

Sweaty Maths



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Name: **Answers**

Introduction

Technology allows scientists to collect more data than ever on athletes. In order to best communicate the trends to athletes, scientists display the data on graphs. This activity demonstrates how a scientist uses graphs to display the trends in a data set so it is easier for athletes and coaches to understand.

Sweat lost

The following table shows the amount of sweat lost by an athlete during a one hour training session:

Time (min)	10	20	30	40	50	60
Sweat lost in previous ten minutes (ml)	83	185	354	294	222	147
Cumulative total (ml)	83	268	622	916	1138	1285

1. Complete the cumulative total row of the table.
2. Display the data in the table by creating the following graphs in excel:
 - a. Column graph



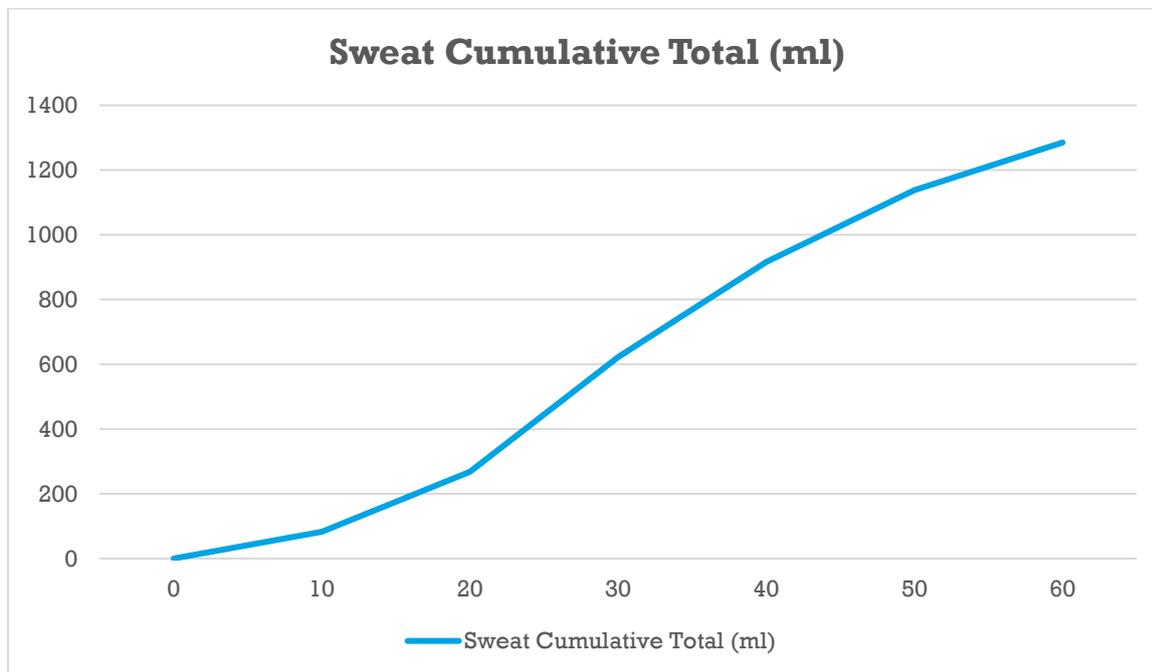
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b. Line graph



3. Which of the graphs:

- a. Best displays when the highest rate of sweat was being lost?

The column graph

- b. Would be most useful in informing the athlete how much fluid they should drink at any given time during the workout?

The line graph

4. Use the graphs to describe the trend in the data (tell the story of the graphs).

The athlete was losing sweat at a low rate to begin with (0-20 mins), then started losing sweat at a much higher rate (30-40 mins) before reducing the sweat rate in the last twenty minutes (40-60 mins).

5. What are two conclusions someone could make in relation to the intensity of the athletes workout by looking at the sweat graphs.

The athlete exercised at low intensity during the first and last twenty minutes of the workout. The athlete exercised at high intensity during the middle twenty minutes of the workout.

6. Explain why a scientist would choose to display data on a graph rather than in a table.

Trends in the data are much easier to see when the data is displayed on a graph.

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Further task

Another scientist suggested that the data from this test would be better displayed as a histogram. Research how to display the data in the table as a histogram on excel and comment on why you think that the scientist thought it was a better way to display this data.