

# IB Math Studies Project Rubric

Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

This project is worth 20% of your final grade. The maximum possible mark is 20. The criteria are split into seven areas:

Criterion A: Introduction			Comments
Achievement Level	Descriptor		
0	The project does not contain a clear statement of the task. There is no evidence in the project of any statement of what the student is going to do or has done.	<input type="checkbox"/> Does the student have a title page? <input type="checkbox"/> Clear Title <input type="checkbox"/> Name <input type="checkbox"/> Candidate Number <input type="checkbox"/> The date <input type="checkbox"/> Subject <input type="checkbox"/> Teacher's Name  Does introduction: <input type="checkbox"/> State exactly what you are going to do and why. <input type="checkbox"/> State how you are going to achieve this aim <input type="checkbox"/> Which mathematical processes you will use <input type="checkbox"/> Why you have chosen those processes.	
1	The project contains a clear statement of the task. For this level to be achieved the task should be stated explicitly.		
2	The project contains a title, a clear statement of the task and a description of the plan. The plan need not be highly detailed, but must describe how the task will be performed. If the project does not have a title this achievement level cannot be awarded.		
3	The project contains a title, a clear statement of the task and a detailed plan that is followed. The plan should specify what techniques are to be used at each stage and the purpose behind them, thus lending focus to the task.		

Criterion B: Information/Measurement			Comments
Achievement Level	Descriptor		
0	The project does not contain any relevant information collected or relevant measurements generated.	Did you make sure your data: <input type="checkbox"/> Was gathered from a survey, a questionnaire, calculation, the internet, etc. <input type="checkbox"/> Is sufficient to perform the mathematical processes you mentioned. <input type="checkbox"/> Is included – you can put data in the appendix too. <input type="checkbox"/> Is relevant, organized and ready for use. <input type="checkbox"/> Reorganized each time to suite calculations you are using.  Also: <input type="checkbox"/> Did you include a copy of the survey or questionnaire? <input type="checkbox"/> Describe the sampling process used if the data was taken from a secondary source.	
1	The project contains relevant information collected or relevant generated measurements. This achievement level can be awarded even if a fundamental flaw exists in the instrument used to collect the information, for example, a faulty questionnaire or an interview conducted in an invalid way.		
2	The relevant information collected, or set of measurements generated, is organized in a form appropriate for analysis or is sufficient in both quality and quantity. A satisfactory attempt has been made to structure the information/measurements read for the process of analysis, or the information/measurements collection process has been thoroughly described and the quantity of information justified. The raw data must be included for this achievement level to be awarded.		
3	The relevant information collected, or set of measurements generated, is organized in a form appropriate for analysis and is sufficient in both quality and quantity. If the information/measurements are too sparse or too simple this achievement level cannot be awarded. If information/measurements are from a secondary source then there must be evidence of sampling if appropriate. All sampling processes should be completely described.		

Criterion C: Mathematical Processes			Comments
Achievement Level	Descriptor		
0	The project does not contain any mathematical processes. For example where the processes have been copied from a book with no attempt being made to use any collected/generated information. Projects consisting of only historical accounts will achieve this level.	<input type="checkbox"/> Include at least two relevant simple mathematical processes. <input type="checkbox"/> Always put scales and labels on your graphs <input type="checkbox"/> State which processes you are going to use and why. <input type="checkbox"/> Discuss the validity of these processes. <input type="checkbox"/> Check to make sure that your results are accurate. <input type="checkbox"/> Check that your results are sensible. <input type="checkbox"/> Comment on your results <input type="checkbox"/> Introduce at least one relevant further mathematical process. <input type="checkbox"/> State why you are using this further process and make sure that it is relevant and valid.	
1	At least 2 simple mathematical processes have been carried out. Simple processes are considered to be those that a math studies student could carry out easily; for example, percentages, areas of plane shapes, graphs, trigonometry, bar charts, pie charts, mean and standard deviation, substitution into formulae and ANY calculations/graphs using technology only.		
2	At least two simple mathematical processes have been carried out correctly. A small number of isolated mistakes should not disqualify a student from achieving this level. If there is incorrect use of formulae, or consistent mistakes using data, this level cannot be awarded.	<input type="checkbox"/> For both simple and further processes, make sure that you do one calculation of each process by hand. You can use your GDC to perform similar calculations.	
3	At least two simple mathematical processes have been carried out correctly. All process used are relevant. The simple mathematical processes must be relevant to the stated aim of the project.	<input type="checkbox"/> If you find the standard deviation, then comment on it. <input type="checkbox"/> For the chi-squared test to be valid the entries must be frequencies – not raw data or percentages, and, if the degree of freedom is 1, then Yate's continuity correction should be applied. No expected values should be less than 5.	
4	The simple relevant mathematical processes have been carried out correctly. In addition at least one relevant further process has been carried out. Examples of further processes are differential calculus, mathematical modeling, optimization, analysis of exponential functions, statistical tests and distributions, compound probability. For this level to be achieved it is not required that the calculation of the further process be without error. At least one further process must be calculated showing full working.	<input type="checkbox"/> For linear correlation there is no point finding the equation of the regression line if the correlation coefficient is weak or if you can see from the scatter diagram that there is no correlation.	
5	The simple relevant mathematical processes have been carried out correctly. In addition at least one relevant further process has been carried out. All processes, both simple and further, that have been carried out are without error. If the measurements, information or data are limited in scope then this achievement level cannot be awarded.		

