

# Chemistry Bell Work, March 5 – March 8

ACT Prep, Mass and Volume 1:  
Measuring with a Graduated Cylinder,

## 1. Results of ACT 5 Test

A	B	C	D	E	F
Type of Passage	Passage Numbers (question numbers)	Total number of questions	Total Number Answered without Guessing	Number of correct answers not including guesses	Percent Correct Answers $(E/D) * 100$
Charts & Graphs	1, 3, 4 (questions 1- 5, 13– 22 )	15			
Experiments	5, 6, 7 (questions 23 - 40)	18			
Conflicting Viewpoints	2 (questions 6 – 12)	7			

# Bell Work, Tuesday, 3/6/18, ( 8 questions)

## 1. Define major & minor marks

Major mark has a number, minor mark is just a line.

## 2. What is the value of each minor mark?



Subtract two subsequent numbers & divide by the number of lines in-between.

$$\frac{10 - 9}{10 \text{ lines}} = 0.1 \text{ mL}$$

## 3. What is uncertainty in measurement.

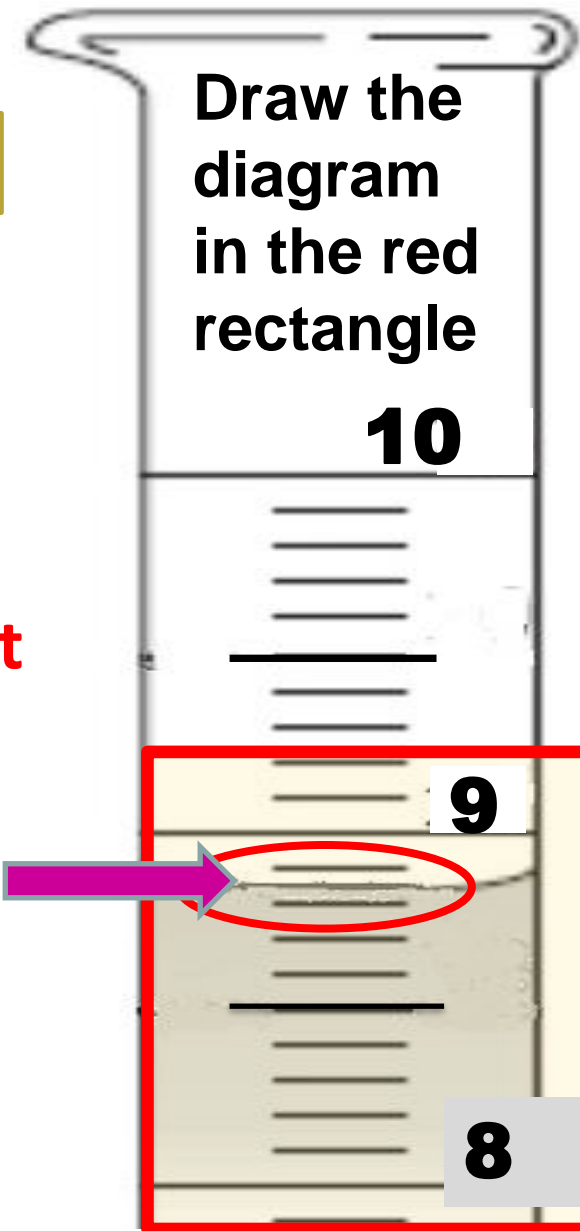
Uncertainty is the part of the measurement that must be estimated because there are no lines.

