



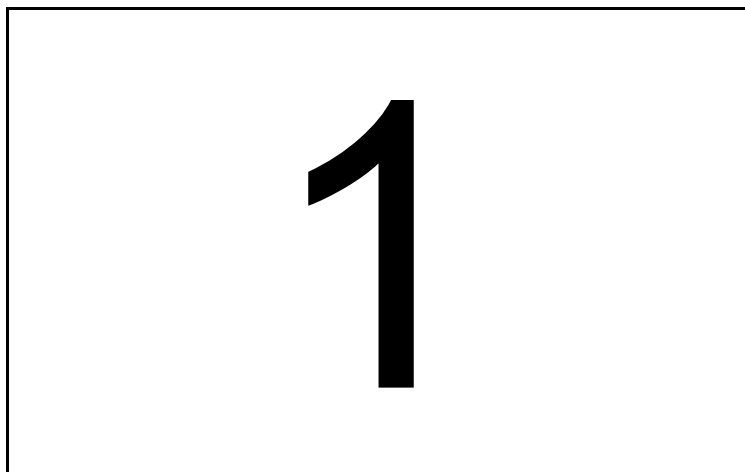
Elthorne Park Sixth Form

Extended Essay

2009-11



Maths & Computing



Getting The Best Start

The EE Basics

- As a Diploma candidate, you must write an Extended Essay (EE).
- The essay is 4,000 words (excluding appendices).
- You should spend approximately 40 hours on the EE
- You have a supervisor who is a teacher in school (s/he does not have to be currently teaching the IB but must teach at the school)
- You select the group, subject and topic which you write on
- Group 1 and 2 language essays must be written in that language.
- All other EE must be written in English.
- You may choose to write your EE in any IB subject, but are much more likely to do better in a subject you are studying
- Once you have finished you will have a short interview, or *vive voce*, with your supervisor and the IB Coordinator.
- The EE is marked by an external examiner, usually an IB teacher from another school/country.
- Malpractice is an attempt to gain an unfair advantage (by collusion or plagiarism) and, if found, may result in you not gaining an IB Diploma. Don't do it. Cite everything.

You will need to work out which Group, Subject and Topic you want to do your EE on

Group	Subject	Topic
Which IB Group does it fit within?	Which subject does it fit within?	Which topic within this subject do you want to explore?
e.g. Group 3	e.g. History	e.g. Henry VIII's 6th wife

What should I do first?

1. Think about which subject area you want to write your EE in. Let the IB Coordinator know which subject by **1st February 4 p.m.** using the form on *moodle*.
2. Supervisors will be allocated in February. When you know who your supervisor is you must contact them to arrange a meeting. They will not chase you.
3. Work out a manageable and focussed research question with your supervisor.
4. Submit your agreed research question by **26th March 4 p.m.** using the form on *moodle*.

Key points about your supervisor

- The rules about supervisors for the EE are much stricter and more tightly controlled than they are for GCSE coursework.
- Your supervisor is not under any obligation to take on this role. It is additional to all their other work. Do not abuse the privilege.
- Do not expect your supervisor to chase after you, remind you of deadlines or do any of the work for you.
- Follow all of your supervisor's advice about research, writing and presentation. To ignore their advice is to throw marks away.
- The success of your EE depends about 75% on your input, roughly, and 25% on your Supervisor's. They are important, but only if you work hard with them.

What does my supervisor do?

- Gives you advice, guidance and support in selecting a topic and undertaking research.
- Spends about 2-3 hours supervising you, most of which is at the beginning.
- Ensures the Extended Essay is your own work by monitoring your progress and seeing drafts.
- Completes a supervisor's report on your EE and signs it if he/she thinks this is your own work.

What does my supervisor not do?

- Your supervisor does not decide the topic for you.
- Your supervisor cannot edit your draft essay but s/he may read and comment on it

Who else can help me?

