

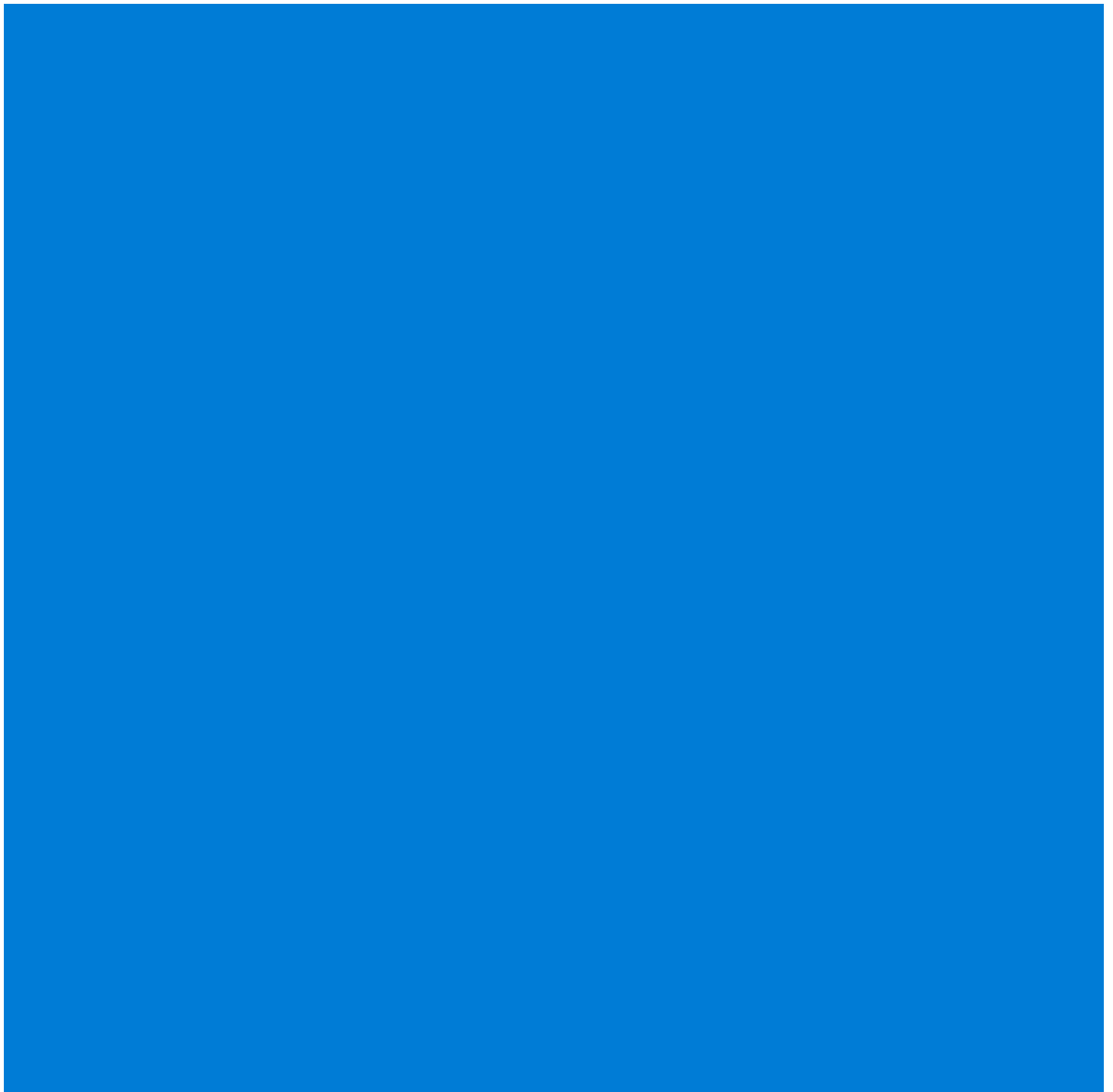


UNIVERSITY *of* CAMBRIDGE
International Examinations

External Evaluation of the European Baccalaureate
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**Annexes to the External Evaluation of the European
Baccalaureate**



Annexes to the External Evaluation of the European Baccalaureate Draft Report

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Report on the comparative study of the EB curriculum: French Language II

The EB French Language II syllabus for Years 6 and 7 is a very traditional one in the classic francophone mould. It is heavily literary in emphasis, to the extent that all the assessment tasks in the papers considered are based in some way on literary texts. The tasks stress the importance of the analysis of literary material and the production of formal, reasoned, structured argument in the French tradition.

As such, it is very different in content and emphasis from both the IB Diploma French B Higher Level course and the OCR A level, which are clearly language courses designed to promote first and foremost language acquisition and communicative skills. In both the IB and the A level courses, it is perfectly possible to undertake very little or no literary study at all, although both offer it as an option, and teachers are encouraged to ensure that students are exposed to high-quality texts during the course as an aid to their own powers of expression.

A comparison of the stated objectives of the courses makes this distinction and difference of emphasis clear:

The first of the **IB Language B Higher Level** objectives is to *'communicate clearly and effectively in a wide range of situations'*. The second is to *'understand and use accurately oral and written forms of the language that are essential for effective communication in a range of styles and situations.'* Its other objectives concentrate largely on delivering and receiving the 'message', and it is not until the final objective that *'awareness of, and sensitivity to, the culture(s) related to the language'* is mentioned. Nowhere is there any specific mention of literary study.

Similarly, the first two of the Specification Aims of the **OCR A level** are to *'develop understanding of the spoken and written forms of the foreign language from a variety of registers'* and *'to communicate confidently, clearly and effectively in the foreign language through both the spoken and written word, using increasingly accurate, complex and varied language.'* The penultimate aim is to *'develop critical insight into, and contact with, the contemporary society, cultural background and heritage of countries or communities where the foreign language is spoken'*. Again there is no specific mention of literary study.

The Specific Aims of the **EB Language II** programme are introduced by a statement that Language II studies are vital in providing the student with the means of access to European culture in its diversity, and (in a European School context) of being able to follow Human Sciences courses being taught in Language II. The stated aims are then to develop the ability of students to communicate effectively in both the spoken and written language, and to understand 'messages' (both spoken and written) of all kinds, including literary and cultural. When it comes to the specific objectives for Years 6 and 7 (the relevant years for this report), however, the only objectives mentioned are to *'maîtriser la pratique de l'argumentation'*, *'développer une réflexion abstraite, critique et ouverte aux cultures européennes'*, and *'développer un commentaire qui prenne en compte les spécificités littéraires'*.

In this sense, the EB course aims to do very different things from the other two (which share a good deal of common ground), which makes any comparative evaluation open to the criticism of not comparing like with like. The emphases of the EB course are so different that there is no merit in speculating as to how the IB or A level candidates would have fared on it, or of how the EB students would have fared on a course much more obviously orientated towards language acquisition.

The EB programme is also very different from the other two in the narrowness of its range of assessment tasks, as well as the narrowness of its source materials and stimuli.

That said, the standards of language achieved in the sample scripts evaluated are not dissimilar and the level of French produced by the candidates on the different courses – even if they are writing in response to very different stimuli, on very different subjects and, it would appear, with very different objectives in mind – bears comparison.

The courses are all demanding in their own ways – the EB ‘way’ being very significantly different from the IBD or A level ‘way’. Inevitably, there is a wide range of achievement within the cohorts, ranging from the very limited to the very polished, but many of candidates from each of the programmes under comparison demonstrate an ability to handle the language and the ideas expressed effectively, with a good range of vocabulary and idiom and, in the case of the best candidates, with impressive levels of fluency and accuracy whichever course they have followed.

Michael Featherstone
August 2008

1.9.1 Doc 1.1

Mapping Table – European Baccalaureate / OCR A Level and IBD
Subject: FRENCH LANGUAGE II

Syllabus compared: OCR GCE A level

1. Complete the first column with a detailed list of the topic areas covered in the European Baccalaureate syllabus.
2. Insert a tick, or similar, to show where the topic is covered by the comparator specification – please delete option columns if there are no options.
3. Include comments to describe where a topic is covered in greater depth in one or other specification, where possible estimate how much time it would take to deliver the extra depth.

EB syllabus content	Present in core of comparator	Present in optional unit ...	Covered in greater depth in EB	Covered in greater depth in OCR A level
There is very little laid down that could be described as ‘syllabus content’ or ‘topic’ areas’ in the EB syllabus. What is given is a number of desired skills or competencies to be developed and assessed				
Listening and Speaking: Hold a conversation at a sophisticated language level Adapt to registers of language Present an argument, refute and convince	✓ ✓ ✓		✓ (in a formalised way)	Doubtful how much variety of register actually exists in EB (assessments in particular)
Reading Understand a variety of texts and media Read for overview whole literary works Read and analyse literary works, particularly those prescribed for study on the set list for the year	✓ (much wider variety)	✓ ✓	✓ (literary texts only) ✓ ✓	✓ (non-literary texts and other sources)
Writing Produce a written argument using the structure “introduction, development,	✓ (written argument yes, but less concern for		✓ (in a formalised way)	

conclusion”	set structure)			
Produce a written narrative following the required criteria (tense, person, tone, language level etc.	✓ (written narrative yes, but less emphasis on ‘required criteria’)			
Carry out activities linked to the set works		✓	✓	

Content included in OCR GCE A level French (comparator syllabus) but not in EB syllabus

Please list any topics that are included in the A Level specification but not in the EB syllabus.

1. The topic areas from which teachers are expected to select material and on which students are assessed cover a wide range of issues from contemporary French society and culture: e.g. the media, the arts, sports and pastimes, travel, daily life, the environment, education, law and order, politics, education, human interest news items etc. This applies not only to the set non-literary topics in the Culture and Society paper but to the course in general. This is in very marked contrast to the EB programme, where the source material is largely of a literary nature, requiring for the most part ‘literary’ responses.
2. There is an emphasis on a variety of authentic sources of material and language – notably, contemporary newspaper and magazine articles.
3. There is a published list of set literary texts to be studied if the student wishes to take that option in the Society and Culture paper, and set literary topics if the student wishes to take that option, but there is no obligation to incorporate literary study. This is in very marked contrast to the EB programme.
4. There is a published list of grammatical points which candidates are expected to be able to recognise and/or handle.
5. There is a far wider range of assessment exercises: multiple-choice, gap-filling, non-verbal answers, sentence completion, definitions, ‘true or false’ exercises, word substitution, matching statements with items from the text etc.
6. Some questions and answers are in English, and there is a requirement to be able to transfer meaning from French into English and *vice versa*.
7. There is an emphasis on a range of material to be communicated and the target audience, and therefore on appropriate register.
8. There are specific listening comprehension tests.
9. There is a general emphasis on language acquisition, ‘message’ and communication.
10. Synoptic element.

11. Comparison Table for comparison of assessment models

Use this table to make direct comparisons between the syllabuses in the following areas:

1. structure of the assessment model, including the format of assessment for the specification/syllabus
2. whether coursework is assessed, the kinds of coursework assessed and contribution to overall grade
3. whether oral assessment is part of the assessment model, and the extent and format of oral assessment
4. whether the assessment model is unit-based or requires candidates to take a synoptic view of the topics, and to what extent

NOTE: the prose commentary on the assessment models should draw attention to significant differences in the requirements for the European baccalaureate and A Level or IB.

	European Baccalaureate	OCR GCE A Level
Assessment structure, format and timings	<p>Language II is one of the compulsory elements which make up the five components of the EB. An overall average of 60% is the basic requirement for the award of the EB.</p> <p>The percentage for each subject is calculated as follows:</p> <p>40% Preliminary Mark, teacher assessed, made up of two elements:</p> <ol style="list-style-type: none"> a) 15% as an arithmetical average of two end-of semester marks awarded by the class teacher for class work in each of the two semesters in Year 7. b) 25% awarded on the basis of written class examinations at the end of the first semester (end of January) in Year 7. Examinations the same length as in the external terminal written EB examination. <p>36% mark from the externally set terminal Written Examination, based on Year 7 syllabus, but also testing knowledge gained in previous years (particularly Year 6). Scripts marked first by candidate's teacher and then by external examiner.</p> <p>The Language II written exam lasts three hours (four in the case of Advanced Language II [<i>approfondissement</i>]).</p> <p>All texts, instructions and questions in target language. All answers in target language. No dictionaries.</p> <p>The Language II written exam is based</p>	<p>Unlike the EB and IBD, there is no requirement at A level to study even one language, let alone a second one. Candidates are therefore those who have chosen to take this subject, rather than having to do so in order to qualify for a diploma.</p> <p>Assessment is by means of 6 units of assessment (3 at AS level).</p> <p>At GCE A level, candidates take the following units/components:</p> <ol style="list-style-type: none"> 1. Speaking (either externally marked, internally marked and externally moderated, or conducted by a visiting examiner): 15 mins – 15% <p>Role play set in business or domestic context: 5 mins following 20 minutes of preparation based on stimulus passage in English. 15 marks.</p> <p>Presentation and discussion of topic: 10 mins (2-3 mins of prepared presentation on subject of candidate's own choosing related to society or culture) followed by 7-8 mins of discussion with examiner. Short notes and/or illustrative material may be brought to the examination. 45 marks.</p> <ol style="list-style-type: none"> 2. Listening, reading and writing 1 : externally marked. 90 mins – 20%. <p>Section 1: Short listening texts (e.g. news items, items of general interest, advertisements), not requiring productive use of target language : 20</p>

	<p>on a literary passage giving rise to:</p> <ul style="list-style-type: none"> ▪ three comprehension questions – 20 marks ▪ two interpretation questions – 40 marks ▪ an essay question - a choice of two, only one of which is chosen by the candidate. In the paper provided for comparison, one essay consisted of inviting candidates to write a newspaper article describing the event related in the literary text. The other choice consisted of a topic of a general literary nature in which candidates were invited to give examples from the set texts which they had studied and from personal reading – 40 marks. <p>The 'corrigé' (suggested correct or model answer) provides markers with outlines of the elements to be expected and rewarded in Comprehension and Interpretation exercises, but no indication of how the marks are to be awarded. There is an assessment grid indicating the criteria for marks to be awarded in the Essay.</p> <p>The Advanced Language II (<u>approfondissement</u>) paper is based on a literary passage giving rise to:</p> <ul style="list-style-type: none"> ▪ Five questions of an analytical nature on the text – 5 x 10 = 50 marks ▪ A literary essay based on the set texts studied and on personal reading (choice of two subjects of which the candidate chooses only one) - 50 marks <p>The 'corrigé' provides markers with outlines of the elements to be expected and rewarded in the question on the text, but no indication of how the marks are to be awarded.</p> <p>A very general indication of elements to be expected and rewarded in the Essay is also provided. 15 marks are available for giving precise examples from text studied or personal reading, 10 marks for putting forward a reasoned argument based on the subject, 20 marks for constructing a</p>	<p>marks</p> <p>Comprehension of reading text requiring non-verbal responses : 10 marks</p> <p>Section 2: The world of work Listening text, with exercises requiring both non-verbal responses and answers in French. 20 marks</p> <p>Reading: extract from a letter or memo for gist translation into English. 20 marks</p> <p>Writing: letter or fax in response to either listening text or reading text. 10 marks.</p> <p>3. Reading and writing: externally marked. 90 mins – 15%</p> <p>Reading: two texts to test comprehension not involving productive writing in French. 15 marks</p> <p>Writing: response to a written text, summarising main points and offering personal response. 30 marks</p> <p>Cloze test: multiple choice gap-filling to test candidates' awareness of given grammatical points. 15 marks</p> <p>4. Speaking and reading: externally marked. Conducted either by teacher (tapes sent to external assessor) or visiting examiner. 15 mins – 15%</p> <p>Discussion: 5-6 mins 20 marks Candidates have 20 mins to prepare responses to short written stimulus in French and to engage in discussion with examiner.</p> <p>General conversation: 10-12 mins 40 marks Candidates discuss with examiner current issues associated with target country/community. Candidate offers three topics, examiner chooses one or two. Candidates may bring short notes in French.</p> <p>5. Listening, reading and writing 2: externally marked. 165 mins – 20%</p> <p>Listening: 25 marks One or two extended listening tests.</p>
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	<p>well developed, structured essay, and 5 marks for expression (language, spelling etc.).</p> <p>There is no separate Listening Comprehension test.</p>	<p>Questions and answers in French</p> <p>Reading comprehension: 45 marks One or two extended reading texts. Some exercises involve non-verbal answers or answers in English to English questions. One of the questions in French requiring French answers or other tasks in French (e.g. completing sentences, definitions, etc.)</p> <p>Writing in French and Transfer from English: 10 marks Candidates transfer meaning of an English text of 300-400 words into French. (Involves a guided summary of specified parts of the text to which candidates add own opinion.)</p> <p>6. Culture and Society: either as a externally marked written examination (120 mins) or as coursework – 15%</p> <p>Either: Written paper option: 60 marks Three sections. Candidates answer two questions, which may come from either one or two sections. (300-500 words in French)</p> <p>Set Literary Texts: two questions on each of eight set texts, one a commentary, the other an essay. Candidates may not choose both questions on one text. No texts to be brought to the examination room.</p> <p>Literary Topics: one question on each of six set literary topics (e.g. Love in Literature). Candidates are free to choose their own texts.</p> <p>Non-Literary Topics Two questions on each of eight set non-literary topics (e.g. <i>La jeunesse en France</i>) OCR indicates in advance which two of a list of sub-topics within a broad topic area will be tested (e.g. <i>conflit des générations; les loisirs</i>)</p> <p>Or: Coursework option: 60 marks (teacher marked and standardised by Centre, external postal moderation) Candidates submit one long piece (1200-1400 words) or two short pieces (600-700 words) in French on topics or texts of their choice related to France.</p>
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		<p>No dictionaries allowed in any external assessment or in preparation time for speaking tests.</p> <p>Listening tests by means of personal stereos with rewind facility or language laboratory.</p> <p>The usual sequence and timing of taking the above units is the first three in the first year of the course (leading to an AS level) and the remaining three in the second year, but alternative sequences are acceptable.</p> <p>Units may be re-taken.</p> <p>Broad topic areas are published (all relating to the target-language country), indicating the areas from which reading and listening material will be drawn.</p> <p>A list is published of grammatical structures which candidates may be expected to recognise or use.</p> <p>Grade Boundary UMS marks are published for all units.</p> <p>Grade descriptors are published for each of the elements (speaking, reading and listening, writing, cultural component) at Grades A, C and E.</p> <p>Broad Assessment Objectives are published, relating to candidates' ability to:</p> <ul style="list-style-type: none"> ▪ understand and respond, in speech and writing, to both spoken and written French; ▪ demonstrate knowledge prescribed grammar and syntax and apply it accurately; ▪ demonstrate knowledge and understanding of aspects of French society. <p><u>Assessment Criteria</u> are published in the form of grids for the various components, describing the levels to be attained for the award of each mark. In some tests, detailed and specific point-by-point mark-schemes are used instead.</p>
<p>Coursework assessment</p>	<p>None in the conventional sense of items submitted specifically as 'coursework', although the Preliminary Mark reflects the standard of work produced throughout the course.</p>	<p>See Culture and Society coursework option above – component 6 in first section.</p>

