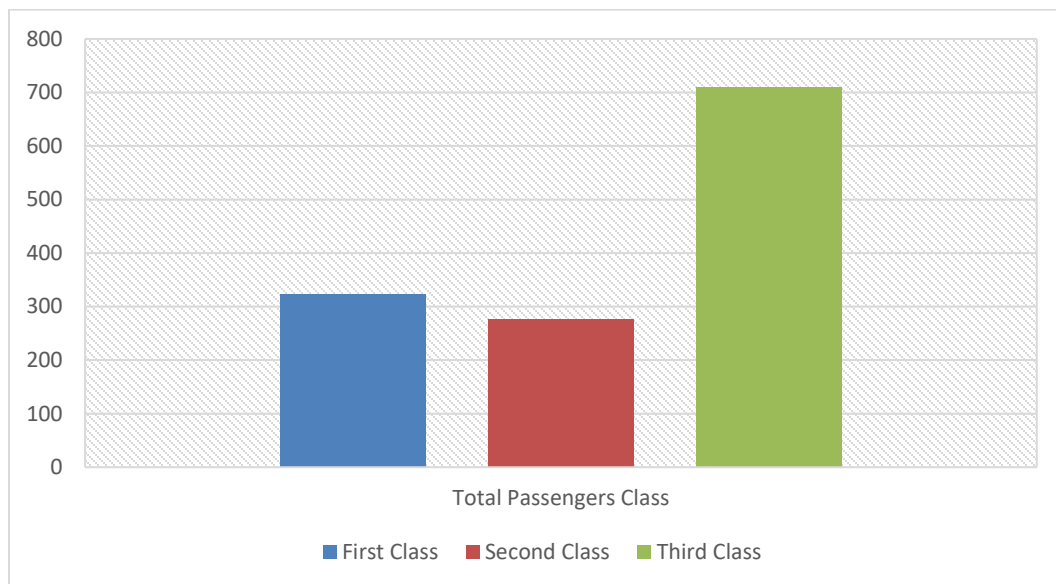


### 1. The *Titanic* and class.

On April 15, 1912, on her maiden voyage, the *Titanic* collided with an iceberg and sank. The ship was luxurious but did not have enough lifeboats for the 2224 passengers and crew. As a result of the collision, 1502 people died.<sup>9</sup> The ship had three classes of passengers. The level of luxury and the price of the ticket varied with the class, with first class being the most luxurious. There were 323 passengers in first class, 277 in second class, and 709 in third class.

(a) Make a bar graph of these data.

**Answer :**



(b) Give a short summary of how the number of passengers varied with class.

**Answer:**

Class 3, which is the least luxurious class, has the largest number of passengers (709). Class 1 and 2 are the more luxurious classes, and they have quite similar number of passengers. In here, class 1 has 323 passengers and class 2 has 277 passengers.

(c) If you made a bar graph of the percents of passengers in each class, would the general features of the graph differ from the one you made in part (a)? Explain your answer.

**Answer:**

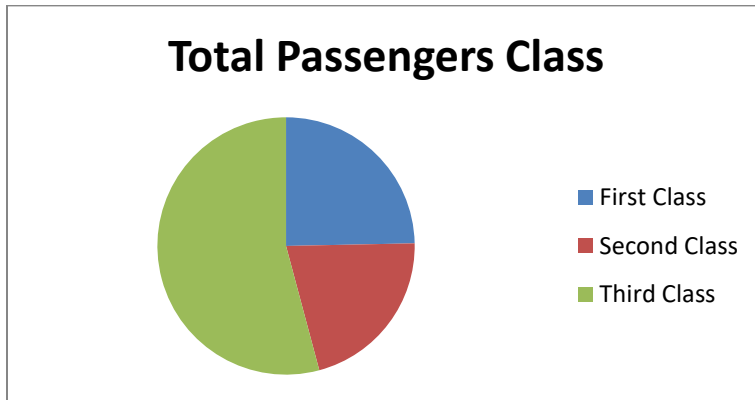
The features of the graph based on percents of passengers will stay the same.

