## <u>Olympic Dream</u>

Is it possible to predict how many medals a country will win at this year's Olympic Games based on their past performances? Are there any patterns that can be observed in performances? Are there any reasons why countries do better at some Olympics than others?

These are all questions that many governments spend millions of dollars investigating. The government of Mathmania has heard of our mathematical expertise here at St Bede's and so have hired us to analyse some results and provide an expert report. The goal is to discover any patterns in performances that can then be used in Mathmania to lift the profile of the Country.



The countries have been sorted into groups for analysis purposes. You must choose the following for your report and use their results as a basis for your recommendation.

- Two countries from Group 1
- One country from group 2
- One country from group 3
- One country from group 4

Group 1	Group 2	Group 3	Group 4
Brazil	Russia	Poland	Malaysia
Great Britain	Germany	Romania	Portugal
China	Italy	Finland	Indonesia
Greece	Cuba	Hungary	Belgium
Australia	Japan	Sweden	Kenya
United States	Botswana	France	Mexico
Spain	Bulgaria	Jamaica	South Africa
South Korea	Netherlands	Ukraine	Switzerland
ALC: NO PORT	Canada	New Zealand	Ireland
	India	Latvia	turkey

What connection do the countries in Group 1 have with each other and the Olympic Games???

## For each Country you must:

1. Create a table of total medals won and a breakdown of the type (Gold, Silver and Bronze) for each year from 1988

Eg Below is an example of how you could start a table. Feel free to design your own or you may choose to have more than one table

Medals won by Turkenstanjinton						
Year	Total	Gold	Silver	Bronze		

- 2. Find the Mean and the Median of total medals (and type if you can) for each Country and the Range of values. Explain why the Mode is of no value in this investigation.
- 3. Create 2 separate column graphs that have the total medals won against the year and the type of medals won against the year.

## In your report you should include:

- A description of each graph in terms of shape and comments on areas of interest including skew, increase, decrease, outliers etc.
- A comparison of the countries and their achievements.
- The country you have chosen for Mathmania to model their future Olympic programs upon and the reason for your choice (be aware of other factors that may influence total medals won)

## Bonus

To earn a bonus from Mathmania you can calculate % change for your recommended country for each year it has competed and a prediction of the number and type of medals it might win at the 2016 Olympics.