

Day 3: Distribution of Data and their Shapes

Vocabulary

Variability:
Dot Plots: A plot of each _____ on a scale or _____.
Histograms: A graph of data that groups the data based on _____ and represents the data in each interval by a _____.
Box Plots: A graph that provides a picture of the data ordered and divided into _____ that each contains approximately _____ of the data.
Distribution:
Symmetric:

Data are often summarized by graphs; the graphs are the first indicator of **variability** in the data.

Types of Graphs:

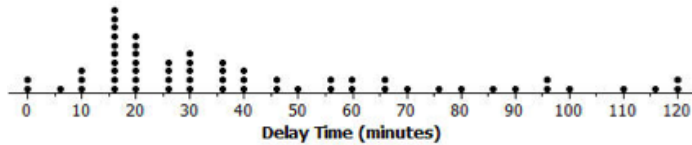
<p style="text-align: center;">Dot Plot of Viewer Age</p>	<p style="text-align: center;">Histogram of Ages for Kenya</p>
<p style="text-align: center;">Boxplot of Number of Pets</p>	<ol style="list-style-type: none"> 1. What can you do with a random data set to help you easily create a dot plot? 2. What do you need to do with a data set to create a histogram? 3. What do you need to do with a data set to create a box plot?

Analysis of Graphs:

Transportation officials collect data on flight delays (the number of minutes past the scheduled departure time that a flight takes off).

Consider the dot plot of the delay times for 60 BigAir flights during December 2012.

Dot Plot of December Delay Times



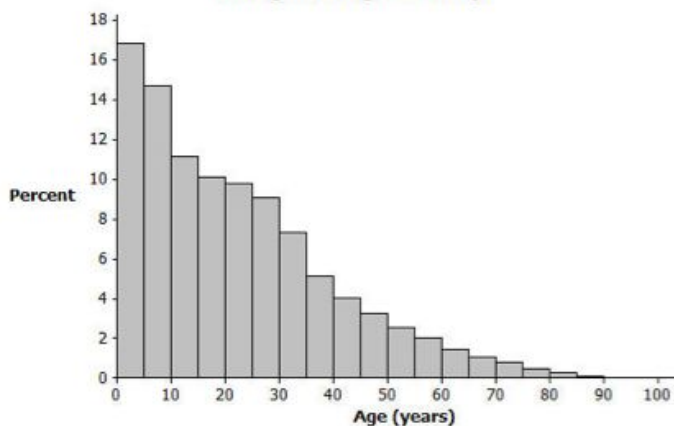
4. What can you infer about this airline and flight delays?

5. Why does this graph provide important information? Who might be interested in this graph that shows the data distribution?

6. Based on your previous work with dot plots, would you describe this dot plot as representing a symmetric or a skewed data distribution? (Recall that a skewed data distribution is not mound shaped.) Explain your answer.

The following histogram represents the age distribution of the population of Kenya in 2010.

Histogram of Ages for Kenya



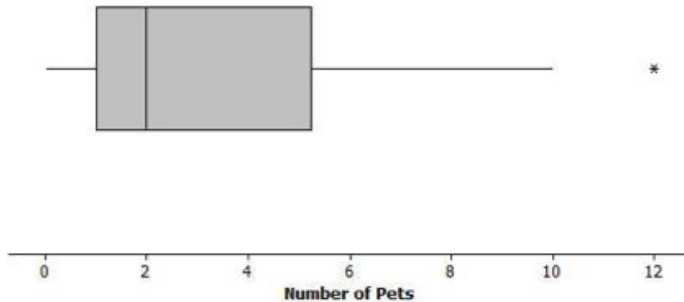
7. What do you think this graph is telling us about the population of Kenya?

8. Why might we want to study the data represented by this graph?

9. Based on your previous work with histograms, would you describe this histogram as representing a symmetrical or a skewed distribution? Explain.

30 students from River High School were asked how many pets they owned. The following box plot was prepared from their answers.

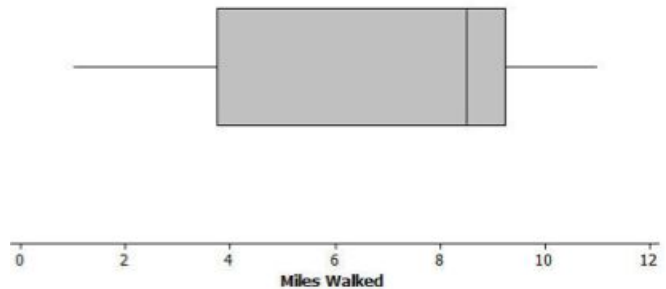
Boxplot of Number of Pets



10. What does the box plot tell us about the number of pets owned by the 30 students at River HS?

22 juniors from River High School participated in a walkathon to raise money. The following box plot was constructed using the number of miles walked by each of the 22 juniors.

Boxplot of Miles Walked for Juniors



11. What do you think the box plot tells us about the number of miles walked by the 22 juniors?

12. Would you describe each of the box plots above as being symmetrical or skewed. Explain.

13) 25 people were attending an event. The ages of the people are as follows:

3, 3, 4, 4, 4, 4, 5, 6, 6, 6, 6, 6, 6, 6, 7, 7, 7, 7, 7, 7, 16, 17, 22, 22, 25

a. Create a histogram of the ages here →

b. Would you describe your graph as symmetrical or skewed? Explain your choice.

c. Identify a typical age of the 25 people.

d. What event do you think the 25 people were attending? Use your histogram to justify your conjecture.

Histogram for Event 1

