# Background

The first Winter Olympics was held in Chamonix, France, in 1924. The original games included alpine and cross-country skiing, figure skating, ice hockey, Nordic combined, ski jumping and speed skating. The Games were held every four years from 1924 until 1936. The 1940 and 1944 Games were canceled due to World War II. The Winter Olympics resumed in 1948.

It takes many years of hard work and practice to become an Olympic caliber athlete. Over the decades this preparation has gotten more and more high tech, and involves more and more money. For the 2012 Winter Olympics the U.S. Olympic Committee spent about $55 million dollars over the previous four years preparing the U.S. athletes. There were 216 U.S. athletes in the 2012 Winter Olympics games. That’s about an average of 1 million dollars per athlete per year.

Has spending all this time and money helped improve the performance of U.S. athletes? An easy way to measure performance is by looking at the medals won by the U.S. athletes over the years.

# Your Task

Your task is to see if the percentage of medals won by the U.S. Winter Olympic team has been improving over the years.

You’ll start by researching the medals won by the U.S. and the total medals awarded during the Winter Olympics. Next, you’ll enter this data into Microsoft Excel, determine percentages and then graph and analyze the results.

### Step 1) Research Data

#### Skills Required:

* Internet research using a Web browser
* Recording research data

#### Tasks:

1. Use your favorite browser to search the Internet and find the following:
	1. The number of Gold, Silver and Bronze medals the U.S. has won for each of the Winter Olympics.
	2. The total number of Gold, Silver and Bronze medals awarded for each of the Winter Olympics.

Record this information on a piece of paper.

### Step 2) Enter Research Data in Excel

#### Skills Required:

* Data entry in Excel
* Formatting cells using fonts, borders, fill colors, etc.
* Creating and formatting an Excel table
* Adding a row
* Merging cells

#### Tasks:

1. Enter the number of Gold, Silver and Bronze medals won by the U.S. for each year of the Winter Olympics into Excel. The data should have the four columns with the following headings: Year, Gold, Silver and Bronze.

Above the data columns and headings include a main title (e.g. Medals Won by U.S.) Merge the title cells together to create one cell over the data.

Use the format cell commands, such as alignment, font, border and fill, to format the data to make it easier to read and look like a table.

1. Next to the “Medals Won” data, at least one column apart, enter the total Gold, Silver and Bronze medals awarded for each year of the Winter Olympics. The data should have the same four columns and headings as the “Medals Won” data. Also, include a similar main title above the data.

Convert the data and headings into an Excel table. Format the table to make it more visually interesting, but still easy to read.

### Step 3) Calculate the Totals

#### Skills Required:

* Entering formulas
* AutoFill cells
* Inserting columns
* Adding columns to an Excel table
* Renaming a worksheet

#### Tasks:

1. For the “Medals Won” data, add a fifth column that calculates the total medals for each year of the Winter Olympic. The total is the sum of the Gold, Silver and Bronze medals for a given year. Make sure the two groups of data are still separated by at least one column.
2. For the “Medals Awarded” table, add a fifth column that calculates the total medals for each year of the Winter Olympic.
3. Rename this worksheet “Data”.

### Step 4) Calculate Percentage Amount

#### Skills Required:

* Entering formulas
* Formatting cells
* Creating a table
* AutoFill cells
* Merging cells

#### Tasks:

Next to the “Medals Awarded” table, create another data group that calculates the percentage of the total medals won by the U.S. for each Olympic. Make sure to format the cells as a percentage.

Format this data group similar to the previous data groups. Make sure to include a title and column headings for the data.

### Step 5) Chart the Results

#### Skills Required:

* Creating charts
* Formatting charts
* Renaming and moving worksheets

#### Tasks:

You will now chart the percentage results from Step 4.

First go to another worksheet. Rename this worksheet “Charts”. Move this work sheet in front of the “Data” worksheet so it is the first worksheet in the workbook.

On the “Chart” worksheet, chart the percentage of medals won by the U.S. for each year of the Winter Olympics. The chart can either be a line or bar chart.

Make sure the chart is properly labeled. Also, format the chart to make it look visually impactful.

### Step 6) Write a Conclusion

#### Skills Required:

* Entering and formatting text
* Merging cells

#### Tasks:

You are now going to analyze the data and write a conclusion. To help analyze the data add a “Two Period Moving Average” Trendline to the chart’s layout. The trendline helps you see how the performance of the U.S. athletes moves over time.

Once you have added and analyzed the trendline, it is time to write a conclusion. Merge the cells together in the row under the chart. Format this merged cell to wrap the text. In the merged cell, write a few sentences providing your answer to the original question – Has spending all this money and time helped the performance of U.S. athletes in the Winter Olympics?

# Challenge #1

#### Skills Required:

* Entering formulas
* Adding columns
* Formatting cells
* Creating a table
* Creating/formatting a chart

#### Tasks:

How have the individual Gold, Silver and Bronze medal counts for the U.S. changed over time?

On the “Data” worksheet, calculate the percentage of individual Gold, Silver and Bronze medals won by the U.S. for each Winter Olympic. You can attach these percentage calculations the current percentage data or you can create a separate table. Format the data to make it easier to read.

On the “Chart” worksheet, create another line chart that graphs the percentage of the Gold, Silver and Bronze medals won by the U.S. for each Winter Olympic. Make sure you add the proper labels and keys to the chart.

# Challenge #2

#### Skills Required:

* Creating sparklines
* Adjusting row width

#### Tasks:

For the “Medals Won” data, create sparklines showing the changes in the number of Gold, Silver and Bronze medals won for each year of the Winter Olympics. The sparklines should appear on the row just under each medal column.

Make sure the sparklines are readable and visually appealing. For example widen the row to give the sparklines more height room.