

Investigating the maths inside:

**Big data, better hospitals**

*Activity 2*

*What happened?*



Last year’s premiership-winning soccer team was thrashed by the wooden-spooners. What happened?

The share price of a major bank dropped 35% overnight. What happened?

# Introduction

In statistics, it is important to carefully choose the types of analyses to apply, and to take the context of the situation into account when drawing conclusions.

*The data used in this activity have been provided by Queensland Health’s Healthcare Improvement Unit and are used with their approval.*

# Getting in order

If all the students in your class were lined up from shortest to tallest who would be in the middle of the line? Who would be at either end? Can we divide our class into four equal groups?

# 2016 AFL competition

During the Australian Football League (AFL) regular season in 2016, each of the 18 teams played 22 games. For every win, the team was awarded four points. The table below shows the total points at the end of the season.

|  |  |  |
| --- | --- | --- |
| **Position** | Team | Points Scored |
| **1** | Sydney Swans | 68 |
| **2** | Geelong Cats | 68 |
| **3** | Hawthorn | 68 |
| **4** | GWS Giants | 64 |
| **5** | Adelaide Crows | 64 |
| **6** | West Coast Eagles | 64 |
| **7** | Western Bulldogs | 60 |
| **8** | North Melbourne | 48 |
| **9** | St Kilda | 48 |
| **10** | Port Adelaide | 40 |
| **11** | Melbourne | 40 |
| **12** | Collingwood | 36 |
| **13** | Richmond | 32 |
| **14** | Carlton | 28 |
| **15** | Gold Coast Suns | 24 |
| **16** | Fremantle | 16 |
| **17** | Brisbane Lions | 12 |
| **18** | Essendon | 12 |

It is quite simple to use the median to divide the 18 teams evenly into ‘top half of the table’ and ‘bottom half of the table’. What is the median of the data set?

What is the median of the ‘top half’ of the data set? What is the median of the ‘bottom half’ of the data set?

Draw a boxplot of the data set.

Compare the right whisker with the left whisker. What do you notice?

Write a paragraph about the distribution of the data, mentioning the spread within each of the quartiles.

# My data set

There are four data sets, each containing 13 values. Your group will be given one of them. Arrange your data set into ascending order.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

Find the five-number summary. Construct a boxplot to scale on the provided number line.

Display your boxplot with those of the other three groups. Compare and contrast.

## What was counted or measured? What happened?

Your teacher will read out a series of hints so that you can figure out what the data is measuring and why some values are so remarkably different to the others. When you think you know the answer, write it on your entry form and place the form face down on the designated desk. You can have up to three guesses.

Good luck!