## 4. What is the uncertainty (the estimation)?

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

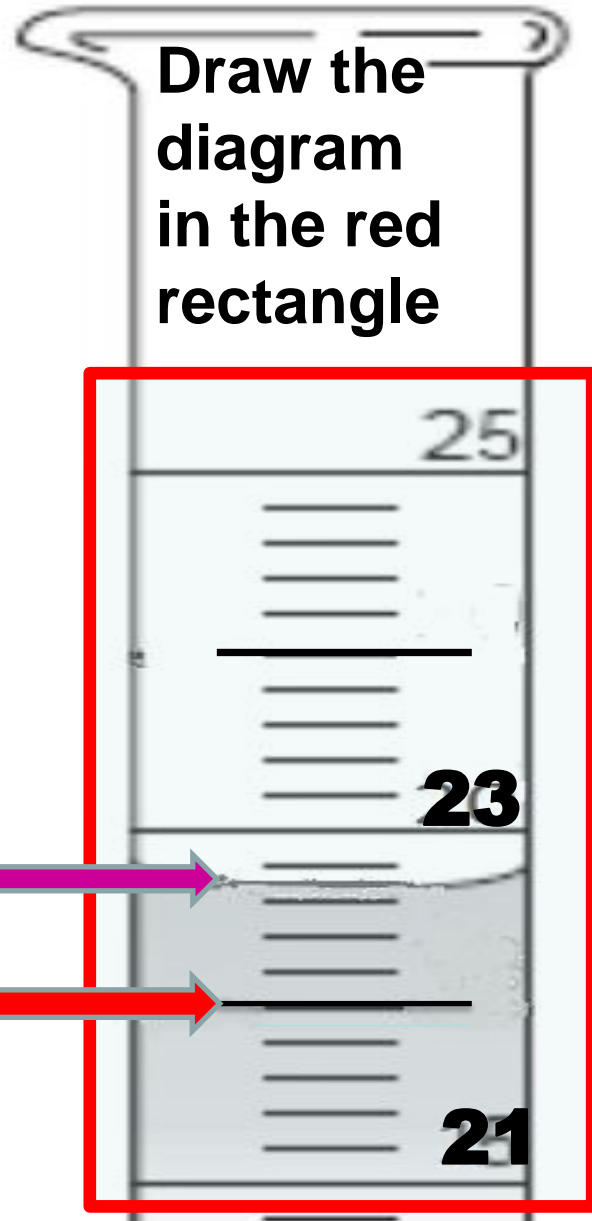
$$\frac{0.1 \text{ mL}}{2} = 0.05 \text{ mL}$$

## 5. What is the measurement? 8.85 mL



# Chemistry, Bell Work, Tuesday, 3/6/18

*Draw the section of the cylinder in the red box:*



**6. Determine the value of each minor mark**

$$\frac{23 - 21}{10 \text{ lines}} = 0.2 \text{ mL}$$

**7. What is the uncertainty?**

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

$$\frac{0.2 \text{ mL}}{2} = 0.1 \text{ mL}$$

**8. What is the liquid measurement in  $\text{cm}^3$ ?**

$$1 \text{ mL} = 1 \text{ cm}^3$$

$$22.7 \text{ cm}^3$$

A milliliter is the same as a cubic centimeter

# ◀ ACT Prep, Bell Work, Wednesday, March 7 ▶

## 1. What are signs of an easier ACT passage and Now questions?

- Relatively small tables and graphs with consistent relationships of numbers.
- Questions with short answers: numbers and/or words like "increase/decrease."
- Questions you can answer from the figures (tables & graphs) and do not need to read the passage.
- Your POOD: you may know and like certain topics more than others.

***POOD = Personal Order of Difficulty***

## 2. Pace yourself for a score of 20

- 20 Questions answered
- 35 Minutes
- Allow 2 min to read the passages, data tables & graphs.
- (4 or 5 passages x 2 min = 8 - 10 min)
- Allow 1 minute to answer each question
- (20 questions X 1.05 min = 21 min)
- This is 75% more time to answer questions
- Four minutes to bubble your answers.
- You skipped two or three full passage with its 12 – 19 questions and you skipped some hard questions.
- *You skipped 20 questions.*

## 2. Pace yourself for a score of 20

- 25 Questions answered
- 35 Minutes
- Allow 2 min to read the passages, data tables & graphs.
- (4 or 5 passages x 2 min = 8 - 10 min)
- Allow 52 sec to answer each question
- (25 questions X 0.84 min = 21 min)
- This is 75% more time to answer questions
- Four minutes to bubble your answers.
- You skipped two full passage with its 12 – 14 questions and you skipped some hard questions.
- *You skipped 15 questions*