- Before you decide on your research question, use the IB documents on moodle, speak to the IB Coordinator, to other teachers, IB websites and forums.
- Once you have decided on your research question, try contacting a couple of University professors and Tutors. Find out which ones have written about this general subject area. Get hold of their email contacts (usually on the University websites). Ask their advice and thoughts. The worst they can do is not reply.
- As you do your research, contact University Professors and Tutors for further advice.



Although the Extended Essay is your work, you are not working alone.

Hints

1. Keep your EE under control – it should take no more than 40 hours altogether from the time your first think about it until you hand in your final draft.
2. Keep your topic and research question manageable within the time you have and your skills. A simpler research question is always better, e.g. “To what extent might internal fighting explain the collapse of the Mayan civilisation” is better than “The Mayan civilisation”; “Is it better to use dried animal dung as a fertiliser or a fuel?” is better than “Combustion and nitrogen analysis”.
3. It is only worth a maximum of 1.5 points out of 45. Keep it in perspective with your other subjects.
4. 4,000 words (± 200) is all you are allowed. That is about 10 A4 sides.
5. You are unlikely to change the world with the content of your EE. You are not expected to write something totally original, just new to you.
6. It should be on a topic that interests you and that you want to find out about.
7. Do not think you can just take an essay you have already written, add some extra words and hand that in. Doing this will at best get you very low marks. The EE has very different assessment criteria from what your IB teachers are usually looking for. In this sense the EE is not really an extended essay, it a piece of personal research in a specific structure and format.
8. Follow the guidelines for general and subject specific criteria. You may write a great EE but get low marks because you fail to follow the instructions.
9. Above all, keep to the deadlines. They are there to help you manage your time. Failure to do so will be your loss, will put pressure on future, more important work and result in you getting a hard time from your supervisor and IB Coordinator.
10. Your EE will never really be a finished product. There will simply come a time when you must hand it in.

How do I choose a subject, then a topic and then a research question?

To choose a subject, ask yourself

1. What subjects am I studying at HL?
2. What subjects do I most enjoy studying?
3. What subjects do I want to study at University?
4. What subjects do I want to talk about in my University interview?

Once you have answered these questions, choose your subject.

Once you have chosen the subject, choose a topic within that subject by asking yourself

1. What topics have I enjoyed learning about?
2. What topics do I find interesting or prompt my enthusiasm?
3. What interests do I have?

Once you have answered these questions, choose a topic

Points to bear in mind in choosing a subject and topic

If you have chosen a subject from	
Group 1	<ul style="list-style-type: none"> You can write on a book you are studying in class but you must go beyond that book and show evidence of wider reading You can compare a book written in your A1 language and one written in another language
Group 2	<ul style="list-style-type: none"> You must write it in that target language.
Group 3	<ul style="list-style-type: none"> Avoid "What if..?" questions as these do not fit well within the Assessment Criteria An analysis of reliability and/or representativeness of sources will be crucial For Psychology EEs: Data collection and research methods, such as experiments, surveys, observations and case studies, are not appropriate for a psychology extended essay, and should not form part of the your EE.
Group 4	<p>Decide if you want to do an experimental or library-based EE.</p> <ul style="list-style-type: none"> Experimental EEs: these tend to score better than the library-based EEs in Group 4. It is fairly easy to get data and then analyse it. But if you decide to measure something over time, you must do all this before the Extended Essay week which is intended for writing up. You have to work with the Science technicians in order to find time when you can use a laboratory to collect data while being supervised by a member of staff. Avoid experiments for which the outcome is already well documented. Library-based EEs: A questionnaire, survey or a library-based topic in Group 4 may be easier to research (in school or at a University library) but you need to manage a large amount of material and be selective for relevant information.
Group 5	<ul style="list-style-type: none"> Unless you are taking Maths HL, it is best to avoid doing your EE on this. But if you are doing Maths HL it is worth considering. The word limit is smaller (2,500 words) but you will need to a significant amount of maths in the text. For ideas look in a book about "100 greatest unsolved mathematical problems"
Group 6	<ul style="list-style-type: none"> Avoid purely biographical or historical research questions.