### 2. Another look at the *Titanic* and class.

Refer to the previous exercise.

(a) Make a pie chart to display the data.

**Answer :**



(b) Compare the pie chart with the bar graph. Which do you prefer? Give reasons for your answer.

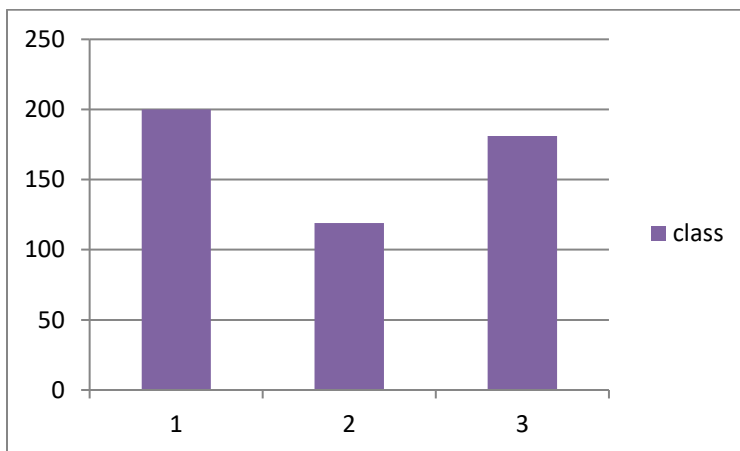
**Answer:**

I prefer the bar graph because it shows more information such as the number of passengers. The pie chart, on the other hand, only shows the proportions of the passengers based on class.

### 3. Who survived?

Refer to the two previous exercises. The number of first-class passengers who survived was 200. For second and third class, the numbers were 119 and 181, respectively. Create a graphical summary that shows how the survival of passengers depended on class.

**Answer :**



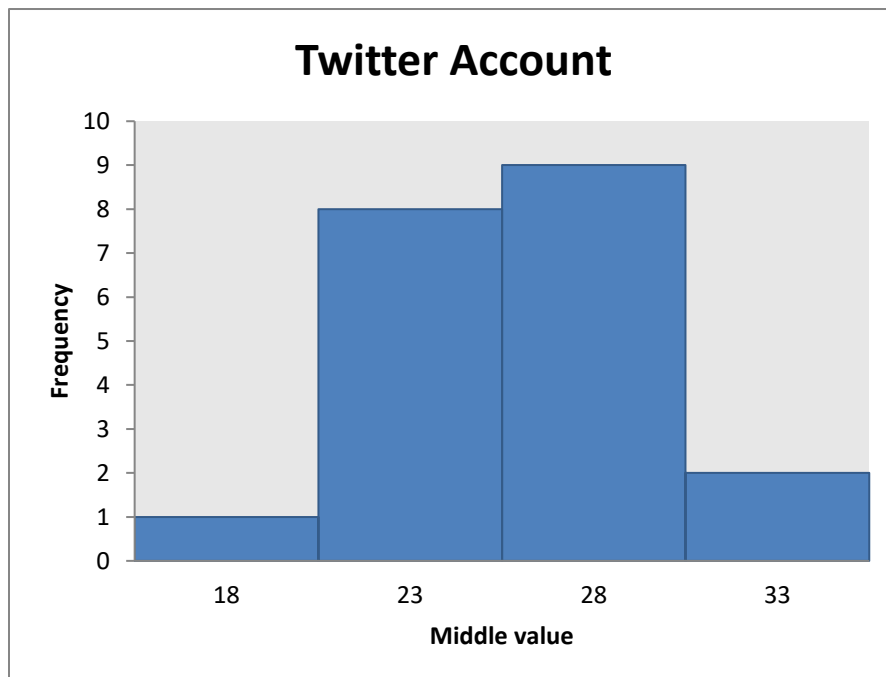
This graph shows that the survival rate of people in class 1 was the highest, with 200 people survived. Only 119 people in class 2 survived and 181 people in class 3 survived. It should be

noted that although class 3 had more survival rate than class 2, class 3 had many more people than class 2.

