

## IB Math Studies SL – Internal Assessment Project Details

Review the following information about the Internal Assessment Project. We will start talking about it more once school starts and before Fall Break. Start thinking about a possible Project Idea.

### Purpose of the Internal Assessment (IA)

Internal assessment is an integral part of the course and is required for all students. It enables students to demonstrate the application of their skills and knowledge, and to pursue their personal interest, without the time limitations and other constraints associated with written examinations. Internal assessment in Math Studies SL is an INDIVIDUAL project. This is a piece of written work based on personal research involving the collection, analysis, and evaluation of data. It is marked according to seven assessment criteria:

Criterion	Points Possible	Component
A	3	Introduction
B	3	Information / Measurement
C	5	Mathematical Processes
D	3	Interpretation of Results
E	1	Validity
F	3	Structure and Communication
G	2	Notation and Terminology

For students taking the IB Exam for this class, there are three assessments for IB Math Studies SL: Paper 1 = 40%, Paper 2 = 40%, IA project = 20%

### Project Details and Requirements:

- The project submitted MUST be the student's own work
- Historical project that reiterate facts but have little mathematical content are NOT appropriate for this task and are discouraged.
- Group work is NOT permitted for this project. Each project is an individual piece of work based on different data collected or measurements generated.
- Approximately 25 class hours will be allocated for the IA project. Additional time outside of class will be required for research and writing the project components.
- Students should choose from a wide variety of project types, such as modeling, investigations, applications, and/or statistical surveys.
- Guidance will be provided by the teacher in selecting appropriate topics and throughout the process to assist students with their project. The teacher will monitor student progress to ensure authenticity of work and assist in selecting sources usable in the IA project. The teacher will NOT assign the project topic.
- The word count for the project will vary for each topic and math process needed. Each project should contain at least 1000 words, with a maximum of 2000 words.

## Components:

Each project must contain

- Title – simple, not cute, can be a question
- Statement of Task – What is your project about and what is its purpose?
- Plan of Action – What steps will you take to complete the project? This is prospective, prior to research and calculations. Later in your paper, you will state what actually happened and whether you had to deviate from your initial plans. Explain the math process you plan to use AND how it will be useful in completing the task. Use LOTS of mathematical vocabulary in this section. \*\*If using a survey, I need to review it before you distribute it.
- Measurements, Information, and/or Data – This needs to be collected, researched, and/or generated. State how and where you found your data. Graphs and charts may be included to communicate the results of the data collection. Drawing graphs and charts does NOT count as a math process. Include your raw data lists and/or survey results in an appendix.
- Analysis of the Measurements / Information / Data – Now you DO the math! You must show ALL parts of the mathematical calculations correctly to receive the maximum points. There are additional points at risk if your work does not include extended mathematical calculations.
- Interpretation of Results – Include a discussion on validity. What were the results of your mathematical analysis? What were some things that might hinder the validity of your project? Use lots of math vocabulary here.
- Appropriate Notation and Terminology – Does your paper read well? Are all math terms used correctly? Use your IB writing skills!
- List of References – List all sources, including websites and/or textbooks, from which you pulled data, terminology, and/or formulas.

## Additional Information and Links:

Sample Projects can be seen at

[http://xmltwo.ibo.org/publications/DP/Group5/d\\_5\\_matsd\\_tsm\\_1205\\_1/html/67.207.142.65/exist/rest/app/tsm.xml@doc=d\\_5\\_matsd\\_tsm\\_1205\\_1\\_e&part=2&chapter=1.html](http://xmltwo.ibo.org/publications/DP/Group5/d_5_matsd_tsm_1205_1/html/67.207.142.65/exist/rest/app/tsm.xml@doc=d_5_matsd_tsm_1205_1_e&part=2&chapter=1.html)

Topic Ideas can be found on the attached sheet or at

<https://ibmathsresources.com/maths-studies-ia-exploration-topics/>

\*\*\*These links are also on my website at <https://fchsmrshaley.weebly.com/>  
(Go to the Math Studies Tab)

# Maths Studies Project Ideas

## Aesthetics

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- Calculating beauty – Golden Ratio
- Colour preferences
- Illusions
- Mirror images
- Origami applications to mathematics
- Shadows and height

