as in a dream, are all bound up. (b) He has brave utensils, - for so he calls them, - Which, when he has a house, he'll deck withal	
	Junior	Scott: Lady of the Lake	1.5	10 from 10	All questions obligatory, though some with options within questions.	Write a short account of the life of Sir Walter Scott down to the year in which he wrote the Lady of the Lake.	

<sup>8</sup> Other subjects in this section were History of England, Roman History, Geography as well as Shakespeare.

<sup>9</sup> Other subjects were (a) English Grammar, (b) Outlines of the History of England; (c) Roman History (d) The Physical, Political, and Commercial Geography of Great Britain, and Ireland, North America and the British Colonies and Protectorates in Africa.

Year	Exam Type	Title of Paper (and Specification)	Time (hours)	# of questions to be answered	Structure	Example Question	Other notes
1907	Junior	Shakespeare's As You Like It	1.5	8 from 8	All questions obligatory, (though some options within questions).	Mark the scansion of the first five lines of the passage quoted above and point out any variations from regular blank verse that occur in them.	These papers formed parts (b), (c) and (d) of Section 2 "English Language and Literature of the Junior Exam: (b) Shakespeare paper, (c) Scott paper and (d) other literature paper. Regulations read: "to pass in the section, candidates must satisfy the examiners in two subjects, of which (b) (c) or (d) must be one. While literature was obligatory, it was not necessarily Shakespeare.
		Scott's Talisman	1.5	8 from 8	Some options within questions	Sketch the character of the Emir as shewn in the first three chapters of the novel. How would you contrast it with that of Sir Kenneth?	
		Goldsmith: The Traveller, The Deserted Village. Southey: The life of Nelson.	1.5	7 from 7	Some options within questions	State what you know about <b>either</b> Nelson's views of the French character, <b>or</b> his attitude towards his superiors in authority.	
1917	Junior	Shakespeare: King Henry V	1.5	6 from 6	All questions obligatory, though with some options within	Put the following passage into simple prose, so as to shew its meaning clearly. {Passage quoted}	These papers formed part of Section 2 (English Language and Literature). Candidates wanting to pass the Junior examination had to take at least one of these papers, but no more than two. Thus, Shakespeare is still not obligatory.
		Scott: The Lady of the Lake	1.5	6 from 6	All questions obligatory.	Describe the ceremony of the <i>Taghairm</i> . What prophecy was derived from it, and how was it fulfilled?	
		Stevenson: Kidnapped	1.5	6 from 8	One question on extracts and any five others to be answered. (Some optionality within questions as well as between.)	Write out the song of the sword of Alan.	
		Kingsley: Hereward the Wake	1.5	6 from 8	No structure. No restrictions upon the choice.	Give the substance of what Alfruda wrote to Hereward.	
		Scott: Quentin Durward Gray: The Elegy Coleridge: The Ancient Mariner	1.5	6 from 8	Sec A – Scott Sec B – Gray and Coleridge. Candidates had to answer three out of four questions in each section.	What led to the quarrel between Louis XI and Charles of Burgundy? How did it end?	

Year	Exam Type	Title of Paper (and Specification)	Time (hours)	# of questions to be answered	Structure	Example Question	Other notes
1927	School Certificate	Shakespeare: Hamlet	1.5	5 from 6	Candidates had to answer five questions: 1, 2, 3 and two of questions 4, 5 and 6. There was some optionality within questions.	Quote accurately <b>without comment</b> allusions in this play to six of the following: (a) Jephthah, (b) Julius Caesar, (c) Nero, (d) Alexander, (e) suicide as practised by the Romans, (f) Herons, (g) sparrows.	These papers formed part of Section 2 "English Language and Literature". Candidates wanting their school certificate had to take one of these 8 papers. This year represents an increase in the overall options available to candidates.  In the General English Literature papers, there is some expectation of reading all of the texts mentioned, rather than candidates choosing any particular combination.
		Shakespeare: The Tempest	1.5	5 from 6	Candidates had to answer five questions: 1, 2, 3 and two of questions 4, 5 and 6. There was also some optionality within questions.	Express in modern prose, so as to bring out the full meaning clearly and without unnecessary expansion: ... {passage follows}	
		Lyrical Ballads, 1789-1805	1.5	5 from 7	One question on extracts and any four others to be answered. Some optionality within questions as well as between.	Give in your own words the substance of <b>either</b> "Hart leap Well" <b>or</b> "To Joanna".	
		An Anthology of Modern Verse	1.5	5 from 7	Some optionality between questions as well as between	Quote about 12 consecutive lines from any one of the poems in this collection that has made a special appeal to you and point out the beauties of thought and expression that have attracted you.	
		Chaucer: Prologue and Nonne Prestes Tle	1.5	5 from 6	Question 1 (translating passage into modern English) obligatory.	Give a brief account of Chaucer's heroic metre. Scan the lines...	
		Bacon: Essays 1 – XXVIII	1.5	5 from 7	Question 7 (writing explanatory comments on extracts) obligatory	Shew what factors, in Bacon's opinion, make for good civil government.	
		Ruskin: Selections	1.5	5 from 7	As above	What do you gather from these selections as to the scope of Ruskin's early reading?	
		General English Literature	1.5	5 from 12	No restriction on choices. Additionally, some optionality within questions	Mention your favourite nineteenth century novelist and give reasons for your preference.	