#### 4. Another look at Twitter account usage.

Refer to the previous exercise.

Value	Frequency	Middle value
15 -20	1	18
21 – 25	8	23
26 -30	9	28
31 - 35	2	33



(a) Use a histogram to summarize the distribution.

**Answer :**

Can choose the classes in a histogram. The classes (the stems) of a stem-plot are given to you. When the observed values have many digits, it is often best to round the numbers to just a few digits before making a stemplot.

(b) Use this histogram to answer parts (b), (c), and (d) of the previous exercise.

(c) Which graphical display, stemplot or histogram, is more useful for describing this distribution? Give reasons for your answer.

**Answer :**

For small data sets, a stemplot is quicker to make and presents more detailed information. It is sometimes referred to as a back-of-the-envelope technique. Stemplot give a quick and informative look at the distribution of a quantitative variable.

### **5. Energy consumption.**

The U.S. Energy Information Administration reports data summaries of various energy statistics. Let's look at the total amount of energy consumed, in quadrillions of British thermal units (Btu), for each month in 2011. Here are the data:

<b>Month</b>	<b>Energy (quadrillion Btu)</b>
January	9.33
February	8.13
March	8.38
April	7.54
May	7.61
June	7.92
July	8.41
August	8.43
September	7.58
October	7.61
November	7.81
December	8.60

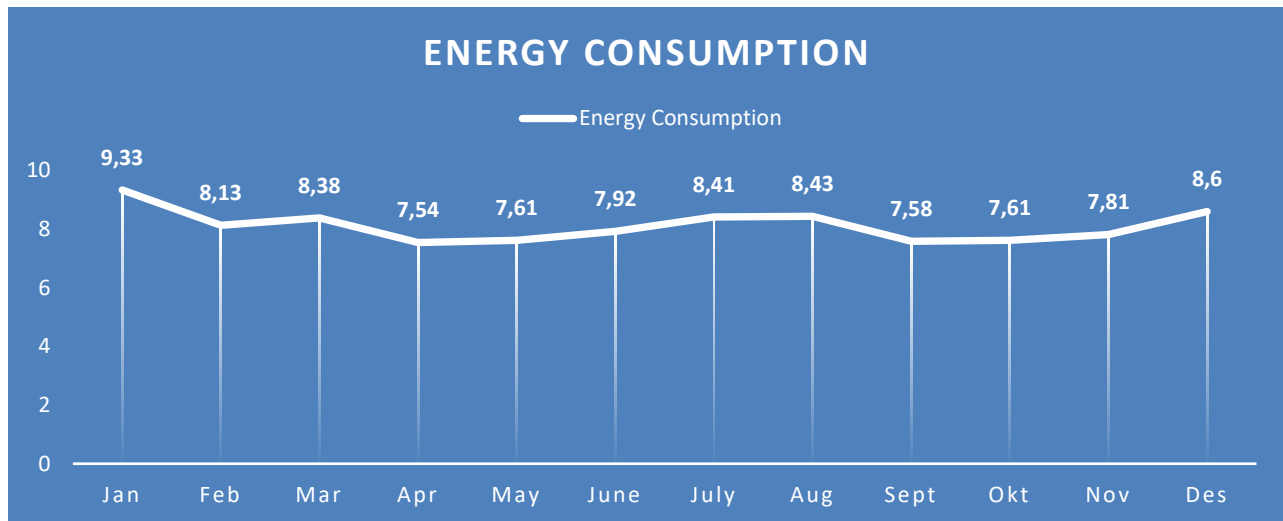
(a) Look at the table and describe how the energy consumption varies from month to month.

