

## Instructions for Creating a Spreadsheet

### Step 1: *Creating a worksheet and entering data.*

1. Open a worksheet in spreadsheet software.
2. In cell A1, type the title **Machine**. In cell B1, type **How many minutes by machine?** (You may use another time unit, such as hours.) In cell C1, type **How many minutes on my own?**
3. In column A, beginning in cell A2, list the machines students used in their human automation investigation. In columns B and C, beginning in cells B2 and C2, type in how much time it took for each category. Continue typing in the time it took until data is entered for all the machines.

	A	B	C
1	<b>Machine</b>	<b>How many minutes by machine?</b>	<b>How many minutes on my own?</b>
2	Dishwasher	40	70
3	Washing Machine	30	60
4	Electric Mixer	10	20
5	Electric Knife	5	15
6	<b>Average</b>	21.25	41.25

### Step 2: *Entering a formula.*

1. In column B, click the cell below your last entry.
2. On the **Insert** menu, click **Function**. The Insert Function dialog box opens.
3. Choose **Average** function, and click **OK**.
4. The range of data you want averaged should appear next in the Number 1 text box in the Function Arguments dialog box in the format of B2:B5. Click **OK**.
5. The average should now appear. Repeat steps 1 through 4 for column C.

### Step 3: *Graphing the data.*

1. Highlight the cells you want to graph (for example, in the sample spreadsheet above, you would highlight cells A1 through C5). You may want to create two different charts—one without the “average” data and one that is only the “average” data. (See the sample **human automation data** spreadsheet).
2. Choose **Chart** on the **Insert** menu.
3. Click the column chart type, and then click **Next**.
4. Click the **Data Range** tab verify that **Columns** is selected in the Series In section, and then click **Next**.
5. In Step 3 of the Wizard (Chart Options), click the **Titles** tab.
6. Add titles for the chart and its axes.
7. Click the **Gridlines** tab and experiment with gridline options. Choose gridlines that make understanding your data easier.
8. Click the **Legend** tab, choose a location for the legend, and then click **Next**.
9. Place the chart as an object on the original worksheet so that you can see the worksheet entries as you examine the chart, or place it on a separate sheet.
10. Follow the same procedure to create a chart representing that average—a pie chart works well to show the average data as you can use the text box tool to type in **Minutes by Machine** and **Minutes on my own**.