IB Math Studies

Mr. Steponic

Intro / Data Collection Rubric

For your next installment of your project, you will email two files to me:

1) An Excel spreadsheet with all of your data

* appropriate column and/or row headings

2) A Word document with

* your title page and an updated “Statement of the Task” section
* a new detailed “Data Collection Procedure” section
* an Appendix section with your survey form (if you are using one)
* an Appendix section containing all of your data with appropriate column and/or row headings

**Criterion A: Introduction**

In this context, the word “task” is defined as “what the student is going to do”; the word “plan” is defined as “how the student is going to do it”. A statement of the task should appear at the beginning of each project. It is expected that each project has a clear title.

|  |  |
| --- | --- |
| 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.  |
| 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

In this context, generated measurements include those that have been generated by computer, by observation, by prediction from a mathematical model or by experiment. Mathematical information includes geometrical figures and data that are collected empirically or assembled from outside sources. This list is not exhaustive and mathematical information does not solely imply data for statistical analysis. If a questionnaire or survey is used then a copy of this along with the raw data must be included.

|  |  |
| --- | --- |
| Achievement level  | Descriptor |
| 0 | The project does not contain any relevant information collected or relevant measurements generated. *No attempt has been made to collect any relevant information or to generate any relevant measurements.*  |
| 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 ready for the process of analysis,* **or** *the information/measurement 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. *The information/measurements have been properly structured ready for analysis* **and** *the information/measurement collection process has been thoroughly described and the quantity of information justified. If the information/measurements are too sparse or too simple, this achievement level cannot be awarded. If the information/measurements are from a* **secondary** *source, then there must be evidence of sampling if appropriate. All sampling processes should be completely described.*  |

**Data Collection Procedure**

At this point, the countries I have examined are Great Britain and the United States. I have chosen these particular nations because they have both participated in almost all the Olympics since 1952. In addition, these are two of the most successful participants in the history of Olympics. The US, however, did not participate in the 1980 summer Olympics due to the political decision made to boycott Russia. For this reason, I have omitted the 1980 summer Olympics GDP per capita and medal counts for both countries from my data processing and analysis.

Most of my raw data collection has been taken from websites such as http://usgovernmentspending.com, http://ukpublicspending.co.uk, and http://olympic.it. These websites do not offer the GDP per capita value of 1952-2008, thus I have calculated the GDP per capita manually since the sites only offer total GDP and populations. I have listed out the population as it is required in order to calculate GDP per capita. The table of the raw data appears in Appendix A.

**Appendix A**

|  |
| --- |
| Great Britain (raw) |
| Year | GDP (billion) | Population (million) | Medals won (Summer) |
| 1952 | 15.983 | 50.536 | 11 |
| 1956 | 20.956 | 51.533 | 24 |
| 1960 | 25.997 | 52.55 | 20 |
| 1964 | 33.228 | 53.725 | 18 |
| 1968 | 43.656 | 54.973 | 13 |
| 1972 | 64.621 | 55.97 | 18 |
| 1976 | 126.274 | 56.14 | 13 |
| 1980 | 233.184 | 56.31 | 21 |
| 1984 | 329.913 | 56.68 | 37 |
| 1988 | 478.51 | 57.112 | 24 |
| 1992 | 622.08 | 57.604 | 20 |
| 1996 | 781.726 | 58.27 | 15 |
| 2000 | 976.282 | 58.944 | 28 |
| 2004 | 1202.37 | 60.145 | 30 |
| 2008 | 1433.87 | 61.548 | 47 |

|  |
| --- |
| U.S.A (raw) |
| Year | GDP (billion) | Population (million) | Medals won (Summer) |
| 1952 | 358.3 | 156.552 | 76 |
| 1956 | 437.4 | 167.551 | 74 |
| 1960 | 526.4 | 179.323 | 71 |
| 1964 | 663.6 | 188.555 | 90 |
| 1968 | 909.8 | 198.263 | 107 |
| 1972 | 1273.9 | 207.752 | 94 |
| 1976 | 1824.6 | 216.945 | 94 |
| 1980 | 2788.1 | 226.546 | N/A |
| 1984 | 3930.9 | 235.164 | 174 |
| 1988 | 5100.4 | 244.11 | 94 |
| 1992 | 6342.3 | 254.933 | 108 |
| 1996 | 7838.5 | 267.85 | 101 |
| 2000 | 9951.5 | 282.172 | 97 |
| 2004 | 11853.3 | 293.046 | 102 |
| 2008 | 14369.1 | 303.38 | 111 |

