



**Cambridge Assessment
International Education**

Syllabus

Cambridge International AS & A Level Thinking Skills 9694

For examination in June and November 2023, 2024 and 2025.



Why choose Cambridge?

Cambridge International prepares school students for life, helping them develop an informed curiosity and a lasting passion for learning. We are part of the University of Cambridge.

Our Cambridge Pathway gives students a clear path for educational success from age 5 to 19. Schools can shape the curriculum around how they want students to learn – with a wide range of subjects and flexible ways to offer them. It helps students discover new abilities and a wider world, and gives them the skills they need for life, so they can achieve at school, university and work.

Our programmes and qualifications set the global standard for international education. They are created by subject experts, rooted in academic rigour and reflect the latest educational research. They provide a strong platform for students to progress from one stage to the next, and are well supported by teaching and learning resources.

We review all our syllabuses regularly, so they reflect the latest research evidence and professional teaching practice – and take account of the different national contexts in which they are taught.

We consult with teachers to help us design each syllabus around the needs of their learners. Consulting with leading universities has helped us make sure our syllabuses encourage students to master the key concepts in the subject and develop the skills necessary for success in higher education.

Our mission is to provide educational benefit through provision of international programmes and qualifications for school education and to be the world leader in this field. Together with schools, we develop Cambridge learners who are confident, responsible, reflective, innovative and engaged – equipped for success in the modern world.

Every year, nearly a million Cambridge students from 10 000 schools in 160 countries prepare for their future with the Cambridge Pathway.

'We think the Cambridge curriculum is superb preparation for university.'

Christoph Guttentag, Dean of Undergraduate Admissions, Duke University, USA



Quality management

Cambridge International is committed to providing exceptional quality. In line with this commitment, our quality management system for the provision of international qualifications and education programmes for students aged 5 to 19 is independently certified as meeting the internationally recognised standard, ISO 9001:2015. Learn more at www.cambridgeinternational.org/ISO9001

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Important: Changes to this syllabus



The latest syllabus is version 2, published October 2022. For information about changes to this syllabus go to page 25.

Any textbooks endorsed to support the syllabus for examination from 2020 are still suitable for use with this syllabus.

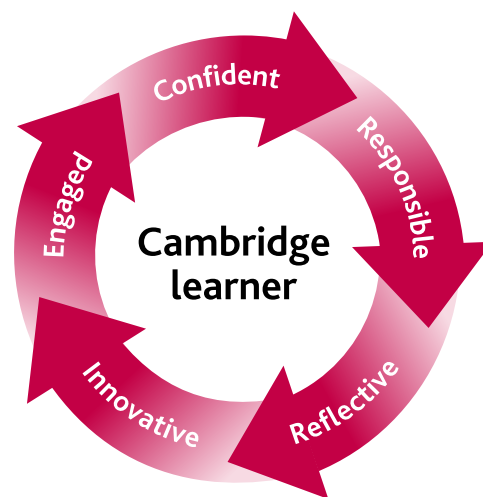
1 Why choose this syllabus?

Key benefits

The best motivation for a student is a real passion for the subject they're learning. By offering students a variety of Cambridge International AS & A Levels, you can give them the greatest chance of finding the path of education they most want to follow. With over 50 subjects to choose from, students can select the ones they love and that they're best at, which helps motivate them throughout their studies.

Following a Cambridge International AS & A Level programme helps students develop abilities which universities value highly, including:

- a deep understanding of their subjects
- higher order thinking skills – analysis, critical thinking, problem solving
- presenting ordered and coherent arguments
- independent learning and research.



Cambridge International AS & A Level Thinking Skills develops a set of transferable skills. These include critical thinking, reasoning and problem solving. Learners can apply these skills across a wide range of subjects and complex real world issues. These transferable skills equip students well for progression to higher education or directly into employment.

Our approach in Cambridge International AS & A Level Thinking Skills encourages learners to be:

confident, using intellectual tools to analyse unfamiliar problems

responsible, independently evaluating arguments and possible solutions to problems, and justifying their reasoning

reflective, carefully considering various possible perspectives of an argument, and the diverse ways that a problem may be solved

innovative, formulating further arguments based on unfamiliar source materials and devising problem-solving strategies

engaged, using strategies and techniques for managing unfamiliar information and contextualised problems.

'Cambridge students develop a deep understanding of subjects and independent thinking skills.'

Tony Hines, Principal, Rockledge High School, USA

International recognition and acceptance

Our expertise in curriculum, teaching and learning, and assessment is the basis for the recognition of our programmes and qualifications around the world. Every year thousands of students with Cambridge International AS & A Levels gain places at leading universities worldwide. Our programmes and qualifications are valued by top universities around the world including those in the UK, US (including Ivy League universities), Europe, Australia, Canada and New Zealand.