Sketch the cylinders

1. What is the value of each minor mark?

minor mark =  $50\text{mL} - 40\text{mL} \text{ mL} / 5 = 2\text{mL}$

2. What is the initial volume =  $26 \text{ mL}$

3. What is the final volume =  $41\text{mL}$

4. What is the water displacement?

It is the change in the water volume

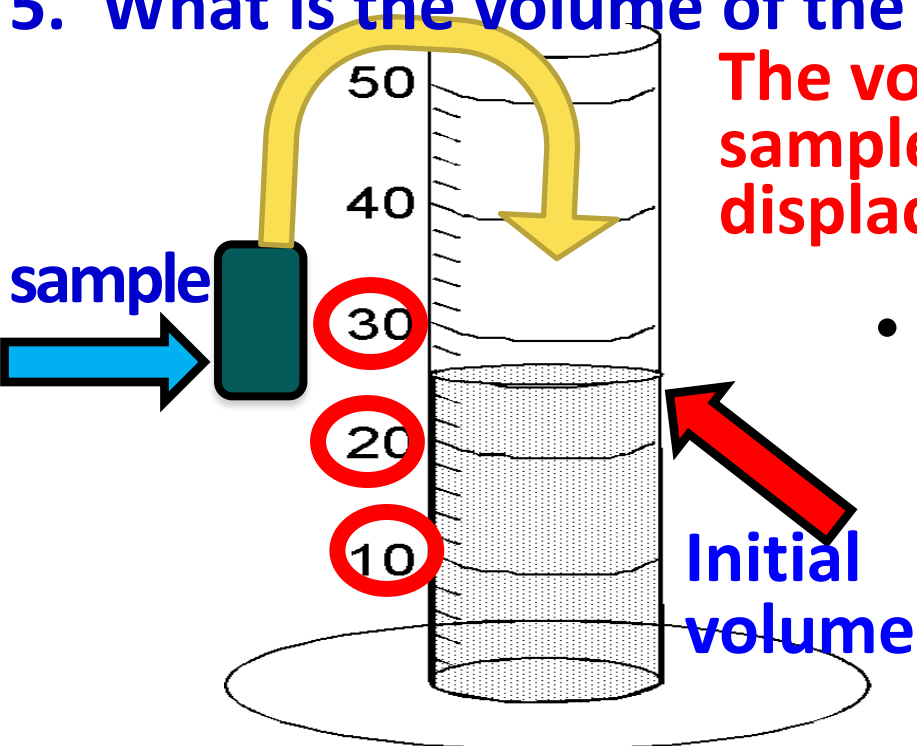
Final volume - initial volume =

$41.0 \text{ mL} - 26.0 \text{ mL} = 15.0 \text{ mL}$

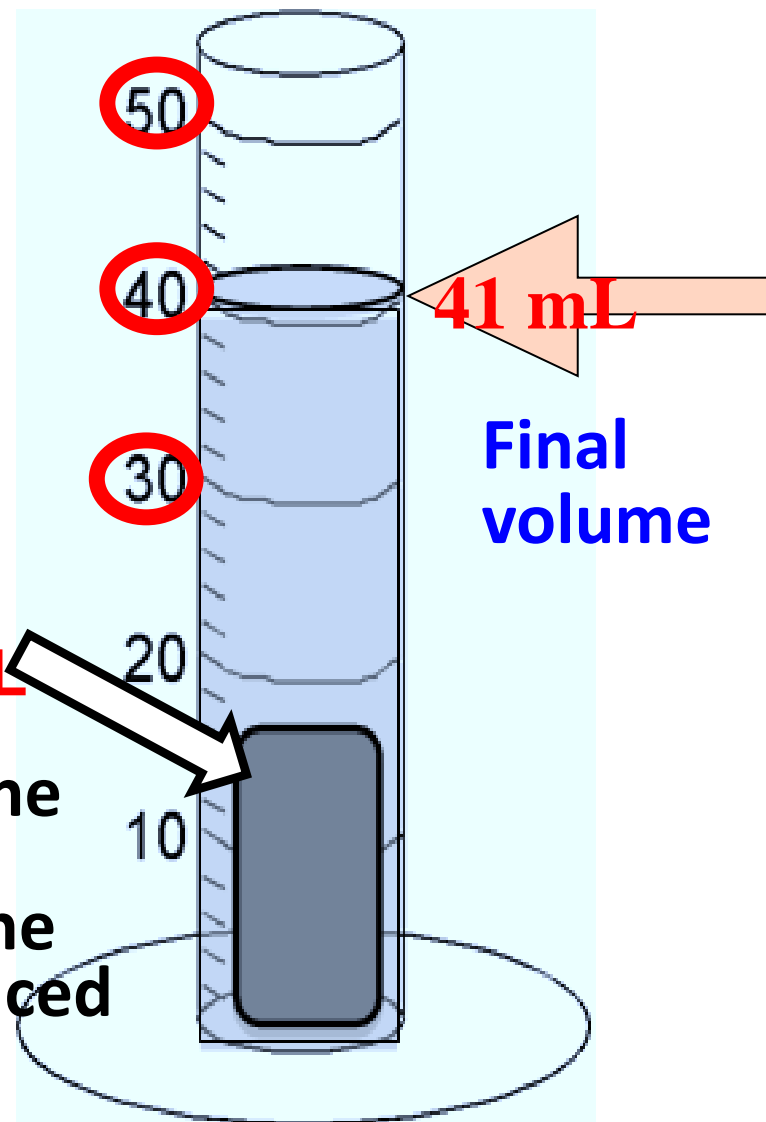
5. What is the volume of the sample?