<p>Oral examination</p>	<p><u>24% mark from Oral Examinations</u>, based on Year 7 syllabus, but also testing knowledge gained in previous years (particularly Year 6).</p> <p>Examination lasts 20 minutes (following 20 minutes' preparation time, during which notes may be made). Topics determined by drawing lots. Examination conducted by two examiners: the candidate's teacher and an external examiner. Marks awarded by each examiner on a scale of 0-10, including half-marks: the final mark is the arithmetical average of the marks awarded by the two examiners (teacher and external).</p>	<p>See Speaking Tests above: components 1 and 4 in first section.</p>
<p>Synoptic assessment</p>	<p>None specified, other than saying that the terminal examination at the end of Year 7 will draw on / test knowledge gained in previous years (particularly Year 6). The essay questions in the terminal Written Examination invite candidates to draw on their knowledge of other set texts from the course and on other personal reading.</p>	<p>Yes, specifically in the Speaking and Reading Test and the Listening, Reading and Writing 2 Test (components 4 and 5 above).</p>

1.9.1 Doc 1.1

Mapping Table – European Baccalaureate / OCR A Level and IBD

Subject: FRENCH

Syllabus compared: IBD Language B French Higher Level

4. Complete the first column with a detailed list of the topic areas covered in the European Baccalaureate syllabus.
5. Insert a tick, or similar, to show where the topic is covered by the comparator specification – please delete option columns if there are no options.
6. Include comments to describe where a topic is covered in greater depth in one or other specification, where possible estimate how much time it would take to deliver the extra depth.

EB syllabus content	Present in core of comparator	Present in optional unit ...	Covered in greater depth in EB	Covered in greater depth in IBD
There is very little laid down that could be described as 'syllabus content' or 'topic' areas' in any of the three syllabuses under consideration. What is given is a number of desired skills or competencies to be developed and assessed				
Listening and Speaking: Hold a conversation at a sophisticated language level Adapt to registers of language Present an argument, refute and convince	✓ ✓		✓ (in a formalised way)	Doubtful how much variety of register actually exists in EB (assessments in particular)
Reading Understand a variety of texts and media Read for overview whole literary works Read and analyse literary works, particularly those prescribed for study on the set list for the year	✓ (much wider variety)	✓ ✓	✓ (literary texts only) ✓ ✓	✓ (non-literary texts and other sources)
Writing Produce a written argument using the	✓ (written argument)		✓ (in a formalised way)	

<p>structure “introduction, development, conclusion”</p> <p>Produce a written narrative following the criteria required (tense, person, tone, language level etc.</p> <p>Carry out activities linked to the set works</p>	<p>yes, but less concern for set structure)</p> <p>✓ (written narrative yes, but less emphasis on ‘required criteria’)</p>	<p>✓</p>	<p>✓</p>	
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Content included in IBD French B HL (comparator syllabus) but not in EB syllabus

Please list any topics that are included in the IBD specification but not in the EB syllabus.

12. The topic areas which form the material for exercises on which students are assessed cover a wide range of issues of general interest from contemporary French society and culture. This is in very marked contrast to the EB programme, where the source material is largely of a literary nature, requiring for the most part 'literary' responses.
13. There is also a wide range of stimuli and an emphasis on a variety of authentic and up-to-date sources of material and language – notably, contemporary newspaper and magazine articles and websites.
14. Teachers are encouraged to ensure that students are exposed to high-quality texts during the course as an aid to their own powers of expression, but there is no obligation to incorporate literary study, and it is largely unassessed, although one text in Paper 2 is a literary one. This is in very marked contrast to the EB programme.
15. There is a far wider range of assessment exercises: multiple-choice, gap-filling (cloze tests), non-verbal answers, sentence completion, definitions, picture or cartoon stimuli, word substitution, matching statements with items from the text etc.
16. There is an emphasis on a range of material to be communicated and the target audience, and therefore on appropriate register.
17. There is a general emphasis on language acquisition, 'message' and communication.

Comparison Table for comparison of assessment models

Use this table to make direct comparisons between the syllabuses in the following areas:

6. structure of the assessment model, including the format of assessment for the specification/syllabus
7. whether coursework is assessed, the kinds of coursework assessed and contribution to overall grade
8. whether oral assessment is part of the assessment model, and the extent and format of oral assessment
9. whether the assessment model is unit-based or requires candidates to take a synoptic view of the topics, and to what extent

NOTE: the prose commentary on the assessment models should draw attention to significant differences in the requirements for the European baccalaureate and A Level or IB.

	European Baccalaureate	International Baccalaureate Diploma
Assessment structure, format and timings	<p>Language II is one of the compulsory elements which make up the five components of the EB. An overall average of 60% is the basic requirement for the award of the EB.</p> <p>The percentage for each subject is calculated as follows:</p> <p>40% Preliminary Mark, teacher assessed, made up of two elements:</p> <p>a) 15% as an arithmetical average</p>	<p>A second language is one of the compulsory elements which make up the six components of the IB Diploma (in addition to the requirement for an Extended Essay, a course in the Theory of Knowledge and participation in the CAS programme).</p> <p>This language can be studied can be studied at:</p> <ul style="list-style-type: none"> ▪ A1 level (mother tongue equivalent in the case of students

	<p>of two end-of semester marks awarded by the class teacher for class work in each of the two semesters in Year 7.</p> <p>b) 25% awarded on the basis of written class examinations at the end of the first semester (end of January) in Year 7. Examinations the same length as in the external terminal written EB examination.</p> <p><u>36% mark from the externally set terminal Written Examination</u>, based on Year 7 syllabus, but also testing knowledge gained in previous years (particularly Year 6). Scripts marked first by candidate's teacher and then by external examiner.</p> <p><u>The Language II written exam</u> lasts three hours (four in the case of Advanced Language II [<i>approfondissement</i>]).</p> <p>All texts, instructions and questions in target language. All answers in target language. No dictionaries.</p> <p>The Language II written exam is based on a literary passage giving rise to:</p> <ul style="list-style-type: none"> ▪ three comprehension questions – 20 marks ▪ two interpretation questions – 40 marks ▪ an essay question - a choice of two, only one of which is chosen by the candidate. In the paper provided for comparison, one essay consisted of inviting candidates to write a newspaper article describing the event related in the literary text. The other choice consisted of a topic of a general literary nature in which candidates were invited to give examples from the set texts which they had studied and from personal reading – 40 marks. <p>The 'corrigé' (suggested correct or model answer) provides markers with outlines of the elements to be expected and rewarded in Comprehension and Interpretation exercises, but no indication of how the marks are to be awarded. There is an assessment grid indicating the</p>	<p>who effectively have two mother tongues; a heavily literary course);</p> <ul style="list-style-type: none"> ▪ A2 level (high level of language competence, including usually at Higher Level some who are 'bilingual' and/or who may study other subjects in this language); ▪ B level (students with perhaps 4 or 5 years' experience of learning the target language in the case of Higher Level students but who have not yet reached A2 level); ▪ <i>ab initio</i> level. The second language can be studied at either Higher or Standard Levels (with the exception of <i>ab initio</i> which be taken at only Standard Level). <p>The B Higher level being used as the comparator in this study focuses on language acquisition up to quite a sophisticated level, well beyond that which is achieved at <i>ab initio</i> level. In reality, particularly perhaps in an international environment, some of those who take it can be pretty competent speakers of the language.</p> <p>Three subjects have to be studied at Higher Level. Each of the six components is scored on a 1-7 scale, regardless of whether it is studied at Higher or Standard level. There are three bonus points available for the Extended Essay and Theory of Knowledge components. A total of 24 points is needed pass the Diploma, with minimum scores required in the subjects taken at Higher Level.</p> <p><i>Assessment is criterion-referenced, not norm-referenced. Candidates are assessed in relation to their performance against identified criteria or 'descriptors'. In everything other than the Reading element of Paper 1 (for which there is a paper-specific mark-scheme) candidates' work is assessed according to established assessment criteria and mark-band descriptors. For each assessment criterion, six descriptors are defined, denoting achievement levels 0-10. Teachers and markers identify the descriptor which most adequately conveys the achievement level attained by the candidate's work. They then decide whether the work should be placed at the top of that band or at the bottom of it. Only whole numbers are</i></p>
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	<p>criteria for marks to be awarded in the Essay.</p> <p><u>The Advanced Language II (approfondissement) paper</u> is based on a literary passage giving rise to:</p> <ul style="list-style-type: none"> ▪ Five questions of an analytical nature on the text – 5 x 10 = 50 marks ▪ A literary essay based on the set texts studied and on personal reading (choice of two subjects of which the candidate chooses only one) - 50 marks <p>The ‘corrigé’ provides markers with outlines of the elements to be expected and rewarded in the question on the text, but no indication of how the marks are to be awarded.</p> <p>A very general indication of elements to be expected and rewarded in the Essay is also provided. 15 marks are available for giving precise examples from text studied or personal reading, 10 marks for putting forward a reasoned argument based on the subject, 20 marks for constructing a well developed, structured essay, and 5 marks for expression (language, spelling etc.).</p> <p>There is no separate Listening Comprehension test.</p>	<p><i>used. It is stressed that the descriptors should not be seen as marks or percentages, and that it is inappropriate to think in terms of a pass/fail boundary when applying descriptors. Neither should it be assumed that a group of candidates being assessed will follow any particular distribution pattern.</i></p> <p><u>Written Component</u> (externally set and assessed at the end of the course):</p> <p>Two written papers of 90 mins:</p> <p><u>Paper 1: Text handling: 40%</u> Reading (questions based on written non-literary texts of different lengths and levels of difficulty): 27% All texts and questions in target language. All answers in target language. All texts have different communicative purposes. At least one text is literary in nature. No dictionaries. Variety of reading skills assessed. Various types of exercises involved – e.g. multiple choice, true or false, gap-filling, matching summary sentences with different sections of the text, identifying related ideas from different parts of the text, matching words or phrases from the text with definitions etc.</p> <p>Written response (short writing exercise in response to written texts): 13% Candidates attempt one task only. A minimum of 100 words required. Candidates required to manipulate language and information given in source text and integrate them in a response intended for a specific audience. Direct copying from the text not rewarded – candidates need to adapt the original text and integrate it appropriately in their response. Candidates need to use language appropriate to the specific type of text. Typical exercises: letter of application; report/diary of events, producing a guide/brochure etc. Types of texts and exercises not replicated in Paper 2.</p> <p><u>Paper 2: Written Production: 30%</u> All answers in target language. No dictionaries. A minimum of 400 words required (250 words at Standard Level) – no upper word limit, but quality more important</p>
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		<p>than quality. Choice of six tasks – only one to be attempted. Tasks are varied, requiring candidates to identify the communicative purpose(s) of the task in order to use language appropriate to the type of text and the intended audience. Subjects of a non-literary nature, except one at Higher Level which presents an opportunity for candidates to draw on any reading which they have undertaken.</p> <p>There is no separate Listening Comprehension test.</p> <p>All texts, instructions and questions in French. All answers to be written in French.</p>
Coursework assessment	None in the conventional sense of items submitted specifically as 'coursework', although the Preliminary Mark reflects the standard of work produced throughout the course.	None, although the Interactive Oral Activity is assessed from work done in this area throughout the course.
Oral examination	<p><u>24% mark from Oral Examinations</u>, based on Year 7 syllabus, but also testing knowledge gained in previous years (particularly Year 6).</p> <p>Examination lasts 20 minutes (following 20 minutes' preparation time, during which notes may be made). Topics determined by drawing lots. Examination conducted by two examiners: the candidate's teacher and an external examiner. Marks awarded by each examiner on a scale of 0-10, including half-marks: the final mark is the arithmetical average of the marks awarded by the two examiners (teacher and external).</p>	<p><u>Oral Component</u> (internally assessed by teacher, recorded, and externally moderated): 30% Assessment takes place during the final year of the course. Involves an element of response to the spoken language (e.g. conversational exchanges and/or response to oral material from TV, radio etc.)</p> <p>Consists of two elements:</p> <p><u>Individual Oral</u> (10 mins) 15%: Three sections: Interview part 1 (3-4 mins) – previously prepared presentation based on support material of candidate's choice (advised by teacher) reflecting some element of the culture studied during the course. Interview part 2 (3-4 mins) – follow-up questions from teacher and discussion. Part 3 (3-4 mins) – general discussion on a wide variety of potential issues, not specifically based on what the candidate has studied during the course.</p> <p>Candidates allowed to bring brief working notes (10 short points approx) into the interview room. These are for reference only and must not be read out as a prepared speech.</p> <p><u>Interactive Oral Activities: 15%</u> Candidates are assessed by their teacher on one interactive oral activity which has</p>

		<p>taken place during the course. The activity may be based on a range of material in the target language (advertisements, literary texts, films, recordings etc) and must be related to the culture studied.</p> <p>These may involve whole-class activities (e.g. debate, or presentation to the class of a particular topic followed by whole-class discussion) or smaller group/pair activities (e.g. discussion, role-play, exchanges of information based on written or visual stimuli.)</p> <p>This element of the oral is not recorded or externally moderated.</p>
Synoptic assessment	<p>None specified, other than saying that the terminal examination at the end of Year 7 will draw on / test knowledge gained in previous years (particularly Year 6). The essay questions in the terminal Written Examination invite candidates to draw on their knowledge of other set texts from the course and on other personal reading.</p>	<p>None specified, but the Extended Essay may provide an opportunity in this respect.</p>

1.9.1 Doc 1.2

Mapping Table – European Baccalaureate

Subject: French

Syllabus compared Leaving Certificate

7. Complete the first column with a detailed list of the topic areas covered in the European Baccalaureate syllabus.
8. Insert a tick, or similar, to show where the topic is covered by the comparator specification – please delete option columns if there are no options.
9. Include comments to describe where a topic is covered in greater depth in one or other specification, where possible estimate how much time it would take to deliver the extra depth.