UK NARIC, the national agency in the UK for the recognition and comparison of international qualifications and skills, has carried out an independent benchmarking study of Cambridge International AS & A Level and found it to be comparable to the standard of AS & A Level in the UK. This means students can be confident that their Cambridge International AS & A Level qualifications are accepted as equivalent, grade for grade, to UK AS & A Levels by leading universities worldwide.

Cambridge International AS Level Thinking Skills makes up the first half of the Cambridge International A Level course in Thinking Skills and provides a foundation for the study of Thinking Skills at Cambridge International A Level.

Cambridge International AS & A Level Thinking Skills helps to provide transferable skills which support further subject specific study. It is suitable for candidates intending to enter employment or further study, or as a part of a course of general education.

For more information about the relationship between the Cambridge International AS Level and Cambridge International A Level see the 'Assessment overview' section of the Syllabus overview.

We recommend learners check the Cambridge recognition database and university websites to find the most up-to-date entry requirements for courses they wish to study.

Learn more at www.cambridgeinternational.org/recognition

'The depth of knowledge displayed by the best A Level students makes them prime targets for America's Ivy League universities'

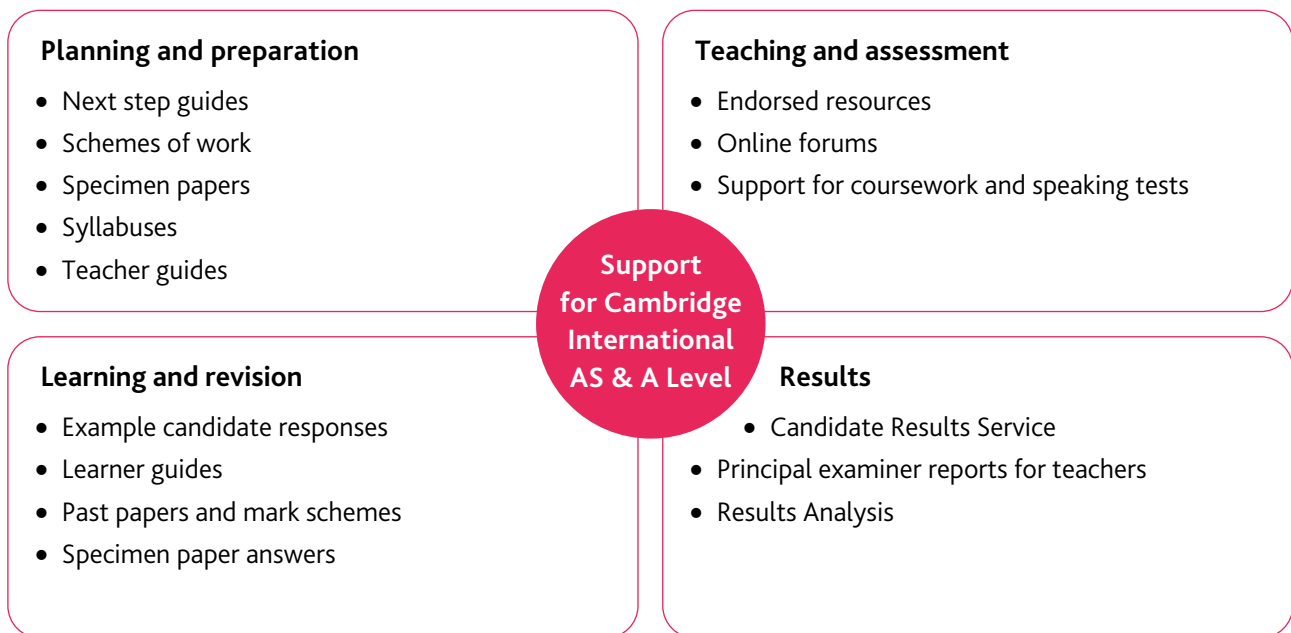
Yale University, USA

Supporting teachers

We provide a wide range of resources, detailed guidance and innovative training and professional development so that you can give your students the best possible preparation for Cambridge International AS & A Level. To find out which resources are available for each syllabus go to our School Support Hub.

The School Support Hub is our secure online site for Cambridge teachers where you can find the resources you need to deliver our programmes. You can also keep up to date with your subject and the global Cambridge community through our online discussion forums.

Find out more at www.cambridgeinternational.org/support



Sign up for email notifications about changes to syllabuses, including new and revised products and services at www.cambridgeinternational.org/syllabusupdates

Professional development

We support teachers through:

- Introductory Training – face-to-face or online
- Extension Training – face-to-face or online
- Enrichment Professional Development – face-to-face or online

Find out more at www.cambridgeinternational.org/events

- Cambridge Professional Development Qualifications

Find out more at www.cambridgeinternational.org/profdev



Supporting exams officers

We provide comprehensive support and guidance for all Cambridge exams officers. Find out more at: www.cambridgeinternational.org/eoguide

2 Syllabus overview

Aims

The aims describe the purposes of a course based on this syllabus.

