London Marathon

Teacher Notes

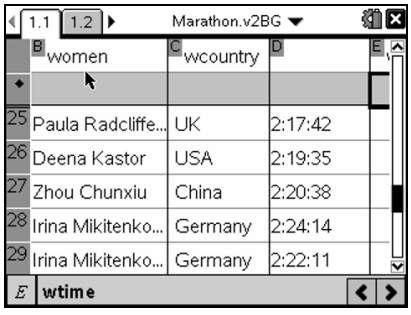
Introduction

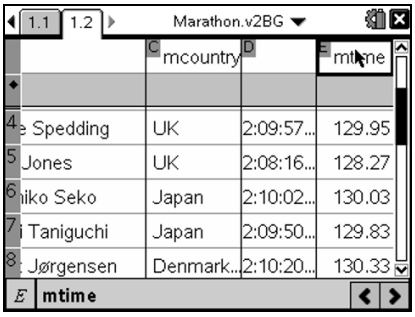
Sports results often present a motivating context in which students can practise their data-handling skills and the TI-Nspire certainly has a very wide range of tools for displaying and analysing data. The document **Marathon.tns** provides lists of the times and winners of the men's and women's races from 1981 to 2009 and that data can be used in a variety of ways in the classroom.

The data

The results of the men's and women's races are contained in two separate spreadsheets Each spreadsheet has data in five columns:

Column A: The year (ranging from 1981 to 2009)
Column B: The name of the winner. (In 1981 the men's race was tied.)
Column C: The country from which the winner came
Column D: The winning time in hours, minutes and seconds (e.g. 2:11:48)
Column E: The equivalent winning time in minutes (e.g. 131.8)



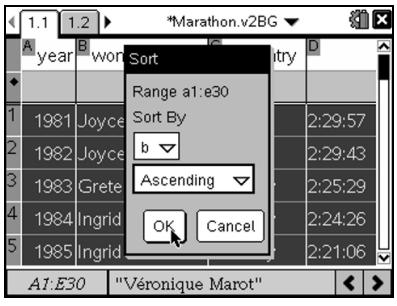


Some ideas for investigations

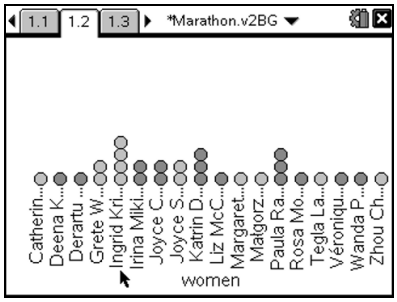
Most successful runner

Which runners have won more than once and who has been most successful?

Either
Select all the data using shift and the cursor keys. Then sort the data in column B and scroll down.



Or insert a Data & Spreadsheets page and select women (or men) on the X-axis.

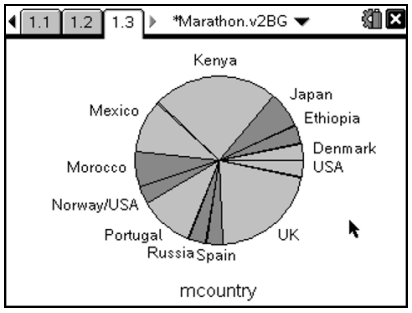


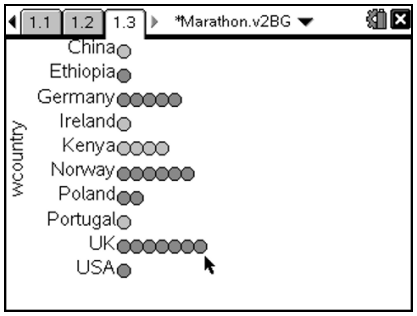
Most successful country

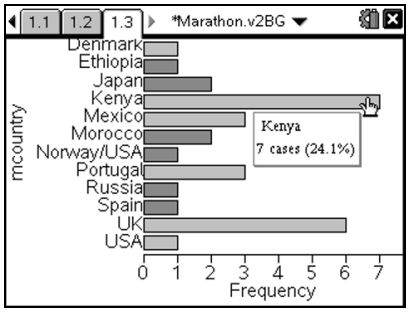
Which countries produce the most successful runners?

Insert a Data & Spreadsheets page and select wcountry (or mcountry) on either axis

There are three possible types of plot: Pie Chart, Dot Plot or Bar Chart



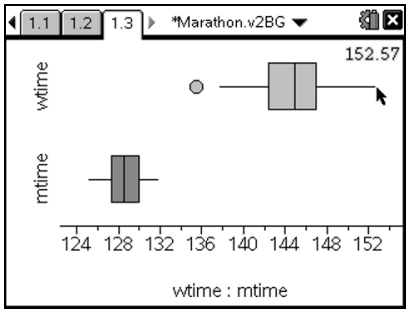




Comparing men and women

How do men's times compare with women's?

Use the command Add X Variable from the Plot Properties menu to display two variables on the same axis.

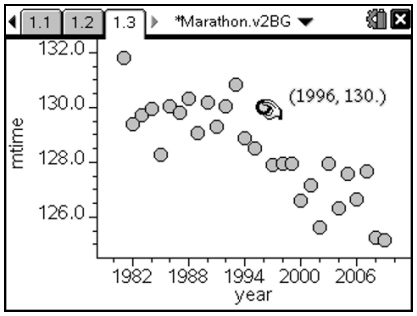


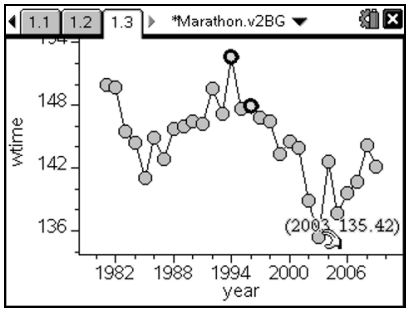
Getting faster

Are runners in the London Marathon getting faster as time goes on?

On a Data & Spreadsheets page select year on the x-axis and wtime (or mtime) on the y-axis.

There are two possible types of plot: Scatter Plot or X-Y line Plot. (i.e. in this case a time-series graph.)

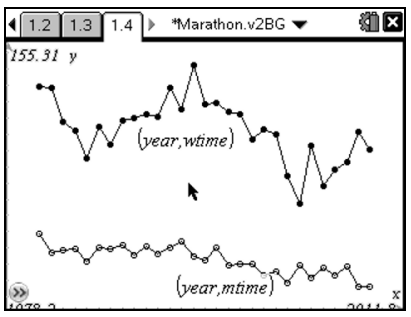




Comparing improvements

Are women improving faster than men?

On a Graphs page more than one scatterplot can be drawn at the same time. Using the Attributes tool the points can be connected to produce a time-series plot.



Breaking the record

Can you calculate and display the current record times?

On the spreadsheet pages create the new data in column F. Make cell F1 the same as E1. Then make F2=min(F1,E2) and copy the formula down the column.

Time-series graphs can them be displayed as shown below.