**Answer :**

Energy consumption varies from month to month where it is unstable where in the month of January the consumption is up to 9.33 but in the following months it has decreased but only slightly. Decrease and rise even though the difference is only little.

(b) Make a time plot of the data and describe the patterns.

**Answer :**



The shape distribution is Symmetric, bimodal. The center distribution is mean and median of the data median = 8.16 mean = 6.84. And the spread distribution is variance and deviation of data on January until December.

(c) Suppose you wanted to communicate information about the month-to-month variation in energy consumption. Which would be more effective, the table of the data or the graph? Give reasons for your answer.

**Answer :**

More effective to energy consumption is I think graph because graph understands data quickly. When we show effective charts, our reports are clear and precise, to compare a data variation in energy consumption.

## 6. Energy consumption in a different year.

Refer to the previous exercise. Here are the data for 2010:

Month	Energy (quadrillion Btu)	Month	Energy (quadrillion Btu)
January	9.13	July	8.38
February	8.21	August	8.44
March	8.21	September	7.69
April	7.37	October	7.51
May	7.68	November	7.80
June	8.01	December	9.23

(a) Analyze these data using the questions in the previous exercise as a guide.

**Answer :**

Energy consumption varies from month to month where it is unstable where in January consumption is 9.33 but in the following months it has decreased but only slightly. Down and up even though the difference is only a little. but at the end of December energy consumption lagged behind to become the biggest figure. I think the same, this data More effective to energy consumption is I think graph because graph understands data quickly. When we show effective charts, our reports are clear and precise, to compare a data variation in energy consumption.

(b) Compare the patterns in 2010 with those in 2011. Describe any similarities and differences.

**Answer :**

Similarities :

The data is almost the same because the graph is unstable, the data figures fluctuate.

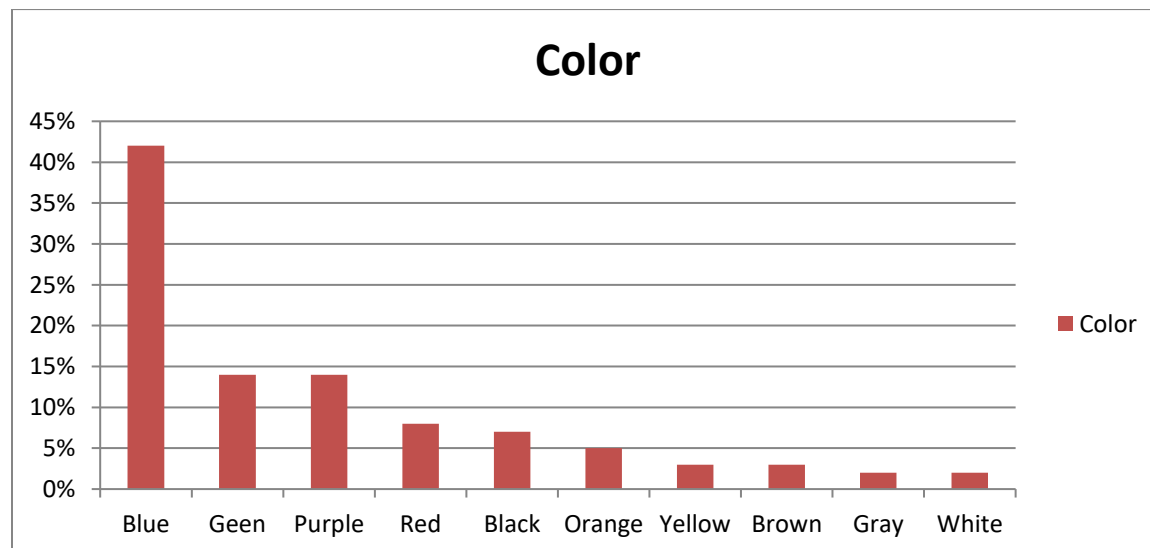
Differences :

The differences is in December where the number of data increases in December.