The aims are to enable students to develop:

- a facility for independent thinking in the real world
- the ability to organise and evaluate different types of information
- the ability to create strategies for solving unfamiliar problems
- the ability to present logical, ordered and coherent arguments
- a facility for making well-reasoned judgements and decisions
- a transferable set of critical thinking, reasoning and problem-solving skills which are essential for success in higher education and employment.

Cambridge Assessment International Education is an education organisation and politically neutral. The contents of this syllabus, examination papers and associated materials do not endorse any political view. We endeavour to treat all aspects of the exam process neutrally.



'Cambridge International AS & A Levels prepare students well for university because they've learnt to go into a subject in considerable depth. There's that ability to really understand the depth and richness and the detail of a subject. It's a wonderful preparation for what they are going to face at university.'

US Higher Education Advisory Council

Content overview

The Thinking Skills subject content is divided into two parts, Problem Solving and Critical Thinking. The subject content is the same for AS & A Level. The difference between AS Level and A Level is determined by the demand of the assessment tasks.

Problem Solving

The Problem Solving content is presented in four areas:

- Organise information
- Process information
- Analyse data
- Consider wider problems.

Problem Solving is about making use of the information available to deduce further information, draw conclusions and make choices and decisions. Very often problems will involve numerical information, but problem solving is **not** a test of mathematics. Only basic numeracy is expected, although these numeracy skills are a vital part of the toolkit for solving many problems. Confidence in working with numerical information and performing mental arithmetic is therefore important for developing efficient problem-solving skills, but the focus of the syllabus is to develop the problem-solving skills themselves.

Students are expected to have basic numeracy skills, including understanding of percentages, ratio and proportion. They should also understand the simple statistical measures of mean, median and mode, and be able to represent the chances of something happening in precise numerical terms (i.e. as a fraction, decimal or percentage). Simple algebraic skills can be a very powerful tool for problem solving, particularly for more complex problems. These skills include the ability to represent and manipulate information, and relationships between pieces of information, concisely and efficiently. However, these algebraic skills will never be assessed directly; the focus of the syllabus is on developing the student's ability to make valid problem-solving insights and deductions, whether they make use of these tools or not.

Critical Thinking

The Critical Thinking content is presented in four areas:

- Evaluate and use evidence
- Analyse reasoning
- Evaluate reasoning
- Construct reasoning.

Critical Thinking is about judging the value or usefulness of evidence, and understanding how sound arguments are constructed. Students will encounter a broad variety of topics, often reflecting real-world situations or subjects of debate. Although a student's own thinking about a topic sometimes makes a valuable contribution to their critical thinking – for example, when constructing an argument – knowledge of the topics themselves will never be assessed directly.

As in the real world, some topics may be controversial, and students may have pre-existing feelings about them. However, the focus of the syllabus is on the student's ability to demonstrate the critical thinking skills, and **not** on whether one point of view is morally superior to another. Students should develop the skills to accurately judge evidence and argument by the relevant criteria, draw logical conclusions and suggest plausible explanations, and construct persuasive arguments with clear structure that make valid use of the evidence available.

Assessment overview

Paper 1 Problem Solving 1 hour 30 minutes 50 marks Compulsory questions based on a variety of scenarios. Assesses Problem Solving subject content. Externally assessed 50% of the AS Level 25% of the A Level		Paper 3 Problem Analysis and Solution 2 hours 50 marks Four compulsory questions, each based on a scenario. Assesses Problem Solving subject content. Externally assessed 25% of the A Level	
Paper 2 Critical Thinking 1 hour 45 minutes 50 marks Five compulsory questions based on multiple sources of evidence. Assesses Critical Thinking subject content. Externally assessed 50% of the AS Level 25% of the A Level		Paper 4 Applied Reasoning 1 hour 45 minutes 50 marks Four compulsory questions based on multiple documents. Assesses Critical Thinking subject content. Externally assessed 25% of the A Level	

There are three routes for Cambridge International AS & A Level Thinking Skills:

Route	Paper 1	Paper 2	Paper 3	Paper 4
1 AS Level only (Candidates take all AS components in the same series)	✓	✓		
2 A Level (staged over two years) Year 1 AS Level	✓	✓		
Year 2 Complete the A Level			✓	✓
3 A Level (Candidates take all components in the same examination series)	✓	✓	✓	✓

Assessment objectives

The assessment objectives (AOs) are:

AO1

Understand information and the relationships between different pieces of information.

AO2

Evaluate or process information in order to draw conclusions

AO3

Suggest explanations, construct reasoned arguments and devise methods for solving problems.