The volume of the sample = the water displacement,  $15 \text{ mL}$

sample



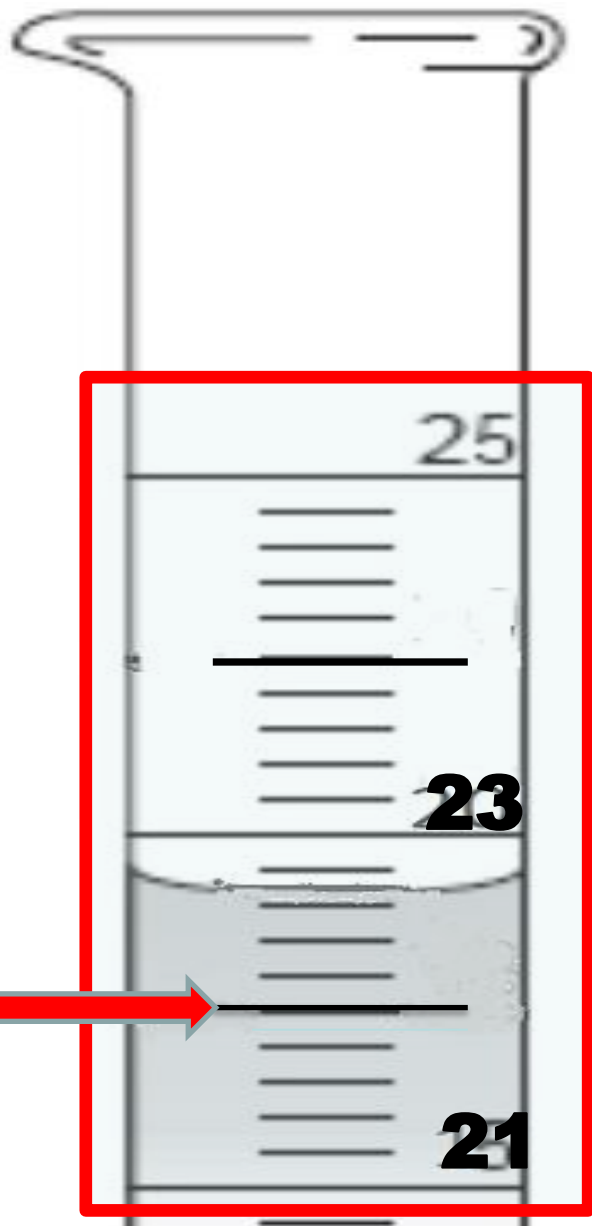
- Volume of the object = the volume of the water displaced