Year	Exam Type	Title of Paper (and Specification)	Time (hours)	# of questions to be answered	Structure	Example Question	Other notes
1937	School Certificate	Shakespeare: King Henry V	1.5	5 from 5	Some optionality within questions	Describe, with close reference to the text, and in such a way as to bring out the humour in the situation and character, any <b>one</b> scene in which <b>either</b> Corporal Nym or Fluellen appears.	Candidates had to either take The General English Literature alternative syllabus or two of the other papers (though not both Shakespeare papers). This year means that candidates had to follow a broader syllabus.
		Shakespeare: Romeo and Juliet	1.5	5 from 5	As above	Shew the importance of the quarrel between the Capulets and the Montagues	
		English Authors	1.5	5 from 16	Candidates had to cover Milton or Keats and Shelley plus either Macaulay or Kinglake	"Our sweetest songs are those which tell of saddest thought." How far is this true of poetry in this volume? Illustrate your answer by quotations and references.	
		General English Literature	1.5	5 from 16	Unrestricted choice	Write on any <b>one</b> of the following as a representative of his age: Bacon, Addison, Swift,	
		General English Literature – Alternative syllabus	2.5	8 from 18	Unrestricted choice	Select <b>one</b> of the following and try to describe the tone in which representative passages speak themselves in your ear as you read: Bacon, Bunyan, Addison, Swift, Lamb, Conrad.	
1947	School Certificate	English Literature (alternative I)	2.5	6 from 28	Complex restrictions Section A - Shakespeare: Section B: Sheridan Section C: Longer Poems Section D: Dickens Section E: Kipling Section F: Essays Section G: Hudson	Show, with careful reference to the essay by Ronald A Knox, the distinction which the author draws between humour and satire.	The paper choices which existed in 1927 and 1937 have now been collapsed into two single alternatives. This makes the rubrics fairly complex!
		English Literature (alternative II)	2.5	6 from 16	Sec A – Drama Sec B – Verse Sec C – Fiction Sec D – Other prose Candidates have to answer six questions drawn from 2 or 3 sections.	Describe three scenes in which Quentin Durward meets people of different types and show how in each instance he suits his behaviour to his company.	

Year	Exam Type	Title of Paper (and Specification)	Time (hours)	# of questions to be answered	Structure	Example Question	Other notes
1957	Ordinary Level	English Literature	2.5	5 from 32	Sec A – Chaucer, Shakespeare, Shaw, Tennyson, Goldsmith. Sec B – Scott, Austen, Morier, Wells	Illustrate, from the poems selected for you to read, Tennyson's love of England, as it is shown in his treatment of English history, legends, institutions, sights and sounds.	Return to a single paper. This contains all the optionality within this one paper.
1967	Ordinary Level	English Literature	2.5	5 from 20	Sec A – Shakespeare and Chaucer Sec B – Chaucer, Dickens and Shaw Sec C – Trollope, Short Stories, Maxwell, Shaw, Poetry.	What qualities in Richard do you consider make him an unsuccessful king, and what qualities in Bolingbroke are likely to make him a more successful one? Refer closely to the text in your answer.	Shakespeare or Chaucer.
1977	Ordinary Level	English Literature 200/1	2.5	5 from 27	Sec A Shakespeare. Sec B choice from Chaucer, Modern Short Stories, Poems and Naipaul. Complex instructions on restrictions – though Shakespeare is obligatory.	Choose <b>two</b> poems (or <b>three</b> if you choose a short one) from the section <i>Time and Mortality</i> and use them to show that poets writing on this theme do not always write gloomily.	In the 200/1 specification, a Shakespeare play is obligatory. But because this is not the only specification, overall, Shakespeare is still not obligatory. The Plain texts specification is the first to contain an 'unseen poem'.
		English Literature Plain Texts 202/1	2.75	4 from 17	Sec A - Shakespeare, Hardy, Mark Twain, DH Lawrence, Orwell, O'Casey Sec - B same, but with three questions on each. Have to answer from at least three different texts, with no restriction upon combinations.	Remind yourself of the part of the banquet scene (Act 3 scene 4) that runs from Lady Macbeth's speech beginning "My royal lord, you do not give the cheer..." (line 32) to the end of the scene. What is your own interpretation of "Banquo's ghost" and the "air-drawn dagger" that Lady Macbeth refers to?	