Weighting for assessment objectives

The approximate weightings allocated to each of the assessment objectives (AOs) are summarised below.

Assessment objectives as an approximate percentage of each component

Assessment objective	Weighting in components %			
	Paper 1	Paper 2	Paper 3	Paper 4
AO1	30	30	20	20
AO2	40	40	40	40
AO3	30	30	40	40

Assessment objectives as an approximate percentage of each qualification

Assessment objective	Weighting in AS Level %	Weighting in A Level %
AO1	30	25
AO2	40	40
AO3	30	35

3 Subject content

This syllabus gives you the flexibility to design a course that will interest, challenge and engage your learners. Where appropriate you are responsible for selecting resources and examples to support your learners' study. These should be appropriate for the learners' age, cultural background and learning context as well as complying with your school policies and local legal requirements.

Candidates for both AS Level and A Level should study all the Problem Solving and Critical Thinking subject content.

Problem Solving

Candidates are expected to use these skills in Paper 1 Problem Solving and Paper 3 Problem Analysis and Solution.

1 Organise information

1.1 Understand information in the various forms in which it is presented

Candidates should be able to:

- Understand information presented as text, tables and diagrams
- Extract the information that is relevant to the problem to be solved
- Extract data from related data sets that can be combined in the solution of a problem

1.2 Understand the logical relationships between pieces of information

Candidates should be able to:

- Understand descriptions of simple models
- Identify necessary and sufficient conditions
- Given a summary of some processed data, deduce some information about the original data

Guidance

- Simple models may be described as:
 - instructions for calculations based on the value of some parameter, such as the distance to be travelled. The calculation to be performed may vary when the value of the parameter moves past a threshold value.
 - rules that should be followed, such as the ways in which traffic moves through a junction.

2 Process information

2.1 Perform appropriate operations with information

Candidates should be able to:

- Use one or more items of information appropriately to solve a given problem
- Apply a model to a given situation

Guidance

The operations may involve performing some calculations. The operations to be performed may be obvious, such as when calculating the total price of a basket of shopping from the individual prices, or may need to be deduced, such as when working out the amount of time that needs to be allowed for a set of events to take place.

Models may take a variety of forms, including calculations to be made based on a set of input data and simulations of events taking place over a period of time.

2.2 Identify cases that satisfy given criteria

Candidates should be able to:

- Search through all possible solutions to a problem to identify those which satisfy given criteria
- Identify criteria that have not been met in a proposed solution

Guidance

There may be only one possible solution that satisfies all the criteria or there may be a set that needs to be listed. In some cases it may be required to know the number of solutions that satisfy the criteria.

In problems that have been defined with a set of criteria, possible solutions need to be checked against each of the criteria to confirm that they are all met.

2.3 Make appropriate deductions

Candidates should be able to:

- Draw conclusions based on the information available

Guidance

Use pieces of information and the relationships that exist between them to determine new pieces of information. This could involve considering rules about the way in which numbers can be placed within a specified pattern or taking some examples of a given situation and working out a further case.

Given a situation with a range of options available, consider the consequences of the different actions that could be taken and deduce which one gives the best outcomes.

Given a set of numerical information, make inferences about the reasons why the data follows particular patterns.

3 Analyse data

3.1 Transform data

Candidates should be able to:

- Recognise alternative representations of a set of information
- Identify features of a model based on different types of representation

Guidance

Identify equivalent representations of data such as a pie chart that represents the same data as a bar chart.

Identify relationships between features of an object, such as identical shapes in opposite corners of a tile so that copies of the same object can be identified after rotations or other transformations.

For example, from a graph representing a model, interpret the gradient appropriately in the context of the model.

3.2 Explain trends in data

Candidates should be able to:

- Suggest possible explanations for trends in a set of data
- Fit a model to the information available

Guidance

Including explanations for changes in the trend that occur at a particular point.

Given the structure of a model, deduce the values for one or more of the parameters so that the model fits the information that is available. For example, in a situation where the prices for a number of taxi journeys are available this could involve deducing the price charged per kilometre travelled.

4 Consider wider problems

4.1 Identify the impact of a change to a problem

Candidates should be able to:

- Consider the implications of a change to the scenario in which a problem is set

Guidance

Having solved a problem such as setting the timings at which a series of performances might take place, consider whether changes that could affect attendance such as a road closure increasing travelling times might require an adjustment to the solution found.

4.2 Develop a model

Candidates should be able to:

- Identify features of the situation being modelled which need to be included
- Adjust a model to incorporate additional features

Guidance

Given a model and some information that does not follow the model precisely, identify features that should be included in the model to give a better representation.

Having identified features that need to be included within a model, consider the different ways in which these features could be incorporated into the model and assess them against the information that is available.