# Chem, Bell Work, Thursday, 3/8/18

*Draw the section of the cylinder in the red box:*



**6. Determine the value of each minor mark**

$$\frac{23 - 21}{10 \text{ lines}} = 0.2 \text{ mL}$$

**7. What is the uncertainty or estimation?**

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

$$\frac{0.2 \text{ mL}}{2} = 0.1 \text{ mL}$$

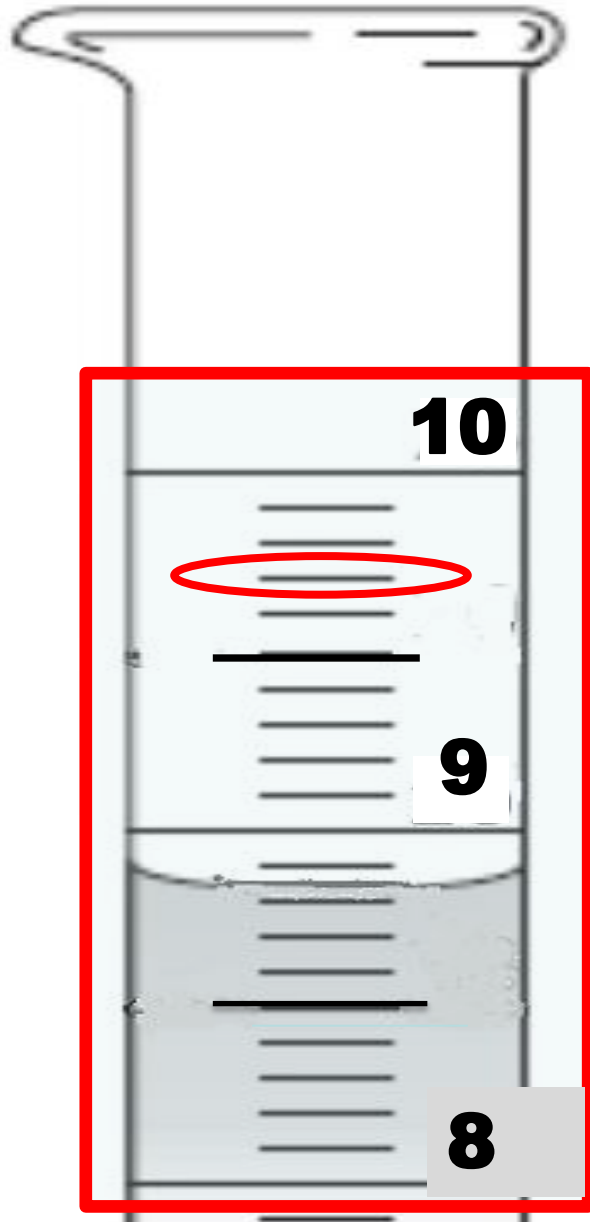
**8. 1 mL = 1 cm<sup>3</sup>**

**9. What is the liquid measurement in cm<sup>3</sup>? **22.7 cm<sup>3</sup>****



# Exit Ticket

*Draw the section of the cylinder in the red box:*



**1. Determine the value of each minor mark**

$$\frac{10 - 9}{10 \text{ lines}} = 0.1 \text{ mL}$$

**2. What is the uncertainty?**

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

$$\frac{0.1 \text{ mL}}{2} = 0.05 \text{ mL}$$

**3. What is the measurement shown in  $\text{cm}^3$ ?**

**8.85  $\text{cm}^3$**





## 2. Pace yourself for a score of 24

- 30 Questions answered
- 35 Minutes
- Allow 1.5 min to skim the passages, data tables & graphs.
- (6 X 1.5 min = 9 min)
- Allow 45 sec to answer each question
- (30 questions X 0.75 min=23 min)
- This is 50% more time to answer questions
- Three minutes to bubble your answers.
- You skipped one full passage with its seven questions and you skipped 3 complicated questions.
- *You skipped 10 questions*



## 2. What are signs of an easier ACT passage and Now questions?

- Relatively small tables and graphs with consistent relationships of numbers.
- Questions with short answers: numbers and/or words like "increase/decrease."
- Questions you can answer from the figures (tables & graphs) and do not need to read the passage.
- Your POOD: you may know and like certain topics more than others.

***POOD = Personal Order of Difficulty***

# ACT Prep, Bell Work Wednesday, Mar 7

## 2. Pace Yourself for a score of 28

- 40 Questions answered
- 35 Minutes
- Allow 1.5 min to read the passages, data tables & graphs.  
(7 X 1.5 = 11 min)
- Allow 30 sec to answer each question  
(40 X 0.5 = 20 min)

Three minutes to bubble your answers.

- Check your work if you have any extra time.

# Bell Work, Tuesday, 3/6/18, ( 8 questions)

## 1. Define major & minor marks

Major mark has a number, minor mark is just a line.