Once you have thought through these points, choose a research question

- To come up with a research question, come up with a question.
- The question must be an open question (i.e. it cannot be answered by a simple yes or no)
- The question must limit your research to something which is manageable within 4,000 words and 40 hours. The question must be very specific.
- Choose a topic and research question about which there is barely any research already and which is unique. This will allow you to show more personal judgement, and hence score more highly. If a website search engine turns up a lot of information about the topic, it is best to avoid it.
- Do not attempt topics which are taught in relatively good depth in the syllabus. Choose topics and questions for which you think you will find almost nopro-existing information
- It does not matter if the topic is not an area your supervisor knows much about, s/he will still understand the subject, the approach to take and the pitfalls to avoid.



**Keep on going.
Take one step at a time and
keep an eye on the final destination.**

Subject	Good questions	Poor questions
English A1	How are men and women portrayed differently in Elizabeth Gaskell's 'North and South'?	How are men and women portrayed by Elizabeth Gaskell in her novels? <i>(too large)</i>
	How do Shakespeare and Sophokles differ in the way they present madness in Lear and Ajax?	Madness in Shakespeare and Sophokles <i>(not a question)</i>
	How is the subject of death treated in a selection of poems by Thomas Hardy?	How did Thomas Hardy's life influence his poetry? <i>(too biographical)</i>
French B	How can Switzerland develop their tourist industries in a sustainable way?	"Does tourism have a future in Switzerland?" <i>(too trivial)</i>
	To what extent does racism exist in France towards those of North African descent?	"Racism in France" <i>(lacks focus; not a question)</i>
Classical Greek and Roman	To what extent was Cicero justified in executing Catiline?	The Catilinarian conspiracy <i>(not a question, lacks focus and direction)</i>
	To what extent was Alexander's success built on his adoption of Persian customs and administrators?	Why was Alexander the Great able to conquer and maintain such a great area? <i>(too broad, lacks focus)</i>
Geography	To what extent can changes in temperatures in England across the 20 th century be explained by solar energy output?	How do temperatures in England change over a year? <i>(just an extended piece of field work)</i>
	How has tourism in Sri Lanka shifted since the tsunami of 2004?	How have Nike changed their marketing in response to environmental concerns? <i>(not geographical, more Business and Management)</i>
History	Which theory best explains why Labour won a landslide in 1997?	Why did Barak Obama win the Presidential election of 2008? <i>(too recent, must be at least 10 years in the past)</i>
	To what extent were Hitler's educational aims fulfilled in the Uhland Gymnasium, 1937–1939?	How successful were the Nazis in maintaining control? <i>(too broad)</i>
Psychology	How can the findings from psychological research on memory retention be applied to teaching and learning?	How does music affect memory retention? <i>(likely to be based more on student's own research and data collection)</i>
	To what extent has research on stress within army personnel affected how armed forces provide psychological support?	What does the research on obsessive compulsive disorders suggest are the best forms of treatment? <i>(too broad and complex)</i>
Philosophy	What role does emotion play within Aristotle's Nicomachean Ethics?	Emotion in Aristotle's philosophy <i>(too broad)</i>
	What criterion can be identified in order to ascribe a moral status to stem cells?	Do stem cells have a moral status? <i>(closed question)</i>

Subject	Good questions	Poor questions
Economics	What was the impact of the credit crisis on USA 2008-2009?	What was the impact of the South-East Asian crash on Thailand during 1990–1995? (<i>too historical, should be less than 3 years old</i>)
	What is the effect of interest rate policy on aggregate demand in Greece?	What have economists suggested is the effect of interest rate policy on aggregate demand in Greece? (<i>likely to be based too much on just secondary material</i>)
Biology	What effect does detergent toxicity have on soil bacteria?	How are detergents broken down in the soil? (<i>has a partly Chemistry focus, not focussed solely on Biology</i>)
	What effect does differing pH levels on the growth of <i>Phaseolus vulgaris</i> ?	The effect of acidity on plant growth. (<i>not a question</i>)
Physics	To what extent is it possible to determine the presence of a black hole at the centre of the Milky Way?	What have been the latest findings about string theory? (<i>too descriptive</i>)
	What is the range variation of water flowing out of a hole in a container?	An application of Bernoulli's principle to holes in containers. (<i>not a question, lacks focus</i>)
Chemistry	What effects does sugar-free chewing gum have on the pH of saliva in the mouth after a meal?	How do alkali metals react with water? (<i>already covered by the syllabus</i>)
	What is the relationship between the concentration of aqueous sodium chloride solution and the ratio of the amounts of oxygen and chlorine gas that are evolved at the positive electrode during electrolysis?	Is there a relationship between the concentration of aqueous sodium chloride solution and the ratio of the amounts of oxygen and chlorine gas that are evolved at the positive electrode during electrolysis?" (<i>a closed question</i>)
Design Technology	How are chemicals labelled for the purpose of transit in order to provide for the effective dealing of accidents?	To what extent is the Mac iphone an improvement on previous smart phones? (<i>merely a review of a technological product or technological development</i>)
	Has the introduction of new materials improved the performance of modern racing bicycles?	An evaluation of new materials in modern racing bicycles (<i>not a question, lacks focus</i>)
Maths	How does the exponential function, and its calculus, inform areas of science such as nuclear physics, geology, anthropology or demography?	The exponential function and its calculus. (<i>not a question, lacks focus</i>)
	How well can π , e , and other irrationals be approximated by rational numbers?	To what extent have rivalries between mathematicians helped solve mathematical problems? (<i>too biographical and historical</i>)
Computer Science	How secure is Secure Sockets Layer protocol?	What have been recent developments in AI? (<i>too descriptive</i>)
	Is wireless networking a feasible alternative to cabled networking within a whole-city context?	A feasibility study of hardware and communications systems. (<i>not a question, lacks focus</i>)

Subject	Good questions	Poor questions
Music	What effect does harmonic innovation in have the bebop style of Dizzy Gillespie?	To what extent are concerns about gangster-rap legitimate? (<i>not sufficiently focussed on the music</i>)
	To what extent is <i>Phantom of the Opera</i> a modern classical opera?	An investigation into the presence and musical significance of a recurrent motif found throughout Frederick Chopin's 24 piano Preludes, Op. 28. (not a question)
Theatre	How does the mask contribute to the creation of a character in Noh?	The use of fans in Restoration comedy (<i>not a question, too broad</i>)
	How can the use of female stereotypes in a selection of Brecht's plays be compared and contrasted in performance?	A study of the effects of the use of fabrics and lighting in <i>The Tempest</i> . (<i>not a question, lacks focus</i>)
Visual Art	How has Western portrait art in the twentieth century been influenced by the African artistic tradition?	How did Western portrait art develop 1800-2000? (<i>too long a time period, lacks specific focus</i>)
	What is the impact of transcultural experience on the art of Gu Xiong?	The impact of immigration on an artist's work (<i>too broad, not a question</i>)
Film	To what extent can Clint Eastwood be considered an auteur, with specific reference to <i>Play Misty For Me</i> (1971), <i>The Outlaw Josey Wales</i> (1976), <i>Bird</i> (1988) and <i>Million Dollar Baby</i> (2004)?	How has critical reception of "The Shawshank Redemption" changed? (<i>too descriptive, not focussed on film itself</i>)
	What has been the influence of <i>Hill Street Blues</i> on subsequent US television crime drama such as <i>NYPD Blue</i> and <i>CSI</i> ?	Who started <i>film noir</i> ? (<i>too broad and complex for 4,000 words</i>)

What do I do if I have no idea for a subject or topic for my EE?

1. Talk to your IB Coordinator now.
2. Ask any of your teachers if you could have 5 minutes to speak to them about possible research questions. They may not end up being your supervisor, but they may be able to help you at this point.
3. Read through this booklet
4. Read through some past EE

It is up to you to make appointments with teachers and the IB Coordinator to discuss the EE. They will not chase you.

When do I do my research?

- Once your research question has been agreed, then start researching.
- Use weekends and holidays. Use University libraries and the British Library in King's Cross (there are instructions on middle on how to do this).
- There are several search engine designed specifically for research papers that you might need to consult (JSTOR, SSRN and Proquest to name a few)
- Use not just library but also librarians: school, city, national, University
- As good as Wikipedia, Bized, Dictionary.com are, they will not make you stand out amongst the crowd and, more importantly, they will not help you score highly as they do not lead to sufficiently personal judgements
- If you are doing an experimentally based Group 4 EE, then you need to start speaking to the Technicians and your Supervisor as soon as possible, about when you can do the lab work.
- You must have completed all your research and/or data gathering before the Extended Essay Week

When do I write up the EE?

- Start writing your EE in the Extended Essay Week. There are no timetabled IB lessons in this week.
- You must have completed all your research and/or experimental data gathering before this week starts.
- You will need to see your supervisor during this wee, show her/him the notes you ahve made.
- You must submit to your Supervisor the first 2,000 words by Wednesday 7th July 4 p.m.
- You must hand in the first draft of your whole EE to your Supervisor (and the IB Coordinator) by Thursday 15th July 4 p.m.
- If you miss these deadlines your Supervisor will not have time to give you proper feedback. This will affect your ability to produce a good EE.
- You must hand in your final version of your EE after the summer holidays, by the deadline in t



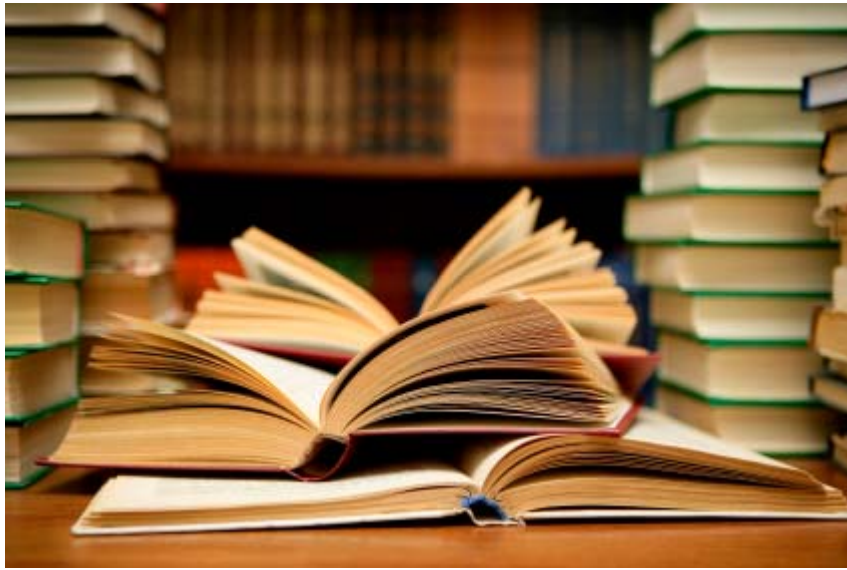
Effort increases capacity and results

How is my Extended Essay marked?

