Olympic medal table tasks

Open the Olympic medal table spreadsheet which shows the countries together with their Gold, Silver and Bronze medals at the London 2012 Summer Olympic Games.

The tasks will enable you to develop some spreadsheet skills for comparing sets of data.

Section A

Re-order the data

The data is listed alphabetically. Re-order the data so that the countries with the most Gold medals are shown first. Any countries that have the same number of Gold medals should then be sorted on Silver medals, and after this, any remaining duplications should be ordered on the number of Bronze medals awarded.

There is a specific Excel button on the toolbar at the top of the Excel page to do this.

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| Remember: Ask if you are not sure. |

Total number of medals

* In cell E1, write the heading ‘Total’.
* In cell E2, create a formula that adds up the total of all the medals won by that top country. Try to use the correct function from Excel.
* Now copy the E2 formula to every other country in that column. Can you do this quickly? Is there an even quicker way to do it?

Rank the data

We would now like the data ranked, both on the number of Gold medals won and also on the total number of medals won.

1. **Rank on Gold medals**

* In cell F1, write the heading ‘Gold Rank’.
* In cell F2, create a formula that gives the rank of that top country based upon the Gold column. Use the function ‘RANK.EQ’.

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| Remember: Ask if you are not sure. |

We are interested in knowing which countries had the largest difference.

* Now copy that formula down the column to every country.

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| Does the rank look correct? – do a quick check. If it isn’t correct, investigate what might have gone wrong. Have a look at the formula in each cell. Is it correct? |

**2. Rank on total**

* In cell G1 add the heading ‘Total Rank’.
* In cell G2, create a formula that gives the rank of that top country based upon the Total column.
* Now copy that formula down the column to every country.

Difference in these two ranks

You now have two different rankings. Investigate their differences.

First find the difference in the two rankings for each country.

For example:

If Country A has one rank = 2 and the other rank = 5 we could work out either 2 – 5 = –3 or 5 – 2 = 3. We are not interested in the sign, we just want the actual numerical value, in this example 3. Use the ABS function in Excel, which gives the *absolute value* i.e. just the numerical part of the difference calculation.

* In cell H1, write the heading ‘Difference in Ranking’.
* In cell H2 create a formula to do this.
* Now copy this formula down the column of countries.

Rank of the difference

Finally, in this part, let’s find the rank of each country in this list of differences.

* In cell I1, write the heading ‘Rank of Differences’.
* In cell I2 create a formula for this.
* Now copy this formula down the column of countries.

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| Which value do you want ranked first? The lowest difference or the highest?  Investigate how to alter this setting in Excel. |

Section B

Now investigate a couple of ways of working out the total number of medals won by each country. We will introduce a weighting based on the fact that a Gold medal is worth more than a Silver and a Bronze medal.

The issue is: what weighting shall we use? Here are two simple versions:

Straightforward weighting

Use the weightings defined in the table below:

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| --- | --- | --- | --- |
| **Medal** | Gold | Silver | Bronze |
| **Weighting** | 3 | 2 | 1 |

* In cell J1, write the heading ‘Weighted Table method 1’.
* In cell J2 create a formula for this.
* Copy this formula down the column of countries.

Now rank these again, as before:

* In cell K1, write the heading ‘Method 1 Rank’.
* In cell K2 create a formula for this.
* Copy this formula down the column of countries.

Biased weighting

Use the weightings defined in the table below:

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| --- | --- | --- | --- |
| **Medal** | Gold | Silver | Bronze |
| **Weighting** | 5 | 3 | 1 |

* In cell L1, write the heading ‘Weighted Table method 2’.
* In cell L2 create a formula for this.
* Copy this formula down the column of countries.

Now we can rank these again, as before:

* In cell M1, write the heading ‘Method 2 Rank’.
* In cell M2 create a formula for this.
* Copy this formula down the column of countries.

Compare the ranking of the two weighted methods against the rank of the total number of medals won

Finally, find the difference between the rank of the above two weighted calculations and the rank of the total number of medals won in the Games.

* In cell N1, write the heading ‘Difference between Method 1 and Total Number of Medals’.
* In cell N2 create a formula for this.
* Copy this formula down the column of countries.
* In cell O1, write the heading ‘Difference between Method 2 and Total Number of Medals’.
* In cell O2 create a formula for this.
* Copy this formula down the column of countries.

You now have several ranked columns and calculated differences from which to offer more of an insight into the medal table of the Games.

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| What can you glean from doing these different calculations? |