## 7. Favorite colors.

What is your favorite color? One survey produced the following summary of responses to that question: blue, 42%; green, 14%; purple, 14%; red, 8%; black, 7%; orange, 5%; yellow, 3%; brown, 3%; gray, 2%; and white, 2%. Make a bar graph of the percents and write a short summary of the major features of your graph.

**Answer :**

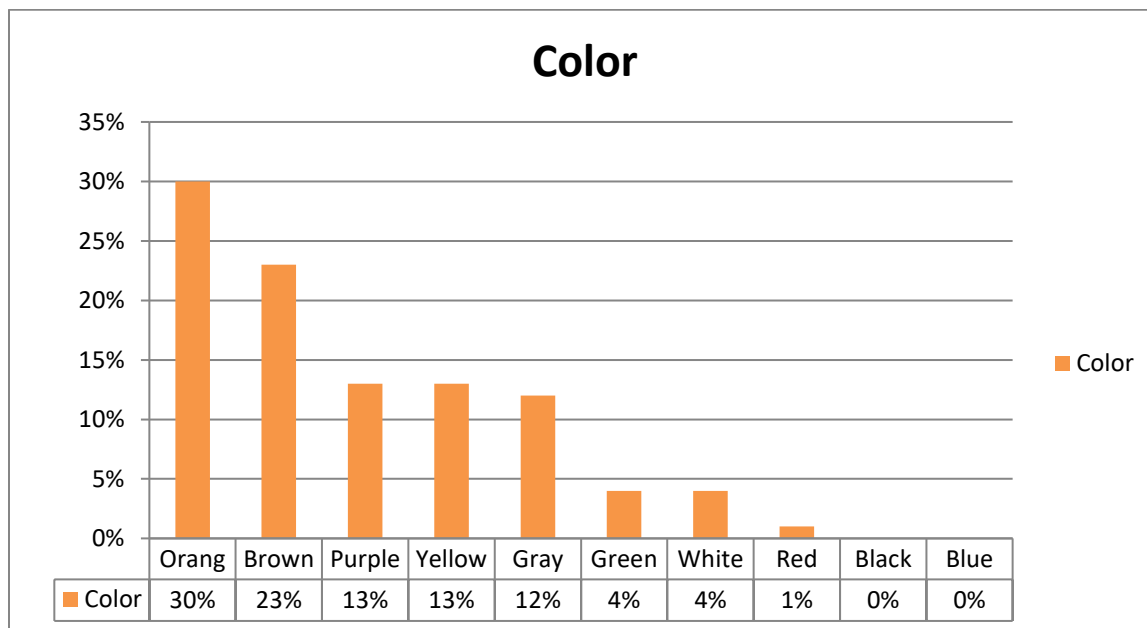


From the graphic arrangement above, the percentage of color has decreased. the blue color is around 42%, while the next color has decreased considerably. In this data, blue is favorite colors.

### 8. Least-favorite colors.

Refer to the previous exercise. The same study also asked people about their least-favorite color. Here are the results: orange, 30%; brown, 23%; purple, 13%; yellow, 13%; gray, 12%; green, 4%; white, 4%; red, 1%; black, 0%; and blue, 0%. Make a bar graph of these percents and write a summary of the results.

**Answer :**



From the graphic arrangement above, the percentage of color has decreased. the blue color is around 30%, while the next color has decreased considerably until 0%. The favorite color is orange and which is not liked are black and blue.

### 9. Garbage.

The formal name for garbage is “municipal solid waste.” Here is a breakdown of the materials that make up American municipal solid waste:

Material	Weight (million tons)	Percent of total (%)
Food scraps	34.8	13.9
Glass	11.5	4.6

Metals	22.4	9.0
Paper, paperboard	71.3	28.5
Plastics	31.0	12.4
Rubber, leather, textiles	20.9	8.4
Wood	15.9	6.4
Yard trimmings	33.4	13.4
Other	8.6	3.2
Total	249.6	100.0

(a) Add the weights and then the percents for the nine types of material given, including “Other.” Each entry, including the total, is separately rounded to the nearest tenth. So the sum and the total may slightly because of **roundoff error**.