**Data Collection Procedure**

 The data that I have collected is a compilation of primary sourced data and secondary sourced data. The type of data that was accumulated for this investigation was the names of the universities that former graduates (Class of 2012) in my school decided to attend in the United States and the number of IB and AP classes each of these students took. I focused on the United States because many of the other international universities that students attended don’t have published records of their rankings in comparison with other universities. Thus, by limiting the number of students involved, my sample now consists of 38 students. In order to fully understand the involvement of IB and AP courses in college acceptances, I made comparisons between students taking the minimum of one up to the maximum of six IB and AP courses during their senior year. As for college rankings, I have acquired official nationwide rankings from ‘2012 US News College Ranks’. The table of the raw data appears in Appendix A.

**Appendix A**

|  |  |  |  |
| --- | --- | --- | --- |
| **Student Identification** | **Number of IB and AP Courses** | **Name of university in the U.S** | **Ranking of University in 2012 US World News Report** |
| Student 1 | 6 | Yale University | 3 |
| Student 2 | 6 | Emerson College | 40 |
| Student 3 | 6 | University of Miami | 44 |
| Student 4 | 3 | Wentworth Institute of Technology | 245 |
| Student 5 | 3 | Northeastern University | 56 |
| Student 6 | 1 | Suffolk University | 245 |
| Student 7 | 6 | UC Berkeley  | 21 |
| Student 8 | 2 | Northeastern University | 56 |
| Student 9 | 3 | Boston University | 51 |
| Student 10 | 4 | Boston University | 51 |
| Student 11 | 6 | Texas A&M | 65 |
| Student 12 | 6 | Northeastern University | 56 |
| Student 13 | 6 | Harvard University | 1 |
| Student 14 | 0 | Texas A&M | 65 |
| Student 15 | 2 | Suffolk University | 245 |
| Student 16 | 3 | Northeastern University | 56 |
| Student 17 | 0 | Tallahassee Community College | 532 |
| Student 18 | 4 | University of Virginia | 24 |
| Student 19 | 2 | University of Texas-Arlington | 264 |
| Student 20 | 2 | Wentworth Institute of Technology | 234 |
| Student 21 | 6 | Cornell University | 15 |
| Student 22 | 3 | University of San Diego | 95 |
| Student 23 | 0 | Savannah State University | 375 |
| Student 24 | 2 | University of San Diego | 95 |
| Student 25 | 3 | University of West Virginia | 165 |
| Student 26 | 2 | University of the District of Columbia | 245 |

**Data Collection Procedure**

In order to pursue my research question I collected the number of AP/IB courses and the hours of study time per week for students at two different schools. I gathered information from students in my IB classes as well as sophomores, juniors and seniors who are taking AP and IB courses. I obtained the data from the students in Bahrain School and Ibn Khuldoon National School. I had to reach out to students from different schools due to the limited students in my school. I excluded the school hours, and the time the students slept, therefore the results directly demonstrate the impact of the number of IB/AP courses have on a student’s free time. I gained this information by constructing a survey that presents the amount of leisure time, study time and the amount of IB/AP courses. The survey instrument is presented in Appendix A.

I handed this survey out to fifteen students of each category who take from zero to six IB/AP courses. [[1]](#footnote-1)Unfortunately, I could not find anyone who participates in five AP or IB classes. They carried this survey all week and gathered information about their leisure time and study time each day and what they did with it. Then I totaled the amount for the week. By directly communicating with each student, I tried to assess who would be most reliable in completing their surveys. However, I have no way of knowing whether or not students completed their surveys honestly; the quality of the data remains questionable. In total I collected around 180 surveys.

**Appendix A: Data Collection Survey**

**Name: Grade:**

How many IB/AP classes are you taking?

What IB/AP classes are you participating in?

Complete the table below:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Days: | Saturday  | Sunday  | Monday | Tuesday  | Wednesday | Thursday | Friday |
| Hours of studying time |  |  |  |  |  |  |  |
| Hours of leisure time |  |  |  |  |  |  |  |

What activities do you occupy yourself with during your leisure time?