EB syllabus content	Present in core of comparator	Present in optional unit ...	Present in optional unit ...	Covered in greater depth in EB	Covered in greater depth in LC...
There is very little laid down that could be described as 'syllabus content' or 'topic areas' in the EB syllabus. What is given is a number of desired or competencies to be developed and assessed.					
Listening and speaking: Hold a conversation at a sophisticated language level Adapt to registers of language Present an argument, refute and convince	✓ ✓ ✓			✓ ✓	'Sophisticated level' not specified in LC * EB assessments viewed used only formal register LC requires that pupils be able to 'state and defend personal opinions
Reading: Understand a variety of texts and media Read for overview whole literary works Read and analyse literary works, particularly those prescribed for study on the set list for the year	✓ ✓			✓	* Only literary texts are listed in EB syllabus. LC specifies 'mass media and more accessible literature' While reading whole literary texts is stated as desirable in the syllabus, it is rarely done in practice. Extracts are relied upon by most teachers.

Writing: Produce a written argument using the structure 'introduction, development, conclusion'	✓			✓	Coherent expression of personal opinions but no set structure required
Produce a written narrative following the required criteria – tense, person, tone, language level etc.	✓			✓	Informal narrative only with no set criteria
Carry out activities linked to the set works					

Content included in Leaving Cert French (comparator syllabus) but not in EB syllabus

Please list any topics that are included in the LC specification but not in the EB syllabus

18. The LC syllabus is organised around a series of behavioural objectives, grouped around themes and related activities, e.g. engaging in discussion, dealing with emergencies, buying goods and services etc. Each theme has an accompanying list of performance targets, e.g. in a discussion, 'insisting that something is true, denying, contradicting, negotiating a compromise' etc. Linguistic skills and grammatical and structural elements to be acquired are listed in conjunction with these themes.

19. Language awareness is a stated behavioural objective. Pupils are expected to learn about language in general from target language material.

20. Cultural awareness, which is defined as 'learning in the target language about the present-day culture associated with the target language'. There is a list of general performance targets, activities and themes in the area of cultural awareness, e.g. 'outlining in broad terms the principal links between the target language community and Ireland.' 'Understanding, describing and discussing in general terms issues that transcend cultural divisions', e.g. ethnic minorities, health and lifestyle, the third world etc.

Comparison Table for comparison of assessment models

Use this table to make direct comparisons between the syllabuses in the following areas:

10. structure of the assessment model, including the format of assessment for the specification/syllabus
11. whether coursework is assessed, the kinds of coursework assessed and contribution to overall grade
12. whether oral assessment is part of the assessment model, and the extent and format of oral assessment
13. whether the assessment model is unit-based or requires candidates to take a synoptic view of the topics, and to what extent

NOTE: the prose commentary on the assessment models should draw attention to significant differences in the requirements for the European baccalaureate and A Level or IB.

	European Baccalaureate	Irish Leaving Certificate French
Assessment structure, format and timings	<p>Language II is one of the compulsory elements which make up the five components of the EB. An overall average of 60% is the basic requirement for the award of the EB.</p> <p>The percentage for each subject is calculated as follows:</p> <p>40% Preliminary Mark, teacher assessed, made up of two elements:</p> <p>a) 15% as an arithmetical average of two end-of-semester marks awarded by the class teacher for class work in each of the two semesters in Year 7.</p> <p>b) 25% awarded on the basis of written class examinations at the end of the first semester (end of January) in Year 7. Examinations the same length as in the external terminal written EB examination.</p> <p>36% mark from the externally set terminal Written Examination, based on Year 7 syllabus, but also testing knowledge gained in previous years (particularly Year 6). Scripts marked first by candidate's teacher and then by external examiner.</p> <p>The Language II written exam lasts three hours (four in the case of Advanced Language II [<i>approfondissement</i>]).</p> <p>All texts, instructions and questions in target language. All answers in target language. No dictionaries.</p> <p>The Language II written exam is based on a literary passage giving rise to:</p>	<ul style="list-style-type: none"> • Study of a language other than English and Irish is not compulsory but there is a high uptake of French in LC. • Assessment is based on the work covered throughout the candidates' six years in secondary school. • All elements of the examination are based on the syllabus content. • All examinations are externally set by the State Examinations' Commission. All candidates in the State sit the same examination. • There is no continuous assessment. All assessment is by means of a terminal examination. An oral examination is conducted in March or April of 6th year and a written paper and aural test in June of the same year. • There is no internal assessment. All assessment is carried out by external markers. In the case of the written and aural examination, complete anonymity of both candidate and examiner is maintained. • No dictionaries or other aids are permitted in the examination. • The examination is set at two levels, higher and ordinary. Candidates do not have to opt finally for one or other level until the day of the written examination. The format is similar at both levels (e.g. same cd in listening test) but questions and assessment criteria are more demanding at higher level. <p>The following is a description of the higher level examination:</p>

	<ul style="list-style-type: none"> ▪ three comprehension questions – 20 marks ▪ two interpretation questions – 40 marks ▪ an essay question - a choice of two, only one of which is chosen by the candidate. In the paper provided for comparison, one essay consisted of inviting candidates to write a newspaper article describing the event related in the literary text. The other choice consisted of a topic of a general literary nature in which candidates were invited to give examples from the set texts which they had studied and from personal reading – 40 marks. <p>The ‘corrigé’ (suggested correct or model answer) provides markers with outlines of the elements to be expected and rewarded in Comprehension and Interpretation exercises, but no indication of how the marks are to be awarded. There is an assessment grid indicating the criteria for marks to be awarded in the Essay.</p> <p>The Advanced Language II (<i>approfondissement</i>) paper is based on a literary passage giving rise to:</p> <ul style="list-style-type: none"> ▪ Five questions of an analytical nature on the text – 5 x 10 = 50 marks ▪ A literary essay based on the set texts studied and on personal reading (choice of two subjects of which the candidate chooses only one) - 50 marks <p>The ‘corrigé’ provides markers with outlines of the elements to be expected and rewarded in the question on the text, but no indication of how the marks are to be awarded.</p> <p>A very general indication of elements to be expected and rewarded in the Essay is also provided. 15 marks are available for giving precise examples from text studied or personal reading, 10 marks for putting forward a reasoned argument based on the subject, 20 marks for constructing a well developed, structured essay, and 5 marks for expression (language, spelling etc.).</p>	<p>Written paper: duration 2 hrs 30 mins - 220 marks (55%)</p> <p>Section I, reading comprehension - two passages, each worth 60 marks (15%)</p> <p>Questions to be answered in French test specific areas of comprehension and the awareness of different levels of meaning within the text. There are normally one or two multiple choice questions. In other questions, candidates are required to manipulate the target language only where this is required for the sense of the answer. One or two questions also test language awareness and grammar. A question on each passage, to be answered in English, tests global comprehension and awareness of stylistic aspects of the text. Passage 1 is normally a passage of current journalistic French. Passage 2 is a modern literary extract.</p> <p>Section II, written production (100 marks, 25%) – one compulsory question (40 marks 10%), choice of (a) or (b), which link with the subject matter of the two comprehension passages, (synopticity). 100 words, no penalty for excess. Two other questions to be chosen from three, (each worth 30 marks, 7.5%). All three have (a) or (b) options. 75 words, again no penalty for longer answers. Range of topics of interest to examination cohort age group. One option has English/Irish language stimulus. Varied formats range from diary entries to emails to formal letters. Some are ‘donnez vos réactions’ questions. Marks are divided evenly for communicative ability and language accuracy</p> <p>Listening test (80 marks, 20%) – duration 40 mins approximately. Takes place after a ten minute break at end of the written paper. All question and answers in English or Irish.</p>
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	There is no separate Listening Comprehension test.	
Coursework assessment		There is no continuous assessment. All assessment is by means of a terminal examination.
Oral examination		Oral examination (100 marks, 25%). All candidates take the same oral examination. In the case of candidates who eventually opt for the ordinary level examination, the oral mark is converted to a mark out of 20% of the total. The oral test takes the form of a 13 minute (approx) conversation with a visiting examiner appointed by the SEC. Candidates may opt to discuss a document (newspaper article, photograph, book etc.) during this conversation. Marks are divided evenly for communicative ability and language accuracy
Synoptic assessment		See section on written production.

General Comments

Comparison of outcomes Leaving Certificate and European Baccalaureate

A comparison of the attainments of candidates in these two examinations is extremely difficult for the following reasons:

- In LC the oral examination carries 25 % of the marks and I have no information on the oral performance of the candidates whose scripts I received in either examination.
- In LC the listening test is worth 20%. There is no listening test in EB.
- I received no top category LC scripts (**A** grade i.e. 85% +)
- Only an overall mark was provided for the EB scripts. There was no breakdown of the marks awarded for individual questions.
- The written papers are so different in nature that comparison of results is not really possible. The EB examination is almost exclusively literary in nature. It requires analysis and comment on both unseen and set texts at a very high level. This does not form part of the LC examination.
- The EB examinations last a total of 7 hours. The LC written paper is only 2.5 hours.

In light of the above comments I can make only very general observations on the outcomes of the two examination systems.

EB candidates, even some of the weaker ones, seem to have a much higher level of fluency, a richer vocabulary and more idiomatic French than their LC counterparts. Their ability to set forward an argument and to comment on literary texts is also much more advanced.

It must be remembered that LC candidates are examined in seven or eight subjects and therefore the same depth and specialisation in each subject is not required of them as is required of candidates in other systems who proceed to their final examination with fewer subjects.

1.9.1 Doc 1.3

Comparison of outcomes EB –LC

Leaving Certificate and European Baccalaureate

A comparison of the attainments of candidates in these two examinations is extremely difficult for the following reasons:

- In LC the oral examination carries 25 % of the marks and I have no information on the oral performance of the candidates whose scripts I received in either examination.
- In LC the listening test is worth 20%. There is no listening test in EB.
- I received no top category LC scripts (**A** grade i.e. 85% +)
- Only an overall mark was provided for the EB scripts. There was no breakdown of the marks awarded for individual questions.
- The written papers are so different in nature that comparison of results is not really possible. The EB examination is almost exclusively literary in nature. It requires analysis and comment on both unseen and set texts at a very high level. This does not form part of the LC examination.
- The EB examinations last a total of 7 hours. The LC written paper is only 2.5 hours.

In light of the above comments I can make only very general observations on the outcomes of the two examination systems.

EB candidates, even some of the weaker ones, seem to have a much higher level of fluency, a richer vocabulary and more idiomatic French than their LC counterparts. Their ability to set forward an argument and to comment on literary texts is also much more advanced.

It must be remembered that LC candidates are examined in seven or eight subjects and therefore the same depth and specialisation in each subject is not required of them, as is required of candidates in other systems, and who proceed to their final examination with fewer subjects.

1.9.1 Doc 1.4

Mapping Table – European Baccalaureate /and Swedish Upper Secondary Standards

Subject: French

Coverage compared: Swedish Upper Secondary Standards

- 1 The first column is a detailed list of the topic areas covered in the European Baccalaureate syllabus.
 2 Insert a tick, or similar, to show where the topic is covered by the comparator specification – please delete option columns if there are no options.
 3 Include comments to describe where a topic is covered in greater depth in one or other specification, where possible estimate how much time it would take to deliver the extra depth.

EB syllabus content	Present in Swedish standards	Covered in greater/ less depth in EB	Covered in more/ less depth in the Swedish standards for stage 4 (out of 7)
Oral work	Yes	Oral proficiency is not dealt with separately in the EB syllabus for French L 2, Cycle 6-7, hence difficult to know whether the goal for argumentation (“Maîtriser la pratique de l’argumentation”) refers to oral production and interaction. However, if so, this goal is set higher than for French, stage 4, in the Swedish syllabus.	The goals for oral production and interaction in the Swedish syllabus for stage 4 do not reach beyond the personal sphere and do not include argumentation. “Students should be able to actively take part in discussions on familiar subjects, and with the help of different strategies communicate effectively; ... be able to orally relate and describe something which they have seen, heard, experienced or read, as well as express and give their reasons for how they understand a topic that is of personal importance”
Reading			
Writing from different periods	Yes	Literary texts covered in more depth in EB	No emphasis on literature from different periods, but rather on fairly simple, what can be inferred to be reasonably contemporary, literature; “Modern languages, stage 4, broadens the language ability and contains different variants of the language. <i>Students read and understand simple literature</i> , and develop their ability to communicate orally and in writing.”
Play by Shakespeare			
One pre-20 th century text			
Variety of works from different genres	Yes	Covered in more depth in EB	Texts from different genres; “Students should be able to read and assimilate the

			contents of relatively simple literature and other narratives, descriptions and texts putting forward arguments in subjects with which they are familiar”.
Thematic work Year 7			
Personal reading programme			
Other literatures	Yes		“Students should have knowledge of everyday life, society and cultural traditions in some countries where the language is spoken, as well as be able to make comparisons with their own cultural experiences”.
Writing			
Write accurately	Yes		No specific focus on written accuracy in the goals for French, stage 4; however, the ability to master formal aspects of language is mentioned in the general part of the syllabus for languages as a prerequisite for communicative competence.
Write effectively to instruct, describe, argue, explore, entertain	Yes	Covered in more depth in EB	To be awarded a pass mark for Stage 4 French (i.e. the minimal requirement for this stage), students should be able to “express themselves understandably in writing and write, e.g., both personally in simple language about experiences and thoughts, and also short reports of simple narratives and articles.” For the higher grade levels a certain adaptation to different audiences (and purposes) is required.
Write with understanding of Literature and critical sources	No		
Describe rhetorical devices	No		
Plan and draft in limited time	Yes		Required in examinations in both EB and the Swedish system.
Write Summaries	No		
Knowledge about Language			
Theoretical Frameworks	Yes		“ ... the ability to master the form of a language, i.e. its vocabulary, phraseology, pronunciation, spelling and

			grammar,..”
Contextual variation	Yes		
Language change	No		
Comparative Linguistics	No		
Regional accents and dialects	Yes		“...understand clear speech, even though regional in nature...”
Comparison of Assessment Objectives			
			For French (as for German and Spanish) in the Swedish school system a national, electronic test bank is provided, from which teachers can download testing materials to be used to support their grading of students’ language proficiency in relation to the nationally set goals and grading criteria. Thus, the national materials have a complementary function in the continuous assessment carried out in the classroom (<i>see further comments in report</i>).

Content included in Swedish but not in EB syllabus

Please list any topics that are included in the Swedish national syllabus but not in the EB syllabus...

1. Clearer focus on listening both as a receptive and interactive skill
2. More emphasis on meta-cognitive skills, i.e. awareness of how language is learnt, reflection, self-assessment, ability to plan, take responsibility for, and evaluate one’s work, etc.
3. Use of relevant and available aids for learning
4. More explicit focus on the use of strategies in language use.

Comparison Table for comparison of assessment models

Use this table to make direct comparisons between the syllabuses in the following areas:

14. structure of the assessment model, including the format of assessment for the specification/syllabus
15. whether coursework is assessed, the kinds of coursework assessed and contribution to overall grade
16. whether oral assessment is part of the assessment model, and the extent and format of oral assessment
17. whether the assessment model is unit-based or requires candidates to take a synoptic view of the topics, and to what extent

NOTE: the prose commentary on the assessment models should draw attention to significant differences in the requirements for the European baccalaureate and A Level or IB.

	European Baccalaureate	Swedish National Assessment materials for ‘French stage 4’
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Assessment structure, format and timings	What we have seen, i.e. the basis for our analysis, is the EB Written exam in June, constituting 36 % of the basis for total mark. From what we know, there are additional exams in January (25 %), and oral exams in June (24 %).	National testing materials for French, stage 4, provided through an electronic test bank; advisory function, not compulsory for schools to use (however, the vast majority do). <i>See report for further information.</i> Four subtests in the testing materials: Oral test (interaction and production) Listening comprehension (selected and constructed response formats) Reading comprehension (selected and constructed response formats) Writing test (prompts given, but creative writing enhanced)
Coursework assessment	According to our information about the EB, assessment of coursework from the 7 th year constitutes 15 % of the total mark.	Not specified in the syllabus but continuous assessment is carried out, inter alia through classroom tests, produced by individual teachers, groups of teachers, or provided in the course books used. When awarding the final grade, teachers are required to combine “all sources of evidence”, i.e. combine their observations from continuous assessment with the results on the nationally provided testing materials – if used (no proportions between the two specified).
Oral Work	Oral exam in June (24 %), as well as continuous assessment (we suppose)	See above – part of the national testing material as well continuous assessment

General Points

There are seven, successive courses of foreign languages in the Swedish syllabuses – from stage 1 (beginners) to stage 7 (advanced level). English is the first foreign language, mandatory up to stage 5 in the vocationally oriented study programs in upper secondary school, and stage 6 in the academically oriented programs. The requirements in upper secondary school for a second foreign language, in this case French, is that students in theoretically oriented, university preparatory, study programs should study at least one or two (depending on study orientation) of the seven stages. Higher levels are promoted by newly introduced so called “merit points”. Theoretically, students can study courses up to stage 7; this however happens very rarely, and in very few schools in the country. The “normal” case is rather Stage 3 or 4. The comparisons with the EB have thus been made in relation to the national goals and grading criteria for Stage 4 (*more information in report*).

