



# KARTAL ANADOLU İMAM HATİP LİSESİ (KAİHL)

## Chemistry Extended Essay Handbook

### For Student



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## 1. Introduction

Welcome to IB Diploma Extended Essay Guide. This guide has been created to help you with the process of writing your essay. The guide should be read and used in conjunction with the assessment criteria Extended Essay booklet that you can find in Managebac.

## 2. The nature of the Extended Essay

The Extended Essay is defined as an in-depth study of a focused topic chosen from the list of approved Diploma Programme subjects – normally one of your chosen subjects. Its purpose is to provide candidates with an opportunity to engage in independent research under the guidance of a supervisor (a teacher in the school/teaching you). This leads to a major piece of formally presented, structured writing, in which ideas and findings are communicated in a reasoned and coherent manner, appropriate to the subject chosen. The completion of the essay will be followed by a short, concluding interview, or viva voce, with the supervisor.

The extended essay is assessed against common criteria, interpreted in ways appropriate to each subject.

The Extended Essay is a core component of the IB Diploma programme and lies at the heart of the IB Diploma circle. It is an integral compulsory component for candidates who wish to attain the full IB Diploma. But, as of August 2013, it can also be undertaken as a separate award in conjunction with IB Diploma Subject Courses.



The aim of all IB programmes is to develop internationally minded people who, recognising their common humanity and shared guardianship of the planet, help to create a better and more peaceful world.

IB learners strive to be:

Inquirers	They develop their natural curiosity. They acquire the skills necessary to conduct inquiry and research and show independence in learning. They actively enjoy learning and this love of learning will be sustained throughout their lives.
Knowledgeable	They explore concepts, ideas and issues that have local and global significance. In so doing, they acquire in-depth knowledge and develop understanding across a broad and balanced range of disciplines.
Thinkers	They exercise initiative in applying thinking skills critically and creatively to recognize and approach complex problems, and make reasoned, ethical decisions.
Communicators	They understand and express ideas and information confidently and creatively in more than one language and in a variety of modes of communication. They work effectively and willingly in collaboration with others.
Principled	They act with integrity and honesty, with a strong sense of fairness, justice and respect for the dignity of the individual, groups and communities. They take responsibility for their own actions and the consequences that accompany them.
Open-minded	They understand and appreciate their own cultures and personal histories, and are open to the perspectives, values and traditions of other individuals and communities. They are accustomed to seeking and evaluating a range of points of view, and are willing to grow from the experience.

Caring	They show empathy, compassion and respect towards the needs and feelings of others. They have a personal commitment to service, and act to make a positive difference to the lives of others and to the environment.
Risk-takers	They approach unfamiliar situations and uncertainty with courage and forethought, and have the independence of spirit to explore new roles, ideas and strategies. They are brave and articulate in defending their beliefs.
Balanced	They understand the importance of intellectual, physical and emotional balance to achieve personal well-being for themselves and others.
Reflective	They give thoughtful consideration to their own learning and experience. They are able to assess and understand their strengths and limitations in order to support their learning and personal development

### 3. Why is the Extended Essay important to you?

The Extended Essay gives “opportunity to investigate an area of special interest.” This is therefore your chance to pursue an area or question that is of particular interest to you.

It is also very useful for university applications where it provides differentiation between applicants with similar grades. It is to some extent, important for students to choose a career-relevant title. It could well serve as the interview basis – especially at universities in the US where a course-related Extended Essay could make all the difference.

Related to this, the Extended Essay can be used for deepening knowledge of a particular subject. It could be advisable therefore that students choose the extended essay from an HL subject to undertake university choice titles, but this is not essential.

The Extended Essay is one of the core requirements for the Diploma along with TOK and CAS. You cannot pass the Diploma without obtaining a minimum requirement of a D grade or above (please see grading matrix below). An E grade in either EE or TOK is an automatic failing condition in the Diploma.

#### 4. What is the IB Extended Essay?

- It is an essay of 4000 words.
- It is compulsory for all full Diploma Programme students.
- It is externally assessed and, in combination with the grade for theory of knowledge, contributes up to three points to the total score for the IB Diploma.
- It is a piece of independent research/investigation on a topic chosen by the student in cooperation with a supervisor in the school.
- It is chosen from the list of approved Diploma Programme subjects, published in the Handbook of procedures for the Diploma Programme.
- It is presented as a formal piece of scholarship containing no more than 4,000 words.
- It is the result of approximately 40 hours of work by the student.
- It is concluded with a short interview, or viva voce, with the supervising teacher (recommended).