Critical Thinking

Candidates are expected to use these skills in Paper 2 Critical Thinking and Paper 4 Applied Reasoning.

5 Evaluate and use evidence

5.1 Evaluate evidence

Candidates should be able to:

- Assess credibility of evidence
 - Reliability
 - Plausibility
 - Corroboration and consistency
- Assess representativeness of evidence
 - Number
 - Selectivity
 - Representativeness compared to the claim being made
 - Assess presentation of data

Guidance

The credibility of evidence is affected by the reliability of its source:

- reputation
- ability to see (hear, etc.)
- vested interest (e.g. to lie, to exaggerate, to select evidence)
- expertise
- neutrality/bias (may refer to selection of evidence).

The intrinsic likelihood of the content of a claim to be true, irrespective of the reliability of its source.

Two pieces of evidence may:

- corroborate one another (in which case each makes the other more likely to be true)
- be consistent with one another (in which case they can both be true)
- be inconsistent with one another (in which case they cannot both be true).

Samples are by definition smaller than the population, but some samples are too small to be the basis for a valid conclusion.

The method of selection may influence results: for example, if the sample is self-selected, it is likely to consist only of those who feel relatively strongly about the subject; if the selection is random, it may be unintentionally limited, e.g. to people who are available during the working day, or who have internet access; if participants are paid, they may be inclined to give the answers they think the researcher wants.

Representativeness could be affected if the sample shares a characteristic which does not apply to other members of the population and if that characteristic could plausibly influence the results, e.g. gender, age, occupation.

Various aspects of the mode of presentation may misrepresent the statistics, e.g. the range of values on the y-axis of a graph, irregular intervals on x- or y-axes, relative size of symbols.

5.2 Use evidence

Candidates should be able to:

- Assess explanation for evidence
- Assess inference from evidence
- Suggest explanation for evidence
- Suggest inference from evidence
- Form a judgement based on multiple sources

Guidance

An explanation may be weak if it fails to account for the whole of the evidence it purports to explain, if it relies on speculative additional information or an unstated assumption, or if other explanations are at least equally plausible.

For example, identify factors which weaken the support the evidence gives to a stated claim, judge to what extent further evidence succeeds in responding to a claim.

For example, motives, basis for correlation.

Suggesting an inference may be expressed in terms of drawing a conclusion, relevance, significance or usefulness.

Involves evaluating several sources, drawing inferences from them, and using the inferences to form a judgement.

6 Analyse reasoning

6.1 Analyse the structure of arguments

Candidates should be able to:

- Recognise an argument
- Identify key elements of an argument and explain their function
- Identify unstated assumption in an argument

Guidance

An argument as distinct from an explanation, information, opinion.

Key elements:

- main conclusion
- intermediate conclusion
- reason
- counter-assertion
- counter-argument
- example
- evidence.

A step in the reasoning which is required in order for the conclusion to be validly drawn, but is not stated explicitly. Authors sometimes make such assumptions when they consider part of the support for their conclusion to be obvious, trivial or uncontroversial. Alternatively, they may not realise that there is a gap in their reasoning, or they may be trying to conceal a significant weakness in the reasoning by failing to make it explicit.

7 Evaluate reasoning

7.1 Identify flaws in reasoning and assess their impact on the strength of the reasoning

Candidates should be able to recognise and assess the impact of:

- Equivocation
- Conflation
- Circular argument
- Begging the question
- Invalid deduction
- Causal flaw
- Rash generalisation
- Sweeping generalisation
- Restriction of options (false dichotomy)
- Confusion of necessary and sufficient conditions
- Slippery slope argument
- Personal attack (*ad hominem*)
- Counter-attack (*tu quoque*)
- Straw man argument

Guidance

Concealing a step in reasoning by tacitly shifting from one meaning of a word or expression to another.

Concealing a step in reasoning by treating two words or expressions as if they were interchangeable even though their meanings are different.

Relying on a claim in order to prove it.

Focusing an argument on an uncontroversial aspect of an issue while stipulating or assuming the key point.

Affirming the consequent or denying the antecedent.

Claiming that just because one event or phenomenon follows another (*post hoc*) or is accompanied by another (*cum hoc*) it must be caused by the other.

Basing a generalisation on inadequate evidence.

Not allowing for exceptions to a generalisation.

Denying the possibility of moderate opinions or actions in order to claim that anyone who rejects one extreme must accept its opposite.

Interpreting a necessary condition as if it were sufficient or a sufficient condition as if it were necessary.

Opposing an apparently moderate proposal by alleging that it will inevitably lead to disastrous consequences.

Criticising opponents personally instead of responding to their arguments.

Rejecting criticisms on the grounds that opponents or other people are guilty of the same or equally objectionable conduct.

Misrepresenting opponents' arguments in order to respond to them more easily.