**Appendix B**

Number of IB/AP courses vs. Study Time (per week)

|  |  |  |
| --- | --- | --- |
| Student 1 | 0 | 5 |
| Student 2 | 0 | 12 |
| Student 3 | 0 | 7 |
| Student 4 | 0 | 10 |
| Student 5 | 0 | 7 |
| Student 6 | 0 | 8 |
| Student 7 | 0 | 13 |
| Student 8 | 0 | 6 |
| Student 9 | 0 | 9 |
| Student 10 | 0 | 8 |
| Student 11 | 0 | 10 |
| Student 12 | 0 | 5 |
| Student 13 | 0 | 28 |
| Student 14 | 0 | 8 |
| Student 15 | 0 | 7 |
| Student 16 | 1 | 7 |
| Student 17 | 1 | 21 |
| Student 18 | 1 | 17 |
| Student 19 | 1 | 6 |
| Student 20 | 1 | 13 |
| Student 21 | 1 | 12 |
| Student 22 | 1 | 8 |
| Student 23 | 1 | 9 |
| Student 24 | 1 | 11 |
| Student 25 | 1 | 10 |
| Student 26 | 1 | 6 |
| Student 27 | 1 | 12 |
| Student 28 | 1 | 10 |
| Student 29 | 1 | 11 |
| Student 30 | 1 | 15 |
| Student 31 | 2 | 19 |
| Student 32 | 2 | 12 |
| Student 33 | 2 | 4 |
| Student 34 | 2 | 10 |
| Student 35 | 2 | 21 |
| Student 36 | 2 | 10 |
| Student 37 | 2 | 11 |
| Student 38 | 2 | 8 |
| Student 39 | 2 | 13 |
| Student 40 | 2 | 10 |
| Student 41 | 2 | 14 |
| Student 42 | 2 | 8 |
| Student 43 | 2 | 9 |
| Student 44 | 2 | 10 |
| Student 45 | 2 | 12 |
| Student 46 | 3 | 25 |
| Student 47 | 3 | 21 |
| Student 48 | 3 | 18 |
| Student 49 | 3 | 21 |
| Student 50 | 3 | 22 |
| Student 51 | 3 | 18 |
| Student 52 | 3 | 20 |
| Student 53 | 3 | 19 |
| Student 54 | 3 | 17 |
| Student 55 | 3 | 21 |
| Student 56 | 3 | 23 |
| Student 57 | 3 | 25 |
| Student 58 | 3 | 21 |
| Student 59 | 3 | 19 |
| Student 60 | 3 | 12 |
| Student 61 | 4 | 28 |
| Student 62 | 4 | 22 |
| Student 63 | 4 | 15 |
| Student 64 | 4 | 30 |
| Student 65 | 4 | 24 |
| Student 66 | 4 | 26 |
| Student 67 | 4 | 23 |
| Student 68 | 4 | 31 |
| Student 69 | 4 | 21 |
| Student 70 | 4 | 25 |
| Student 71 | 4 | 26 |
| Student 72 | 4 | 22 |
| Student 73 | 4 | 30 |
| Student 74 | 4 | 23 |
| Student 75 | 4 | 21 |
| Student 76 | 6 | 32 |
| Student 77 | 6 | 31 |
| Student 78 | 6 | 43 |
| Student 79 | 6 | 37 |
| Student 80 | 6 | 37 |
| Student 81 | 6 | 52 |
| Student 82 | 6 | 60 |
| Student 83 | 6 | 43 |
| Student 84 | 6 | 40 |
| Student 85 | 6 | 33 |
| Student 86 | 6 | 54 |
| Student 87 | 6 | 38 |
| Student 88 | 6 | 43 |
| Student 89 | 6 | 38 |
| Student 90 | 6 | 56 |

