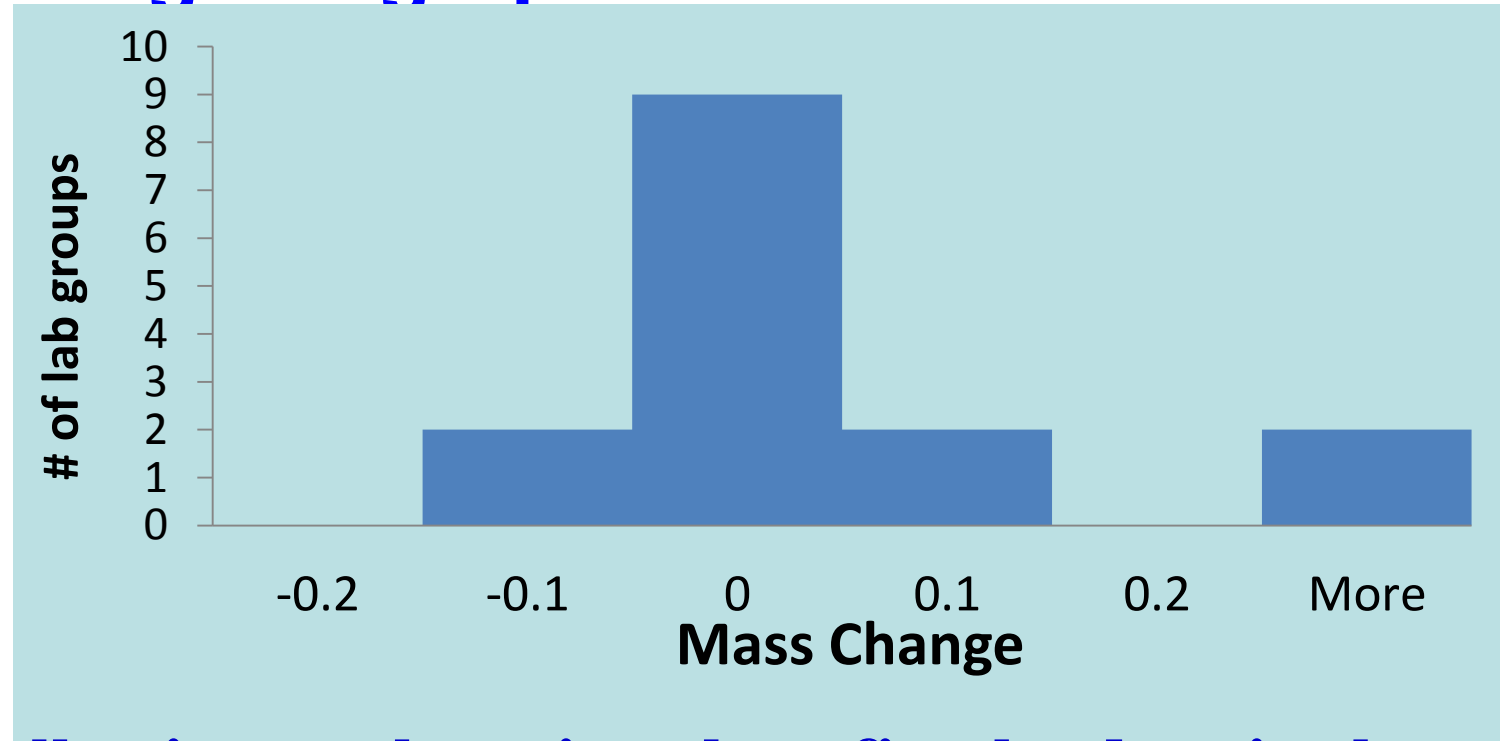


Bell Work, Sept 16 - 19, 2013

Mass and Volume, Conservation of
Mass, Graphing

Bell Work, Monday, 9/16

1. Draw the histogram graph below.



a) Which of the following explanations best fits the data in the above histogram? b) What data do histograms display?

A. Steel wool was strongly heated.

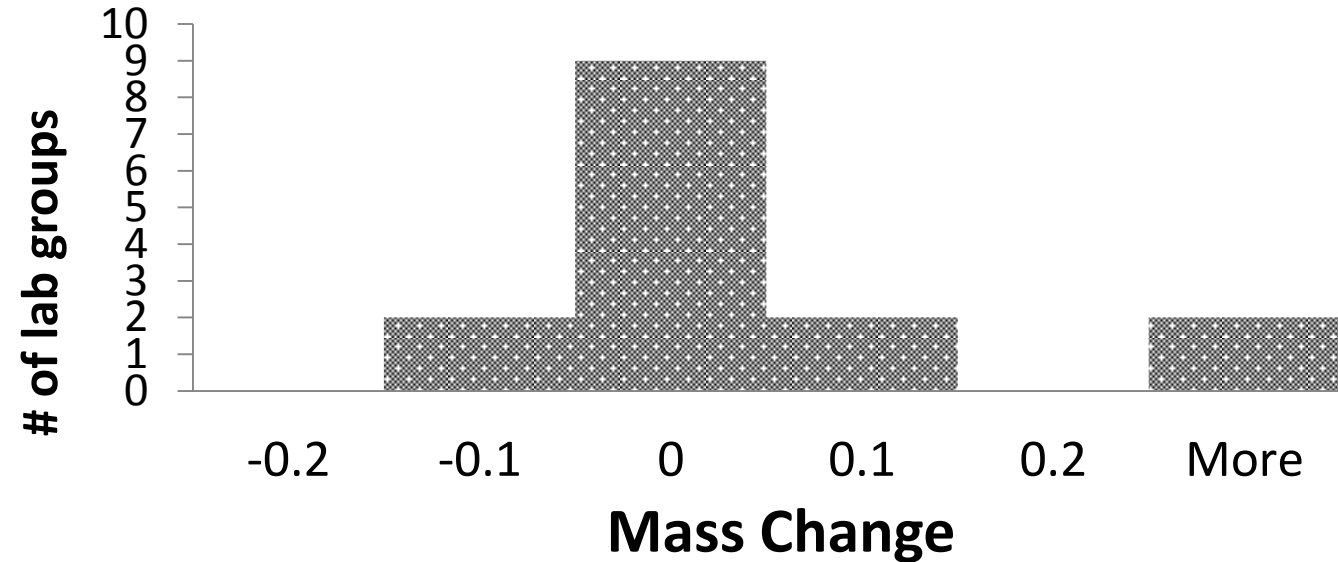
B. A few groups were careless and lost material.

C. Two solutions were mixed and formed a precipitate.

D. Alka-Seltzer was dissolved in water.

Bell Work, Monday, 9/16

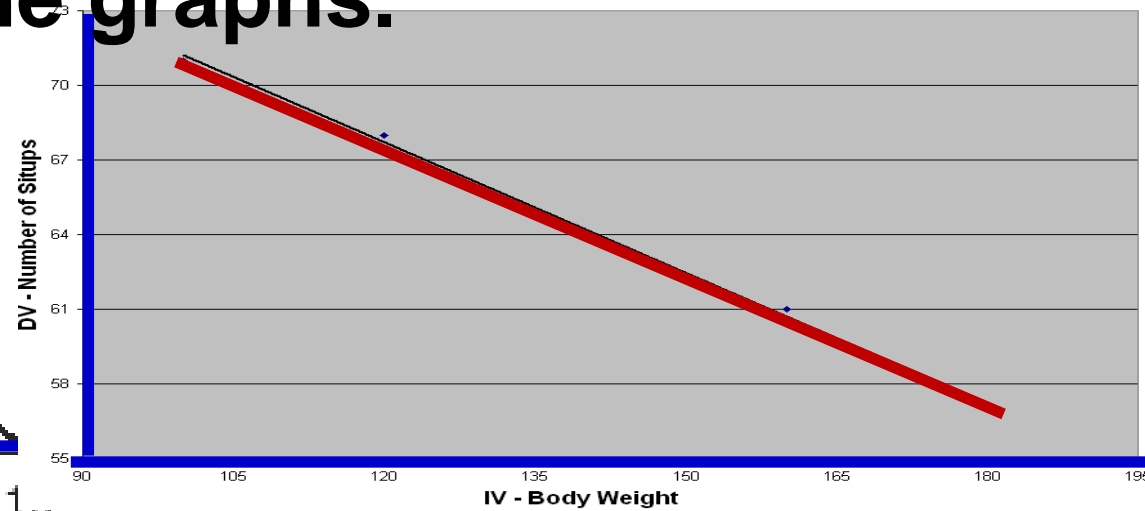
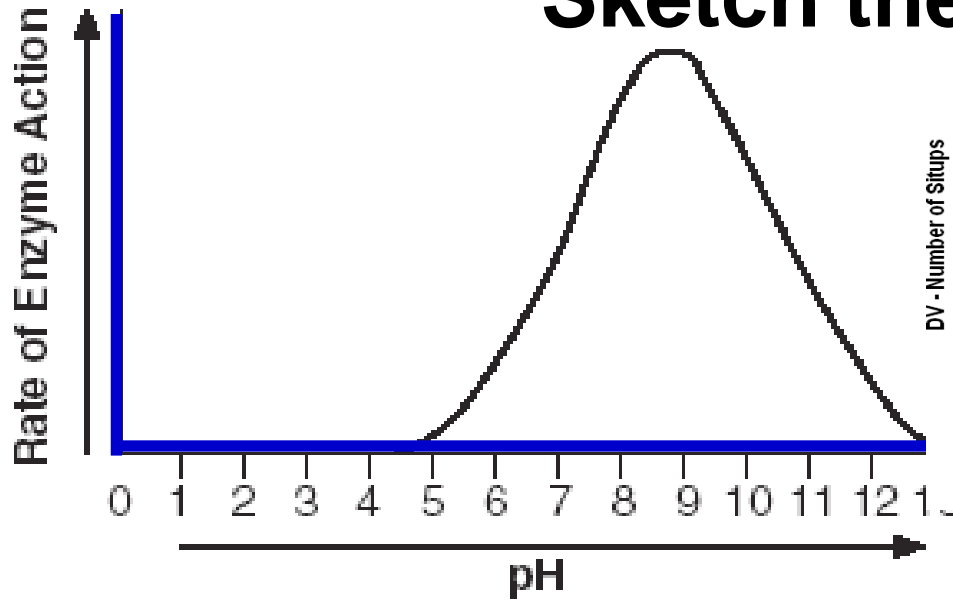
1. b) What data do histograms display?



Histograms show the results (the DV) of an experiment on the x axis and the number of times (frequency) that result was obtained on the y axis.

Bell Work, Monday, Sept 16

Sketch the graphs.



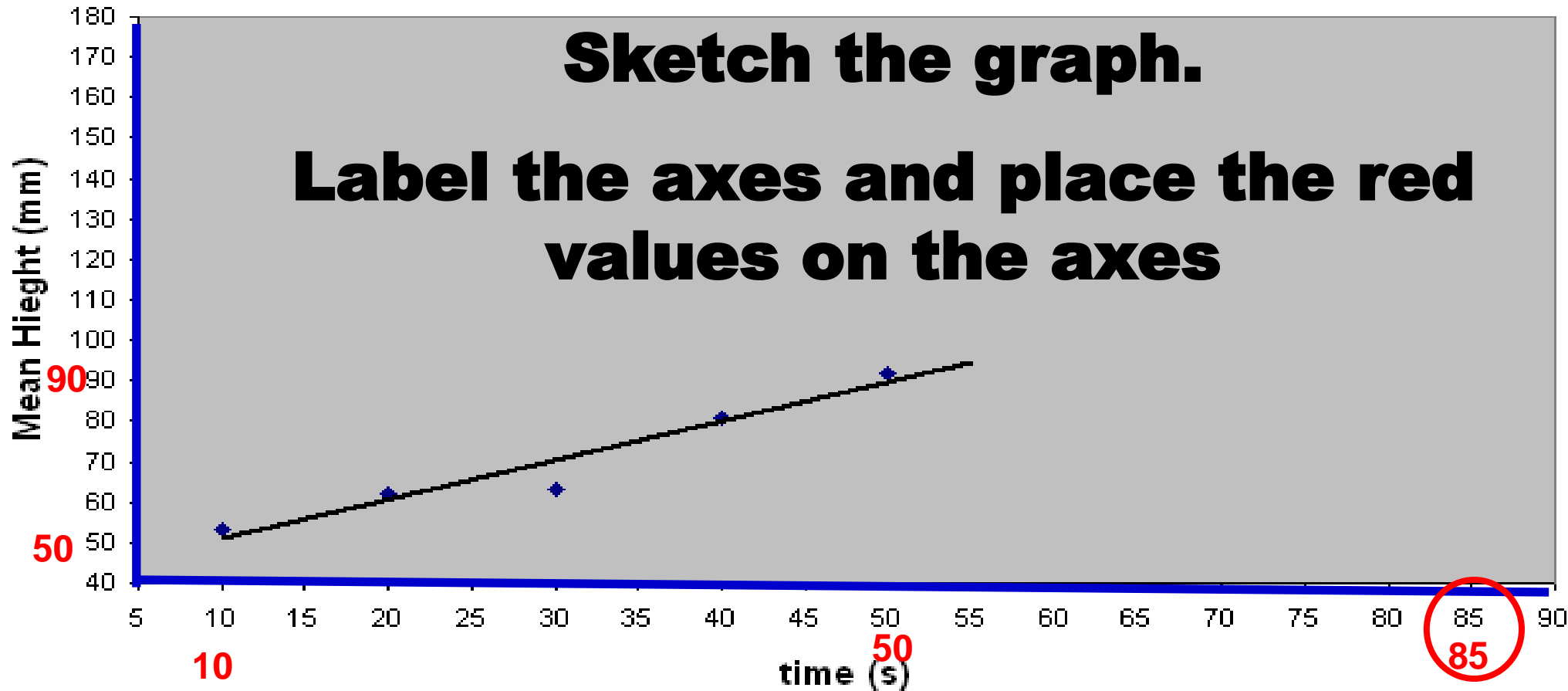
2. Why do scientist use graphs to display data:

A. Patterns and trends are revealed.

B. The relationship between variables can be visualized (ex: when the IV is increasing, the DV is decreasing.)

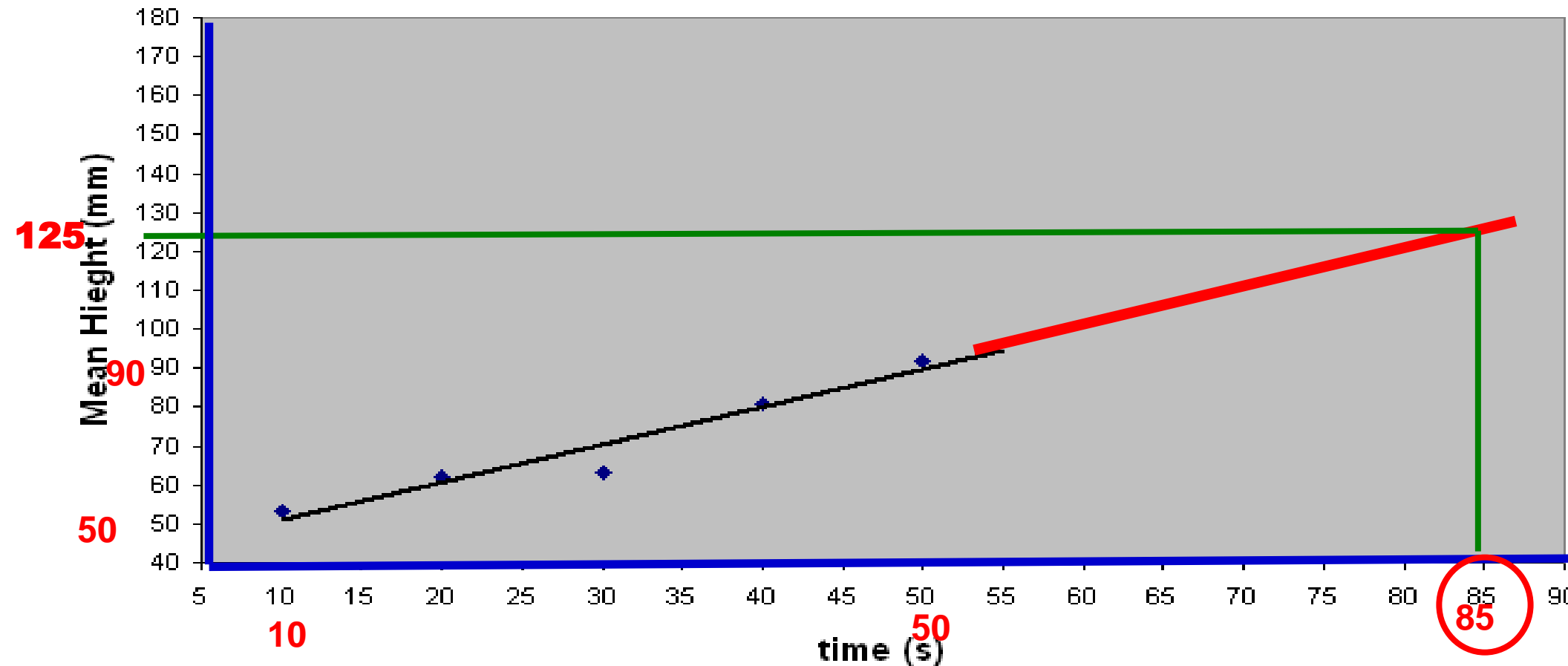
C. Outcomes can be predicted by extending trend lines.

Bell Work, Monday, Sept 16



3. Predict the mean height (y axis) when the time (x axis is 85 seconds.

Bell Work, Monday, Sept 16



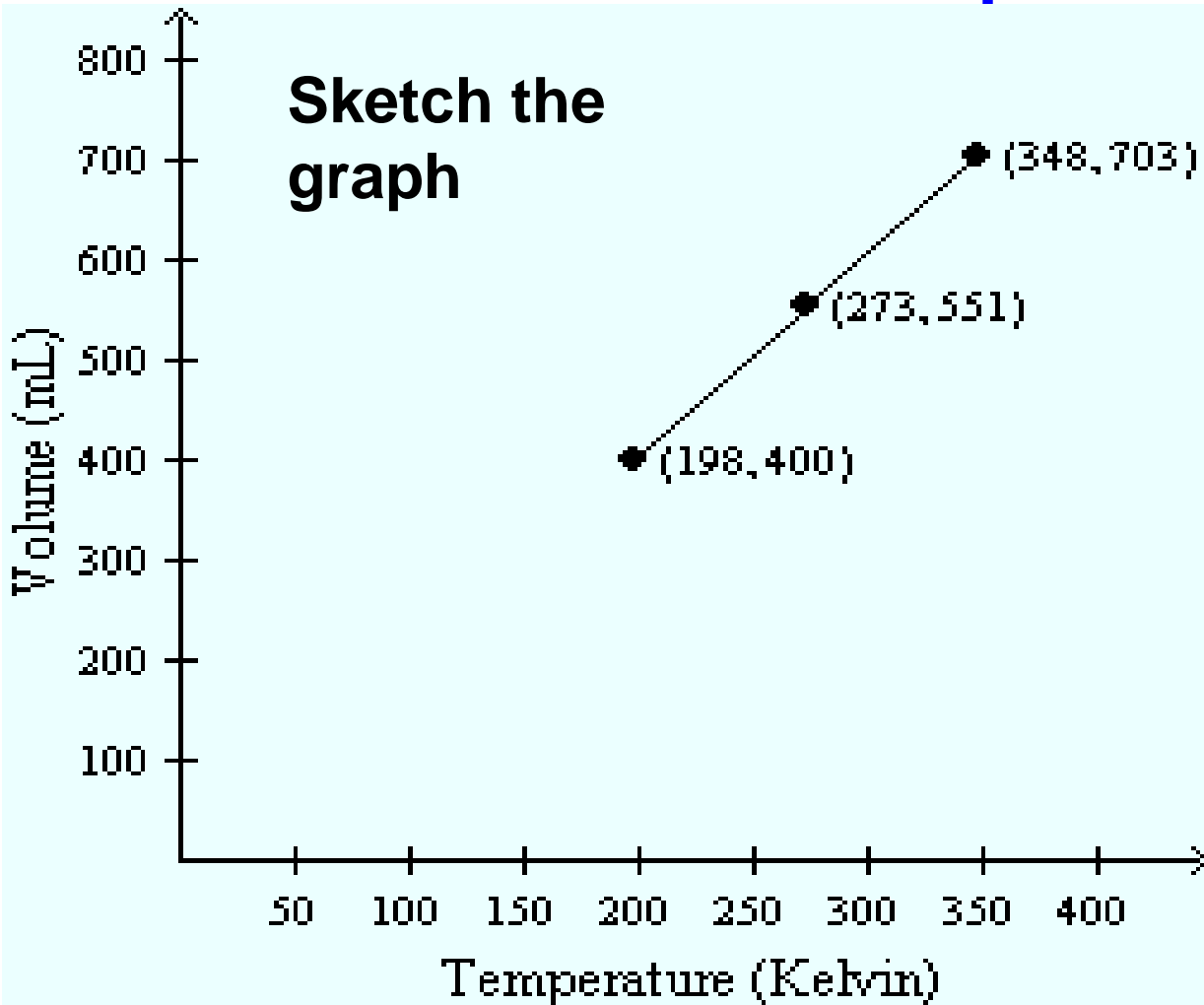
3. Predict the mean height (y axis) when the time (x axis is 85 seconds

Extend the trend line.

Approximately 122 - 125 mm

Bell Work, Monday, Sept 9

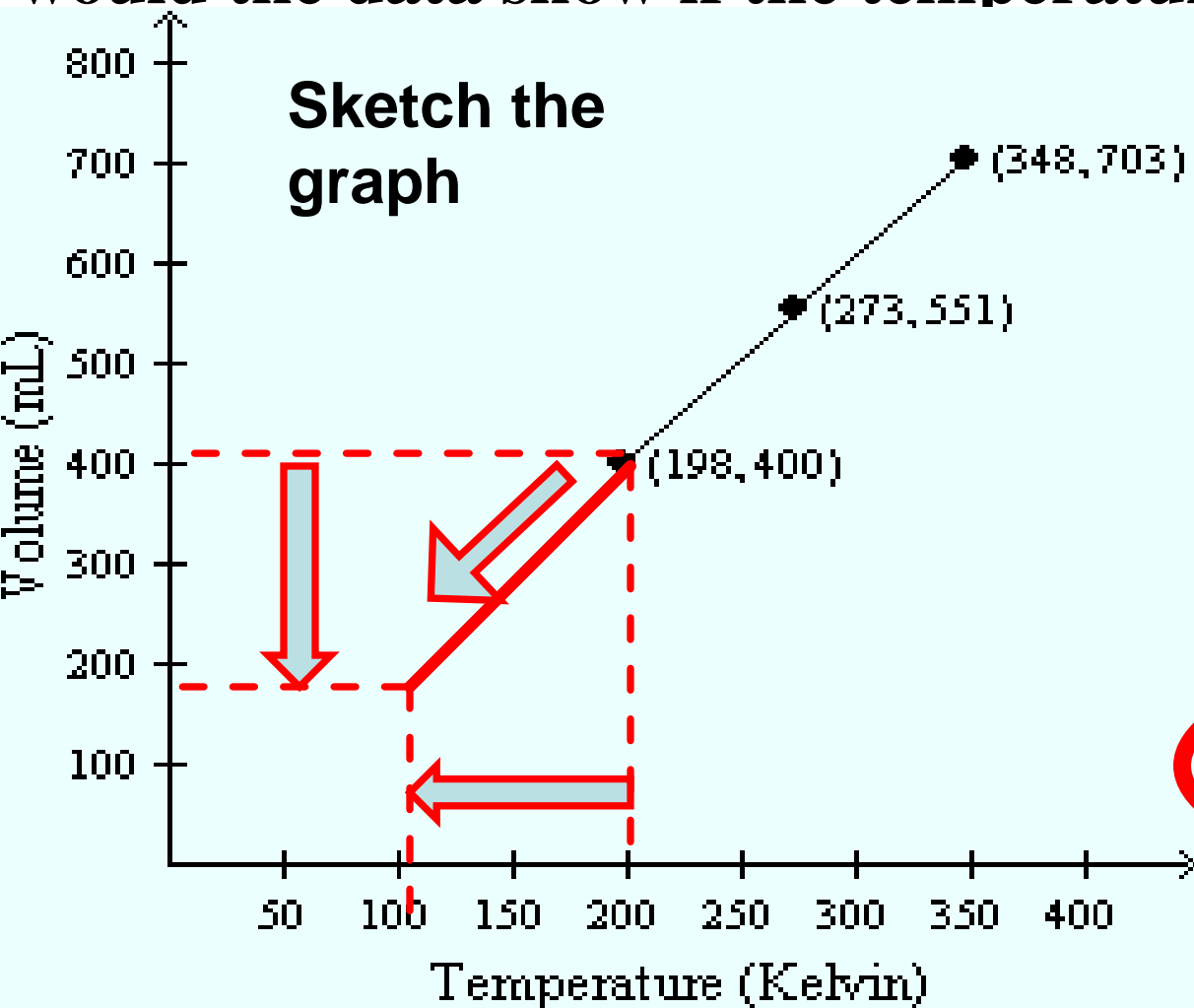
4. A researcher who wants to learn about the behavior of a particular gas examines the relationship between temperature and gas volume when the gas is held at a constant pressure. The graph below shows the data collected. **What would the data show if the temperature were decreased to 100°K ?**



- a. The volume would not change.
- b. The volume would increase rapidly, then decrease.
- c. The volume would increase.
- d. The volume would decrease.

Bell Work, Monday, Sept 9

4. A researcher who wants to learn about the behavior of a particular gas examines the relationship between temperature and gas volume when the gas is held at a constant pressure. The graph below shows the data collected. **What would the data show if the temperature were decreased to 100°K ?**



- a. The volume would not change.
- b. The volume would increase rapidly, then decrease.
- c. The volume would increase.
- d. The volume would decrease.

Bell Work, Tuesday, Sept 17

Liquid Temperatures in degrees Celsius (°C)

<i>Liquid</i>	0 min.	15 min.	30 min.	45 min.	60 min.
<i>A</i>	97	83	70	67	52
<i>B</i>	97	72	54	36	21
<i>C</i>	97	78	64	56	40
<i>D</i>	97	92	87	81	76

$$97 - 52 = 45$$

$$97 - 21 = 76$$

$$97 - 40 = 57$$

$$97 - 76 = 21$$

1. Referring to the above data, which liquid had the greatest temperature change during the 60 minutes?

a. A

c. B

b. C

d. D

**The answer is row B,
which is answer c.**

Next
Slide

Bell Work, Tuesday, Sept 17

2. What is the weight of the solution when 1 pound of salt is dissolved in 20 pounds of water?

- a. More than 21 pounds.
- b. 21 pounds.
- c. Between 20 and 21 pounds.
- d. 20 Pounds.
- e. Less than 20 pounds

3. True or False? When a match burns, some matter is destroyed.

- a. True
- b. False

4. What is the reason for your answer to the prior question?

- a. This chemical reaction destroys matter.
- b. Matter is consumed by the flame.
- c. The mass of ash is less than the match it came from.
- d. The particles are not destroyed, they are only rearranged.
- e. The match weighs less after burning.

COM: Matter is neither created or destroyed, the particles are rearranged into different arrangements.

Next
Slide

1. Compare and contrast system and surroundings

System:

The system is the part of the universe we wish to focus our attention on.

In chemistry, the system is the chemical process we are studying.

Sometimes this includes the container that holds this process.

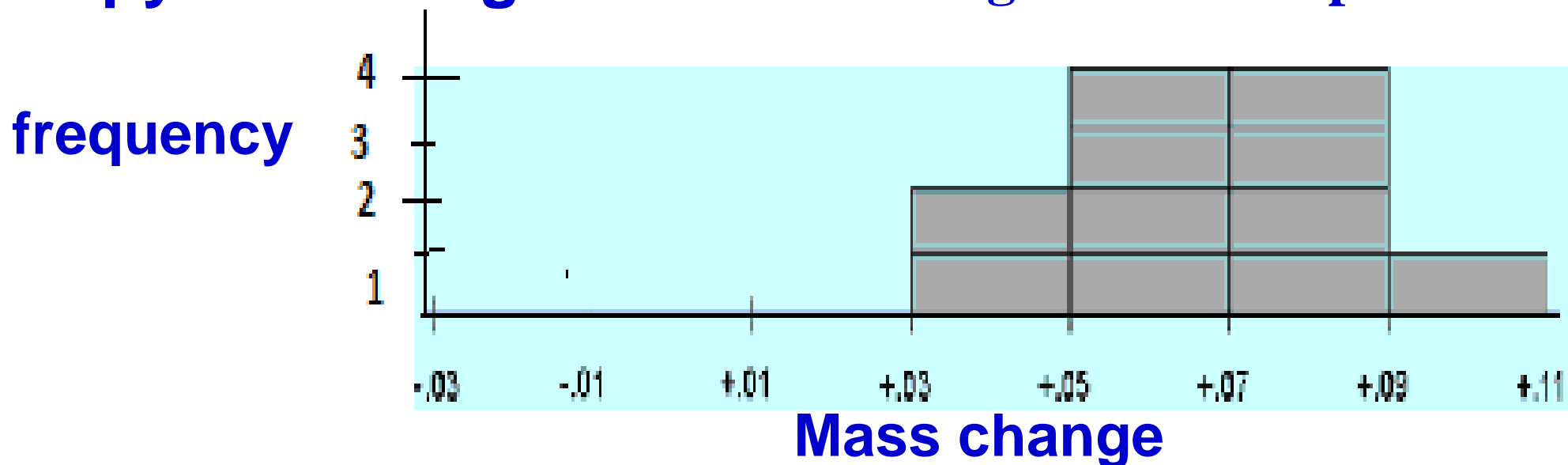
Surroundings

– is everything else.

The universe

Bell Work, Wednesday, Sept 18

2. Copy the histogram of mass change from an experiment



Which of the following explanations best fits the data?

- a. Alka-Seltzer was dissolved in water.
- b. Sugar was dissolved in water.
- c. Two solutions were mixed and formed a precipitate.
- d. Steel wool was strongly heated.

3. When an iron nail rusts, its mass _____. Why?

- a. **increases**
- b. decreases
- c. stays the same
- d. cannot be determined

The iron reacts with oxygen and particles of oxygen are added to then iron (and the steel wool).

All particles takes up space and have mass.

Adding oxygen adds particles (particles have mass) to the iron & steel wool and they become heavier.

Bell Work, Thursday, Sept 18, 2013

1. What are the major divisions:

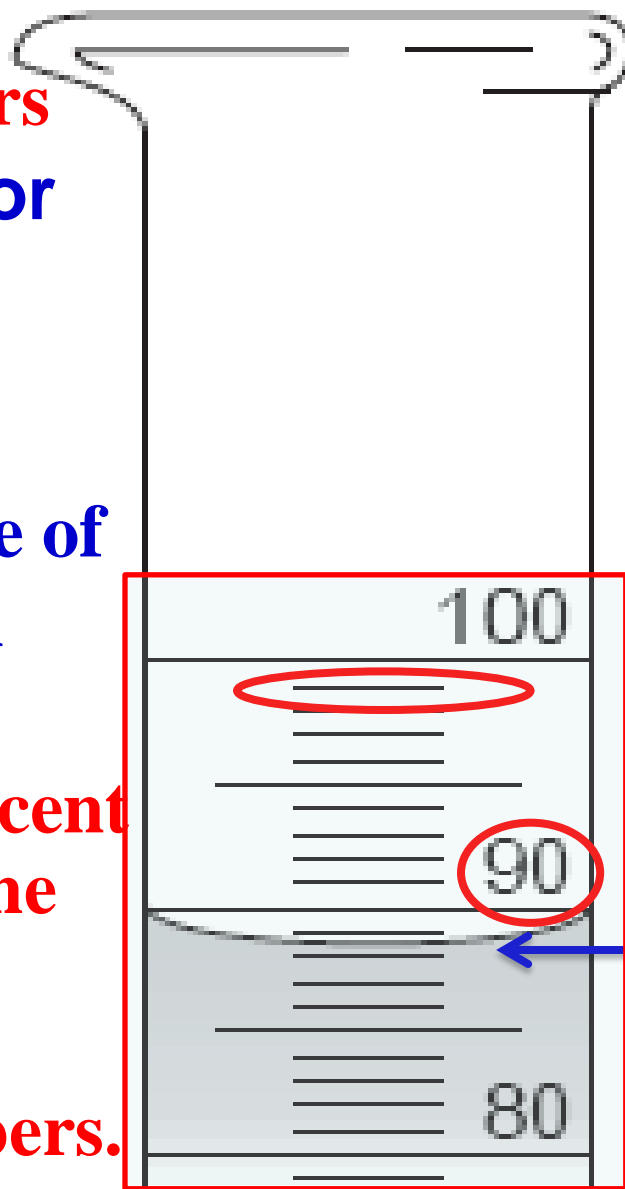
lines with numbers

2. What are minor divisions:

Marks without numbers.

3. How is the value of the minor division determined?

Subtract two adjacent numbers, divide the difference by the number of lines between the numbers.



4. Determine the value of each minor mark

$$\frac{100 - 90}{10 \text{ lines}} = 1 \text{ mL}$$

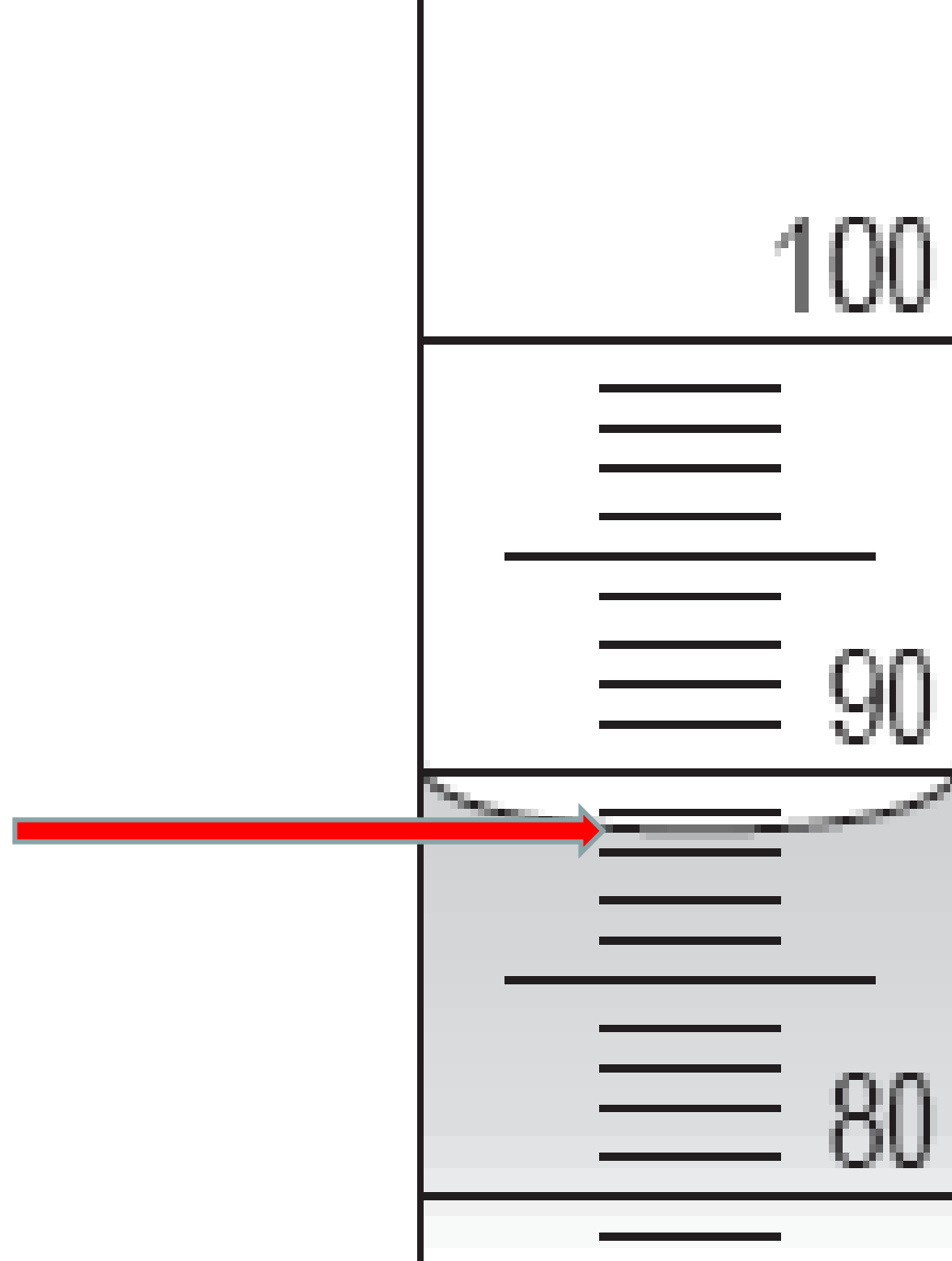
5. What is the uncertainty?

Estimation is $\frac{1}{2}$ the minor mark, which is

$$\frac{1 \text{ mL}}{2} = 0.5 \text{ mL}$$

6. What is the measurement shown?

88.5 mL



7. What is the equation of a straight line? Define the variables.

$$***y = mx + b***$$

***y* = a y value on the line**

***x* = an x value on the line**

***m* = the slope** $\left(\frac{\textit{rise}}{\textit{run}} = \frac{\Delta y}{\Delta x} \right)$

***b* = the y intercept**