Note: Candidates are not required to know the Latin technical terms included here, but they are likely to encounter them in textbooks and other sources.

7.2 Identify weaknesses in reasoning and assess their impact on the strength of reasoning

Candidates should be able to recognise and assess the impact of:

- Support

- Consistency

- Reliance

- Appeal

- Analogy

- Responding to counter

Guidance

It is a weakness if reasoning supports only part of the conclusion which is drawn from it. It is a weakness if a moderate claim or intermediate conclusion is used to support a conclusion which would follow only from a stronger version of the claim.

It is a weakness if one part of the reasoning contradicts, or is inconsistent with, another part.

The fact that a reader (e.g. a candidate) disagrees with a claim or a conclusion does **not** constitute a weakness in reasoning. However, **reliance** on an unsupported claim, stipulative definition or unstated assumption which is questionable does constitute a weakness, because it means that anyone who rejects the claim, definition or assumption can reasonably also reject the conclusion.

Arguments frequently make appeals, e.g. to authority, popularity, emotion, tradition or novelty. If such an appeal is relevant and proportionate, it does not constitute a weakness in reasoning. But an appeal which is **irrelevant** or **disproportionate** does constitute a weakness in reasoning.

Arguments often make use of analogies. Even imperfect analogies can strengthen an argument, but a wild analogy which lacks significant points of similarity constitutes a weakness in reasoning.

It is not a weakness for an argument to be one-sided. Someone defending one point of view is under no obligation to show balance. But it is a weakness if the proponent fails to foresee and respond to an obvious objection to a claim or line of reasoning.

8 Construct reasoning

8.1 Construct persuasive arguments

Candidates should be able to:

- Articulate a conclusion
- Provide reasons in support of a conclusion
- Develop strands of reasoning
- Structure reasoning by the use of intermediate conclusions
- Strengthen reasoning by the use of appropriate elements

Guidance

Appropriate elements:

- counter-assertion/argument with response
- example
- evidence
- analogy
- hypothetical reasoning.

4 Details of the assessment

Calculators

Calculators are allowed in all the papers. They are essential for Paper 3 and useful for Paper 1.

Language

Much of Thinking Skills involves considering logical relationships and implications. In Problem Solving, candidates need to accurately identify the constraints and requirements of the logical 'space' the problem is set in. In Critical Thinking, candidates need to judge whether a claim does or does not follow from the evidence, and whether a chain of reasoning does or does not support a conclusion.

An important focus of the syllabus is to prepare candidates to apply their thinking skills to many different aspects of study, work and life. Therefore the stimulus material will often reflect what they will encounter in the real world, where the language used is not always simple. The language used will aim not to be more complicated than is necessary in key parts of the information.

Because of these key features of the subject, candidates will need to have a relatively strong grasp of English in order to apply their thinking skills to scenarios in an English language medium.

Stimulus Material

The papers will contain stimulus material from a variety of sources, representing a variety of perspectives. Any opinions expressed within such material are not necessarily those of Cambridge Assessment International Education.

Paper 1 – Problem Solving

Written paper, 1 hour 30 minutes, 50 marks

In Paper 1, the information presented in each scenario is usually quite limited. The Problem Solving skills are tested more often in isolation than on Paper 3. The problems are shorter, less complex and less difficult.

There will be a variety of Problem Solving scenarios testing various skills. Some will be simple scenarios with just one question. Others may involve two or more part-questions, exploring different aspects of a scenario or breaking a more complex problem down into smaller steps. The problems will generally increase in difficulty through the paper.

Credit will often be awarded for correct steps towards a solution, even if the final answer is not correct. Credit might not be awarded if working or an explanation needed to support an answer is not shown (for example, where the answer is either 'Yes' or 'No'). Candidates should ensure that they lay their working out clearly, so that the elements of their working can be easily identified. This will help them both to organise information and so solve the problems more efficiently and successfully, and to gain the full credit they deserve for their Problem Solving attainment.

Paper 2 – Critical Thinking

Written paper, 1 hour 45 minutes, 50 marks

In Paper 2, the Critical Thinking skills are tested more often in isolation than on Paper 4. The tasks are shorter and more targeted at particular skills or pieces of evidence. It is generally easier to apply the skills to the stimulus material.

Section A focuses mostly on evaluating and using evidence. There are several Sources of evidence based around a common topic. The information is usually mostly in textual form, but there may also be other forms such as graphs, diagrams, tables, pictures or numerical information. Question 1 has a number of short part-questions exploring various aspects of the evidence presented in the sources. Question 2 requires the candidates to write a short argument, with a focus on using and evaluating the evidence from the Sources.

Section B focuses mostly on reasoning and argument. There will be a passage of around 400 words, presenting an argument. Question 3 will usually focus on analysing the structure of the reasoning in the argument, while Question 4 will usually focus on evaluating the strength of the reasoning. Each will have a number of short part-questions. Question 5 will require the candidates to write a short argument, in which the focus will be on structuring the reasoning.

