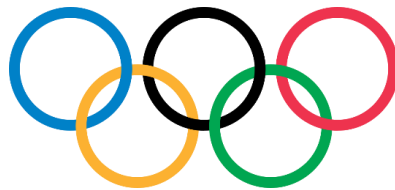# Deep Dive Data

**Student Name:** | **Answers**

## 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

Click on the link below to access the excel document you will need to complete this task.

Deep Dive Data

The following question will require you to think about different strategies you could use to solve the problems. These strategies could be with or without the aid of digital technology.

For question one, use excel to create a scatter plot. Then take a screenshot and paste that image into the picture box.

## Data Analysis

1. **Use Excel to complete a scatter plot of the 'Deep Dive Data'.**



2016 Australian Swimming Olympic Medal Winners Height (cm) v Weight (kg)
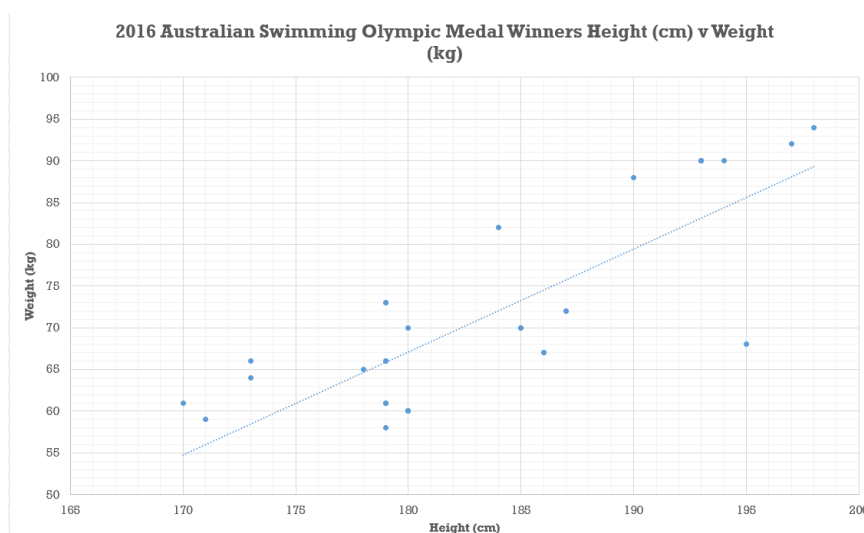
**2. Which country were the athletes from?**

Australia

**3. What is the unit of measurement for height?**

Centimetres (cm)

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

One dot point on the scatter plot represents an athlete's height (cm) and weight (kg).

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

| Height Range | 198-170 = 28cm | Weight Range | 94-58 = 36kg |
|---|---|---|---|

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

Yes. The range of this data set is simply Australian Olympic Swimmers who won medals at the 2016 Olympic Games. Moving forward there is no reason someone taller or shorter could not become an Olympian if they had the skill set required. It may be a challenge if you are very short though!

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

| Height | 179cm | Weight | 90kg |
|---|---|---|---|

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

170cm but they are not the lightest athlete. There is a swimmer who is 179cm tall and weighs 58kg.

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

As a swimmers height increases their weight also increases. This is also known as a positive correlation.

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

This data would be valuable for athletes, coaches and sport scientist to develop an understanding of the expected body type for successful Olympic swimmers. This would help with training plans to ensure athletes build enough muscle mass for strength but not too much that would be detrimental to their performance.

**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 first to your scatter plot to answer this question.

79.5kg