**Answer :**

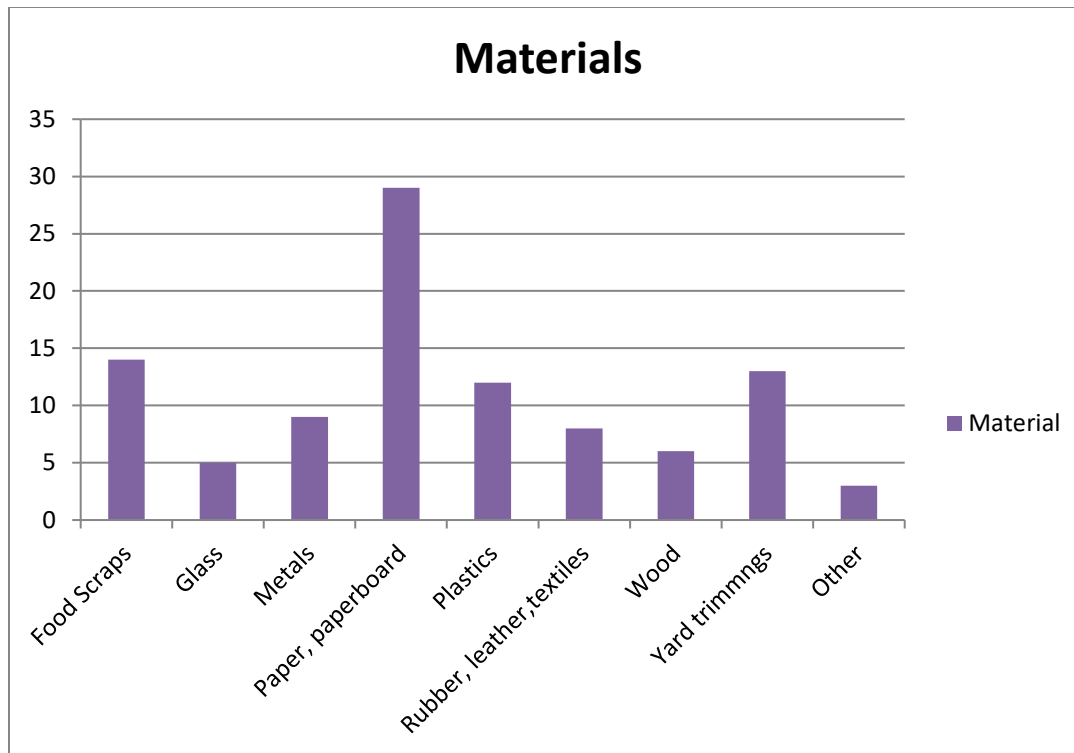
Material	Weight	Percent
Food scraps	35	14
Glass	12	5
Metals	22	9
Paper, paperboard	71	29
Plastics	31	12
Rubber, leather, textiles	21	8
Wood	16	6
Yard trimmings	33	13
Other	9	3
Tota;	250	99

From the table above, it can be concluded that the total weight after rounding is 250 and the total percent after rounding is 99.

(b) Make a bar graph of the percents. The graph gives a clearer picture of the main contributors to garbage if you order the bars from tallest to shortest.

