**ADVANCED MANAGEMENT SERVICES CSEC MATHEMATICS**

**School Based Assessment**



Candidate Name: Sample SBA

Candidate No.: 03011301111

School: Advance Management Services

School Code: 030113

Teacher: Mr. Anthony Green

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Territory: BARBADOS

**Contents**

[**PROJECT TITLE** 3](#_Toc96552695)

[**OBJECTIVES** 4](#_Toc96552696)

[**INTRODUCTION** 5](#_Toc96552697)

[**COLLECTION OF DATA** 6](#_Toc96552698)

[**DATA PRESENTATION** 7](#_Toc96552699)

[**BAR CHART** 8](#_Toc96552700)

[**LINE GRAPH** 9](#_Toc96552701)

[**ANALYSIS OF DATA** 10](#_Toc96552702)

[**DISCUSSING OF FINDINGS** 11](#_Toc96552703)

[**CONCLUSION** 12](#_Toc96552704)

# **PROJECT TITLE**

Does the amount of weight carried by an athlete affect their speed over 100m?

# **OBJECTIVES**

The aim or focus of this assessment is to determine if the amount of weight carried by an athlete over one hundred metres (100m), will affect his or her performance.

# **INTRODUCTION**

This school-based assessment is a compiled analysis of athletes running with and without weight. In this document, readers will review the designed Graphs and Tables that illustrate and highlight the data information collected during this report.

# **COLLECTION OF DATA**

This information was gathered on the 5 January 2022 from the Rising Stars Track Club while they were training at the Bagatelle Playing field in St. Thomas.

To achieve the required result for this report a data group comprising of twenty (20) persons both male and female equally was required. This analysis provided the opportunity to observe, the twenty (20) athletes as they ran one hundred meters (100m) and to determine if the times gathered were the same with or without the added weight.

These participants comprised of persons within the under 15 and 17 age categories. The participants first ran a normal one hundred meter (100m) without weights and then they ran a weighted one-hundred-meter (100m) which consisted of running while holding a two-pound (2lb) weight in hand. During this time, I observed and recorded the time it took the athletes to complete this circuit. This allowed me to differentiate and record each athlete as they ran the weighted and unweighted one hundred metres (100m).

This data was compiled and assessed over a two-week period. The equipment used to gather this information was a stopwatch, a tabled list of athletes and a marked one hundred metres (100m) grass track. Athletes first ran the regular 100 m individually, under starters orders, and then took a ten (10) minute break to facilitate a full recovery before running with the two-pound (2lbs) weight.

The following is a representation of our findings.

# **DATA PRESENTATION**

Below is a table which highlights the times ran by each athlete on 5 January 2022with and without weight.

|  |  |  |
| --- | --- | --- |
| **Names** | **100m without 2Lbs (seconds)** | **100m with 2Lbs (seconds)** |
| Maegan | 14:56 | 15:07 |
| Dania Haynes | 13:20 | 13:51 |
| Naiobi | 14:32 | 14:51 |
| Tania | 13:46 | 14:04 |
| Tia | 13:90 | 13:92 |
| Dania Lewis | 13:90 | 14:63 |
| Zaria | 14:95 | 15:54 |
| Azaria | 13:38 | 15:16 |
| Alexus | 15:60 | 17:82 |
| Rowland | 15:61 | 15:28 |
| Ori | 11:48 | 12:03 |
| Delano | 12:41 | 12:80 |
| R’jai | 12:52 | 13:02 |
| Marco | 13.51 | 13.65 |
| Jaheem | 13:19 | 12:96 |
| Marquez | 12:27 | 12:05 |
| Zavier | 12:99 | 13:72 |
| Jamarco | 11:50 | 11:96 |
| Nikkolai | 11:81 | 12:84 |
| Jadon | 12:54 | 13:31 |

*Figure 1 showing times ran by athletes with and without weight.*

# **BAR CHART**

*Figure 2 showing Bar Chart*.

# **LINE GRAPH**

*Figure 3 showing a Line Graph*

# **ANALYSIS OF DATA**

The table below is a data representation and comparison of athletes running one hundred metres (100m) with weight and without weight, as well as their Average/Mean times. The participants ran better times without weight as opposed to the weighted one hundred metres. This was done by both males and females.

The males mean time was 12:42 seconds which is .41 seconds faster than their weighted time of 12:83 seconds. The females regular one hundred metres (100m) was also better than their weighted race which carried a bigger differentiation of .66 seconds greater than that of 14:29 seconds.

Only one athlete seemed equally poised, running a mere .02 second differences from her normal one hundred (100m). This athlete was participant number five (#5) Tia, as shown in diagram one (1).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Average** | | | | |
| **Title** | **Times without Weight** | **Mean Times without Weights** | **Times with Weighted** | **Mean Times with Weights** |
| **Females** | 142.88 | 14:29 | 149.48 | 14:95 |
| **Males** | 124.22 | 12:42 | 128.34 | 12:83 |
| **Overall Total** | 267.10 | 13.36 | 277.82 | 13:89 |

*Figure 4 showing the Mean times ran by Females, Males and Overall, in both one hundred metres (100m).*

# **DISCUSSING OF FINDINGS**

From the Bar Graph, on page eight, it was indicated that almost 75% ran slower with the weight. Below is a further break down of my findings.

It was discovered that most athletes ran better times without the weight, and I realized a slight difference. One fifth (1/5) of the males who participated ran faster times with the weight. One female also ran a faster time with the weight. This was found in athletes ten (10), fifteen (15) and sixteen (16) who were Rowland, Jaheem and Marquez.

Four fifths (4/5) of the females ran under fifteen (15) seconds while the other one fifth (1/5) ran over fifteen (15) seconds without the weight.

With the males, two fifths (2/5) ran under thirteen (13) seconds while three fifths (3/5) of them ran less than twelve (12) seconds, and the other two fifths (2/5) ran over thirteen (13) seconds without the weight.

The weighed one hundred metres (100m) carried extra seconds for seventeen (17) athletes, from as low as .02 seconds to 2.22 seconds ran by Alexus the nineth (9th) female participant.

# **CONCLUSION & RECOMMENDATIONS**

In conclusion, it has been shown and proven on the day, that the athletes ran faster without the weight. However, this method can be used by coaches to enhance athletes speed and ability, in preparation for Track Meets or big Championships. This assessment also proved athletes should run in:

* wind resistance clothing
* light weight shoes
* no unnecessary jewellery
* no unwanted accessories such as braids

All of the above mentioned, can allow the athlete to gain the best result possible. This may or may not help athletes since some athletes ran the same times or even faster with the weight. An indication that they may be other factors to consider.