Paper 3 – Problem Analysis and Solution

Written paper, 2 hours, 50 marks

In Paper 3, the information presented in each scenario is often more detailed. The Problem Solving skills are tested more often in combination than on Paper 1. The problems are longer, more complex and more difficult.

There are four questions presenting more extensive problems to be solved. A variety of skills are tested in each question, and skills often need to be combined to find solutions. Often the problems develop towards a more refined solution, such that the insights gained in the earlier parts are built upon and combined to provide solutions to the later parts. The problems generally increase in difficulty through the paper.

Credit will often be awarded for correct steps towards a solution, even if the final answer is not correct. Credit might not be awarded if working or an explanation needed to support an answer is not shown (for example, where the answer is either 'Yes' or 'No'). Candidates should ensure that they lay their working out clearly, so that the elements of their working can be easily identified. This will help them both to organise information and so solve the problems more efficiently and successfully, and to gain the full credit they deserve for their Problem Solving attainment.

Paper 4 – Applied Reasoning

Written paper, 1 hour 45 minutes, 50 marks

In Paper 4, the Critical Thinking skills are tested more often in combination than on Paper 2. Some tasks are longer and refer to a broader range of the stimulus material. It is generally more difficult to apply the skills to the stimulus material.

The paper presents a number of Documents, usually five, containing information and arguments around a common topic. The Documents are usually mostly in textual form, but there may also be other forms such as graphs, diagrams, tables, pictures or numerical information.

Question 1 tests the candidates' ability to analyse the structure of the reasoning in one of the Documents, while Question 2 focuses on evaluating the strength of the reasoning in one of the Documents. Question 3 requires the candidates to evaluate specific pieces of evidence (often statistical in nature) from the Documents. In Question 4, candidates are required to construct a substantial reasoned argument. The question targets their ability to combine their Critical Thinking skills in order to present a persuasive case. They must demonstrate the ability to structure their arguments effectively and make critical use of the evidence from the Documents in support of their position.

Command words

The table below includes command words used in the assessment for this syllabus. The use of the command word will relate to the subject context.

Command word	What it means
Analyse*	examine in detail to show meaning, identify elements and the relationship between them
Assess	make an informed judgement
Calculate	work out from given facts, figures or information
Compare	identify/comment on similarities and/or differences
Evaluate	judge or calculate the quality, importance, amount, or value of something
Explain	set out purposes or reasons / make the relationships between things evident / provide why and/or how and support with relevant evidence
Give	produce an answer from a given source or recall/memory
Identify	name/select/recognise
Justify	support a case with evidence/argument
Predict	suggest what may happen based on available information
State	express in clear terms
Suggest	apply knowledge and understanding to situations where there are a range of valid responses in order to make proposals

* In Paper 2 and Paper 4, 'analyse' requires candidates to identify key elements of an argument.

5 What else you need to know

This section is an overview of other information you need to know about this syllabus. It will help to share the administrative information with your exams officer so they know when you will need their support. Find more information about our administrative processes at www.cambridgeinternational.org/eoguide

Before you start

Previous study

We do not expect learners starting this course to have previously studied Thinking Skills.

We recommend that learners starting this course should have previously completed a course in English equivalent to Cambridge IGCSE™ or Cambridge O Level First Language English.

Thinking Skills also requires some facility with Mathematics, and we recommend that learners should have previously completed a course in Mathematics equivalent to Cambridge IGCSE or Cambridge O Level.

Guided learning hours

We design Cambridge International AS & A Level syllabuses based on learners having about 180 guided learning hours for each Cambridge International AS Level and about 360 guided learning hours for a Cambridge International A Level. The number of hours a learner needs to achieve the qualification may vary according to local practice and their previous experience of the subject.

Availability and timetables

All Cambridge schools are allocated to one of six administrative zones. Each zone has a specific timetable.

You can view the timetable for your administrative zone at www.cambridgeinternational.org/timetables

You can enter candidates in the June and November exam series.

Private candidates can enter for this syllabus.

Combining with other syllabuses

Candidates can take this syllabus alongside other Cambridge International syllabuses in a single exam series. The only exceptions are:

- syllabuses with the same title at the same level.

Group awards: Cambridge AICE

Cambridge AICE (Advanced International Certificate of Education) is a group award for Cambridge International AS & A Level. It allows schools to offer a broad and balanced curriculum by recognising the achievements of learners who pass examinations in a range of different subjects.

Learn more about Cambridge AICE at www.cambridgeinternational.org/aice

Making entries

Exams officers are responsible for submitting entries to Cambridge International. We encourage them to work closely with you to make sure they enter the right number of candidates for the right combination of syllabus components. Entry option codes and instructions for submitting entries are in the *Cambridge Guide to Making Entries*. Your exams officer has a copy of this guide.