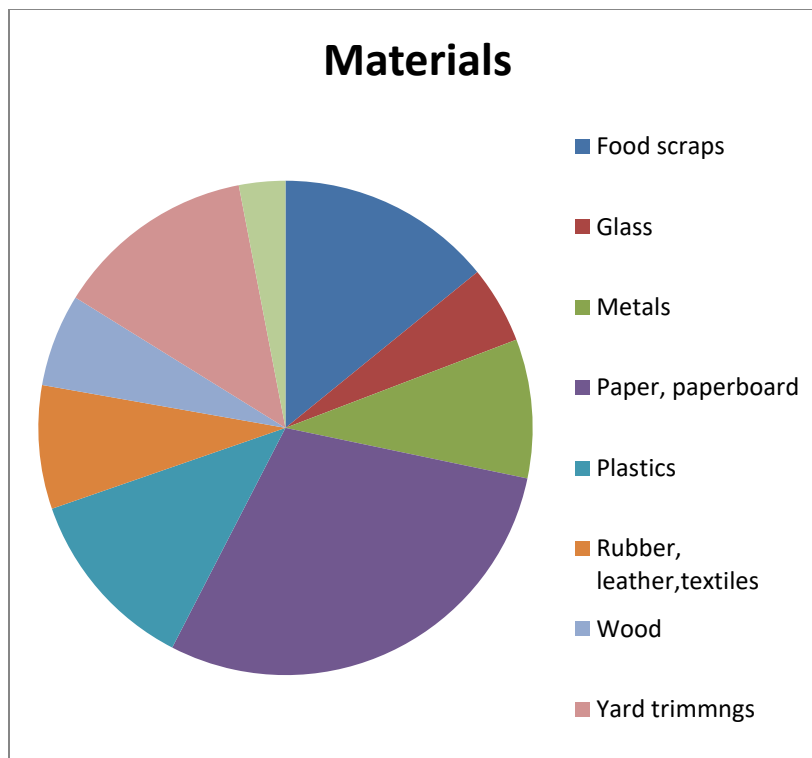
**Answer :**





(c) Make a pie chart of the percents. Compare the advantages and disadvantages of each graphical summary. Which do you prefer? Give reasons for your answer.

**Answer :**



- Bar graph

When you've got data that has different categories, a bar graph is excellent for displaying your info. You're able to easily compare several data sets and it's visually straightforward when someone reads it.

- Pie chart

If working with data that use whole percentages, pie chart will be perfect. Another name for circle graphs are pie charts. Keep in mind that the sum of the percents that have in your circle graphs have to equal to 100%. Other than the main advantage that pie chart are able to show total percentages for each category that you're displaying, it's also visually appealing.

I think prefer to bar graph, because easily compare several data sets and it's visually straightforward when someone reads it.

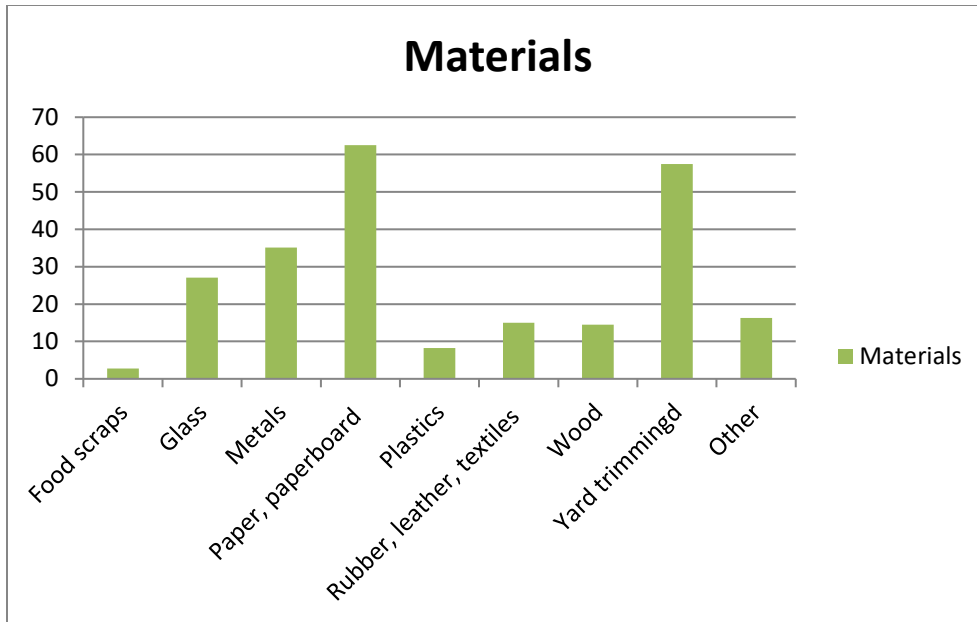
## 10. Recycled garbage.