Year	Exam Type	Title of Paper (and Specification)	Time (hours)	# of questions to be answered	Structure	Example Question	Other notes
1987	Ordinary Level	English Literature 2000/1	2.5	5 from 27	Sec A - Shakespeare, Sec B – Chaucer, Wells, Hardy, Trollope, Priestley, A choice of Poets, Twentieth Century Short Stories. Candidates have to answer two questions on Shakespeare and three from Section B, to cover at least two books.	To what extent do you consider Henchard's tragedy the consequence of his own character? Support your opinion by reference to events in the story.	In two of the specifications, Shakespeare is obligatory. However, in the third specification it is not and therefore Shakespeare is still not obligatory overall.
		English Literature 2001/1	1.25	2 from 6	This is identical to Section A (only) of 2000/1	In the last words of the play, Feste says "We'll strive to please you every day." Illustrate in some detail what <b>you</b> have found pleasing in <i>Twelfth Night</i> .	
		English Literature 2002/1	2.75	4 from 40	Candidates had to answer four questions from at least three texts with effectively four possible questions on each text).	Romeo and Juliet are supposed to be about your age – Juliet perhaps slightly younger. What aspects of their behaviour do you feel you understand and identify with, and what do you reject as unbelievable?	
1997	GCSE (higher tier)	English Literature Syllabus A	5	3 from 33 plus 3 from 33	There are two papers – The Experience of Growing up and Conflict. Candidates take one paper. On each answer 3 questions from a choice of 33, on 3 different texts	How important is George Smiley in this novel?	This specification was offered by the Midland Examining Group (MEG). Free choice – Shakespeare is not obligatory.
		English Literature Syllabus B	2.5	3 from 34	Two questions on texts, one of which must be an extract based question. The other could be on the same text. All candidates have to answer Q 34 (unseen text)	You are Jud. What do you have to say about Billy and your own behaviour? (A Kestrel for a Knave)	

Year	Exam Type	Title of Paper (and Specification)	Time (hours)	# of questions to be answered	Structure	Example Question	Other notes
2007	GCSE (higher tier)	English (1900)	3.5	1 from 6 and 2 from 8	Two papers with English GCSE which include questions on English Literature. In Unit 2 candidates answer 1 question on short stories, Hemingway or Achebe. In Unit 3 candidates have to answer one question on Shakespeare and one on poetry.	Explore the importance of conflict in <i>Romeo and Juliet</i> .	These specifications were offered by OCR. English GCSE is compulsory for all candidates. Hence, Shakespeare is compulsory.
	GCSE	English Literature Scheme A (1901/A)	3.75	1 from 12; 2 from 39; 3 from 30.	Three papers. Lots of choice (see below). Emphasis is on post-1914 texts. Candidates cover poetry, prose, drama and non-fiction	You are Claudio. You have just been challenged to a duel by Benedick. Write your thoughts.	
		English Literature Scheme B (1901/B)	3.75	1 from 12, 2 from 33, 3 from 32	Three papers. Lots of choice. Emphasis is on pre-1914 texts.	How does Palin's writing in these passages make the towns seem both interesting and unusual?	

### Changes in the choices of authors and texts

In the sample of assessment instruments, over 263 authors were named in the specifications.

On the whole, there is an increase over time in the number of authors present on specifications (see figure 7.1 below).