Criterion D: Interpretation of Results			Comments
Achievement Level	Descriptor		
0	The project does not contain any interpretations or conclusions. For the student to be awarded this level there must be no evidence of interpretation or conclusions anywhere in the project, or a completely false interpretation is given without reference to any of the results obtained.	<input type="checkbox"/> After every graph or calculation make a comment – are your results what you expected? Are they meaningful? <input type="checkbox"/> Always give a thorough and detailed analysis of all your results. <input type="checkbox"/> Make sure that you “follow through” with the results of your mathematical processes. Even if your mathematics contain errors, as long as your interpretation or conclusion follows on from that wrong answer then you will be awarded the marks. <input type="checkbox"/> Make sure that your project is not a “simple one” with only a few simple mathematical processes. If there are only a few processes then there is very little to comment on. This is also the case when the project is very short.	
1	The project contains at least one interpretation or conclusion. Only minimal evidence of interpretation or conclusions is required for this level. This level can be achieved by recognizing the need to interpret the results and attempting to do so, but reaching only false or contradictory conclusions.		
2	The project contains interpretations and/or conclusions that are consistent with the mathematical processes used. A “follow through” procedure should be used, and, consequently, it is irrelevant here whether the processes are either correct or appropriate; the only requirement is consistency.		
3	The project contains a meaningful discussion of interpretation and conclusions that are consistent with the mathematical processes used. To achieve this level the student would be expected to produce a discussion of the results obtained and the conclusion drawn based on the level of understanding reasonably to be expected from a student of Math Studies. This may lead to a discussion of underlying reasons of results obtained. If the project is a very simple one, with few opportunities of substantial interpretation, this achievement level cannot be awarded.		

Criterion E: Validity			Comments
Achievement Level	Descriptor		
0	There is no awareness shown that validity plays a part in the project.	<input type="checkbox"/> Discuss the validity of any techniques you have used – are they appropriate to the situation? <input type="checkbox"/> Discuss any problems with data collection or samples that might affect the validity. <input type="checkbox"/> Discuss the validity of the results – can they be interpreted meaningfully? <input type="checkbox"/> If you think that validity is not an issue in your project then you need to fully justify this.	
1	There is an indication with reasons if and where validity plays a part in the project. There is discussion of the validity of the techniques used or recognition of any limitation that might apply. A simple statement such as “I should have more information/measurements” is not sufficient to achieve this level. If the student considers that validity is not an issue, this must be fully justified.		

Criterion F: Structure and Communication			Comments
Achievement Level	Descriptor	<input type="checkbox"/> Your project should be structured in a logical way. <input type="checkbox"/> Include the table of the data you will be using before each process. <input type="checkbox"/> Remember to put scales and labels on your graphs. <input type="checkbox"/> Your project should “read well”. <input type="checkbox"/> Your project should contain footnotes as appropriate. <input type="checkbox"/> Your project should contain a bibliography as appropriate. <input type="checkbox"/> Your project should be focused and contain only relevant discussions. <input type="checkbox"/> You should be able to give your project to anyone to read and they should understand it without having to ask you any questions.	
0	No attempt has been made to structure the project.		
1	Some attempt has been made to structure the project. Partially complete and very simple projects would only achieve this level.		
2	The project has been structured in a logical manner so that it is easily followed. There must be a logical development to the project. The project must reflect the appropriate commitment for this achievement level to be awarded.		
3	The project has been well structured in accordance with the stated plan and is communicated in a coherent manner. To achieve this level the project would be expected to read well, and contain footnotes and a bibliography, as appropriate. The project must be focused and contain only relevant discussions		

Criterion G: Notation and Terminology			Comments
Achievement Level	Descriptor	<input type="checkbox"/> Your project should contain correct mathematical notation and terminology. <input type="checkbox"/> Do not use calculator notation!	
0	The project does not contain correct mathematical notation or terminology.		
1	The project contains some correct mathematical notation or terminology.		
2	The project contains correct mathematical notation and terminology throughout. Variable should be explicitly defined. An isolated slip in notation need not preclude a student from achieving this level. If it is a simple project requiring little or no notation/terminology this achievement level cannot be awarded.		

Total Score \_\_\_\_\_

Additional Comments: