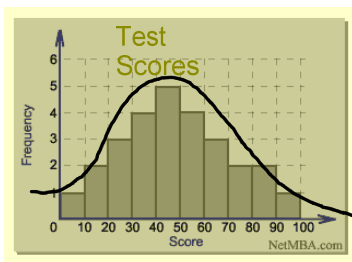
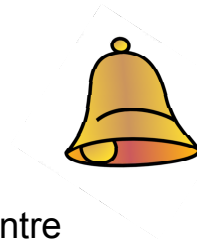


## 1.10 Common Distributions

### Normal Distribution "bell"


- data is distributed symmetrically
- bell shape
- the mean, median and mode are close in value and at the centre



Ex 1: a) Estimate the mean for this data

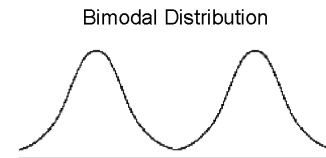
 The mean is approx. 45

b) What does this distribution tell you about the class?

 Most people scored around the middle of the data. The measures of central tendency would represent the data well.

### Bimodal Distribution

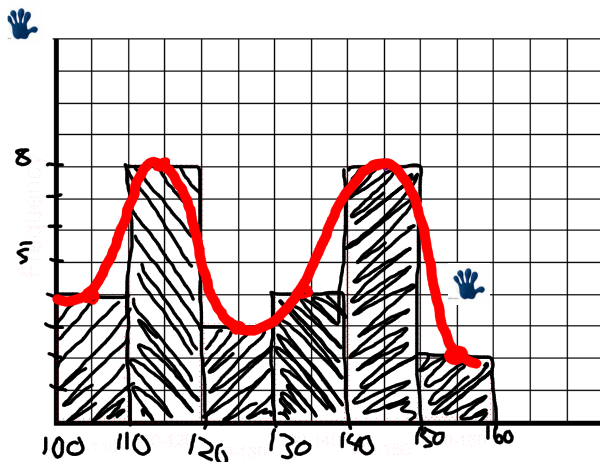
- has two "peaks"
- the frequencies cluster around two sub-groups



Ex 2: John recorded the heights of the junior and senior girls' soccer teams.

Height (cm)	[100 – 110)	[110 – 120)	[120 – 130)	[130 – 140)	[140 – 150)	[150 – 160)
Frequency	4	8	3	4	8	2

a) Display the data using a histogram. Place a point at the centre of the top of each bar in your histogram. Join the points with a smooth curve



b) Describe the shape of the curve.

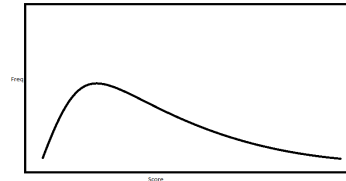
**The graph has two peaks, so the data is clustered at two distinct points.**

c) What does the shape of the curve tell you about the heights of the players?

**Most of the junior girls are about 110cm - 120cm tall and most of the senior girls are 140cm - 150cm tall.**

### Skewed Distribution

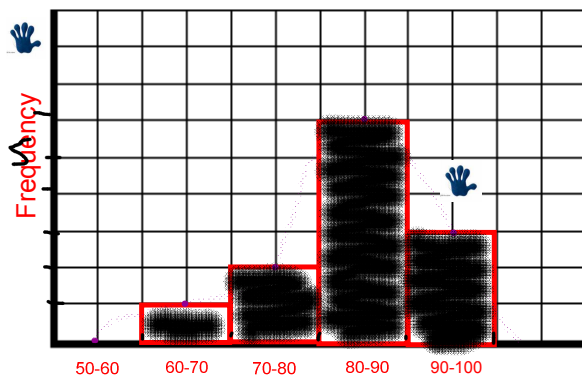
- a non-symmetrical distribution of data
- looks like a normal distribution that's been "pushed" to one side



Ex 3: Students in the Math club recorded their final marks for grade 11 math.

Interval	[50 – 60)	[60 – 70)	[70 – 80)	[80 – 90)	[90 – 100)
Frequency	0	1	2	6	3

a) Display the data using a histogram. Place a point at the centre of the top of each bar in your histogram. Join the points with a smooth curve.



b) Describe the shape of the curve

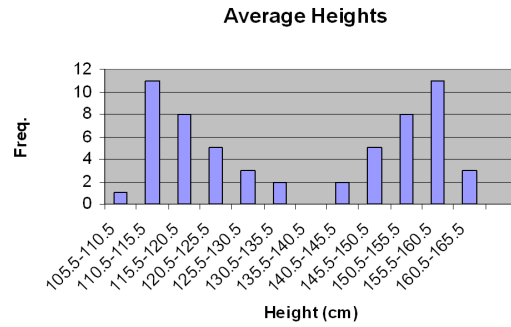
Hand Non-symmetrical, has a peak at the right of the graph.

c) What does the shape of the curve tell you about the final marks in grade 11 math?

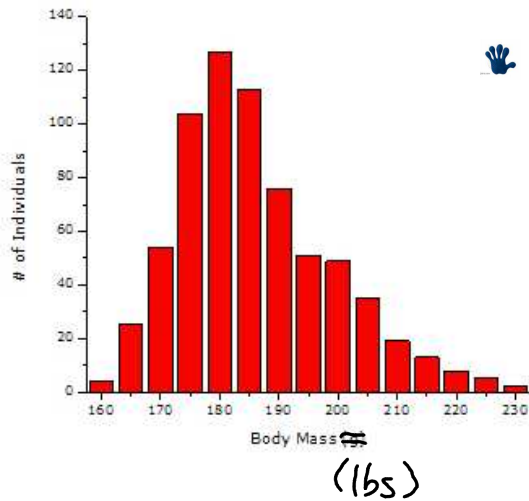
Hand Most of the marks are in the 80% - 90%. The mean, median and mode are all values in the same 80-90 range.

Ex 4: Explain why there might be two "spikes" in this graph of the heights of Grade 1 and 6 students.

👉 Grade Ones are shorter than Grade six students so there are two clusters of data.



Ex 5: What does the distribution tell you about the mass of the group?



👉 Most people had a body mass in the lower range of this data. The measures of central tendency would NOT represent the data well.

The mean would be skewed higher in this case. The few much higher values would pull the mean (average) up.

Ex 6: Identify the type of distribution & explain why.

skewed

normal

bimodal

a) the mass of members of a CFL football team compared to the rest of the population

 skewed: CFL players are heavier than average people

b) the weekly cost to students of transportation to/from Algonquin College

 normal: most students live the same distance from the college

c) the finishing times of men's and women's marathon

 bimodal: there are two separate categories male/female

# Homework

pg. 153 # 1, 3, 5, 6, 7

Once you have finished start the  
Stats Practice Review