Commentary on examination scripts

EB focuses on analysis of literary texts whereas there is no such focus in the Swedish national testing materials. The different types of literary knowledge mentioned below may however, to some extent, be assessed continuously, or in classroom examinations.

Knowledge about drama, the short story, autobiography, travel writing.

Knowledge about Poetry

Knowledge about Novel

Knowledge about variety of genres

Links with other literatures

EB French Language II and French as a second foreign language in Swedish upper secondary school – a comparison of standards and specifications

French is a second foreign language in the Swedish school system, usually taught from grade six in secondary school (students around 12 years of age). In secondary school, students can choose between French, German and Spanish (French being the least common of the three). The study of a second foreign language is not compulsory in secondary school, although strongly recommended. In the academically oriented study programs in upper secondary school, though, a second foreign language is mandatory. However, this can be taken at beginners' level, although higher levels are promoted through newly introduced so called "merit points". The range of languages in upper secondary school is wider than in secondary school, for example Italian, Russian and Chinese being taught in a number of schools. It needs to be emphasized, however, that the national syllabus for Modern languages is the same for all these languages.

The Swedish national syllabus for foreign languages (i.e. all foreign languages, both English and second and third FLs), to a considerable extent inspired by the Common European Framework of Reference/CEFR, defines 7 successive levels/stages of language competence. As already mentioned, there is no fixed level requirement for the second foreign language for university entrance. However, considered a reasonable point of comparison, stage 4 has been chosen for the present analysis. The minimal requirements for a Pass mark in Stage 4 is tentatively considered to correspond to (a fairly low) level B 1 in the CEFR, individual students however reaching further.

Teachers are responsible for the final grading of individual students in the Swedish school system. To support them in this, there is an electronic test bank, currently offering materials for stages 2-4 in French, German and Spanish (the most frequently taught second foreign languages). None of these materials are mandatory for schools to use, although a vast majority do. However, it needs to be emphasized that the function of the tests is advisory: they should form one of the sources of evidence used by teachers when determining individual students' final grades.

It needs to be emphasized that the Swedish syllabus, which is part of the national curriculum, contains goals and grading criteria but, unlike the EB syllabus, no instructions concerning content and methods. This is due to a political decision in the early 1990s, aimed at decentralising the Swedish school system. Consequently, schools and teachers are expected, in active collaboration with their students, to make decisions about the more concrete 'whats?' and 'hows?' of instruction.

The present comparison is made between French as Language II (Cycle 6-7) in the EB system and French as a second foreign language, stage 4, in the Swedish system.

The EB syllabus is heavily literary in emphasis, the task stressing the importance of the analysis of literary material and the production of formal, reasoned, structured argument. As such it is very different from the Swedish [upper secondary] language syllabuses for French and other foreign languages, which clearly emphasize varied language acquisition and communicative, inter-cultural skills, as well as aspects of lifelong learning.

According to the Swedish syllabus (from 2000) the overall aim for studying Modern languages, of which French is one, is defined as follows [official translation by the National Agency for Education]:

"... The subject of Modern languages aims at pupils developing an all-round communicative ability. The ability to use a number of languages is important for international contacts and for an increasingly internationalised labour market in order to take advantage of the rapid developments taking place in information and communications technologies, as well as for further studies. Knowledge of languages is needed for studies, travelling in other countries and for social and vocational contacts of different kinds. /.../ The subject of Modern languages aims to provide a broader perspective of the surrounding world and of different cultures. The subject also aims at providing a tool for learning in different areas of knowledge. All pupils need the ability to further develop their knowledge after completing schooling. The subject aims at pupils maintaining and developing their desire and ability to learn languages."

The fact that the EB syllabus gives much more emphasis to literary studies and literary analysis is also reflected in the EB examination, where all the tasks are based, in some way, on literary texts. Since the Swedish syllabus aims at developing an all-round communicative ability and language skills necessary in an internationalised world, the Swedish national tests materials comprise subtests which in different ways highlight the assessment of students' oral and written receptive, productive and interactive competencies. Moreover, the materials are influenced by the intercultural goals in the syllabuses, through, for example, the choice of themes and texts, and the use of different accents in the subtests focusing on listening comprehension (further information about the Swedish school system, syllabuses and national assessment of foreign languages to be found at http://www.ipd.gu.se/english/units/language_and_literature_unit/nafs_eng/).

In the French reading and writing subtests for stage 4 students are exposed to a variety of short texts, with varying response formats, and topics for written production (one per test) requiring reporting or narrative writing. In the rating of the texts, comprehensibility and communicative ability and efficiency are emphasized, although analytic factors are also provided for the assessment of various aspects of content, organization and linguistic form. (Examples of a reasonably typical assessment tasks for French stage 4 available at <http://provbanken.skolverket.se/sprak/franska/>).

Since the emphasis of the EB course of French is drastically different, and the range of assessment tasks quite narrow as compared to the Swedish corresponding national test materials, it is extremely difficult to speculate as to how Swedish students would have managed if they had taken the EB exam. In our opinion, however, an average student at stage 4 would most certainly not be able to reach the pass level. Students at the higher stages of French in the Swedish system, and with grades above a clean pass, would probably be able to pass, provided they had been given instruction within the domain of literary analysis.

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October 2008

Comparison Table for comparison of assessment models

Use this table to make direct comparisons between the syllabuses in the following areas:

18. structure of the assessment model, including the format of assessment for the specification/syllabus
19. whether coursework is assessed, the kinds of coursework assessed and contribution to overall grade
20. whether oral assessment is part of the assessment model, and the extent and format of oral assessment
21. whether the assessment model is unit-based or requires candidates to take a synoptic view of the topics, and to what extent

NOTE: the prose commentary on the assessment models should draw attention to significant differences in the requirements for the European baccalaureate and A Level or IB.

	European Baccalaureate	Abitur
Assessment structure, format and timings	<p>Language II is one of the compulsory elements which make up the five components of the EB. An overall average of 60% is the basic requirement for the award of the EB.</p> <p>The percentage for each subject is calculated as follows:</p> <p>40% Preliminary Mark, teacher assessed, made up of two elements:</p> <ol style="list-style-type: none"> a) 15% as an arithmetical average of two end-of semester marks awarded by the class teacher for class work in each of the two semesters in Year 7. b) 25% awarded on the basis of written class examinations at the end of the first semester (end of January) in Year 7. Examinations the same length as in the external terminal written EB examination. <p>36% mark from the externally set terminal Written Examination, based on Year 7 syllabus, but also testing knowledge gained in previous years (particularly Year 6). Scripts marked first by candidate's teacher and then by external examiner.</p> <p>The Language II written exam lasts three hours (four in the case of Advanced Language II [<i>approfondissement</i>]).</p> <p>All texts, instructions and questions in target language. All answers in target language. No dictionaries.</p> <p>The Language II written exam is based on a literary passage giving rise to:</p>	<p>Although the study of languages in addition to German is compulsory for the Abitur, these other languages do not necessarily have to be examined. Of the four subjects in which students are examined, three will be examined on paper and one examined orally. This means that, unlike the EB and the IBD, candidates have some choice as to whether (and how) they will be examined in a second language, so those who sit this exam are those who have chosen to do so, rather than having to do so in order to qualify for a diploma, although to a lesser extent than at A level.</p> <p>There are 16 different regions, each of which sets a different exam each year.</p> <p>Assessment is by means of a terminal exam at either</p> <ul style="list-style-type: none"> ▪ Leistungskurs (Higher or Advanced) or ▪ Grundkurs (Basic or Standard) level. <p>The <i>Leistungskurs</i> is typically followed for 5 periods per week, and the <i>Grundkurs</i> for 3.</p> <p>Written paper</p> <p>There are separate papers set for each level, but both levels follow the same three-task format :</p> <ol style="list-style-type: none"> 1 Comprehension and Analysis of Text 2 Personal commentary (essay) 3 Unseen translation passage (French into German) <p>Task 1 : Comprehension and analysis of text</p>

	<ul style="list-style-type: none"> ▪ three comprehension questions – 20 marks ▪ two interpretation questions – 40 marks ▪ an essay question - a choice of two, only one of which is chosen by the candidate. In the paper provided for comparison, one essay consisted of inviting candidates to write a newspaper article describing the event related in the literary text. The other choice consisted of a topic of a general literary nature in which candidates were invited to give examples from the set texts which they had studied and from personal reading – 40 marks. <p>The ‘corrigé’ (suggested correct or model answer) provides markers with outlines of the elements to be expected and rewarded in Comprehension and Interpretation exercises, but no indication of how the marks are to be awarded. There is an assessment grid indicating the criteria for marks to be awarded in the Essay.</p> <p>The Advanced Language II (<i>approfondissement</i>) paper is based on a literary passage giving rise to:</p> <ul style="list-style-type: none"> ▪ Five questions of an analytical nature on the text – 5 x 10 = 50 marks ▪ A literary essay based on the set texts studied and on personal reading (choice of two subjects of which the candidate chooses only one) - 50 marks <p>The ‘corrigé’ provides markers with outlines of the elements to be expected and rewarded in the question on the text, but no indication of how the marks are to be awarded.</p> <p>A very general indication of elements to be expected and rewarded in the Essay is also provided. 15 marks are available for giving precise examples from text studied or personal reading, 10 marks for putting forward a reasoned argument based on the subject, 20 marks for constructing a well developed, structured essay, and 5 marks for expression (language, spelling</p>	<p>270 minutes for the <i>Leistungkurs</i> and 210 minutes for the <i>Grundkurs</i></p> <p>A substantial passage to be read - length of approx 750 words for the <i>Leistungkurs</i>; 550 for the <i>Grundkurs</i>.</p> <p>For the <i>Leistungkurs</i>, the text is from a modern literary source (but there are no prescribed literary texts for study) For the <i>Grundkurs</i>, the text is from a contemporary non-literary source (newspaper article, reportage etc)</p> <p>There are three questions testing comprehension of the text and ability to explain/analyse content. The third of the questions on one of the <i>Leistungkurs</i> papers studied asks for a discussion of ‘<i>deux moyens linguistiques</i>’ identified by the candidate from the text.</p> <p>10 marks are available for the <u>content</u> of the answers– see below under Task 2 for quality of language.</p> <p><i>[In the papers studied from another region, the three-task format was the same, but:</i></p> <ul style="list-style-type: none"> ▪ <i>there are two texts at both levels, one from a modern literary source and one from a journalistic/reportage source (presumably a choice between them, although there was nothing to indicate this on the paper)</i> ▪ <i>the texts are significantly longer at both levels</i> ▪ <i>100 marks are available for the <u>content</u> of the answers at <i>Leistungkurs</i> level, and 80 at <i>Grundkurs</i> level.</i> ▪ <i>there is no indication of the length of the answers required</i> ▪ <i>there is no indication of how the marks for Task 1 are allocated (assuming they are) between content and quality of language.]</i> <p>Task 2 : Personal commentary</p> <p>An essay on one of two topics of a discursive nature (choice of one of three at <i>Grundkurs</i> level)</p> <p>10 marks are available for <u>content</u></p>
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	<p>etc.).</p> <p>There is no separate Listening Comprehension test.</p>	<p>20 marks are available for correctness of language in tasks 1 and 2</p> <p>10 marks are available for quality of expression in tasks 1 and 2</p> <p>Candidates are required to produce a minimum of 500 words of French in response to Tasks 1 and 2 combined for the <i>Leistungkurs</i> and a minimum of 400 words in French for the <i>Grundkurs</i>.</p> <p><i>[In the papers studied from another region :</i></p> <ul style="list-style-type: none"> ▪ <i>there is a choice of four titles for the personal commentary (essay) at Leistungkurs level, and three titles at Grundkurs level.</i> ▪ <i>the essay is marked out of 50 at Leistungkurs level and 40 at Grundkurs level.</i> ▪ <i>the required length is 250-300 words at Leistungkurs level</i> ▪ <i>the required length is 150-200 words at Grundkurs level</i> ▪ <i>there is no indication of how the marks for Task 2 are allocated (assuming they are) between content and quality of language.</i> <p><u>Task 3 : Unseen translation</u></p> <p><u>Unseen translation at Leistungkurs level : 20 marks</u> The passage to be translated is from a literary source, containing 140-150 words.</p> <p><u>Unseen translation at Grundkurs level : 10 marks</u> The passage is from a journalistic/reportage source, containing 140-150 words.</p> <p><i>[In the papers studied from another region :</i></p> <ul style="list-style-type: none"> ▪ <i>the translation passages are somewhat longer</i> ▪ <i>they are marked out of 50 at Leistungkurs level, and 40 at Grundkurs level.]</i> <p>Apparently, there is currently a move from literal translation to summary/gist translation. Sadly, no mark schemes were available for scrutiny.</p> <p><u>General</u></p> <p>Dictionaries (both mono- and bi-lingual) are allowed throughout the written paper.</p>
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		<p>Instructions for individual questions are given in French. General instructions for the paper are given in German.</p> <p>There is no mention in the available material of any Listening test.</p> <p><u>None of the following information (if it exists) was available from the material available:</u></p> <ul style="list-style-type: none"> ▪ List of topic areas from which material to be examined will be drawn. ▪ List of grammatical structures which candidates may be expected to recognise or use. ▪ Mark schemes ▪ Grade Boundaries (although the maximum grade is 15 'Notenpunkte' and the minimum is 0.) 13-15 is classified as very good 10-12 is good 7-9 is satisfactory etc ▪ Assessment Objectives ▪ Assessment Criteria: none were available for scrutiny, but there is apparently a recent move towards using grade descriptors rather than the 'one mark off per mistake' principle which has been in use in the past. <p>All exams are marked by the teacher, with mistakes being indicated but no marks being written on the script. The scripts are then distributed anonymously to different schools, where the teachers re-mark them. (In some regions, the scripts are not sent to another school for anonymous re-marking, simply re-marked by another teacher in the same school.) A grade is then calculated on the basis of the two marks awarded. If there is a discrepancy or more than three 'Notenpunkte' a third marker re-re-marks and awards the grade on his/her own judgement.</p>
	<p>None in the conventional sense of items submitted specifically as 'coursework', although the Preliminary Mark reflects the standard of work produced throughout the course.</p>	<p>None in the conventional sense of items submitted specifically as 'coursework', but the marks obtained during the preceding two years of the course also contribute to the final grade.</p>

<p>Oral examination</p>	<p><u>24% mark from Oral Examinations</u>, based on Year 7 syllabus, but also testing knowledge gained in previous years (particularly Year 6).</p> <p>Examination lasts 20 minutes (following 20 minutes' preparation time, during which notes may be made). Topics determined by drawing lots. Examination conducted by two examiners: the candidate's teacher and an external examiner. Marks awarded by each examiner on a scale of 0-10, including half-marks: the final mark is the arithmetical average of the marks awarded by the two examiners (teacher and external).</p>	<p><u>Oral test 20 marks (20 minutes as part of the Written Paper)</u> Introduced two years ago.</p> <p>20 marks available</p> <p>Involves a range of topics on contemporary themes. The stimulus paper studied involved :</p> <ul style="list-style-type: none"> ▪ <i>Le culte du corps</i> ▪ <i>La santé</i> ▪ <i>Lutte contre le tabac</i> ▪ <i>La famille</i> ▪ <i>Intégration – discrimination</i> ▪ <i>L'ordinateur et les nouvelles technologies</i> ▪ <i>Activités culturelles</i> ▪ <i>Les médias</i> ▪ <i>Le tiers monde</i> <p>These take the form of a dialogue/exchange between two students who conduct the oral between themselves with the teacher simply acting observer/assessor (even if this is not indicated on the paper). (No indication of what happens if you have an odd number of candidates!)</p> <p>The dialogue is usually prompted by a visual stimulus (cartoon, poster, or a painting in the case of the <i>Activités culturelles</i> topic) which the candidates have to describe and comment on.</p> <p>There is then a related question/task of a more general nature to be discussed orally with the partner: in the case of <i>La Lutte contre le tabac</i>, for example, the task is <i>Dans beaucoup de pays européens, il est interdit de fumer dans les lieux publics. Donnez votre avis et menez un débat sur la campagne anti-tabac.</i></p> <p>The emphasis is the student's ability to initiate and sustain a conversation, express agreement, disagreement, ask and answer questions.</p> <p>It is graded on criteria such as: fluency, content, correctness of language, interaction. (Specific details not available)</p> <p>There is no preparation time.</p>
<p>Synoptic assessment</p>	<p>None specified, other than saying that the terminal examination at the end of Year 7</p>	<p>None specified</p>

	will draw on / test knowledge gained in previous years (particularly Year 6). The essay questions in the terminal Written Examination invite candidates to draw on their knowledge of other set texts from the course and on other personal reading.	
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Content included in Abitur (comparator syllabus) but not in EB syllabus

Please list any topics that are included in the IBD specification but not in the EB syllabus.