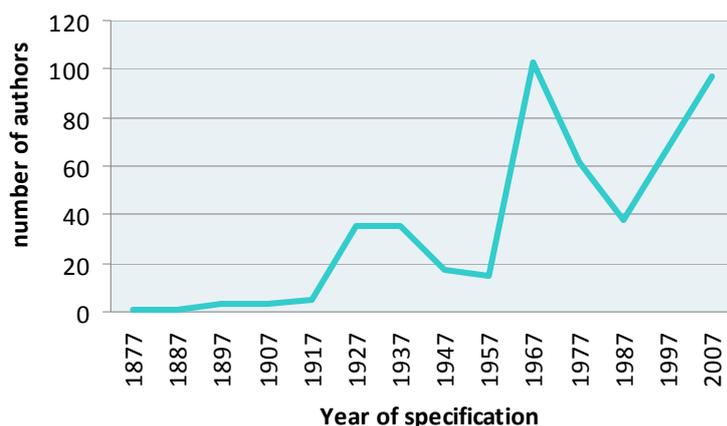


Figure 7.1: Line graph showing changes in the number of authors included in specifications for the 14 sampling points.

This overall increase partly reflects an actual expansion of the number of texts *required* for study as well as increased choice (see below) and other features of syllabus design. Increased choice is a trend evident from 1887 onwards. Additionally, the inclusion of anthologies of short stories and poems on specifications has increased the number and range of authors with whom a candidate can/should become familiar.

Some authors have been more enduring than others in terms of their presence on the specification (see table 7.2 below).

Table 7.2: Popular authors for inclusion in the English Literature Curriculum.

Year of birth	Author	Number of sampling points in the specification (out of 14 years sampled)
1564	William Shakespeare	14
1771	Walter Scott	8
1812	Charles Dickens	7
1840	Thomas Hardy	7
1343	Geoffrey Chaucer	6
1770	William Wordsworth	6
1771	Samuel Taylor Coleridge	6
1795	John Keats	6
1809	Alfred Tennyson	6

It is of no surprise that Shakespeare appears in every specification sampled in this analysis (though, as noted above, rarely as a mandatory inclusion).

Beyond Shakespeare, there is not a clear picture of an 'accepted canon of literature' that appears from this analysis. Fashion and tastes for authors apparently alter over time, if inclusion on the curriculum at age 16 of schooling is anything to go by. For instance, amongst the most

enduring authors (see Table 7.2) Walter Scott (*Lady of the Lake*, *Quentin Durward*, *Guy Mannering*) has not appeared in the last three sample points (1987, 1997 and 2007), nor Chaucer in the last two.

For the early sessions, none of the authors included was living or 'contemporary'. In 1927, some living authors were included for the first time, including Thomas Hardy (b. 1840), John Drinkwater (b. 1882), G.K Chesterton (b. 1874) Walter de la Mare (1873), W.H. Davies (b. 1873), Hilaire Belloc (b. 1870) and Rudyard Kipling (b. 1875)

Thereafter, it has become more common to include texts of contemporary or recent authors in the specifications. For example, the most recent specifications include Nick Hornby (b. 1957), Stephen Poliakoff (b. 1952), Amy Tan (b. 1952), and Michael Palin (b. 1943). However, the person whose work was included closest to year of birth was Edward Wyndham Tennant (b 1897), a war poet. His poem *Home Thoughts in Laventie* was included in the 1927 paper.

War poetry has been included in the sampled specifications consistently since 1927. Poets who appear to have lost favour include Coleridge, Shelley and Browning. Other writers whose work has not been included on specifications since 1977 include Jonathan Swift, Alexander Pope, Samuel Johnson and Oliver Goldsmith.

Overall, we can see that there has been a general trend towards more contemporary texts. Looking at figure 7.2 below we can see that when we calculate the mean number of years elapsed between prescribed text authors' date of birth and the year of inclusion on a specification in any year, overall it is possible to see that the specifications show increasing modernity.

