In this module, we're going to begin our 7QC tools journey with a discussion on graphs, which is the first of the 7 QC tools. Let's get started!

The bar graph is used to compare quantities or frequencies by the length of bars. In the example below, we're comparing 2009 sales figures by region. As we can see, the west region came in a little over $102,000 while the south region only brought in $45,000. Within a few seconds, it's completely obvious what the data is saying.

![2009 Sales by Region](image)

### 2009 Sales by Region

<table>
<thead>
<tr>
<th>Region</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>$100,000</td>
</tr>
<tr>
<td>South</td>
<td>$45,000</td>
</tr>
<tr>
<td>East</td>
<td>$65,000</td>
</tr>
<tr>
<td>West</td>
<td>$102,300</td>
</tr>
</tbody>
</table>
The Broken Line Graph

The next graph I’d like to discuss is the broken line graph. With this graph, we plot our data points with time on the horizontal axis and value on the vertical axis. We then simply connect the dots.

The broken line graph is most suitable for indicating time-series changes or trends. In the example below, we’ve plotted the on time delivery performance for a 12 month period. Again, it’s very clear that there was a dip in performance in April and things peaked in August.
The Pie Chart

The next type of graph is the pie chart which is basically a circle divided by the contribution of each component we’re studying.

Pie charts are excellent for indicating ratios of broken-down content. In the example below, a restaurant is attempting to learn more about their dinner sales performance.

After plotting the data in a pie chart the team can quickly see that sandwiches account for 44% of their sales with salads coming in second at 33%.
The Band Graph

The band graph is a close cousin to the pie chart in that it is also used for indicating the breakdown of contents. Only with a band graph a rectangle is divided according to the contribution of each component. And since we use rectangles we can easily compare different time-series changes.

In the example below the team is attempting to study the results of an annual customer service survey. The data at the top of the graph is from 2010 while the data on the bottom is from 2009.

As we can see, in this example, 185 people rated this organization as excellent in 2010 compared to only 151 in 2009.

On the other hand, 35 people rated the organization as fair in 2010 versus 64 in 2009. So, as you can see, the band graph is a great way to compare the breakdown of data across different time series.
The Radar Chart

The last graph I’d like to share with you is the radar chart, sometimes called a spider chart since it looks a bit like a spider web.

A radar chart is a rectangle divided according to the contribution of each component. We typically use the radar chart to compare multiple indices.

In this example, an organization has graphed the 5S level of a particular work area using their own internal scoring system. From this graph we can quickly see that they may want to spend some time focusing on the sort step of 5S since it scored the lowest.