Exam administration

To keep our exams secure, we produce question papers for different areas of the world, known as 'administrative zones'. We allocate all Cambridge schools to one administrative zone determined by their location. Each zone has a specific timetable. Some of our syllabuses offer candidates different assessment options. An entry option code is used to identify the components the candidate will take relevant to the administrative zone and the available assessment options.

Support for exams officers

We know how important exams officers are to the successful running of exams. We provide them with the support they need to make your entries on time. Your exams officer will find this support, and guidance for all other phases of the Cambridge Exams Cycle, at www.cambridgeinternational.org/examsofficers

Retakes and carry forward

Candidates can retake Cambridge International AS Level and Cambridge International A Level as many times as they want to. Information on retake entries is at www.cambridgeinternational.org/entries. To confirm what entry options are available for this syllabus, refer to the *Cambridge Guide to Making Entries* for the relevant series.

Candidates can carry forward the result of their Cambridge International AS Level assessment from one series to complete the Cambridge International A Level in a following series, subject to the rules and time limits described in the *Cambridge Handbook*.

Regulations for carrying forward entries for staged assessment (Cambridge International AS & A Level) [and internally assessed marks] can be found in the *Cambridge Handbook* for the relevant year of assessment at www.cambridgeinternational.org/eoguide

Equality and inclusion

We have taken great care to avoid bias of any kind in the preparation of this syllabus and related assessment materials. In our effort to comply with the UK Equality Act (2010) we have taken all reasonable steps to avoid any direct and indirect discrimination.

The standard assessment arrangements may present barriers for candidates with impairments. Where a candidate is eligible, we may be able to make arrangements to enable that candidate to access assessments and receive recognition of their attainment. We do not agree access arrangements if they give candidates an unfair advantage over others or if they compromise the standards being assessed.

Information on access arrangements is in the *Cambridge Handbook* at www.cambridgeinternational.org/eoguide

Language

This syllabus and the related assessment materials are available in English only.

After the exam

Grading and reporting

Grades A*, A, B, C, D or E indicate the standard a candidate achieved at Cambridge International A Level. A* is the highest and E is the lowest grade.

Grades a, b, c, d or e indicate the standard a candidate achieved at Cambridge International AS Level. 'a' is the highest and 'e' is the lowest grade.

'Ungraded' means that the candidate's performance did not meet the standard required for the lowest grade (E or e). 'Ungraded' is reported on the statement of results but not on the certificate. In specific circumstances your candidates may see one of the following letters on their statement of results:

- Q (PENDING)
- X (NO RESULT).

These letters do not appear on the certificate.

If a candidate takes a Cambridge International A Level and fails to achieve grade E or higher, a Cambridge International AS Level grade will be awarded if both of the following apply:

- the components taken for the Cambridge International A Level by the candidate in that series included all the components making up a Cambridge International AS Level
- the candidate's performance on the AS Level components was sufficient to merit the award of a Cambridge International AS Level grade.

'Cambridge International A Levels are the 'gold standard' qualification. They are based on rigorous, academic syllabuses that are accessible to students from a wide range of abilities yet have the capacity to stretch our most able.'

Mark Vella, Director of Studies, Auckland Grammar School, New Zealand

How students, teachers and higher education can use the grades

Cambridge International A Level

Assessment at Cambridge International A Level has two purposes:

- to measure learning and achievement

The assessment:

- confirms achievement and performance in relation to the knowledge, understanding and skills specified in the syllabus.

- to show likely future success

The outcomes:

- help predict which students are well prepared for a particular course or career and/or which students are more likely to be successful
- help students choose the most suitable course or career.

Cambridge International AS Level

Assessment at Cambridge International AS Level has two purposes:

- to measure learning and achievement

The assessment:

- confirms achievement and performance in relation to the knowledge, understanding and skills specified in the syllabus.

- to show likely future success

The outcomes:

- help predict which students are well prepared for a particular course or career and/or which students are more likely to be successful
- help students choose the most suitable course or career
- help decide whether students part way through a Cambridge International A Level course are making enough progress to continue
- guide teaching and learning in the next stages of the Cambridge International A Level course.

Changes to this syllabus for 2023, 2024 and 2025

This syllabus has been updated. This is version 2, published October 2022.

You are strongly advised to read the whole syllabus before planning your teaching programme.

Changes to version 2, published October 2022

Changes to syllabus content

- Information on stimulus material has been added to page 17.
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'While studying Cambridge IGCSE and Cambridge International A Levels, students broaden their horizons through a global perspective and develop a lasting passion for learning.'

Zhai Xiaoning, Deputy Principal, The High School Affiliated to Renmin University of China