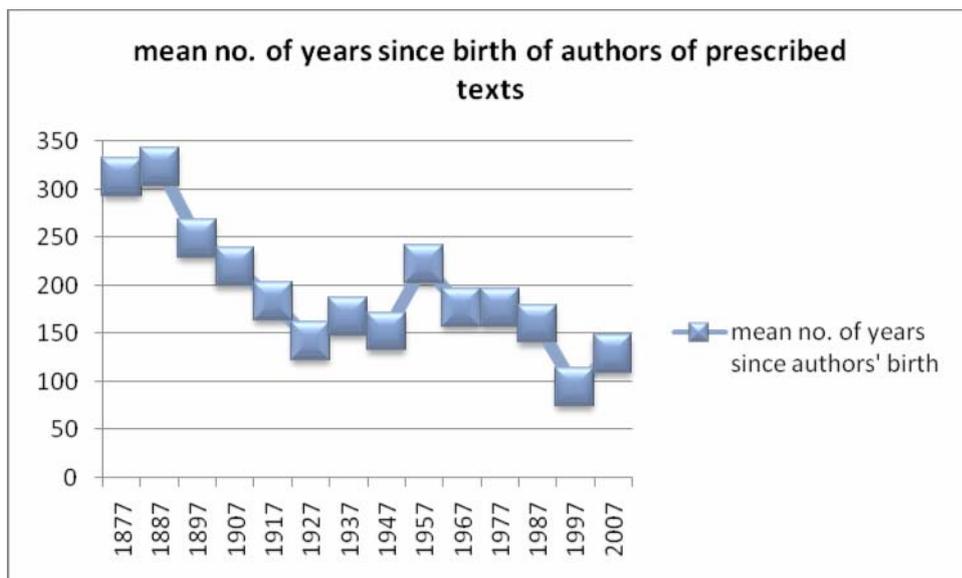


Figure 7.2: Line graph depicting how the mean 'age' of authors of prescribed texts has reduced over time.

There are some other notable trends in terms of prescribed texts. Firstly, literary non-fiction was popular on early specifications (e.g. essays by Macaulay, Ruskin and Bacon), but dropped out of favour for several decades. However, literary non-fiction was present in the 2007 English Literature specification in the form of Michael Palin's *Pole to Pole* and Nick Hornby's *Fever Pitch*. This is also indicative of another change in the specifications. Prescribed texts in the earlier years tended to include only the "literary greats" such as Shakespeare or Chaucer, whereas more recently there has been a tendency to include a broader view of literature alongside such figures, including children's authors such as Penelope Lively (1997 and 2007) and Janni Howker

(1997). In one year, a film was included – David Leland’s play for television *Flying into the Wind* (film for television, 1982)

### *Changes in the skills tested over time*

The skills expected of English Literature candidates at this level have changed over time. This probably is a reflection of a number of factors including changes in the purpose and aims of a course of study, trends and approaches in the study of English Literature and in academic study in general. These changes are summarised in table 7.3 below. Some notable changes are outlined below:

- Overall, earlier question papers required a much closer knowledge and memory of the prescribed text. For example every question paper between 1877 and 1937 inclusive required candidates to quote verbatim from memory fairly substantial sections of the prescribed text. Additionally, these earlier question papers would often present candidates with a series of short extracts from the text and then ask them to describe the exact context of those extracts. Such tasks make high demands upon memory. It is worth mentioning that, in earlier series, candidates did not take texts into the examination and therefore a much greater reliance on memory was a requisite, if not the main aim.
- Earlier question papers required candidates to know the precise meaning, usage and etymology of words in the texts, and on occasion, questions would require candidates to quote a line in which a particular word appeared. Consider the following question from the 1897 paper on Shakespeare’s *Tempest*:

In what senses are the following words used in this play: *whist, foison, bourn, stale*? Give the derivation of each word, and quote *one* line from the play to illustrate its use.

This sort of task required an intimate knowledge of the text and a significant power of recall, but little response to what would now be seen as its ‘literary’ qualities.

- A specific skill no longer explicitly present (last exam 1927) is that of understanding the metre of verse and being able to scan lines of verse. Additionally, since 1927 there have been no questions explicitly targeting literary devices such as symbolism, metaphor, allegory.
- There have not been any questions about the life of an author on the sampled questions papers since 1927.
- Later question papers gave more emphasis to a different set of skills, perhaps emphasising more progressive ideals of pupils’ capacity of *experience* literature and not just to *know about* it.
  - discussing overall meaning or themes of a text (e.g. 1997: “Of course there’s Hell. Flames and Damnation.’ In what ways do you think the idea of Hell is significant in the novel?”)
  - describing or analysing the candidate’s own response to a passage or character (e.g. 1997: “In the story ‘The Divided House’, for whom do you feel more sympathy – the Principal or Jacky?”)
  - discerning the views or attitudes of the author (e.g. 1997: “Looking at the collection of stories as a whole, what do you think is the author’s view of the way ‘robot power’ develops? – Desirable? – Dangerous? – Inevitable? – Or what?”),
  - describing the qualities or effectiveness of the writing (e.g. 1997: “In what ways does Golding’s writing make this episode as horrible as possible?”).
  - a particularly common feature of later papers asks candidates to imaginatively play the role of a character in the text (e.g. 2007: “You are Willy as you try to get to sleep (at the end of Act One). Write your thoughts.” or 1997: “Write the thoughts that you feel would be going through the mind of **either** Lydia **or** Wickham **or** both, as they elope).”
- Two skills fairly continuously tested are (i) character analysis and (ii) describing a particular scene or series of events.