It should be the result of approximately 40 hours of work by the student. Remember to keep it in perspective: it is an important part of your IB Diploma programme but you only need to spend on average ONE hour per week on it. Once started, we recommend you set aside a period of three to four hours every two weeks. Establish a routine.

#### 5. What subjects are available for the Extended Essay?

The availability of subjects to choose from is limited to those subjects that can be supervised by qualified teachers with experience in that subject

**Group 1:** Language A and Literature Turkish

**Group 2:** English B

**Group 4:** Biology-Chemistry-Physics

**Group 5:** Mathematics

## 6. How do I prepare the Essay?

### 6.1 The research process:

Owing to the diversity of subjects and the different approaches to research, this guide does not offer detailed advice on the methods and skills of research. However, a systematic process, shaped by the nature of the subject, it is essential to generate and gather information and ideas that can be used to develop a convincing answer to the specified research question.

When researching the extended essay, students should do the following.

#### **1. Choose the approved Diploma Programme subject for the extended essay;**

The subject chosen for the Extended Essay must be one of the subjects being studied by the candidate for the Diploma, but care should be taken to choose a subject in which the candidate has sufficient knowledge and skills. Candidates should also base the choice of subject on the level of personal interest they have in that particular subject.

It is also to be remembered that whatever subject and/or topic is chosen, it must not contain any repetition of what material has been covered in class. For example, you cannot do an Extended Essay on the material you are using in your Psychology Internal Assessment.

Make sure you read the assessment criteria and the relevant subject guidance.

#### **2. Choose a topic;**

Candidates should aim to choose a topic that is both interesting and challenging to them. The topic chosen should be limited in scope and sufficiently narrow to allow candidates to examine an issue or problem in depth. It should present the candidate with the opportunity to collect or generate information and/or data for analysis and evaluation. Candidates are not expected to make a contribution to knowledge within a subject.

#### **3. In conjunction with you supervisor formulate a well-focused research question.**



**4. Plan the investigation and writing process.**

- Identify how and where you will gather material.
- Identify which system of academic referencing you will use, appropriate to the subject of the essay (an example is attached).
- Set your own deadlines to ensure you meet the school deadlines. Use Managebac to help you with this.

**5. Plan a structure (outline headings) for the essay. This may change as the investigation develops but it is useful to have a sense of direction.****6. Undertake some preparatory reading.****7. Carry out the investigation.**

- The material gathered should be assembled in a logical order, linked to the structure of the essay. Only then will you know whether you have enough evidence for each stage of the argument so that you can proceed to the next.
- Be prepared for things to go wrong. You may discover something later in the investigation that undermines what you thought had been established earlier on. If this happens speak to your supervisor and revise your plan.

**6.2 Writing the Extended Essay:**

The structure of the essay is very important. This is what helps you organize the argument, making best use of the evidence gathered.

The required elements of the final work to be submitted are listed here. More detail about each element are given in the “Formal Presentation of the Extended Essay” section. The order in which they are presented are not the order in which they are written.

- Title page
- Contents page
- Introduction
- Body (development/methods/results)

- Conclusion
- References and bibliography
- Appendices

The main task is writing the body of the essay, which should be presented in the form of a reasoned argument. The form of this varies with the subject of the essay but, as the argument develops, it should be clear to the reader what relevant evidence has been discovered and how it supports the argument. In most subjects, sub-headings within the main body of the essay will help the reader to understand the argument and help to keep you on track.

Once the main body is complete, it is possible to finalize the introduction and the conclusion.

## **7. Formal presentation of the Extended Essay**

### **7.1 The length of the Extended Essay:**

The upper limit is 4000 words for all extended essays. This upper limit includes the introduction, the body, the conclusion and any quotations but does not include:

- The contents page
- Maps, charts, diagrams, annotated illustrations and tables
- Equations, formulas and calculations
- Citations/references (whether parenthetical or numbered)
- Footnotes or endnotes
- The bibliography
- Appendices

Essays containing more than 4000 words are subject to penalties and examiners are not required to read beyond the limit.

### **7.2 Title:**

The title should provide a clear indication of the focus of the essay. It should be precise and not necessarily phrased in the form of a question.

### 7.3 Contents page:

A contents page must be provided at the beginning of the extended essay and all pages should be numbered. An index is not required.

### 7.4 Illustrations:

Presentation and overall neatness are important, and it is essential that illustrative material, if used, is well set out and used effectively. Graphs, diagrams, tables and maps are effective only if they are clearly labelled and can be interpreted with ease.

### 7.5 Bibliographies, references and citations:

An extended essay must reflect intellectual honesty in research practices and provide the reader with exact sources of quotations, ideas and points of view through accurate bibliographies and referencing.

**Failure to comply with this requirement will be viewed as plagiarism and will, therefore, be treated as a case of malpractice.**

#### **What is a bibliography?**

A bibliography is an alphabetical list of every source used to research and write the essay.

#### **What is a reference?**

A reference is a way of indicating to the reader, in an orderly form, where the information has been obtained. References can come from many different sources, including books, magazines, newspaper, e-mails, Internet sites and interviews.

#### **Why must you include a bibliography and references in your work?**

- You need to identify the written, audio, visual and electronic sources of information referred to in your work.
- If you claim someone else's words as your own, you have committed a serious offence known as plagiarism. If you plagiarise you will face a review board that may result in your IB Diploma being withdrawn or withheld. BEWARE: It is very easy for sources to be traced.
- Others may wish to use your work in the future and may wish to research further using the same sources as you. They do, therefore need to know what those sources are.
- Knowing where sources come from may help to identify any bias.

## 8. How the Extended Essay is assessed?

All extended essays are externally assessed by examiners appointed by the IB, and are marked on a scale from 0 to 34. Make sure that you don't miss out on any easy points simply because you haven't read the assessment criteria thoroughly enough.

**Criteria A (6 point):** Focus and method: Topic-Research question-Methodology

**Criteria B (6 point):** Knowledge and understanding: Context-Subject specific terminology and concept

**Criteria C (12 point):** Critical thinking: Research-Analysis-Discussion and evaluation

**Criteria D (4 point):** Presentation: Structure-Layout

**Criteria E (6 point):** Engagement: Process- Research focus

Once the external examiner has read the essay, they will award a mark out of 34 and grade it according to the following grade boundaries:

A: 34-30

B: 29-25

C: 24-17

D: 16-9

E: 8-0

The extended essay contributes to the overall diploma score through the award of points in conjunction with theory of knowledge. A maximum of three points are awarded according to a student's combined performance in both the extended essay and theory of knowledge.

The total number of points awarded is determined by the combination of the performance levels achieved by the student in both the extended essay and theory of knowledge according to the following matrix.

		Extended Essay					
		Excellent A	Good B	Satisfactory C	Mediocre D	Elementary E	Not Submitted
Theory of knowledge	Excellent A	3	3	2	2	FC	N
	Good B	3	2	1	1	FC	N
	Satisfactory C	2	1	1	0	FC	N
	Mediocre D	2	1	0	0	FC	N
	Elementary E	FC	FC	FC	FC	FC	N
	Not Submitted	N	N	N	N	N	N

Notes:

- 1) If you fail to submit an Extended Essay, you are given an “N”.
- 2) Failing Condition (FC)\*: An “E” in either TOK or the Extended Essay is a failing condition.
- 3) An “N” in any subject, including TOK, means you will not be awarded a diploma.

## 9. Extended Essay Assessment Criteria Checklist

### **A: Focus and method: The Topic- The Research Question- Methodology: ( 6 points)**

- includes an indication why the topic chosen is interesting, important, or worthy of study (avoid personal experience or particular opinion).
- includes some background information and places the topic in an appropriate context.
- includes a clearly and precisely stated research question.
- includes a clearly concluding statement of the thesis and argument.
- is clearly stated and focused.
- is sharply focused and a broad generalization.
- lends itself to a systematic investigation in my chosen area.
- RQ is appropriately connected to the discussion in the essay.
- My essay is a convincing argument that addresses my research question.
- My argument addresses and or answers the research question properly.

### **B: Knowledge and understanding:Context-Subject specific terminology and concept (6 points)**

- I have included appropriate subject specific terminology.
- I have included relevant materials, sources, data and evidence in my essay.
- My essay clearly locates the investigation in an academic context.

### **C: Critical thinking: Research-Analysis-Discussion and evaluation (12 points)**

- I have not included irrelevant information in my essay.
- I have effectively analyzed the evidence/material /sources /data in my essay.