- All EEs are sent for marking to IB examiners who are specialists in the subject. Your EE may be marked by an examiner who is anywhere in the world.
- The EE is not returned to you and, on submission becomes the intellectual property of the IBO – i.e. you assign copyright to the IBO of anything that you submit unless you fill in a form requesting that you retain copyright.
- There are General Assessment Criteria and Subject Specific Criteria. You must ensure you understand these completely and write your EE to meet these criteria.
- The General Assessment Criteria are worth up to 24 points; the Subject Specific Criteria are worth up to 12 points.
- You can achieve a reasonable score by just following the simple rules. If you:
 - State your research question
 - Analyse your results
 - Discuss your results
 - Have a conclusion
 - Write a 300 word abstract
 - Keep to about 4000 words
 - And present it well
 - Cite all sources appropriatelyThen you achieve marks even before we look at the content and subject-specific criteria. The general criteria get you the most marks.
- The maximum mark for an EE is 36. The marks are put into grades A-E.
- Your ToK essay and presentation are also marked and the grade bands you achieve are put into the Diploma points matrix to see if you get any bonus points. Failure to submit a ToK essay and do a presentation or submit an EE means you get N which is no award of Diploma. Two elementary grades also give a failing condition.



**Intelligence is like a balloon
The more effort you put into expanding it,
the greater it becomes,**



Diploma Points Matrix
for the Extended Essay and Theory of Knowledge

		Theory of Knowledge					Not submitted
		Excellent	Good	Satisfactory	Mediocre	Elementary	
Extended Essay	Excellent	3	3	2	2	1	N
	Good	3	2	1	1	0	N
	Satisfactory	2	1	1	0	0	N
	Mediocre	2	1	0	0	0	N
	Elementary	1	0	0	0	N	N
	Not submitted	N	N	N	N	N	N

N = Fail whole Diploma Programme

Extended Essay Calendar

Date	Task	What do I do next?
8 th Jan 2010	Extended Essay Information Evening – for students and parents	<ul style="list-style-type: none"> Decide on the Group and Subject you want to do your EE on
1 st Feb	Give the IB Coordinator your chosen EE subject (<i>using form on moodle</i>)	<ul style="list-style-type: none"> Begin to research suitable topic areas that interest you. Print out the IB guidance on EE and read it.
27 th Feb	The IB Coordinator will tell you who your allocated EE supervisor is	<ul style="list-style-type: none"> Decide on at least three suitable topics within the subject area, so you have suggestions for your supervisor Print out the IB Assessment Criteria for the EE and read it
19 th March	Extended Essay Day – group sessions on the EE assessment process, arrange a time to meet with your Supervisor, IB Co-ordinator and Librarians	<ul style="list-style-type: none"> Finalise your research topic and precise research question
26 th March	Give the IB Coordinator and your Supervisor your chosen research questions (<i>using the form on moodle</i>)	<ul style="list-style-type: none"> Start researching: meet your supervisor, discuss with Library which books are needed/Technicians what equipment will be needed
By the 28 th June	Have all your research or data collection completed	<ul style="list-style-type: none"> Discuss how to write up your report with your supervisor Read the Assessment Criteria again carefully
5 th – 9 th July	Extended Essay Week – this week is for writing your essay not for research or data collection - hand in first 2,000 words to your supervisor by Wednesday 7 th July 4 p.m.	<ul style="list-style-type: none"> Write up your report Keep the Assessment Criteria in mind Arrange time to meet with your supervisor to discuss the first 2,000 words
15 th July	Hand in the first draft of your whole EE to your supervisor by 4 p.m. and electronically to the IB Coordinator (in case it goes missing)	<ul style="list-style-type: none"> Arrange meeting with supervisor before end of term to discuss draft of whole EE Check you are following the Assessment Criteria
Summer Holiday	Edit, polish and refine your final version	<ul style="list-style-type: none"> Finish final version
10 th Sept	Hand in your final version of your Extended Essay by 4 p.m.: electronic copies to your supervisor and the IB Coordinator and three printed off versions to Library by 3 p.m.	<ul style="list-style-type: none"> Now the writing is done, congratulate yourself Start thinking about the vive voce
Early Oct	Vive Voce Interviews	<ul style="list-style-type: none"> Relax. It is all over now. Think how you can use the EE in your UCAS Application and interviews to Universities