## Business & Finance

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- A comparative study of stocks and shares
- Analysis of stock market changes
- Buying a car – payment options
- Mortgage loans
- Running a restaurant and dance club
- Yen/dollar fluctuations

## Food and Drink

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- A comparison between calorie intake and gender
- Dine in or dine out?
- School lunches
- Jelly bean study
- Take the cola challenge
- The cookie problem – taste is all important
- The operation of a tuck shop

## Health & Fitness

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- Breakfast and school grades
- Breast and cervical cancer – ethnic comparison
- Infant mortality
- Investigating reaction times
- A comparison between lung capacity, age, weight and body fat

## Nature and Natural Resources

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- Analysis of the cost and utility of gas versus electricity in an average domestic situation
- Calculating the time of sunrise & sunset
- Earthquakes
- Kangaroo Island koalas
- The quality of local water
- Water, wine & roses

## People

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- Aggression
- Characteristics of federal prisoners
- Gender based discrimination
- Marriage celebrants
- Perception of time
- The psychology of memory
- Voter turnout

## School-based titles

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- Alcohol consumption and teenagers
- Girls sport and grades
- Left-handed students
- Performance of local students compared with foreign students
- Searching for the ideal sound
- Sport and nationality

## Sport

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- Bat speed compared with body weight
- Effective short corners in hockey
- Factors affecting athletic performance
- How far do tennis balls roll?
- Resistance of fishing line
- Stoppage time in football games
- Will female swimmers ever overtake male swimmers?

## Travel & Transport

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- Air travel – distance compared with price
- Cost efficiency of vehicles
- Driving skills
- Petrol prices
- Seat belt use
- Traffic movement in an urban area
- Transport safety in town centres
- Running late and driving habits

## Miscellaneous

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- Astronomy
- Average puppy weights in the first few weeks
- Colour of words
- Counting weeds
- International phone call pricing
- Memory
- Practice makes perfect
- Predicting cooling times
- Video games and response times

Look through these ideas for projects. Maybe they will give you an original idea of your own.

Write down ideas of projects that might interest you. What information would you need to collect? Which mathematical skills would you be able to demonstrate? Also check out

<https://ibmathsresources.com/maths-studies-ia-exploration-topics/>

## Project Ideas:

- Conduct a survey of boxes of matches, packets of sweets, cans of soft drink, or any other item where the number, volume or weight of the contents is given. Compare your results with the advertised value.
- The prices of shares on a national stock exchange can be summarised by a “share price index” or “stock index”. Different countries use different indices, and some countries use more than one. Find the name of the main share price index used by your own country, and how it is calculated. How has the national share market performed over the last ten weeks?
- Use the results of the last census to investigate your local government area. Possible subjects could be household incomes, number of cars per household, number of children per family, or age distribution.
- Find out how the population of your town, city, state or country has changed over time.
- Graph the daily share price of a listed company for ten weeks. Find out what a ‘moving average’ is and how it is calculated. Calculate a five-day moving average for your share price data, recording the results on the same set of axes. Compare the two graphs, commenting on the similarities and differences. What might you use the moving average share price for?
- Choose a small business, for example a delicatessen, lawnmowing round, or hairdresser. Investigate what statistics might be recorded by the business, and how they could use data for the local government area.
- Statistics are collected on the number of road accidents and the number of deaths on the roads in a region. Contact an appropriate source of information such as the Department of Road Transport to get copies of reports they produce. Use the information to study road safety in your area.
- Investigate which names are the most popular in your city, region or country. One way to do this would be to record the names listed in the birth notices in the newspaper.
- Each day the weather bureau predicts the maximum and minimum temperatures for the next day, as well as reporting the temperature of the current day. Conduct a statistical investigation comparing the actual and predicted temperatures.
- TV and radio stations are very concerned about “ratings”. Find out what these are and how they are calculated. Compare different stations that broadcast in your area, or track one station’s ratings over a 10-week period.

## Useful Links:

- United Nations demographics page (international population, trade, housing, wealth): <http://unstats.un.org/unsd/demographic/default.htm>
- Food and Agriculture Organization of the United Nations (food trade and consumption) <http://faostat.fao.org/site/342/default.aspx>
- World Health Organization (disease and health care): <http://www.who.int/gho/en/>