

AS/A Level Thinking Skills (9694)

What do we mean by 'Thinking Skills'?

In this qualification, 'Thinking Skills' consist of Critical Thinking and Problem Solving.

Critical Thinking is the analytical thinking which underlies all rational discourse and enquiry. It is characterised by a meticulous and rigorous approach. As an academic discipline, it is unique in that it explicitly focuses on the processes involved in being rational. These processes include: analysing arguments; judging the relevance and significance of information; evaluating claims, inferences, arguments and explanations; constructing clear and coherent arguments; forming well-reasoned judgments and decisions.

Problem Solving is analytical thinking using data and techniques to solve real world problems. Problem-solving processes include: identifying which data are relevant when faced with a mass of data, most of which is irrelevant; combining pieces of information that may not appear to be related to give new information; relating one set of information to another in a different form – this involves using experience: relating new problems to ones we have previously solved.

What is the AS/A Level in Thinking Skills?

AS/A Level Thinking Skills is designed as an academic one/two year course for students in schools and colleges who are taking other AS and A Level examinations. It has the same value as any other AS/A Level in terms of university entrance or acceptance by employers.

The AS consists of two papers. Paper 1 consists of multiple-choice questions testing Problem Solving skills. Paper 2 consists of structured answers and short essays concerned with evaluating evidence and presenting argument.

For the A Level, candidates must also take two other papers. Paper 3 consists of four structured questions testing more advanced Problem Solving skills. Paper 4 comprises questions on credibility of statistics, analysis and evaluation of an argument, and the construction of a reasoned argument using a number of given documents.

Is the syllabus due for revision?

No. The syllabus underwent some significant changes from 2011, and this format is expected to endure for some time.

How many hours contact time do you recommend?

4 hours per week of teaching time is adequate. Students will need to do individual work outside of this time. Students with good understanding of language and problem-solving abilities may require less formal teaching.

What knowledge of mathematics is required by students?

The AS Level papers assume that students are familiar with the basic techniques of mathematical manipulation to junior school level. The questions are all based on scenarios and the candidate will need to be able to extract and process data using addition, subtraction, multiplication and division. Knowledge of percentages, fractions and ratios is also necessary. In addition, candidates will need to be able to understand information in the form of graphs, tables, scale drawings, etc.

The A Level papers assume that students are familiar with techniques of mathematical manipulation to Mathematics IGCSE/O Level standard. Reference should be made to the syllabus for a list of particular skills that are required at A Level (e.g. numerical probability, calculation of mode/mean/median, etc.).

Do candidates need to have English as a first language to be able to study Thinking Skills?

The level of language used is similar to that of other AS/A Level courses offered by CIE. Every effort is made to simplify language where possible. Candidates will need to be able to understand fairly lengthy pieces of text in some parts of the examination, particularly in the Applied Reasoning paper at A Level. Their understanding will need to be sufficiently good to identify and understand the meaning, relevance, significance and function of the text as a whole or in part. In assessing argument, the language has to be precise. In this context an argument is 'a number of reasons put forward as grounds for a conclusion'. Therefore candidates must have sufficiently good understanding of English to be able to identify and draw conclusions, as well as being able to identify flaws and assumptions in arguments. They also need to be able to clearly grasp the underlying logical structure in Problem Solving questions.

Can calculators be used in the Thinking Skills examinations?

Yes, non-programmable calculators may be used. At A Level it is recommended that candidates should have a non-programmable calculator for Paper 3 of the assessment.

Why do the question papers and mark schemes from before 2007 say '8436'?

Before 2007 this subject was available only at AS Level and the syllabus was number 8436. We thought it would be helpful for teachers to continue to have access to these AS level materials. The current syllabus number for AS/A Level Thinking Skills is 9694.

What support materials are available?

- Syllabus
- Standards Booklet showing Examiner marks and comments on real candidate answers
- Specimen Question Papers and Mark Schemes
- Previous Question Papers and Mark Schemes
- Scheme of Work for teachers
- Endorsed textbook (Butterworth and Thwaites)
- Online discussion group for asking questions and sharing ideas and resources

I can only afford one textbook for each student. What should I buy?

Thinking Skills by John Butterworth and Geoff Thwaites, published by Cambridge University Press, ISBN 0521521491.

What other resources are there?

The syllabus includes an extensive list of books and Internet resources. Attention is drawn especially to the following books: *Critical Reasoning* (3rd Edition) by Anne Thomson and *How to Solve It* by George Polya.