- 1 The topics of the texts to which students are asked to respond cover a wide range of issues of general interest from contemporary French society and culture. This is in marked contrast to the EB programme, where the source material is largely of a literary nature, requiring for the most part 'literary' responses.
- 2 At least one of the texts in the *Leistungskurs* level is from a modern literary source, but there is also a wide range of stimuli and an emphasis on a variety of authentic and up-to-date sources of non-literary material and language – notably, contemporary newspaper and magazine articles, cartoons, posters, famous paintings etc. which is absent from the EB.
- 3 There is a general emphasis on language acquisition, 'message' and communication.
- 4 There is a translation exercise.
- 5 A significant shift of emphasis in the oral exam away from an interview between student and teacher towards a discussion between two candidates.

1.9.1 Doc 1.7

Report on the comparative study of the EB curriculum and the Abitur *Leistungskurs* and *Grundkurs*

There are a number of factors which complicate the comparison:

- The fact that there are 16 different German regions each of which sets its own Abitur papers each year. Although the overall structure is similar, there are differences.
- Because of the lack of background information on the particular sets of papers provided (no instructions page indicating length of paper, number of questions to be answered, whether dictionaries are allowed etc, or any mention of an oral) 2007 and 2008 papers from another region were chosen as the major focus of the study. Where variations contained in the papers provided are relevant, these have been added in a *different italicised font* in the mapping template.
- The lack of availability of mark schemes, marked scripts, assessment criteria, scripts, grade descriptors or grade boundaries from the Abitur.
- The use of dictionaries is permitted in the Abitur but not in the EB.

As noted at the time of the comparison of the EB French Language II syllabus with the IB Diploma and OCR A Level, the EB syllabus is a very traditional one in the classic francophone mould. It is heavily literary in emphasis, to the extent that all the assessment tasks in the papers studied are based in some way on literary texts. The tasks stress the importance of the analysis of literary material and the production of formal, reasoned, structured argument in the French tradition.

As such, the EB syllabus is very different in content and emphasis from the Abitur as well as from both the IB Diploma French B Higher Level course and the OCR A level, which are clearly language courses designed to promote first and foremost language acquisition and communicative skills. Even if the Abitur takes at least one literary text as the core of its assessment at *Leistungskurs* level, and may do so in one of the two *Grundkurs* papers studied, literary analysis and responses are not the prime purpose of the course.

In this sense, the EB course aims to do very different things from the other three (which share a good deal of common ground), which makes any comparative evaluation open to the criticism of not comparing like with like. The emphases of the EB course are so different that there is no merit in speculating as to how the IB, A level or Abitur candidates would have fared on it, or of how the EB students would have fared on a course much more obviously orientated towards language acquisition.

The EB programme is also very different from the other three in the narrowness of its range of topics, its source materials and stimuli.

Sadly, there were no Abitur scripts available for detailed comparison, but the levels of linguistic competence required to deal with the four courses (EB, IBD, A level and Abitur) would appear to be broadly similar on the different courses – even if they are writing in response to very different stimuli, on very different subjects and, it would appear, with very different objectives in mind. The courses are all demanding in their own ways – the problem being that the EB ‘way’ would appear to be a product of a very significantly different – (some might say anachronistic) - francophone tradition, culture and era, as opposed to the Abitur, IBD or A level which have (collectively, in spite of differences of emphasis between the three) developed in another ‘way’.

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October 2008

Maths

1.9.2 Doc 1.1

Maths Comparative Study of the European Baccalaureate with OCR GCE A Level and the International Baccalaureate

EVALUATION OF THE EUROPEAN BACCALAUREATE

It has not been possible to answer some of the requirements outlined in the commission brief, despite extensive web research; I am unable to comment on amount of curriculum time allocated for the EB and GCE. Neither the EB nor the IB list key concepts, the syllabus is a list of topics to be studied which I have placed into tables to allow for comparison.

The three courses vary quite dramatically. Each course places a different emphasis on the Mathematics to be studied, so to do a direct comparison is not realistic. Each course assesses students to a high level of difficulty in my opinion, dependent on the focus. For the EB, the emphasis is Functions, for the IB, a focus is Trigonometry, for the GCE the emphasis is on algebra and then which ever option units the students decide to follow.

I only had access to EB and GCE papers. The differing styles of exam papers meant that I could not find a suitable question to do a favourable comparison on. I rejected option papers on Mechanics and Discrete maths at GCE and then was limited to C3 and C4 as the only core papers, which could be compared against the EB- since the EB assesses on the year 7 work, not so much the year 6 work and C3 and C4 are A2 modules i.e. year 7. I did not find similar questions to compare. The Statistics option at A2, showed comparable levels of difficulty to the EB statistics question, but there were only two questions on the EB paper to look at, one short and one optional. On the GCE there were over 10 questions per module. This presupposes that students will study this option at A2 and with so much choice; this is not necessarily going to occur. The GCE tends to ask short-response questions and the EB longer response questions, so again comparison is not easy and not objective.

In conclusion, each course makes different demands of the students. Only the calculus section of the course really allows me to compare the Boards in terms of the Programme of Study, and in this one area, they do work to a similar level of difficulty, albeit with a different emphasis placed on the requirements of the Programme of Study.

EB AND IB COMPARISONS

The recommended teaching time for the European Baccalaureate and International Baccalaureate is approximately 240 hours. The IB syllabus is specific on the overall allocated teaching time required whereas the EB specifies weekly teaching time only. Making the assumption that the academic year is 38 weeks of teaching time in Year 12 and about 28 in Year 13, actual timings are very similar. The IB syllabus is specific as to breakdown of time allocated to each aspect of the syllabus, for the core syllabus and the options syllabus. The EB makes no recommendations at all for time allocation to any aspect of the core syllabus.

The aims of the course are similar, the EB aims to link the course to a European context and the IB aims to link to an International context. The EB general aims are set in a wider context, as a general statement, whereas the IB delivers more specific aims for the course, as a series of bullet points. The objectives of the two courses are again similar, but the actual presentation of the aims is more specific for the EB than the IB. The IB lists objectives as a series of bullet points The EB breaks the aims down into categories and the lists the aims as bullet points within the categories:

- Analysis of problems
- Manipulation, argument and reasoning
- Communication
- Generalisation, structuring and synthesising

The format of the syllabus is different for the two qualifications. The EB syllabus is set out as a series of topics to be studied within the categories **algebra, complex numbers, analysis, geometry, probability and numerical analysis of data**. It is a series of basic statements which are qualified later on in the syllabus. The IB however lists the topics in the Core syllabus, to be studied in more detail giving examples of what is required, under fewer headings, choosing to use **number and algebra, geometry and statistics**. The IB makes specific reference to presumed knowledge and indicates this by using the acronym PK within the programme of study and makes reference to the need for teachers to include topics listed as PK in the course at an early stage. The IB then takes into account the fact that qualifications sat prior to the diploma, do vary in terms of content, from one country to another. The EB does not appear to take this into account; there is no reference to presumed knowledge and/or variations in course content prior to study of the EB, within European countries.

An intriguing difference between the two diplomas, when it comes to outlining the Programme of Study, is that the EB refers to the written examination from the start and then lists the content of the Programme of study against the exam. The assessment takes priority in the documentation, whereas the IB lists Assessment procedures, after the Programme of Study. The content of the written exams in the EB syllabus builds on the initial statements of the core syllabus made earlier, with particular reference to topics and includes the first indicator of degree of difficulty.

Core Content

The actual content of the core syllabus is treated differently by each Board. The EB syllabus is a listing of a series of topics, with only the occasional clarification in a column entitled 'Remarks' Year 7 has more comments giving guidance on the teaching of the topic than year 6, where the teacher is left to decide the level of difficulty to teach to. The IB syllabus lists content, amplifications/inclusions- a column highlighting requirements, clarifying what needs to be taught. An additional column lists 'exclusions' making clear what is not required to be taught.

TOPIC	EB CONTENT	IB CONTENT
COMPLEX NUMBERS	<ul style="list-style-type: none"> • Introduction to complex numbers • Real and imaginary parts of complex numbers • Complex conjugates • Operations on complex numbers • Reciprocal of non-zero complex number • Square roots of a complex number • Solution of quadratics with complex coefficients • Geometric representation of a complex number • Trigonometric form • Modulus of a complex number, of a product and of a quotient • Argument of a non-zero complex number, of a product, of a quotient • Powers, nth roots 	<ul style="list-style-type: none"> • Introduction to complex numbers • Conjugate, modulus and argument • Cartesian form $z = a + ib$ • Modulus – argument form $z = r(\cos \theta + i \sin \theta)$ • The complex plane- Argand diagrams • Sum, products and quotients of complex numbers • De Moivre's theorem • Powers and roots

	<ul style="list-style-type: none"> • De Moivre's theorem 	
<p>ANALYSIS</p> <p>Real functions of a real variable</p> <p>Continuity and limits</p>	<ul style="list-style-type: none"> • Definition of a real function • Domain of a function • Zeros of a function, sign of a function • Even and odd functions • Periodic functions • Composition of two functions • Inverse of a bijection • Increasing and decreasing functions, constant, monotonic, over an interval. Local and global extrema • Graph of a function • Year 7 • Apply the above to absolute value, polynomials, rational functions and those involving square roots • Circular functions • Natural logarithm functions • Exponential function with base e • Functions obtained by addition, multiplication, division or composition • Notion of continuity of a function at a point • Continuity of a function from the right • Continuity of a function over an open interval • Statement without proof of theorems concerning continuity – of the absolute value of a continuous function • Of the product of a continuous function with a real number • Of the sum, product, quotient, composition of two continuous functions • Continuity over \forall of polynomial functions • Continuity of rational functions over their domain • Limits • Notion of a limit of a function at a point • Removable continuity • Right hand limit of a function at a point • Extension of the notion of limit, infinite limit, limit as the variable tends to $+\infty$ and $-\infty$ • Statement without proof of theorems concerning limits 	<ul style="list-style-type: none"> • Concept of a function, domain, range, image • Composite functions; identity function • Inverse function • Graph of a function • Function graphing skills- use of a GDC to graph • Identification of asymptotes; transformations of graphs; translations; stretches; reflections in the axes • Graph of the absolute value function • Reciprocal function, graph and self-inverse nature • Quadratic function; axis of symmetry • Use of quadratic formula • Use of discriminant $\Delta = b^2 - 4ac$ • Function $n \mapsto a^n$ • inverse function $\mapsto \log x$ (base a) • exponential function • logarithmic function • inequalities in one variable, using their graphical representation • solution of $g(x) \geq f(x)$ where f, g are linear or quadratic • use of absolute values in inequalities • 26 hours recommended teaching time

	<ul style="list-style-type: none"> • Of the absolute value of a function • Of the product of a function with a real number • Of the sum, product, quotient, composition of two functions • Indeterminant forms • No guidance given for time allocation 	
DIFFERENTIATION	<ul style="list-style-type: none"> • Value of derivative of a function at a given point • Geometrical interpretation • Equation of the tangent at a point on the graph of a function • Derivative of a function • Successive derivatives • Derivative of a product of a differentiable function with a real number • Derivative of the sum, product, quotient and composition of two differentiable functions • L'hospitals rule • application of the notions of limits and derivatives to the analysis of a function 	<ul style="list-style-type: none"> • informal ideas of limits and convergence • definition of derivative • specific derivatives such as $\sin x$ • derivative interpreted as a gradient function and as rate of change • derivative of reciprocal circular functions a to power of x and $\log x$ • derivatives of arcsine x, arcos x, arc tan x • differentiation of a sum and a real multiple of above functions • chain rule for composite functions • application of chain rule • product and quotient rules • second derivative • awareness of higher derivatives • local maxim and minima • use in optimization problems • approx 24 hours teaching time
STUDY OF REAL FUNCTIONS OF A REAL VARIABLE	<ul style="list-style-type: none"> • Increase and decrease of a function • Asymptotes on the graph of a function • Concave/convex nature of the graph of a function, points of inflection; tangents at such points • Applications of these ideas to the study of polynomial, rational, circular functions 	
INTEGRATION	<ul style="list-style-type: none"> • Year 7 • Integral of a function defined on a closed and bounded interval • Graphical interpretations of such integrals as area • Properties of integrals • Mean value of a function on an interval • Indefinite integrals of a function continuous over an interval • Evaluation of integrals by the following methods: • Integration by inspection • Integration by parts 	<ul style="list-style-type: none"> • Indefinite integration as inverse of differentiation • Anti-differentiation with a boundary condition to determine the constant term • Definite integrals • Area between a curve and the x axis or y-axis in a given interval areas between curves • Volumes of revolution • Kinematic problems involving displacement, velocity, acceleration • Graphical behaviour of functions, tangents and normals behaviour for large x • Significance of the second derivative, distinction between maximum and

	<ul style="list-style-type: none"> • Integration by substitution • Applications of these methods to the functions studied previously • Application of the theory of integration to finding plane areas and volumes of revolutions generated by rotation around the x axis • First order differential equations with variables leading to the form $y' \cdot f(x) = g(x)$ 	<ul style="list-style-type: none"> • minimum points • Points of inflexion with zero and non-zero gradients • Implicit differentiation; further integration by substitution • Integration by parts • Solution of first order differential equations by separation of variables
<p>GEOMETRY IN 3-D</p> <p>Vectors in 3-D spaced</p>	<ul style="list-style-type: none"> • Points, lines, planes, spheres • Vectors in 3-D definition • Sum and product of vectors • Vector equation of line • Linear combination of two vectors • Vector equation of a plane • Scalar product of two vectors • Magnitude of a vector, distance between two points • Orthogonal vectors • Orthogonal, normalised, orthonormal basis • Application of these concepts to problems in analytical geometry • Year 7 • Collinear vectors, vector equation of line • Coplanar vectors, vector equation of plane • Scalar product of two vectors in 3-D • Vector product of two vectors • Triple scalar product • Application in the calculation of areas of common plane figures: triangle, trapezium and parallelogram • In the calculation of volumes of common solids: prism, parallelepiped, cylinder, pyramid 	<ul style="list-style-type: none"> • Vectors as displacements • Sum and difference of two vectors • Multiplication by a scalar • Magnitude of a vector • Position vectors • Scalar product • Perpendicular vectors • Parallel vectors • Vector equation of a line $r = a + \lambda b$ • Then angle between two lines • Coincident, parallel, intersecting and skew lines • Points of intersection • Vector product of two vectors • Determinant representation • Geometric interpretation of $v \times w$ • Vector equation of a plane $r = a + \lambda b + \mu c$ • Intersection of a line with a plane, two planes, three planes • Angle between a line and a plane; two planes • Approx 24 hours teaching time
Analytical geometry of the point, plane and line	<ul style="list-style-type: none"> • Parametric and Cartesian equations of a plane • Parametric and Cartesian equation of a line • Year 7 • Relative position of two planes of a line and a plane, of two lines • Orthogonal projection of a point onto a plane, distance between a point and a plane • Distance between two parallel planes orthogonal projection 	

	<ul style="list-style-type: none"> of a point on a line Distance of a point from a line Distance between two lines Angle between two vectors in 3-D Angle between two lines Angle between two planes Angle between a line and a plane 	
Analytical geometry of a sphere	<ul style="list-style-type: none"> Cartesian equation of a sphere Relative positions of a point and a sphere, of a plane and a sphere, of a line and a sphere Volume and surface area of the sphere 	
PROBABILITY	<ul style="list-style-type: none"> Events, simple events Certainty and impossibility Negation of an event Mutually exclusive events Relation between probability and relative frequency Permutations and combinations Probability defined on a finite possibility space Probability distribution Conditional probability $P(A \cap B) = P(A) \times P(B A)$ $P(A \cap B) = P(B) \times P(A B)$ Bayes theorem Sample space Probability function of discrete random variable Cumulative distribution of discrete random variable Expected value, variance and standard deviation of discrete random variable Binomial variates Bernoulli trials Expected value, variance and standard deviation of a binomial variate Poisson Distribution Expected value, variance and standard deviation of a Poisson variate Poisson distribution as an approximation to the binomial distribution for $n > 50$ and $p < 0.1$ Continuous random variables Probability density function Cumulative distribution of a continuous random variable Normal or Gaussian Distribution 	<ul style="list-style-type: none"> Concepts of population, sample, random sample, and frequency distribution and continuous data Presentation of data, frequency tables and diagrams, box and whisker plots Grouped data, mid-interval values, interval width, upper and lower interval boundaries Frequency histograms Trial, outcome, equally likely outcomes Probability of an event Complementary events $P(A \cup B) = P(A) + P(B) - P(A \cap B)$ Conditional probability Use of Bayes theorem Use of Venn diagrams, tree diagrams and tables of outcomes to solve problems Concept of discrete and continuous random variables Probability density functions Expected value, mean, median and mode, variance and standard deviation Binomial distribution, mean and variance Poisson distribution, mean and variance Normal distribution Properties of normal distribution Standardization of normal variables Approx 40 hours teaching time