Refer to the previous exercise. The following table gives the percent of the weight that was recycled for each of the categories.

Material	Weight (million tons)	Percent recycled (%)
Food scraps	34.8	2.8
Glass	11.5	27.1
Metals	22.4	35.1
Paper, paperboard	71.3	62.5
Plastics	31.0	8.2
Rubber, leather, textiles	20.9	15.0
Wood	15.9	14.5
Yard trimmings	33.4	57.5
Other	8.6	16.3
Total	249.6	

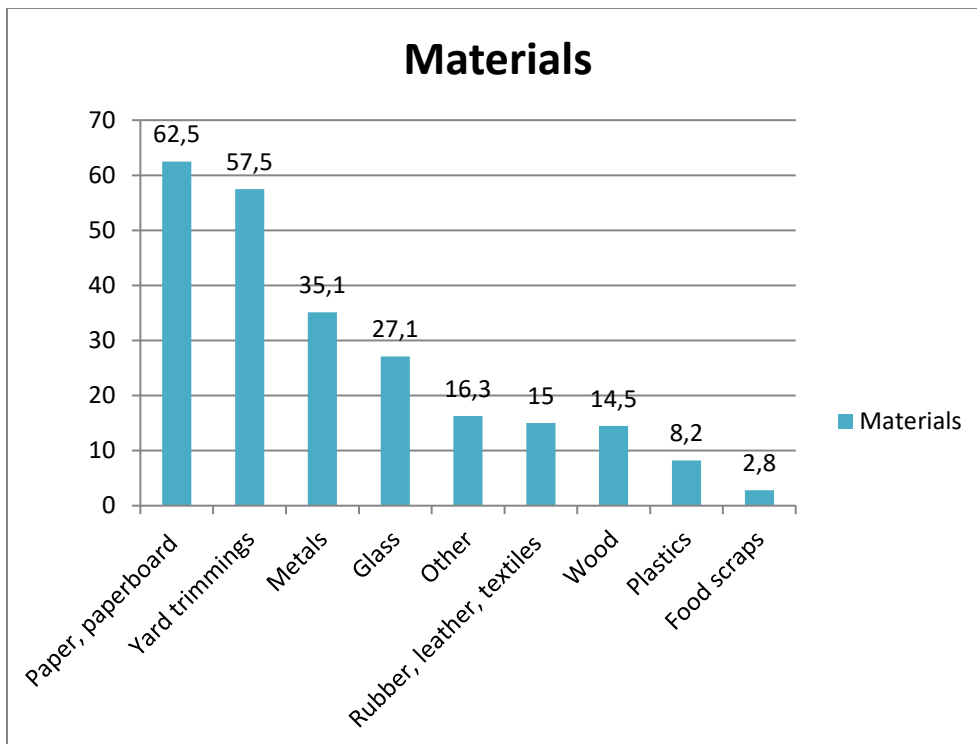
(a) Use a bar graph to display the percent recycled for these materials. Use the order of the materials given in the table above.

**Answer :**



(b) Make another bar graph where the materials are ordered by the percent recycled, largest percent to smallest percent.

**Answer :**



(c) Which bar graph, (a) or (b), do you prefer? Give a reason for your answer.

**Answer :**

I prefer bar graph B because more quickly understood when looking at the data on the graph.

(d) Explain why it is inappropriate to use a pie chart to display these data.

**Answer :**

A better option for visualizing the parts-to-whole relations of a data set is the bar chart. This is because it lets us compare the different objects by their length, which is one dimensional. Comparing objects along one dimension is a lot easier than along two, which makes comparing the length of bars a lot easier than the areas of pie chart.