- I have critically evaluated and discussed most of my sources.
- Whether possible, I have discussed my variables.
- My essay demonstrates very good understanding of the topic studied.
- My essay shows effective and sophisticated application of appropriate analytical and evaluative skills.
- I have answered the research question.
- I have identified the sources of error.
- I have evaluated the effectiveness of the techniques used.
- I have discussed the limitations of my experiment where appropriate.
- I have identified what it would need to be done to further this investigation.
- I have expressed my ideas clearly.
- I have outlined the gaps of my methodology.
- Ideas are presented clearly and in a logical manner.
- I have supported my argument with evidences.
- I have sharpened and defined my argument by bringing up relevant counter-arguments.
- My conclusion is effective and clearly stated.
- I have written a conclusion that restates my question and is consistent with the argument and evidence presented in my essay.
- Where appropriate, I have included in my conclusion any new or unresolved questions

**D: Presentation: Structure-Layout (4 points)**

-----I have written my essay with a clear and precise language.

-----is written in a clear and unambiguous way.

-----can be effectively dealt within the 4000-word limit of an extended essay.

----- I have a title page clearly stating my research question, the subject of my extended essay, candidate number and the final word count.

-----Each page of my essay is correctly numbered and includes my candidate number in the header

-----I have accurately and consistently cited all my sources in an accepted format.

----- My graphs, figures and tables are clearly labeled.

----- I have included either a bibliography or a works cited in an accepted and consistent format.

**E: Engagement: Process- Research focus(6 points)**

-----My essay reflects my best effort.

----- I have shown insight in my essay.

----- I have demonstrated depth of understanding of my chosen subject and topic.

----- I have demonstrated inventiveness and flair through my writing style.

**10. Extended Essay Supervisors**

The supervisors will be with you during the whole process. They will advise you; they will guide you in the skills of undertaking research; they will monitor your progress; they will read and comment on your work; they will submit a predicted grade; they will complete the supervisor's report (if the extended essay cover is not signed by both the



student and the supervisor, the essay will not be accepted for assessment and may be returned to the school), and they will try to detect possible cases of plagiarism.

The relationship between a student and their supervisor has to be built on mutual trust and respect. A supervisor is willing and able to help a student who is willing to meet their obligations. Remember that working with a supervisor is essentially enjoyable –it’s one of the few opportunities where you can engage in an in-depth dialogue with one of your teachers.

When it comes to signing the final coversheet, the supervisor must indicate how many hours have been spent with the candidate. The IBO expects between 2 to 4 hours in total. This means that the student must be very well prepared for all meetings set with their supervisor and that work should be sent ahead if possible.

The Supervisor is responsible for completing the Extended Essay coversheet that includes comments that will be the basis of Criteria E (Engagement). The Supervisor will comment upon a student’s initiative, enthusiasm, self-discipline, motivation, reliability and resourcefulness. In order to establish a good working relationship with the Supervisor from the start, it is essential that you carefully think through and show sufficient evidence to support your EE proposal. Make sure you communicate through Managebac. The supervisor does not write the Extended essay for you. They facilitate progress and can only meet with you for a given period of time. The Extended Essay is very much your responsibility as are the deadlines. Failing to meet deadlines will result in serious consequence which could lead to non-submission of Extended Essay therefore not meeting the requirements for full diploma.

## 11. Responsibilities of the students

It is required that students:

- choose a topic that fits into one of the subjects on the approved extended essay list.

**YOUR SUPERVISOR WILL NOT CHOOSE YOUR TOPIC, CORRECT OR EDIT YOUR DRAFT, OR CHECK YOUR CALCULATIONS.** The Supervisor may suggest approaches or sources for you to consider, but the decision to take or reject advice is YOURS. The essay is for YOU to plan, design and write. **YOUR SUPERVISOR IS NOT RESPONSIBLE FOR ITS SHORTCOMINGS OR FOR ITS SUCCESS.** Think very carefully about the research question for the essay;

- observe the regulations relating to the extended essay;
- Refer frequently to this guide. Check your work against the General Criteria for your subject. Keep a copy of these for yourself;
- meet deadlines;
- Consult your Supervisor at every stage. Make sure you use Managebac, you can create your own deadlines apart from the school ones. Before you can set deadlines successfully you will need to find your own weaknesses and strengths: are you a slow reader or writer? Do you work best intensely or regularly over longer periods of time? Make a list of these and then see how that will affect your schedule: for example, someone who doesn't like to spend much time actually writing should compensate for that by devoting more time to outlining and planning. Use the deadlines to plan a schedule for both researching and writing the essay, including extra time for delays and unforeseen problems;
- acknowledge all sources of information and ideas in an approved academic manner;
- IF YOU ARE CARELESS ABOUT CITING WORKS OR OTHER MATERIAL THAT YOU HAVE USED OR CONSULTED, YOUR ESSAY MAY BE REJECTED FOR PLAGIARISM. DO NOT TAKE THIS RISK. AVOIDING PLAGIARISM, WHETHER INTENTIONAL OR NOT, IS YOUR RESPONSIBILITY** (you will submit your Essay to [www.turnitin.com](http://www.turnitin.com) for an originality check);
- ALWAYS remember that whatever you include as part of your essay MUST HAVE documented evidence in support of it. You must show your Supervisor the books, material or evidence BEFORE you include it in your essay. If you do not, your Supervisor may refuse to sign off on your essay report;
- Check and proofread the final version carefully;
- make sure all basic requirements are met (for example all students should get full marks for the abstract).

