

NAME:	TEACHER:
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AS 91581 (V2) PRACTICE

Investigate bivariate measurement data

Elite Athletes

Credits: 4

Achievement	Achievement with Merit	Achievement with Excellence
Investigate bivariate measurement data.	Investigate bivariate measurement data, with justification.	Investigate bivariate measurement data, with statistical insight.

Be aware of our authenticity conditions:

Student:

- I understand that all the work I submit for assessment must be my own.
- I have read and understand the School's assessment requirements and the consequences of submitting material for assessment that is not my own.
- I understand that I must not receive undue assistance or the unauthorised help of others in the preparation of my assessment work.
- I understand that I must acknowledge in an appropriate manner all information and sources of assistance used in my assessment work.
- I will not allow other students to access or copy any of my assessment work.

Task Information

Introduction

Sports scientists use statistical information to understand how different variables are related.

This activity requires you to carry out a bivariate data investigation using at least two variables and to write a report of your findings. Your overall grade will be determined by how well you carry out your investigation and how well you apply the statistical enquiry cycle.

You will work independently to create a Google Slides presentation of no more than 7 slides to complete this task.

Task

The relationship between different variables and the performance of the athlete is an area of investigation for those interested in training athletes.

You have been given data from athletes collected at the Australian Institute of Sport. (See **Resource A** for column heading descriptors.)

Use the statistical enquiry cycle to carry out a statistical investigation to determine if there is a relationship between at least one pair of variables.

You will need to put together a presentation clearly describing your investigation. You may wish to follow the steps below.

1. Familiarise yourself with the data set provided. This will include doing research to help you understand the variables and develop a purpose for the investigation.
2. Pose an appropriate relationship question that can be answered using variables in the data set. The variables you choose must be numerical, and the variable you use as your response variable must be continuous. You may choose to investigate more than one pair of variables. Select appropriate display(s) to graph your data.
3. Identify features in the data, including the nature and strength of the relationship.
4. Find an appropriate model.
5. Use your model to make prediction(s).
6. Write a conclusion answering your question.
7. Support your conclusion by referring to your analysis and/or features of the visual display(s). Include a reflection on your process, which could consider other relevant variables, or evaluate the adequacy of your model(s).

When doing your presentation, link your discussion to the context and support the statements you make by referring to statistical evidence.

Resource A

The data set provides information about 102 male athletes and 100 female athletes at the Australian Institute of Sport.

Explanation of column headers in the data set:

Sex	male or female
Sport	sport played
Ht	height in cm
Wt	weight in kg
LBM	lean body mass in kg
%Bfat	% body fat
BMI	body mass index (weight/height ²)
RCC	red blood cell count (million cells per microlitre of blood)
WCC	white blood cell count (million cells per microlitre of blood)
Hc	Haematocrit (%)
Hg	Haemoglobin (grams per decilitre)
Ferr	plasma ferritin concentration (nanograms per millilitre of blood)
SSF	sum of skin folds

Link to data on NZGrapher...

<https://www.jake4maths.com/grapher/?folder=datasets&dataset=SportsScience.csv#>