Table 7.3: Skills tested over time in English Literature.

Skill	1877	1887	1897	1907	1917	1927	1937	1947	1957	1967	1977	1987	1997	2007
grammatical analysis	✓		✓											
etymology	✓	✓	✓											
textual analysis	✓	✓	✓	✓										
scan (divide into metrics), knowledge of poetic/linguistic form (pentameter)		✓	✓	✓		✓	✓							
knowledge of author's life (external to text)			✓	✓		✓								
produce quotations verbatim	✓	✓	✓	✓	✓	✓	✓							
knowledge of literary, dramatic or poetic terms, concepts and mechanisms	✓	✓	✓	✓	✓	✓	✓	✓	✓					
translate text into contemporary prose retaining exact meaning	✓	✓				✓	✓		✓	✓				
comparison of text with factual information/external point of reference			✓	✓	✓	✓	✓				✓			
explain meaning of (extended) text (expound)	✓		✓	✓	✓	✓	✓		✓	✓		✓		
exact context of quote/excerpt	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		
overall evaluation of play/text/poem		✓	✓				✓	✓		✓	✓	✓		
give an account of a scene/sequence of events/story strand/poem	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
character analysis/development including comparison of characters	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
thematic analysis/overall theme					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
qualities of the writing of the poem/text						✓	✓	✓	✓	✓	✓		✓	✓
views or attitudes of the author as detected from the text						✓	✓	✓	✓		✓	✓	✓	
appreciation of text / describing impact upon self / reader response						✓	✓	✓	✓	✓	✓	✓	✓	
significance (importance) of a feature or scene of text							✓	✓				✓	✓	
understanding of staging of play/dramatic impact							✓		✓				✓	
reading comprehension of text (within "extract based questions")											✓	✓	✓	✓
relating to characters											✓	✓		
imaginative writing – playing the role of a character in the text											✓	✓	✓	✓
unseen poem											✓	✓		

*Routes through a specification*

It is possible to calculate, for any specification, the number of unique routes through any specification i.e. the number of possible unique combinations of prescribed texts (or topic areas) allowed by the specification rules. Please note, the figures quoted in this section do not take account of choice at the point of assessment (such as when there is a choice of three questions on a particular text). These figures only represent the possible combination of choices in terms of which set texts to study at the point of teaching.

In the very first year, the only paper available was Shakespeare, and only one choice of play (*As You Like It*) and therefore there was just a single route through the specification.

In 1887, candidates (or their teacher) could choose which texts were to be studied – one from Shakespeare (*As You Like It*), Walter Scott (*Talisman*) or Goldsmith (*The Traveller and The Deserted Village*). Therefore, in 1897, there were precisely three possible routes through the specification.

However, in 2007 the number of possible combinations of texts was extremely high. The English Literature specification (1901) allowed 9,072 routes through for Scheme A and 12,600 different routes through for Scheme B, not counting the possibilities of submitting coursework as well as, or instead of, examined routes. Still, this makes 21,672 possible routes, making it theoretically viable for almost every candidate to have their own unique combination of prescribed texts.

