

## REFLECTIONS ON PLANNING AND PROGRESS

Supervisor name										
Candidate session number	0	0								
Candidate name										
School number			0	0						
School name										
Examination session (May or November)					Year					

*Candidate: From May 2018, please refer to the 'Extended Essay Student Guide' when completing this form. This form is to be completed by the candidate during the course and completion of their EE. This document records reflections on your planning and progress, and the nature of your discussions with your supervisor. You must undertake three formal reflection sessions with your supervisor: The first formal reflection session should focus on your initial ideas and how you plan to undertake your research; the interim reflection session is once a significant amount of your research has been completed, and the final session will be in the form of a viva voce once you have completed and handed in your EE. This document acts as a record in supporting the authenticity of your work.*

The completion of this form is a mandatory requirement of the EE for first assessment May 2018. It must be submitted together with the completed EE for assessment under Criterion E.

*Supervisor: You must have at least three reflection sessions with each candidate, one early on in the process, an interim meeting and then the final viva voce. Other sessions are permitted but do not need to be recorded on this sheet. After each session candidates must record their reflections and as the supervisor you must sign and date this form.*

Reflections on planning and progress	Candidate comments	Date	Supervisor signature
First reflection session	My interest in fractals came from a class I had in Theory of Knowledge where I was asked to create a presentation about art. I am not really interested in art, but I am very interested in mathematics so I started looking for a connection between art and mathematics. I looked into how mathematical functions can generate patterns that could be classified as art and I found that the topic of fractal geometry fits this quite well. While researching fractals, I soon realized that there is a lot of math behind it all that cannot be explained in a Theory of Knowledge presentation and this is why I decided I would revisit this topic and write my		

	extended essay about fractals. My supervisor suggested expanding my sources.		
<b>Interim reflection</b>	<p>As advised, I have done a great deal of reading on the topic of fractals which is reflected in my bibliography.</p> <p>On further investigation into fractals and particularly the work of Benoit Mandelbrot, Pierre Fatou, and Gaston Julia. I decided I wanted to explore further the mathematics behind their sets and compare their findings. I have refined my research question to reflect this. RQ: <i>'What is the relationship between the Mandelbrot set and the Julia set; and how can these sets be expressed mathematically?'</i></p>		
<b>Final reflection – viva voce</b>	The process of writing my EE has been a fascinating one. I have particularly enjoyed discovering the connections between math and art through this research. I don't feel so alienated from the topic of art anymore. I have read a great deal on the topic of fractals both online and in print which has really informed my research and helped refine my research question. It is interesting to reflect on my extended essay journey, which started from a TOK class and grew into something that crosses a few subjects. I am proud of my research.		

**Supervisor's comments:**

The candidate has worked hard to develop his skills of communication in English to produce an interesting essay on a topic he is fascinated by. Discussions with him through the essay writing process leave me fully satisfied that he has a good grip of the topic he has written about and understands the material to the depth it is presented.

**Candidate's declaration**

*This declaration must be signed by the candidate; otherwise a grade may not be issued.*

The extended essay I am submitting is my own work (apart from guidance allowed by the International Baccalaureate).

I have acknowledged each use of the words, graphics or ideas of another person, whether written, oral or visual.

I am aware that the word limit for all extended essays is 4000 words and that examiners are not required to read beyond this limit.

This is the final version of my extended essay.

Candidate's signature	Date
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**Supervisor's declaration**

*This declaration must be signed by the supervisor; otherwise a grade may not be issued.*

I have read the final version of the extended essay that will be submitted to the examiner.

To the best of my knowledge, the extended essay is the authentic work of the candidate.

I spent  hours with the candidate discussing the progress of the extended essay.

Supervisor's signature	Date
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