

Deep Dive Data



VICTORIAN BIOSCIENCE
EDUCATION CENTRE

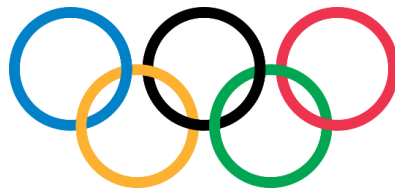
Student Name:

Introduction

Scatter plots allow you to demonstrate the relationship or correlation between two variables. They are represented on a Cartesian Plane with the data plotted on the graph using coordinates (x, y).

Big data sets can be visualised on scatter plots and a 'line of best fit' can then be used to make predictions.

Your challenge today is to use data collected from the 2016 Rio Olympic Games to explore how correlations can be used to improve an athlete's performance.



Data

Use the data in Table 1. Australian Medal Winning Olympic Swimmers, Rio 2016 on pages three and four to complete the data analysis questions below.

The following question will require you to think about different strategies you could use to solve the problems.

Data Analysis

1. **Create a scatter plot of the 'Deep Dive Data'.** *Don't forget to label the axis and give the graph a title.*

2. Which country were the athletes from?

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3. What is the unit of measurement for height?

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4. What two variables does one dot on a scatter plot represent?

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5. What is the range of the height and weight of the athletes in the data set?

Height Range		Weight Range	
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6. If your height is outside the range of this data set could you still be an Olympic swimmer?

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7. Identify the height and weight for a swimmer that most often appear in the data set? Round to nearest whole number.

Height		Weight	
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8. What is the height of the shortest athlete? Are they also the lightest in weight?

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9. Finish the sentence to describe the correlation between a swimmers height and weight:

As a swimmers height increases

10. How could this data be used to improve an athlete's performance?

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11. If an Olympic swimmer is 190cm tall, what would you predict their weight to be?
Hint: You need to add a line of best fit to your scatter plot to answer this question.

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Table 1. Australian Medal Winning Olympic Swimmers, Rio 2016

Name	Sex	Age	Height	Weight	NOC	Year	City	Event	Medal
Matthew "Matt" Abood	M	30	197	92	AUS	2016	Rio de Janeiro	Swimming Men's 4 x 100 metres Freestyle Relay	Bronze
Jessica Ashwood	F	23	173	64	AUS	2016	Rio de Janeiro	Swimming Women's 4 x 200 metres Freestyle Relay	Silver
Bronte Amelia Arnold Barratt	F	27	171	59	AUS	2016	Rio de Janeiro	Swimming Women's 4 x 200 metres Freestyle Relay	Silver
Bronte Campbell	F	22	179	58	AUS	2016	Rio de Janeiro	Swimming Women's 4 x 100 metres Freestyle Relay	Gold
Cate Natalie Campbell	F	24	186	67	AUS	2016	Rio de Janeiro	Swimming Women's 4 x 100 metres Freestyle Relay	Gold
Cate Natalie Campbell	F	24	186	67	AUS	2016	Rio de Janeiro	Swimming Women's 4 x 100 metres Medley Relay	Silver
Kyle Chalmers	M	18	193	90	AUS	2016	Rio de Janeiro	Swimming Men's 100 metres Freestyle	Gold
Kyle Chalmers	M	18	193	90	AUS	2016	Rio de Janeiro	Swimming Men's 4 x 100 metres Freestyle Relay	Bronze
Kyle Chalmers	M	18	193	90	AUS	2016	Rio de Janeiro	Swimming Men's 4 x 100 metres Medley Relay	Bronze
Tamsin Cook	F	17	170	61	AUS	2016	Rio de Janeiro	Swimming Women's 4 x 200 metres Freestyle Relay	Silver
Brittany Joyce Elmslie	F	22	179	73	AUS	2016	Rio de Janeiro	Swimming Women's 4 x 100 metres Freestyle Relay	Gold
Brittany Joyce Elmslie	F	22	179	73	AUS	2016	Rio de Janeiro	Swimming Women's 4 x 100 metres Medley Relay	Silver
Madeline Groves	F	21	179	66	AUS	2016	Rio de Janeiro	Swimming Women's 200 metres Butterfly	Silver
Madeline Groves	F	21	179	66	AUS	2016	Rio de Janeiro	Swimming Women's 4 x 100 metres Medley Relay	Silver
Mackenzie "Mack" Horton	M	20	190	88	AUS	2016	Rio de Janeiro	Swimming Men's 400 metres Freestyle	Gold
Mitchell James "Mitch" Larkin	M	23	187	72	AUS	2016	Rio de Janeiro	Swimming Men's 200 metres Backstroke	Silver
Mitchell James "Mitch" Larkin	M	23	187	72	AUS	2016	Rio de Janeiro	Swimming Men's 4 x 100 metres Medley Relay	Bronze

James Magnussen	M	25	198	94	AUS	2016	Rio de Janeiro	Swimming Men's 4 x 100 metres Freestyle Relay	Bronze
Cameron McEvoy	M	22	185	70	AUS	2016	Rio de Janeiro	Swimming Men's 4 x 100 metres Freestyle Relay	Bronze
Cameron McEvoy	M	22	185	70	AUS	2016	Rio de Janeiro	Swimming Men's 4 x 100 metres Medley Relay	Bronze
Emma McKeon	F	22	180	60	AUS	2016	Rio de Janeiro	Swimming Women's 200 metres Freestyle	Bronze
Emma McKeon	F	22	180	60	AUS	2016	Rio de Janeiro	Swimming Women's 4 x 100 metres Freestyle Relay	Gold
Emma McKeon	F	22	180	60	AUS	2016	Rio de Janeiro	Swimming Women's 4 x 200 metres Freestyle Relay	Silver
Emma McKeon	F	22	180	60	AUS	2016	Rio de Janeiro	Swimming Women's 4 x 100 metres Medley Relay	Silver
Taylor McKeown	F	21	178	65	AUS	2016	Rio de Janeiro	Swimming Women's 4 x 100 metres Medley Relay	Silver
David Morgan	M	22	184	82	AUS	2016	Rio de Janeiro	Swimming Men's 4 x 100 metres Medley Relay	Bronze
Leah Neale	F	21	173	66	AUS	2016	Rio de Janeiro	Swimming Women's 4 x 200 metres Freestyle Relay	Silver
Jake Packard	M	22	195	68	AUS	2016	Rio de Janeiro	Swimming Men's 4 x 100 metres Medley Relay	Bronze
James Roberts	M	25	194	90	AUS	2016	Rio de Janeiro	Swimming Men's 4 x 100 metres Freestyle Relay	Bronze
Emily Jane Seebohm	F	24	180	70	AUS	2016	Rio de Janeiro	Swimming Women's 4 x 100 metres Medley Relay	Silver
Madison "Madi" Wilson	F	22	179	61	AUS	2016	Rio de Janeiro	Swimming Women's 4 x 100 metres Freestyle Relay	Gold
Madison "Madi" Wilson	F	22	179	61	AUS	2016	Rio de Janeiro	Swimming Women's 4 x 100 metres Medley Relay	Silver