## Summary and discussion

Each section of this report has provided great detail about the seven subjects investigated. In Maths there is more structure found in modern examinations – questions are broken down into more parts. More equipment is available – from mathematical/ logarithmic tables, formulae sheets to ever more sophisticated calculators. Prior to GCSE, working had to be shown as a condition for getting the mark, alongside the correct answer. Since GCSE working became a means of gaining a mark, even if the ultimate answer was incorrect. Basic number operations, proportion, fractions, quadratic equations and geometry have been evident in Maths exams in every era. School Certificate brought in simultaneous equations, fractional and negative indices, logarithms, graphical analysis and graph drawing. O level brought more engineering-based Maths (as a consequence of developments during WWII) and more practical (rather than theoretical) geometry. Some areas have been superseded by calculators and computers – for example, logarithmic and trigonometric tables and the techniques of geometric construction. In general Mathematics assessments in the modern era focus more on techniques which will be useful in general employment in the modern world. Geography assessments have remained very similar throughout their history. The modern era brings with it more choice – for example OCR offered three different specifications in 2007. Economic geography was first seen in the 1970s, when there was a shift in focus from regional to ‘systematic specialisms’. In Physics, the context of the questions brought the biggest contrast between recent assessments and older ones. As with Maths, the recent questions tended to be more relevant to the real world context, whilst older ones more focussed upon the technical and theoretical world of the school laboratory. In Art there were major changes in 1927, when the subject became “Art” in its own right, as opposed to the individual elements of Geometrical, Freehand or Model Drawing, Linear Perspective and, from 1907, Design, and with the introduction of GCSE, when candidates became free to work in the medium of their choice. Food Technology has seen similar changes, with the introduction of new topic areas, based upon developments in real-life, including manufacturing and packaging of processed food products. In English Literature, whilst two skills of character analysis and describing a particular scene or events have been consistently required throughout the years, there has been a move from away memorising texts, and from the need to be able to explain precise meaning, usage and etymology of words and phrases. Explanations of metre and scansion were required only in the early years, and biographical questions about the author last occurred in 1927. Instead there is now greater emphasis on discussing overall meanings/themes, and analysing the views and attitudes of the author and the reaction of the reader.

The two key themes which have been identified across many of the subjects include the increase in number of questions relating to real-world contexts, and the greater amount of choice available to candidates, both in terms of the different options within assessments and the method by which they may display their skills.

### *Looking to the future*

The assessments that are set today quickly become past history, and will inevitably be subject to scrutiny and criticism after the event. Some assessments will be reflected upon fondly, and alluded to as coming from a golden era. Others will be forgotten altogether, in the same way in which many of the assessments examined in this study had been forgotten until a team of researchers, interested in the social history of assessments raided the huge selection of materials in the archives. But can we really understand the full appropriateness (or otherwise) of the assessment materials that exist in the archives without re-immersing ourselves into the world in which they were used?

There is a tendency to believe that the current system, whatever its form, is ‘the one’ of greatest importance and of course, at any given moment in time, that is the case. Nevertheless, any system is almost certainly going to be subject to criticism in the future. The subjects investigated in this study show eras of great stability, when little seemed to change in terms of the topic areas

which were valued, and the methods by which they were assessed – for example, in the case of many of the subjects the O level years (1951-1987) fell into this category. At other times there has been much change in comparatively short periods of time. In some instances there is clear evidence of external events and developments being incorporated into assessed material – e.g. the incorporation of engineering developments in Maths post World War II, or the increased assessment of knowledge about food manufacturing and packaging as pre-packaged food becomes an increasing part of daily life. It is hard to tell the extent to which what is assessed at key points (e.g. 16+) is a function of what is considered important by society, or whether by dint of assessing a topic it becomes important. Does assessment drive the curriculum, or vice versa? And to what extent are either or both dependent upon the prevailing priorities of society in general? Questions such as these are apposite when considering ‘new’ initiatives in education which may reflect previous values – for example the debate about whether to teach practical cookery at KS3.

A final question, arising from the fact that this study was carried out as a part of the celebrations of Cambridge Assessment’s 150<sup>th</sup> anniversary is what we might predict for assessment 150 years hence? Predicting the next half-century is relatively straightforward – online assessments, online marking, increasing technology... but what of 100 years thereafter? In the past 150 years there have been great changes in the way in which assessments have been carried out – even the changes in terminology from ‘examinations’ to ‘assessment’ is significant. However, other features of the education system have not changed. For example, the concept of group teaching within a classroom environment (one teacher, a group of students, tables, writing materials etc.) would be familiar to every generation of students who have taken the question papers studied in this project. Will this still be the case in a further 150 years?

Considering everything, whilst some may look back at the past and laugh at some examination questions because they seem ludicrous in the context of the modern world, and others may hark back positively to previous eras because they brought a different focus to bear, assessments have evolved in a steady and logical manner. Taking an occasional look back over our shoulder is a good thing, if only to reflect upon how far we have come.