Number of IB/AP courses vs. Leisure Time (per week)

|  |  |  |
| --- | --- | --- |
| Student 1  | 0 | 39 |
| Student 2 | 0 | 30 |
| Student 3 | 0 | 72 |
| Student 4 | 0 | 47 |
| Student 5 | 0 | 56 |
| Student 6 | 0 | 27 |
| Student 7 | 0 | 76 |
| Student 8 | 0 | 46 |
| Student 9 | 0 | 34 |
| Student 10 | 0 | 63 |
| Student 11 | 0 | 56 |
| Student 12 | 0 | 32 |
| Student 13 | 0 | 54 |
| Student 14 | 0 | 30 |
| Student 15 | 0 | 63 |
| Student 16 | 1 | 34 |
| Student 17 | 1 | 32 |
| Student 18 | 1 | 46 |
| Student 19 | 1 | 30 |
| Student 20 | 1 | 23 |
| Student 21 | 1 | 47 |
| Student 22  | 1 | 36 |
| Student 23 | 1 | 38 |
| Student 24 | 1 | 44 |
| Student 25 | 1 | 52 |
| Student 26 | 1 | 48 |
| Student 27 | 1 | 53 |
| Student 28 | 1 | 21 |
| Student 29 | 1 | 37 |
| Student 30 | 1 | 23 |
| Student 31 | 2 | 33 |
| Student 32 | 2 | 30 |
| Student 33 | 2 | 46 |
| Student 34 | 2 | 45 |
| Student 35 | 2 | 53 |
| Student 36 | 2 | 45 |
| Student 37 | 2 | 43 |
| Student 38 | 2 | 35 |
| Student 39 | 2 | 33 |
| Student 40 | 2 | 48 |
| Student 41 | 2 | 42 |
| Student 42 | 2 | 30 |
| Student 43 | 2 | 41 |
| Student 44 | 2 | 35 |
| Student 45 | 2 | 21 |
| Student 46 | 3 | 40 |
| Student 47 | 3 | 42 |
| Student 48 | 3 | 34 |
| Student 49 | 3 | 43 |
| Student 50 | 3 | 46 |
| Student 51 | 3 | 12 |
| Student 52 | 3 | 34 |
| Student 53 | 3 | 30 |
| Student 54 | 3 | 38 |
| Student 55 | 3 | 46 |
| Student 56 | 3 | 48 |
| Student 57 | 3 | 44 |
| Student 58 | 3 | 42 |
| Student 59 | 3 | 36 |
| Student 60 | 3 | 49 |
| Student 61 | 4 | 19 |
| Student 62 | 4 | 46 |
| Student 63 | 4 | 40 |
| Student 64 | 4 | 57 |
| Student 65 | 4 | 31 |
| Student 66 | 4 | 34 |
| Student 67 | 4 | 37 |
| Student 68 | 4 | 42 |
| Student 69 | 4 | 42 |
| Student 70 | 4 | 45 |
| Student 71 | 4 | 14 |
| Student 72 | 4 | 37 |
| Student 73 | 4 | 36 |
| Student 74 | 4 | 32 |
| Student 75 | 4 | 30 |
| Student 76 | 6 | 5 |
| Student 77 | 6 | 10 |
| Student 78 | 6 | 19 |
| Student 79 | 6 | 15 |
| Student 80 | 6 | 16 |
| Student 81 | 6 | 15 |
| Student 82 | 6 | 12 |
| Student 83 | 6 | 27 |
| Student 84 | 6 | 8 |
| Student 85 | 6 | 18 |
| Student 86 | 6 | 12 |
| Student 87 | 6 | 8 |
| Student 88 | 6 | 19 |
| Student 89 | 6 | 12 |
| Student 90 | 6 | 10 |

# Data Collection Procedure

To collect the data, I went to the assistant to the school counselors. He provided me with the total male and female students in each grade for high school last year (2010-2011) semester and this year’s semester (2011-2012). As grade point averages are confidential records Mr. Frerot gave me the school’s honor roll that was published for last year (2010-2011) semester and this year’s semester (2011-2012) which were separated by grade. From there, I identified and counted the males and females for each grade level. The tables with the raw data are in Appendix A. Then I calculated all honor roll students from each grade and by gender. That helped me determine whether academic performance is independent of gender.

## Appendix A: Raw Data



1. I believe that is finding fifteen participants that takes five IB/AP courses is extremely hard in the Kingdom of Bahrain because of the limited schools that offer these courses. Usually a student is either full IB, which means they take six IB courses or an AP student. The AP courses presented in Bahrain School are extremely limited thus making it impossible to obtain data from a student in five IB/AP classes. [↑](#footnote-ref-1)