	<ul style="list-style-type: none"> • Expected value, variance and standard deviation of a Normal distribution • Normal curve and cumulative Normal curve • Standardised Normal distribution , use of tables • Normal approximation to the binomial distribution given $npq > 9$ 	
ALGEBRA		<ul style="list-style-type: none"> • Arithmetic sequences and series, sum of finite arithmetic series • Geometric sequences and series, sum of finite and infinite geometric series • Sigma notation • Exponents and logarithms • Laws of exponents, laws of logarithms • Change of base • Binomial expansion, expansion of $(a+b)^n$, <p>• Approx 20 hours teaching time</p>
CIRCULAR FUNCTIONS AND TRIGONOMETRY		<ul style="list-style-type: none"> • Circles; radians, length of an arc, area of a sector • Definition of $\cos \theta$ and $\sin \theta$, definition of $\tan \theta$ • Definition of $\sec \theta$, $\csc \theta$, $\cot \theta$ • Pythagorean identities • Compound angle identities • Double angle identities • Circular functions $\sin x$, $\cos x$ and $\tan x$, domain and ranges, periodic nature, their graphs • Composite functions of the form $f(x) = a \sin(b(x+c)) + d$ • Inverse functions $x \mapsto \arcsin x$ and $\arccos x$ and $\arctan x$, their domains and ranges, their graphs • Solution of trigonometric equations in a finite interval • Use of trigonometric identities and factorisation equations • Solution of triangles • Cosine rule • Sine rule area of triangle as $\frac{1}{2}ab \sin C$ <p>• Approx 22 hours teaching time</p>
MATRICES		<ul style="list-style-type: none"> • Definition of a matrix, terms element, row, column and order • Algebra of matrices, equality , addition, subtraction, multiplication by a scalar, multiplication of matrices • Identity and zero matrices • Determinant of square matrix • Inverse of matrix • Solution of system, of linear equations max 3 equation

		<ul style="list-style-type: none"> • Condition for existence of a unique solution, no solution and an infinity of solutions • Approx 12 hours teaching time
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The table above lists the core content for each Programme of Study (PoS). It does not include the option syllabus for IB which requires another 40 hours of teaching time. If the Statistics option is selected, there is further overlap between the two programmes of study, but overall, the Stats option includes additional topics not listed above.

COMPARISONS OF THE TWO PROGRAMMES OF STUDY

Working through the topics as listed against the EB PoS

- Complex numbers - both take the topic to a similar level of difficulty, interestingly the EB makes mention of trigonometric form, but nowhere else in the diploma, is trigonometry mentioned as a topic for study. The IB allows approximately 22 hours of study allocated to the teaching of trigonometry including trigonometry within the complex number topic.
- Functions- the EB gives a greater focus to the teaching of Functions. This may reflect the greater emphasis on the teaching of functions up to the age of 16 in some European Countries. The EB places greater emphasis on the algebraic form of functions whereas the IB focuses on the graphical solutions of functions, with a big emphasis on the use of technology. Questions are frequently set which require the use of Graphical Display Calculators (GDC). It is extremely difficult to follow the SL Diploma at IB, without owning and understanding how to use a GDC. The EB does not mention use of GDC.
- Differentiation and Integration are treated similarly as topics, with a similar level of difficulty. The IB places a greater emphasis on the use of Calculus to solve practical problems, the EB tends to stay with a more abstract emphasis to the PoS
- Vectors- the EB places a greater emphasis on the teaching of Vectors, the level of difficulty required is greater than the IB
- The geometry of a sphere is studied as a separate subject in the EB PoS, it is not mentioned in the IB PoS
- Probability and Statistics-, the EB places a greater focus on these topics when compared to the IB, unless the optional unit studied at IB, is in fact the Statistics option. Within the topic, the IB places a greater emphasis on probability, the EB looks at more statistical techniques and to a greater degree of difficulty, unless again the option studied at IB is Statistics, in which case, the IB PoS takes students to a more advanced level of statistics.
- Algebra- the EB makes no mention of algebraic topics involving sequences and series. It makes no mention of logarithms and use of different bases and the binomial expansion. The IB allows 20 hours of teaching time for these topics.
- Circular functions and trigonometry-the EB makes only one reference to trigonometry as part of the programme for the teaching of complex numbers. The IB allows for 22 hours of teaching time on trigonometry and the circular functions
- Matrices- this topic is only covered by the IB, there is no mention of the topic on the EB syllabus. Only 12 hours is allocated to the teaching of this topic.

To summarise, in general, where there are common elements to the PoS, the topics are studied to a similar degree of difficulty. The EB would appear to be a more 'skills' focused syllabus; it requires knowledge of fewer areas of maths. The year 7 syllabus is the main focus of the final exam with only some of the year 6 work assessed. The IB PoS would appear to assess a greater knowledge of different aspects of Maths and not only does it test skills, it also tests for understanding with proof being mentioned as an explicit part of the core syllabus. The balance on the IB PoS is better across the main strands, Number, Algebra, Geometry and Probability/Statistics. The EB does not focus on the teaching of advanced number topics as such, with the emphasis on the teaching of abstract concepts, whereas the IB includes the teaching of advanced number work in a real context. The coverage of Geometry is also limited to vectors

and the geometry of a sphere, whereas the IB includes a substantial module on geometry which includes trigonometry.

It would be a reasonable assumption, based on timings and the PoS plus the option unit, that the IB is a more intense course to teach in the time available to teachers, requiring a focused approach to teaching and learning. The EB PoS without a formal recommendation as to teaching time to be allocated would appear to give the teachers more flexibility to plan their own timetable, to teach the course. It may allow the teachers to move at a slower pace than the IB syllabus.

ASSESSMENT

EB - Written Exams

For the European Baccalaureate, students will take a written examination (4 hours) consisting of four short compulsory questions(50 marks in total) two questions on analysis, one on geometry and one on probability. Then two optional long questions, from a choice of three questions- one on analysis, one on geometry and one on probability. Questions will be based mainly on the year 7 syllabus, but may require knowledge of material studied in year 6. Marking takes into account method and interestingly presentation. A formula booklet is provided to support in the exams. Exams will take 3 or 4 hours

Total marks available 36 out of 100

Class work

A marks

Class marks are also given in the 7th year (no mention of 6th year) it will be given as an average of two marks given as Teacher Assessment. This is a summative assessment and could be based on oral participation, written class work and or practical work. The assessment is done on work in class.

Total marks available 15 out of 40 marks

B marks

Class examinations, at the end of the first semester, if studying advanced maths, there will be a class examination at the end of each semester and an arithmetical average of all scores will give the B mark
Total marks available 25 out of 40 marks

Total marks available (A +B) 40 marks out of 100

Some of the paperwork suggests that an Oral exam is included, but the syllabus suggests for the European Baccalaureate that only written exams are used to assess.

This is included for information only

Oral Examination

Advanced maths requires an oral examination. These last 20 minutes and students are required to draw by lot an envelope containing a number. They will then get a question corresponding to that number. Students may reject the first question picked, but will automatically lose 20 % of the marks awarded for the second question chosen. Some preparation time is given and notes may be taken. The student then has to set out his/her ideas on how to solve the problem. If the student is incapable of taking the initiative the examiner may ask questions to start/form a dialogue. Two examiners are used, one is the class teacher and the average score from the two examiners determines the final mark. Examiners mark out of 10 as a raw score.

Total marks available 24 marks out of 100

Marking is done by two examiners. The class teacher marks first then an external examiner marks the paper. If there is a difference of more than 3 marks, a third examiner is called in to mark.

Criteria for success

A final mark of 60% or more will indicate a pass

Students scoring at least 57% and less than 60 % will have their results reviewed and if they have achieved 6/10 in three of the five written exams may be awarded a pass.

Students scoring 59 to 59.99% must have obtained a satisfactory result in two of the five exams to be awarded a pass.

IB

External assessment

5 hours

Written papers

Students are assessed on the two year course, as opposed to the EB which focuses predominantly on the year 7 course, although this does build on the year 6 course in most areas.

Paper 1

No calculator allowed. 2 hours allocated to the exam and 30 % of the marks awarded. An information booklet is provided

Section A - compulsory short-response questions based on compulsory core syllabus

Section B - compulsory extended–response questions based on core syllabus

Paper 2

Calculator required. 2 hours allocated to the exam and 30% of marks awarded

Section A – compulsory short-response questions based on core syllabus

Section B – compulsory extended –response questions based on the compulsory core syllabus

Paper 3

Calculator required, 1 hour allocated and 20 % of the marks awarded.

Extended –response questions based mainly on the syllabus option

Internal Assessment

This accounts for the final 20% and is a collection of two pieces of work assigned by the teacher and completed by the students during the course. They do not have to be completed during the class work.

These may be completed in year 12 and /or year 13. They must be based on different areas of the syllabus and represent two types of task

- Mathematical investigation
- Mathematical modelling

Marking Procedures

Written papers are externally marked. Marks may be awarded for method, accuracy answers and reasoning, including interpretation. Presentation is not mentioned, unlike the EB.

The internal assessments are marked by the class teacher and then externally moderated by the IBO. The criteria are related to the mathematics objectives. The written work assessed must be original work, done independently. It is an ongoing process and discussion is allowed with the teacher to develop the piece of work. 10 hours of class time is allocated to the tasks being worked on as well as time spent independently

out of the class room. If the class teacher marks are altered by the external moderator, there is no feedback to schools as to the reasons why. If there is a difference in opinion on the marks allocated against the criteria, from a sample selection of scripts (usually one top, one middle, one bottom in terms of marks awarded by the teacher) the marks for the class will be scaled up or down by the moderator.

To summarise, the written exams take similar formats with short-response questions and extended-response questions in both exams. Choice is given in the EB exam, no choice in the IB exams. The IB has an additional formal exam on the optional section studied, the EB has summative assessment in year 7 based on class work. The EB can include an oral exam, which accounts for 24 of the final mark; the IB has extended pieces of work which account for 20 % of the final mark given. The class teacher has input in all aspects of assessment, for the EB. The teacher teaching the IB diploma, only has input with the extended pieces of work which are internally assessed. The EB teacher therefore, has a greater understanding of the assessment procedures and the criteria used to award marks, whereas the IB teacher does not see the marking of the written exams.

On this basis it is reasonable to suggest that the IB course is more rigorous, including two projects, which require extensive time working independently. The syllabus is longer/ more extensive for IB and with the additional independent projects, a challenge to work into the prescribed time allocation.

EB AND GCE COMPARISON

The EB diploma is a two year course, with formal assessment at the end of the two year course and class assessment at the end of each semester. The OCR GCE is divided into two sections, AS and A2. AS to be studied in the first year of the Programme of Study and the A2 to be studied in the second year. The GCE allows for a qualification to be gained at the end of the first year, unlike the EB which awards a qualification at the end of the second year only.

The EB has no optional elements, whereas the GCE allows for choice at AS and A2. Students have to study three modules at AS level, C1 and C2, the Core PoS, and then have the opportunity to study one of four options- Mechanics 1, Probability and Statistics 1, Decision Maths 1 or Further Pure Maths 1. Students have flexibility as to when they sit the exams for each module, external exams are timetabled for January and June, unlike the EB which is end of course exam only. Students may re-sit module exams to improve grades and there is no limit as to how many times students may re-sit. The best mark will be carried forward to the final grade.

To achieve the A level overall grade following the A2 course, students must sit 6 modules in total - 3 in year 12 and 3 in year 13, although they may continue to re-sit the modules studied in year 12 , in year 13 to improve grades. The OCR GCE course is different when compared to the EB and the IB in that the course, also addresses Key skills, skills recognised as useful in the World of Work. They are communication, application of number, information technology, working with others, improving own learning and performance and problem solving skills.

The GCE is an exam only course, there is an expectation that graphical or scientific calculators may be used in modules, with the exception of Core 1 where the use of calculators is prohibited, unlike the EB which makes no reference to calculators and also unlike the IB which strongly advocates the use of graphical calculators to problem solve. A formula booklet is made available to students, but there is an expectation that some formulae will need to be learned, prior to examination. There is no indication that the EB limits the formulae listed in the information booklet

COMPARISON OF THE PROGRAMMES OF STUDY

The course content for the GCE is set out against the EB PoS. C1, C2, C3 and C4 are compulsory elements. The topics covered have been included in table form against the EB PoS and the module is indicated. Optional elements M1, M2, S1, S2 , and D1 etc are indicated in blue.

TOPIC	EB CONTENT	GCE CONTENT
COMPLEX NUMBERS	<ul style="list-style-type: none"> Introduction to complex numbers Real and imaginary parts 	FP3 option work <ul style="list-style-type: none"> Introduction to complex numbers Real and imaginary parts of complex

	<ul style="list-style-type: none"> of complex numbers • Complex conjugates • Operations on complex numbers • Reciprocal of non-zero complex number • Square roots of a complex number • Solution of quadratics with complex coefficients • Geometric representation of a complex number • Trigonometric form • Modulus of a complex number, of a product and of a quotient • Argument of a non-zero complex number, of a product, of a quotient • Powers, nth roots • De Moivres theorem 	<ul style="list-style-type: none"> numbers • Complex conjugates • Operations on complex numbers • Argand diagram • Two square roots of complex numbers • Illustrate simple equations and inequalities involving complex numbers by means of loci in an Argand diagram <p>FP2</p> <ul style="list-style-type: none"> • Multiplication and division of two complex number expressed in polar form • Understand De Moivres theorem • Find and use nth roots of unity • Use expression for sine θ and Cos θ in expressing powers of sine θ and Cos θ in terms of multiple angles and summing series
ANALYSIS	<ul style="list-style-type: none"> • Definition of a real function • Domain of a function • Zeros of a function, sign of a function • Even and odd functions • Periodic functions • Composition of two functions • Inverse of a bijection • Increasing and decreasing functions, constant, monotonic, over an interval. Local and global extrema • Graph of a function <p>Year 7</p> <ul style="list-style-type: none"> • Apply the above to absolute value, polynomials, rational functions and those involving square roots • Circular functions • Natural logarithm functions • Exponential function with base e • Functions obtained by addition, multiplication, division or composition <ul style="list-style-type: none"> • Notion of continuity of a function at a point • Continuity of a function from the right • Continuity of a function over an open interval • Statement without proof of theorems concerning continuity – of the absolute value of a continuous function 	<p>C1</p> <ul style="list-style-type: none"> • Understand and use the relationship between the graphs of $y = f(x)$, $y = a f(x)$, $y = f(x) + a$, $y = f(x + a)$, $y = f(ax)$ express in terms of translations, reflections and stretches <p>C3</p> <ul style="list-style-type: none"> • Understand terms function, domain, 1 to 1 function, inverse function and composition of functions • Identify the range of a functions • Illustrate in graphical terms the relation between 1 to 1 functions and its inverse • Understand the meaning of x • Understand the relationship between the graphs of $y = f(x)$ and $y = f(x)$ • Use and recognise the compositions of transformations of graphs • Understand the properties of exponential and logarithmic functions and their graphs • Understand exponential growth and decay
Real functions of a real variable		
Continuity and limits		

	<ul style="list-style-type: none"> • Of the product of a continuous function with a real number • Of the sum, product, quotient, composition of two continuous functions • Continuity over \forall of polynomial functions • Continuity of rational functions over their domain <p>Limits</p> <ul style="list-style-type: none"> • Notion of a limit of a function at a point • Removable continuity • Right hand limit of a function at a point • Extension of the notion of limit, infinite limit, limit as the variable tends to $+\infty$ and $-\infty$ • Statement without proof of theorems concerning limits • Of the absolute value of a function • Of the product of a function with a real number • Of the sum, product, quotient, composition of two functions • Indeterminant forms <p>No guidance given for time allocation</p>	
DIFFERENTIATION	<ul style="list-style-type: none"> • Value of derivative of a function at a given point • Geometrical interpretation • Equation of the tangent at a point on the graph of a function • Derivative of a function • Successive derivatives • Derivative of a product of a differentiable function with a real number • Derivative of the sum, product, quotient and composition of two differentiable functions • L'hospitals rule • application of the notions of limits and derivatives to the analysis of a function 	<p>C1</p> <ul style="list-style-type: none"> • understand gradient of curve as the limit of the gradients of a sequence • understand the idea of a derived function and second order function, use appropriate notation • use derivative for x^n • apply differentiation to gradients, tangent and normals, rates of change, increasing and decreasing functions and location of stationary points <p>C3</p> <ul style="list-style-type: none"> • use derivatives of e^n and $\ln x$ • differentiate composite functions using the chain rule • differentiate products and quotients • apply differentiation to connected rates of change <p>C4</p> <ul style="list-style-type: none"> • use derivatives of $\sin x$, $\cos x$, $\tan x$ • find and use the first derivative of a function defined parametrically or implicitly • extend the idea of reverse differentiation • formulate a simple statement involving

