MAT156: Statistics Name: _____
Section 2-3: Histograms Date: _____ Period: _____

Constructing a Histogram

The boys and girls basketball teams at Roosevelt Middle School wanted to raise money to help buy new uniforms. They decided to sell hats with the school logo on the front to family members and other interested fans. To obtain the correct hat size, the students had to measure the head circumference (distance around the head) of the adults who wanted to order a hat. The following data represents the head circumferences, in millimeters (mm), of the adults:

$$513, 525, 531, 533, 535, 535, 542, 543, 546, 549, 551, 552, 552, 553, 554, 555, 560, 561, 563, 563, 563, 565,$$
$$565, 568, 568, 571, 571, 574, 577, 580, 583, 583, 584, 585, 591, 595, 598, 603, 612, 618$$

Hat Sizes	Interval of Head Circumferences (mm)	Tallies	Frequency
XS	$510 - 529$		
S	$530 - 549$		
M	$550 - 569$		
L	$570 - 589$		
XL	$590 - 609$		
XXL	$610 - 629$		

The hats come in six sizes: XS, S, M, L, XL, and XXL. Each hat size covers a span of head circumferences. The hat manufacturer gave the students the table below that shows the interval of head circumferences for each hat size. **Complete the frequency table using the data.**

1. **What is the class width for this frequency table?**

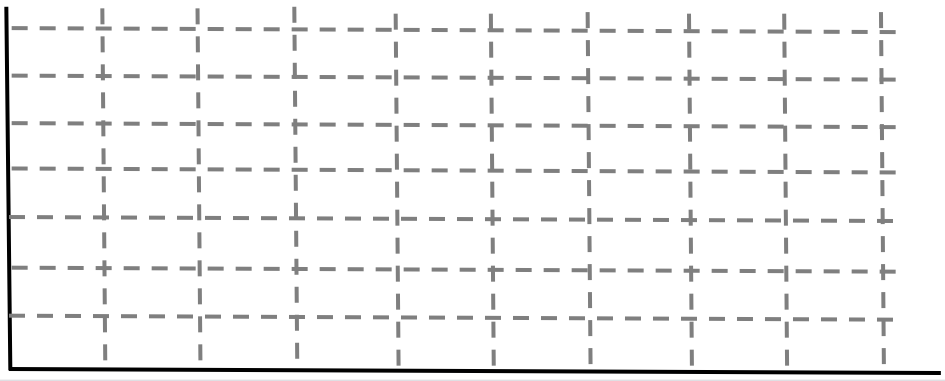
2. **What are the class boundaries?**

3. **Describe any patterns that occur in the frequency table.**

One student looked at the tally column and said that it looked somewhat like a bar graph turned on its side. A **histogram** is a graph that is like a bar graph, except that the horizontal axis is a number line that is marked off in equal intervals.

To make a histogram:

- Draw a horizontal line and mark the intervals using the class boundaries if possible.
- Draw a vertical line and label it "frequency."
- Mark the frequency axis with a scale that starts at 0 and goes up to something that is greater than the largest frequency in the frequency table.
- For each interval, draw a bar over that interval that has a height equal to the frequency for that interval.



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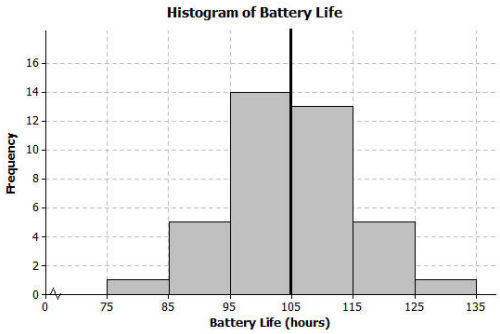
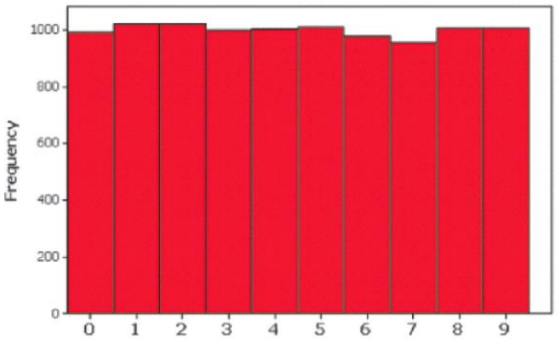
Shape of the Histogram

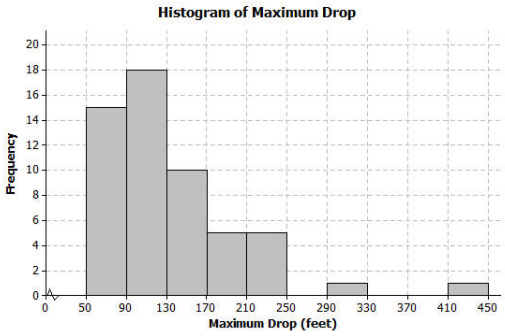
Bell-shaped or symmetric



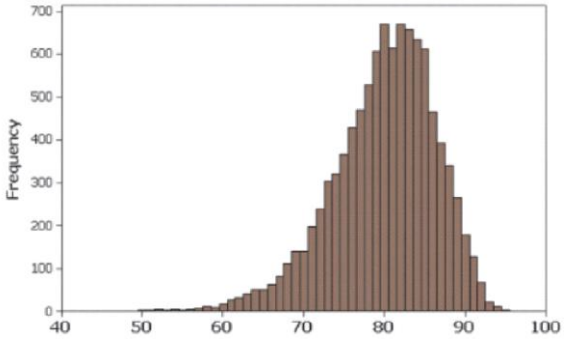
Uniform



Skewed to the right



Skewed to the left



1.
2.