## 12. Extended Essay Deadlines

<b>Etkinlik/Activity</b>	<b>Tamamlanma tarihi/ Date to be completed</b>
BT bilgilendirme toplantısının yapılması ve BT rehberinin incelenmesi/Holding the meeting to inform about EE and analysing EE guide	16.10.2019
Öğrencilerin BT danışmanları ile görüşmeleri/Meeting with EE supervisor	16-31.10.2019
EE branş ve danışman talep formunun doldurulması/Filling the application form for the subject and the supervisor	01.11.2019
EE Danışman ve branş belirlenmesi-Danışman ataması yapılması-Sözleşme imzalanması/Assigning the subject and the supervisor. Signing the EE agreement	04-15.11.2019
EE Danışmanı ile planlama yapılması/Planning the EE research and writing process with the supervisor	30.11.2019
Bir adet EE örneğinin değerlendirme kriterlerine göre okunması ve değerlendirilmesi/Reading and assessing a sample extended essay, using the assessment criteria	15.12.2019
Araştırma konusunun belirlenmesi-Konuyu tanımlayan araştırma sorusunun danışman ile görüşerek geliştirilmesi Deciding what to research-Identifying the topic and developing the research question with the supervisor	01.01.2020
Danışman ile görüşmeler yaptıktan sonra EE ile ilgili resmi bir taslak oluşturulması / Preparing an official draft for EE after discussing with the supervisor (FIRST REFLECTION)	15.01.2020
Gerekli ön çalışma, okuma, araştırma, deney vb. tamamlanması ve danışman ile kontrol edilmesi / Making the necessary preparations like studying,reading,researching and doing experiments, and checking them with the supervisor (INTERIM REFLECTION)	01.05.2020
Tamamlanmış ilk taslağın danışmana teslim edilmesi-Writing the complete first draft and submitting it to my supervisor,	01.06.2020
Danışmanın incelemesi, dönütler vermesi ve düzeltmelerin yapılması-Discussing the complete draft with the supervisor, getting feedback from the supervisor, and revising and proofreading	30.06.2020
EE son halinin teslim edilmesi/Submitting the final draft (FINAL REFLECTION)	31.10.2020
Danışman ile son resmi(sözlü) görüşmenin yapılması/Holding the final reflection session(viva voce)with the supervisor	31.10.2020
Reflection form ve turnitin kontrollerinin tamamlanması / Completing the reflection form and turning in electronic copy of EE	31.10.2020

### 13. Ethical guidelines for extended Essay research and fieldwork

The following guidelines apply to research and fieldwork in all extended essays.

- Extended essay students must exercise the greatest sensitivity to local and international cultures.
- Any research/fieldwork that creates anxiety, stress, pain or discomfort for participants is not permitted.
- Any research/fieldwork that involves unjustified deception, involuntary participation or invasion of privacy, including inappropriate use of information technology (IT), email and the internet, is prohibited.
- All participants in research activities must be informed before commencing the research that they have the right to withdraw at any time. Pressure must not be placed on any individual participant to continue with the investigation beyond this point.
- Each participant must be informed of the aims and objectives of the research and in addition be shown the results of the research.
- Informed consent should be obtained from the people who are the subject of the fieldwork. Research involving children needs the written consent of parent(s) or guardian(s). Students must ensure that parents are fully informed about the implications for children who take part in such research. Where research is conducted with children in a school, the written consent of the teachers concerned must also be obtained.
- Extended essay students must avoid conducting research with any adult who is not in a fit state of mind and cannot respond freely and independently.
- If any participant shows stress and/or pain at any stage of the research, the research must finish immediately, and the participant must be allowed to withdraw.
- Participants must be debriefed and given the right to withdraw their own personal data and responses. Anonymity for each participant must be guaranteed.
- All data collected must be kept in a confidential and responsible manner and not divulged to any other person.
- Research that is conducted online, using IT methods, is subject to the same guidelines. Any data collected online must be deleted once the research has been

completed. Such data must not be used for any purpose other than the conduct of the research.