		<ul style="list-style-type: none"> rate of change as a differential equation use and initial condition to find a particular solution of a differential equation interprets the solution of a differential equation in the context of a problem modelled by the equation
STUDY OF REAL FUNCTIONS OF A REAL VARIABLE	<ul style="list-style-type: none"> Increase and decrease of a function Asymptotes on the graph of a function Concave/convex nature of the graph of a function, points of inflection; tangents at such points Applications of these ideas to the study of polynomial, rational, circular functions 	<p>C2</p> <ul style="list-style-type: none"> Understand indefinite integration as the reverse process of differentiation Solve problems involving the evaluation of a constant of integration Evaluate definite integrals Use integration to find the area of a region bounded by a curve Use the trapezium rule to estimate the area under a curve <p>C3</p> <ul style="list-style-type: none"> Integrate e^n and $1/x$ with constant multiples, sums and differences Integrate expressions involving a linear substitution Use definite integration to find the volume of revolution
INTEGRATION	<p>Year 7</p> <ul style="list-style-type: none"> Integral of a function defined on a closed and bounded interval Graphical interpretations of such integrals as area Properties of integrals Mean value of a function on an interval Indefinite integrals of a function continuous over an interval Evaluation of integrals by the following methods: <ul style="list-style-type: none"> Integration by inspection Integration by parts Integration by substitution Applications of these methods to the functions studied previously Application of the theory of integration to finding plane areas and volumes of revolutions generated by rotation around the x axis First order differential equations with variables leading to the form $y'.f(x)=g(x)$ 	<p>C4</p> <ul style="list-style-type: none"> Integrate rational functions by means of decomposition into partial fractions Recognise an integrand of the form $\frac{k}{f(x)}$ <ul style="list-style-type: none"> $f(x)$ Recognise when an integrand can be usefully regarded as a product Use a given substitution to simplify and evaluate either a definite or indefinite integral Find by integration a general form, of a solution for a differential equation where the variables are separable
GEOMETRY IN 3-D Vectors in	<ul style="list-style-type: none"> Points, lines, planes, spheres Vectors in 3-D definition Sum and product of vectors Vector equation of line 	<p>C4</p> <ul style="list-style-type: none"> Use standard notation for vectors Carry out addition and subtraction of

3-D space	<ul style="list-style-type: none"> • Linear combination of two vectors • Vector equation of a plane • Scalar product of two vectors • Magnitude of a vector, distance between two points • Orthogonal vectors • Orthogonal, normalised, orthonormal basis • Application of these concepts to problems in analytical geometry <p>Year 7</p> <ul style="list-style-type: none"> • Collinear vectors, vector equation of line • Coplanar vectors, vector equation of plane • Scalar product of two vectors in 3-D • Vector product of two vectors • Triple scalar product • Application in the calculation of areas of common plane figures: triangle, trapezium and parallelogram • In the calculation of volumes of common solids: prism, parallelepiped, cylinder, pyramid • Parametric and Cartesian equations of a plane • Parametric and Cartesian equation of a line 	<ul style="list-style-type: none"> • vectors • Use unit vectors, position vectors and displacement vectors • Calculate the magnitude of a vector • Calculate the scalar product of two vector • Understand the significance of symbols used when the equation of a straight line expressed in the form $r = a + tb$ • Determine whether two lines are parallel, intersect or skew • Find the angle between two lines and the point of intersection if it exists
Analytical geometry of the point, plane and line	<p>Year 7</p> <ul style="list-style-type: none"> • Relative position of two planes of a line and a plane, of two lines • Orthogonal projection of a point onto a plane, distance between a point and a plane • Distance between two parallel planes orthogonal projection of a point on a line • Distance of a point from a line <p>Distance between two lines Angle between two vectors in 3-D Angle between two lines Angle between two planes Angle between a line and a plane</p>	
Analytical geometry of a sphere	<ul style="list-style-type: none"> • Cartesian equation of a sphere • Relative positions of a point and a sphere, of a plane and a sphere, of a line and a sphere • Volume and surface area of the sphere 	

<p>PROBABILITY</p>	<ul style="list-style-type: none"> • Events, simple events • Certainty and impossibility • Negation of an event • Mutually exclusive events • Relation between probability and relative frequency • Permutations and combinations • Probability defined on a finite possibility space • Probability distribution • Conditional probability • $P(A \cap B) = P(A) \times P(B A)$ • $P(A \cap B) = P(A) \times P(B)$ • Bayes theorem • Sample space • Probability function of discrete random variable • Cumulative distribution of discrete random variable • Expected value, variance and standard deviation of discrete random variable • Binomial variates • Bernoulli trials • Expected value, variance and standard deviation of a binomial variate • Poisson Distribution • Expected value, variance and standard deviation of a Poisson variate • Poisson distribution as an approximation to the binomial distribution for $n > 50$ and $p < 0.1$ • Continuous random variables • Probability density function • Cumulative distribution of a continuous random variable • Normal or Gaussian Distribution • Expected value, variance and standard deviation of a Normal distribution • Normal curve and cumulative Normal curve • Standardised Normal distribution , use of tables • Normal approximation to the binomial distribution given $npq > 9$ 	
<p>ALGEBRA</p>		<p>C1</p> <ul style="list-style-type: none"> • Understand and use the laws of indices • Recognise the equivalence of surd and index notation • Use simple properties of surds including rationalising the denominator • Carry out four operations on polynomials

		<ul style="list-style-type: none"> • Complete the square for a quadratic polynomial • Find the discriminant of a quadratic polynomial • Solve quadratic equations and linear and quadratic inequalities • Solve by substitution a pair of simultaneous equations – one linear, one quadratic • Recognise and solve equations in which x which are quadratic in some function of x • Find the length, gradient and mid point of a line segment • Find the equation of a straight line • Understand and use the relationships between the gradients of parallel and perpendicular lines • Interpret and use linear equations • Understand the equation $(x - a)^2 + (y - b)^2 = r^2$ represents a circle • Use algebraic methods to solve problems involving lines and circles • Understand the relationship between a graph and its associated equation, use points of intersection to solve equations • Sketch curves of form $y = kx^n$, $y = k\sqrt{x}$ quadratics and $y=f(x)$ where $f(x)$ is the product of at most 3 linear factors <p>C2</p> <ul style="list-style-type: none"> • Use the factor theorem and the remainder theorem • Carry out simple algebraic division • Sketch graph of $y=a^n$ • Understand the relationship between logs and indices • Use logs to solve equations of the form $a^n = b$ <p>C4</p> <ul style="list-style-type: none"> • Simplify rational expressions, including factorising and cancelling • Divide a polynomial of degree not exceeding 4 • Recall an appropriate for expressing rational functions in partial fractions • Use the expansion of $(1 + x)^n$ where n is rational and $x < 1$ • Use a pair of parametric equations to define a curve and use a given parametric representation of a curve in simple cases • Convert the equation of a curve between parametric and Cartesian forms
TRIGONOMETRY		<p>C2</p> <ul style="list-style-type: none"> • Use sine and cosine rules in the solution of triangles

		<ul style="list-style-type: none"> • Use the area formula $\Delta = \frac{1}{2}ab \sin C$ • Understand the definition of a radian and use the relationship between radians and degrees • Use the formula $s = r\theta$ and $A = \frac{1}{2}r^2\theta$ • For the arc length and sector area of a circle • Relate the periodicity and symmetries of the sine, cosine and tangent functions to the form of their graph use identities $\tan x = \frac{\sin x}{\cos x}$ and $\cos^2 x + \sin^2 x = 1$ • Use the exact values of the sine, cosine and tangent of $30^\circ, 45^\circ, 60^\circ$ • Find all three solutions of $\sin(kx) = c$, $\cos(kx) = c$, $\tan(kx)$ <p>C3</p> <ul style="list-style-type: none"> • Use the inverse trigonometric functions • Understand the relationship of the secant, cosecant and cotangent function to cosine, sine and tangent • Use trigonometric identities for the simplification and exact evaluation of expressions in the course of solving equations within a specified interval
SEQUENCES AND SERIES		<p>C2</p> <ul style="list-style-type: none"> • Understand the idea of a sequence of terms • Understand and use the Σ notation • Recognise arithmetic and geometric progressions • Use the formula for the nth term and for the sum of the first n terms to solve problems involving arithmetic or geometric progressions • Use the condition $r < 1$ for convergence of a geometric series • Use the expansion of $(a + b)^n$
NUMERICAL METHODS		<p>C3</p> <ul style="list-style-type: none"> • Locate approximate root of an equation • Understand and use the notation for a sequence of approximations which converge to a root of an equation • Use and understand simple iterative formula to solve equations • Carry out numerical integration of functions by means of Simpson's' rule

COMPARISONS ON THE TWO PROGRAMMES OF STUDY

The EB and the GCE both choose not to give suggested time allocations for teaching the course content, unlike the IB which indicates approximate hours to be spent on each section.

The above table includes the elements of the Core curriculum for GCE against the compulsory curriculum for the EB apart from an example showing the Further Pure maths option. There are two options for the A level and students may choose from four at AS and several combinations at A2 dependent on the option

chosen at AS. Two Mechanics options and two Discrete Maths options are only covered by GCE, no elements of these option modules feature in the EB. There is some overlap to a similar level of difficulty in the Probability and Statistics options and the Further Pure options.

The syllabus would appear to reflect the different priorities in the Maths education to age 16. The EB shows a greater emphasis on Functions, Probability and Analytical Geometry. The GCE places a greater priority on Algebra across the Core curriculum. Trigonometry has a high priority at GCE and the GCE focuses on Number through the teaching of Sequences and Series and iterative processes, unlike the EB, which does not assess the learning in these areas.

Where there is an overlap in the syllabus content, either one Board or the other will take the subject to a greater level of difficulty. The EB has a greater focus on Functions. The level of difficulty is higher than that of the GCE, which over two years only just matches the year 6 course content of the EB. The GCE has a greater degree of difficulty when comparing the Differentiation element of the course.

There is no obvious evidence on links between topics in the exam papers. With both papers using short-response questions, this will be difficult to achieve. The EB diploma has one question from each of the strands - algebra, complex numbers, analysis, geometry, probability and numerical analysis of data. Then optional questions again form each strand. The GCE does not place order on the questions and does not appear to write exams with only one question on each aspect of the syllabus for that particular module.

ASSESSMENT

OCR GCE

Each module is assessed by a 1 hour 30 minute exam; each module is equally weighted at 33⅓%. Three modules, C1, C2 and an option make up the AS level and C3, C4 and an option make up the A2 section. The exams are marked by external examiners and a sample of the scripts is marked by a second examiner to ensure consistency and accuracy.

The exams are a series of short-response questions, there are no optional questions. Each paper is given a raw score out of 72. It is up to the teacher and student as to whether they sit the module exam in January or June, giving additional flexibility along with the choice of option to study. The course can be tailored to the individual needs of the student

EB

Written Exams

For the European Baccalaureate, students will take a written examination (4 hours) consisting of four short compulsory questions(50 marks in total) two questions on analysis, one on geometry and one on probability. Then two optional long questions, from a choice of three questions- one on analysis, one on geometry and one on probability. Questions will be based mainly on the year 7 syllabus, but may require knowledge of material studied in year 6. Marking takes into account method and interestingly presentation. A formula booklet is provided to support in the exams. Exams will take 3 or 4 hours.

Total marks available 36 out of 100

Class work

A marks

Class marks are also given in the 7th year (no mention of 6th year) it will be given as an average of two marks

given as Teacher Assessment. This is a summative assessment and could be based on oral participation, written class work and or practical work. The assessment is done on work in class.

Total marks available 15 out of 40 marks

B marks

Class examinations, at the end of the first semester, if studying advanced maths, there will be a class examination at the end of each semester and an arithmetical average of all scores will give the B mark
Total marks available 25 out of 40 marks

As before, the Oral exam is optional at the higher level EB

Oral Examination

Advanced maths requires an oral examination. These last 20 minutes and students are required to draw by lot an envelope containing a number. They will then get a question corresponding to that number. Students may reject the first question picked, but will automatically lose 20 % of the marks awarded for the second question chosen. Some preparation time is given and note may be taken. The student then has to set out his/her ideas on how to solve the problem. If the student is incapable of taking the initiative the examiner make ask questions to start/form a dialogue. Two examiners are used, one is the class teacher and the average score from the two examiners determines the final mark. Examiners mark out of 10 as a raw score.

Total marks available 24 marks out of 100

Marking is done by two examiners. The class teacher marks first then an external examiner marks the paper. If there is a difference of more than 3 marks, a third examiner is called in to mark.

Criteria for success

A final mark of 60% or more will indicate a pass

Students scoring at least 57% and less than 60 % will have their results reviewed and if they have achieved 6/10 in three of the five written exams may be awarded a pass.

Students scoring 59 to 59.99% must have obtained a satisfactory result in two of the five exams to be awarded a pass.

There are obvious contrasts between the two qualifications. OCR GCE is an exam only qualification, whereas the EB has the class work element. The EB is examined at the end of the two-year course and predominantly on the year 7 syllabus. The GCE is split into two sections, with a formal qualification available at the end of the first year of advanced study made up of three modules. The EB is a pass/fail qualification. The OCR GCE allows re-sits of each module to improve scores. The EB diploma requires students to be secure in all aspects of the syllabus and has penalties built in, should students pick a question for the oral exam which may not play to their strengths. The choice of a second question invokes a penalty of 20%. The OCR GCE allows students to study more than one option and then choose the one that achieves the highest score, to be aggregated into the final grade for the A level.

Comparison of Marking Procedures

It is not possible to compare the three qualifications in terms of expectations, marking procedures. There are no IB scripts to use to assess. Looking at The EB and GCE scripts, there is little common material available to compare objectively, between the two. There are differences in the make up of the papers, the GCE paper is a series of short questions, the EB has short questions from each of the main headings, then the optional long questions. The GCE has no optional questions and no long questions.

In terms of the examiners role, the EB diploma has teacher involvement, GCE does not. The EB has a very rigorous checking system to ensure accuracy in marking of every script; the GCE has moderators checking samples of work to ensure consistency. The IB uses external examiners and no individual feedback is available for students, only an examiners report that highlights strengths and weaknesses of all candidates sitting the HL exams.

1.9.2 Doc 1.2

EXAMINATION PAPER ANALYSIS GRID

EXAMINATION: Abitur

PAPER: Leistungskurfach

PAPER LENGTH: 240 minutes

Question	Item/ exercise	Total marks per item/ exercise	Length	Breakdown of marks within item / exercise	Topic area	Test type
1	Algebraic analysis	40		Calculation, justification/ proof	Functions, integration limits	3 sections, variable length questions in each section with most marks against

						the more open ended questions
2	Algebraic analysis Plus mechanics	40		Calculation, justification/ proof	As above plus volumes of revolution	3 sections, variable length questions in each section with most marks against the more open ended questions
3	Probability and statistics	40		Calculation, justification/ proof	Conditional probability Permutations and combinations Normal distribution Bernoulli trials Standard deviation	2 sections with common theme Some short answer questions , some requiring proof/justification
4	Probability and statistics	40		Calculation, justification/ proof	Not translated but similar to question 3	
5	geometry	40		Calculation, justification/ proof	Simultaneous equations in three dimensions Three dimensional geometry Volume of sphere and cone	2 sections with majority short answer questions , some sections requiring proof/justification
6		40		Calculation, justification/ proof	Not translated but similar to question3	

EXAMINATION PAPER ANALYSIS GRID

EXAMINATION: EB

PAPER: 5 periods higher tier

PAPER LENGTH: 240 minutes

Question	Item/ exercise	Total marks per	Length	Breakdown of marks within item / exercise	Topic area	Test type
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		item/ exercise				
1	Compulsory question	12		Calculation, graph sketching, proof	Analysis Functions	Short answer questions split into several sections
2	Compulsory question	12		Algebraic manipulation calculation	Differential equations	Short answer questions split into several sections
3	Compulsory question	12		Calculation, algebraic manipulation	Simultaneous equations Skew and perpendicular lines	Short answer questions split into sections
4	Compulsory question	12		calculation	Conditional probability Permutations and combinations	Short answer questions split into sections
5	Optional question	25		Calculations and justification	Functions, tangents and trigonometry Volumes of solids of revolution	Short answer questions in sections
6	Optional question	25		Calculation	Probability Normal distribution Poisson distribution Standard deviation	Short answer questions in several sections
7	Optional question	25		Calculation Justification/proof	Three d geometry Tangent planes to spheres Perpendicular planes Parametric equations	Short answer questions to several sections

The EB paper favours reproduction of scientific knowledge, there is limited evidence of proofs required to show understanding. The Abitur however, relies on more open ended questions with a substantial part of the paper given over to justification of answers. Students are led through the requirements of the EB with graduated steps whereas the Abitur generally within each question makes the second part a more open ended question with a large mark allocation. Not knowing the source of the papers makes it difficult to analyse since answers are actually recorded to the questions, in brackets. This could be a draft paper with additional information for the examiners, but it could also give the answers to allow students access to the

second part of the question even if they may not be able to answer the first part in its entirety. This is the case, is forward thinking in that students are not denied access to a lot of marks, if they cannot or have forgotten how to do a particular element.

Without a syllabus it is difficult to answer the question posed as to whether the paper fails to cover essential knowledge skills etc. The topics omitted from the testing are not known. I therefore cannot comment on any key omissions. My impression is that the two courses are relatively similar. There is some evidence of mechanics on the Abitur paper and there is none on the EB paper. I do consider this an omission but only if students go on to further study and wish to do a mechanics option at University.

The EB does lead students through the questions with explicit instructions as to what is required, whereas the Abitur does seem to rely on students being more intuitive and therefore needing to be able to interpret and apply knowledge. It is interesting to note that the school chooses the question to be answered, so I do wonder if they do teach to the topic, rather than provide the rounded education that the EB insists on. EB students are expected to be well versed in all aspects of the curriculum to be successful at the EB diploma.

The EB allows students limited choice in which questions are answered. The Abitur does not. Does the Abitur play to students strengths?

There are only a couple of sections that can be compared directly and the Abitur appears to have a greater degree of difficulty. When set side by side, the EB questions match two thirds of the Abitur. The Abitur requires more complex algebra. For that final third, when proof is necessary to answer the question. There is a significant overlap in terms of content. I do find it intriguing that mechanics as a complete module of study does not feature as an option on either qualification, which leads me to wonder what criteria the Universities set in Germany and in Europe when liaising with Exam boards as to the essential skills they require, when students embark on University course, for engineering or pure Maths.

I think that both papers are demanding in comparison to the GCE but this is only an opinion based on one set of papers. I am confident that the EWB will be completed in the allotted time, but the Abitur, it is more demanding because of the less prescriptive questioning and would require all the allocated time.

The nature of our subject and the unknown elements make it difficult for me to make definitive statements. I hope I have given you sufficient information to move your project forwards.

Sue Croft

1.9.2 Doc 1.3

Comparability Study Mathematics

EB-French Baccalauréat Mathematics

Mr Dominique Raulin – 6 Octobre 2008

Mathematics is studied in the three 'formations' of academic baccalaureate. This comparison is focused on comparing the EB in Maths (five period) to French Bac in scientific formation (série S)

1. Curricula

1.1. Mathematics at EB

The mathematics syllabus is composed of five periods per week, in years 6 and 7.

Two kinds of skills are summarised: general and specific.

General skills:

- 1 manipulation, argumentation, reasoning
- 2 communications
- 3 structuring, synthesizing

Specific skills:

- 1 algebra: complex numbers
- 2 analysis
- 3 geometry
- 4 probability, numerical analysis of data.

The syllabus is presented in three columns: topic, content, remarks. In the first column (topic), titles appear such as continuity and limits, or integration. These are very broad in scope.

The second column (content) is similar to summary in a handbook: for example, trigonometric form, introduction to complex numbers, notion of continuity of a function at a point, etc.

The third column (remarks) has little information: for example, nothing in page 13, and only the order in which the two notions of continuity and limit will be studied is left to the teacher..., in page 12

1.2. Mathematics at French baccalauréat

In France, students have 5 hours per week in sixth year and 5 ½ hours in seventh year; in seventh, it is possible to add two hours per week to study others parts of mathematics.

The text form in the French Bac contrasts sharply with the text form in the EB. As extended discursive text, it requires a real effort of concentration and interpretation on teachers' part. Official reports point out that too many teachers don't read first parts of official texts (Introduction).

There are three main parts to the text:

- 1 analysis (about 45 % ; 14 weeks or 70 hours)
- 2 geometry (about 35 % ; 11 weeks ; 55 hours)
- 3 probability and statistics (about 20% ; 6 weeks ; 30 hours)¹.

Content is presented in three columns:

- 1 topic and content
- 2 how to use
- 3 remarks

The indications in first column (topic and content) are very contracted descriptions: continuity at a point, in a segment; real functions $x \rightarrow a^x$, given $a > 0$

The second column (how to make use) explain how different notions must be presented and studied

The third column complements the second one with general remarks: for example, '...the form to present logarithms is not fixed.'

1.3. Comparison:

General points:

The statement of curriculum is lighter in EB than in the French Bac and seems to give more autonomy to the teachers in the choice of methods and supports.

¹ We find these precisions at the beginning of the description of content.

The level in each part is not as elevated as similar elements in the French Bac. But, on the other hand, some parts are more developed in France (for example, Complex numbers).

The objectives seem to be clearer in EB, principally because their presentation is simpler and more precise.

The first column in the French specification is similar in form to the second element in the EB curriculum. On the other hand, there is nothing like the third column (remarks) of the French text in the EB syllabus.

The presentation of EB syllabus is reminiscent of the presentation of the French curriculum in the 1970s.

On content:

Broadly, the same parts of mathematics are studied in both formations.

It is difficult to determine, from reading the specification alone, exactly what level of outcome is expected of students. In the explanation within the EB syllabus, there is a part about assessment: 1) general principles; 2) written examinations; 3) the baccalaureate; 4) content of the written examination 5) permitted material; 6) criteria for correction and marks awarded. In France, these details are given in a precise form in a specific text.

In conclusion, on the basis of similar texts, EB carries the possibility of more personal interpretations of requirement and content than the French text. It is interesting that law about the future of education (2005) in France asserts this new notion of increased autonomy.

2. The assessment itself

2.1. French bac:

The conditions of bac S are presented in an additional text to the syllabus. Precise details about the level of outcome required are given in this second text.

For example, in 'Objectives of test':

To acquire knowledge and to organize them
To mobilize notions, results and methods to solve a mathematical problem
To take initiative
To understand and to build an argument
To get a comprehensible form to a solution or a demonstration.

The separation of these into a separate document may be a disadvantage in terms of teacher awareness.

Content of the written examination (4 h): the question paper comprises between 3 and 5 exercises, marked between 3 and 10, in relation to a global notation of 20.

2008 session

Four exercises: marked 5 points.

Exercise 1: analysis – integration

In the first part, candidates must answer four questions. They have no possibility to chose their methods and to take initiative.

Exercise 2: geometry of three dimensional space

Four independent questions

This exercise allow the marker to check basic knowledge held by the candidates.

Exercise 3: Probability

Question 1: 2 sub questions

Question 2: 3 sub questions

The first part focuses on the same objective as exercise 2

Exercise 4: Complex numbers

Five questions: $n^{\circ}4$ with 3 subquestions and $n^{\circ}5$, also.

In this test, candidates must answer 24 questions or sub questions. On average, they have 12 minutes for each question. There is a serious question of whether this test actually permits the checking of main objectives: for example, to take initiative.

This question paper is oriented towards 'sounding out of knowledge'.

2.2. At EB

In year seven, the EB consists of the A-mark based on oral participation and written work, and the B-mark established by the written examination in January.

The written examination (4h) consists of:

Four compulsory "short" questions (50 points in total) of which two questions in analysis, one on geometry and one on probability.

Two optional "long" questions (50 points in total) to be chosen from three questions: the first in analysis, the second on geometry and the third on probability.

Content of the written examination is summarized in the syllabus specifications and is slightly different from the syllabus.

2008-session

Short questions: these exercises allow the corrector to check basic knowledge

Exercise 1 – analysis – real functions and integration

Two questions; two with three sub questions

Exercise 2 – integration

Two questions; number two with two sub questions

Exercise 3 – geometry of three dimensional space

Two questions; two with two sub questions

Exercise 4 – probability

Two questions; n°1, 2 subquestions and n°2, 2 sub questions.

14 questions or sub questions in 120 minutes: average, less than 10 minutes for each question.

Long questions

Problem n°1 – analysis

Three questions : n° 1 with three sub questions ; n°2 with two and n° 3 with two.

Problem n°2 – Probability

Three questions : n°1 with three sub questions ; n°3, four subquestions

No high level of difficulty.

Problem n°3 – Geometry

Five questions : n°2 with two subquestions ; n°3 with two subquestions ; n°4 with two subquestions.

No high level of difficulty

In comparison with the syllabus, the exercises and problems of this question paper seem relatively easy and without strong linkage general objectives.

2.3. Comparison

The two question papers are built similarly: four exercises in French Bac and six in EB. These are not based on real problems, but rather a succession of elementary questions.

Neither one nor the other focus on evaluation of general skills; it is possible to observe a substantial difference between the objectives contained in the syllabus and the constructs which are the focus of the assessment.

In the EB, the syllabus is completely covered via the four compulsory exercises. In the French Bac, this is true in 2008 session, but it is not an obligation.

The required level is similar.

The time allowed to find solutions and to complete the item is similar.

In conclusion, from two different syllabus, the respective question papers are very similar.

3. The scripts and their marking

The main difference between scripts (EB and French Bac) is the form of answers: in the French bac, there is a requirement to provide many explications – this is a very important criterion.

In the EB, only numbers and different mathematics symbols are written: there is no extended argument, or explication - the general skill of communication is not evaluated.

From equivalent question papers, the two assessments evaluate different skills: it is not obvious that same marks represent the same performance in the EB and in the French Bac.

Marking

In the EB, for each question, the mark scheme is precisely linked to the question paper; in the French Bac, the mark scheme for each exercise is given in the question paper. Candidates are not aware of the mark allocation across different questions.

In the EB, there are several markers; in the French Bac, only one.

The most important difference is the choice of criteria: in the EB, agility in maths, and in the French Bac, the faculty of explaining argument about a mathematics questions.

Conclusion:

Compared to the assessment of Mathematics at French Baccalauréat, assessment in Mathematics at EB:

The two assessments show contrasting ideas of maths attainment:

In the EB, the most important elements are research and handling of mathematic tools.

In the French Bac, the main objectives are argumentation and the aptitude of showing the truth of reasoning.

It may be the case that these two approaches are reconcilable because the same elements of maths are studied in the two formations.

1.9.2 Doc 1.4

Comparative Examination of the European Baccalaureate Mathematics Syllabus (5 periods) with the Irish Leaving Certificate Higher Level syllabus

Comparisons of syllabi, even if considered only at the level of themes or topics “covered” are difficult. If a comparison is to attempt an appreciation of a wider range of constructs such as skills, attitudes, degrees of competency at grade levels, student development and learning, the task is particularly challenging. The following examination is only partial and uses the template provided by the commissioning body, the written syllabi of both systems and a sample of student work to structure and support a simple, first analysis.

Comparison of general and subject-specific aims of both syllabi

Since all syllabi and modes of assessment are designed to achieve stated aims and objectives, it is perhaps worthwhile examining these first in the case of the two cases under comparison. Both syllabi share the general aim of schooling that education should contribute to the personal development of the student and the development of knowledge and understanding in the subject area or discipline. At the level of general aims there is a slight difference between the two in the explicit aim in the Irish syllabus

that the disciplinary knowledge should provide students with skills and understanding needed for life and work. In the case of the EB there appears to be more emphasis on the study of mathematics for its own sake and for higher studies. At the risk of over-interpretation, this slight difference on the importance of the utility of mathematics seems to influence the approach to syllabus content and the modes of assessment. In the case of the EB there is a greater emphasis on formalism and theoretical foundations (see particularly the treatment of the analysis of functions) whereas in the Irish system there is a greater emphasis on intuitive approaches and practical techniques. Nevertheless, both syllabi refer to problem solving, manipulation (EB) or instrumental understanding (LC), communication and generalising (EB) or formulating a hypothesis (LC). The Irish syllabus also states as one of its aims an awareness of the history of mathematics. This is not mentioned in the European Baccalaureate syllabus.

The table below is based on a content comparison of the two syllabi. The sources used were the EB syllabus 2000-D-38 published in 2000 and the Irish Leaving Certificate syllabus (1994). The scope of the EB syllabus is narrower than that of the LC treating just the four areas of:

- **Analysis,**
- **Algebra,**
- **Geometry and**
- **Probability.**

The LC syllabus has seven core areas:

- **Algebra,**
- **Geometry,**
- **Trigonometry,**
- **Sequences and Series,**
- **Functions and Calculus and**
- **Discrete Mathematics and Statistics.**

In addition the LC has four optional topics: Further Calculus and Series, Further Probability and Statistics, Groups and Further Geometry. The structure of the assessment instrument in the EB as well as the syllabus aims demand that a student study all of the topics listed. In the case of the Irish syllabus the issue is somewhat more complicated. As will be discussed later

Comparison of syllabus content of both syllabi

The content description of both syllabi takes the form of a list of topics to be studied in the last two years of schooling. The EB specifies particular content for each of the two years of the programme (Years 6 and 7 of second-level or equivalently Years 12 and 13 of formal schooling). The LC does not indicate the content specific to each year and in practice it is the teacher who decides on the division of topics studied in the two years. Though in both syllabus documents there is a column to the right of the topic list for remarks on the content, this facility is scarcely used in either case. In the case of the Irish syllabus the remarks confine themselves to a small number of indications of exclusions. In the case of the EB the remarks are in the form mainly of elucidation of terms used in the content column. Neither syllabus provides much guidance on the depth of knowledge that is to be pursued, methods of teaching or presentation, or “real-world” applications that might be considered. In the case of the Irish syllabus support in these areas is provided by a set of Guidelines for Teachers which is not part of the syllabus documentation but is available to all teachers through the National Council for Curriculum and Assessment. It has not been possible to establish whether such support is available to teachers of the EB.

The difficult but important matter of the comparative scope or depth of treatment of content in both syllabi cannot be addressed using a simple examination of the written documentation. The only indication in this regard, based on the materials provided and in the absence of further research, is given by the written assessment tools and student responses. This will be commented on in more detail later. With regard to the scope of what is actually taught, in the Irish Leaving Certificate examination there are no mandatory questions to be answered by candidates on the core topics of the syllabus and in the assessment exercise in total, 13 questions out of 15 are answered on core material. This does indicate that, at least at assessment, some material may be left out by the student although it is usual practice to teach all parts of the core syllabus. However, only ONE of the optional topics on the Irish LC is usually taught, the most common by far being the Further Calculus and Statistics option. In the written examination of the EB a compulsory question must be answered on each of the core topics. Two further questions from three optional questions on the same topics should also be attempted. Both the compulsory questions in the EB

and the first two parts at least of the three part Irish examination questions indicate a focus on the demonstration and straightforward application of the basic skills and techniques required at this level.

Teaching time allocation

A factor that frames the question of depth of treatment is the time allocated to the teaching of the subject. In the case of the EB, the syllabus title itself indicates a time allocation in the week of 5 hours. Based on a school year of approximately 190 days in 38 weeks in Year 6 and 140 days in year 7 and assuming the “hours” indicated are full hours, this would give a teaching time on the EB of 330 hours. If “hours” indicate the more usual school unit of 45 minutes (which is the case, for example, at the European School of Munich), then this would give a teaching time of 247 hours which would be closer to the recommended teaching time on other comparable syllabi (the International Baccalaureate (IB) for instance). In the Irish case, a teaching time of six times 40 minutes or 5 times 45 mins per week would be usual in two years of 33 weeks. This yields teaching times of between 247 and 264 hours in Ireland, indicating similarity in time allocation for both syllabi.

**Mapping Table – European Baccalaureate / Irish Leaving Certificate
Leaving Certificate Higher Level ____**

Subject _Mathematics

Syllabus compared

__Irish Leaving Certificate_____

10. Complete the first column with a detailed list of the topic areas covered in the European Baccalaureate syllabus.
11. Insert a tick, or similar, to show where the topic is covered by the comparator specification – please delete option columns if there are no options.
12. Include comments to describe where a topic is covered in greater depth in one or other specification, where possible estimate how much time it would take to deliver the extra depth.