## 2. What is the value of each minor mark?



Subtract two subsequent numbers & divide by the number of lines in-between.

$$\frac{10 - 9}{10 \text{ lines}} = 0.1 \text{ mL}$$

## 3. What is uncertainty in measurement.

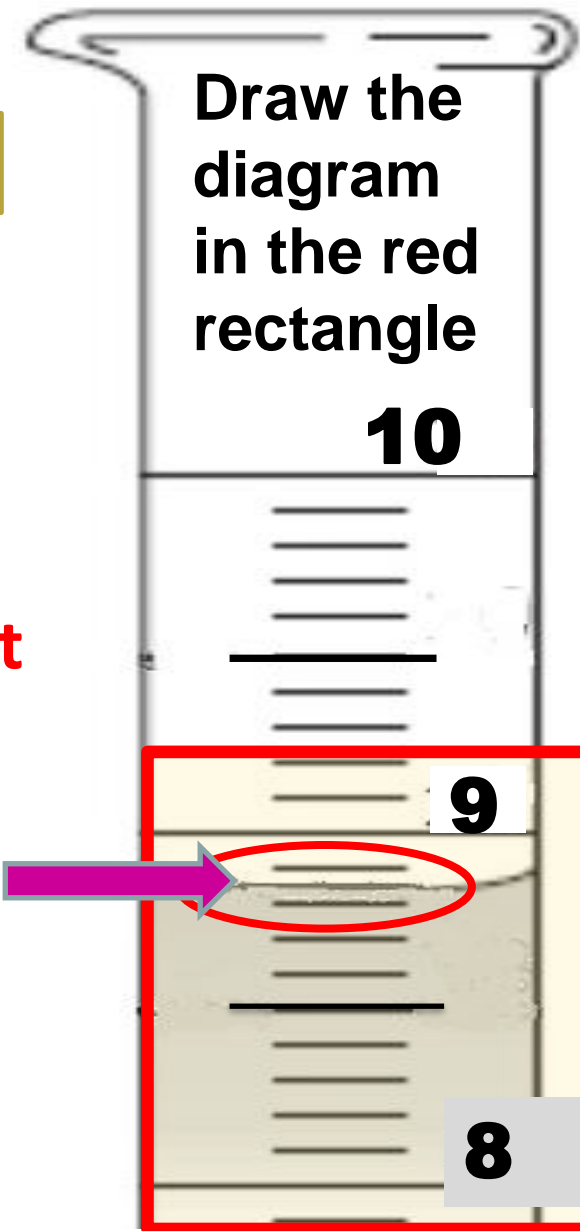
Uncertainty is the part of the measurement that must be estimated because there are no lines.

## 4. What is the uncertainty (the estimation)?

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

$$\frac{0.1 \text{ mL}}{2} = 0.05 \text{ mL}$$

## 5. What is the measurement? 8.85 mL







# ACT Prep,



**Goal: Read & answer at least 20 questions:**

- **Now questions:** **easier questions that you answer now.**
  - **Go through the test and finish all the Now questions.**
- **Later questions:** **harder questions. *Do the Later questions after you finish all the Now questions.***
- **Never questions:** **Hardest questions. You will never read these questions.**
  - **Don't waste time: use your Letter of the Day (LOTD), guess and move on.**
  - **Skip the whole passages with all the associated questions when appropriate.**

# Chemistry, Bell Work, Thursday, 3/8/18

Describe and explain a linear equation: understand that the graph of a linear equation models a process or system in the real world.

6. Write the linear equation. Define the variables & constants:

$$y = mx + b$$

$x$  &  $y$  are variables, IV & DV.  
 $m$  and  $b$  are constants.

$m$  is the slope  $\left(\frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x}\right)$   $\Delta$  = change,  $b$  is the  $y$ -intercept,

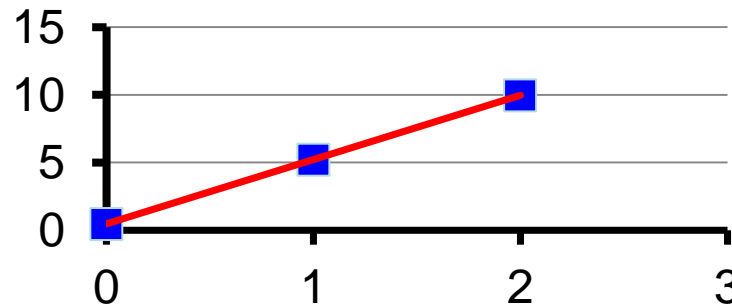
7. Explain this equation:  **$y = 4.75x + 0.465$**

**4.75** = the slope, where when  $x$  increases by 1,  $y$  increases by 4.75

**0.465** = the  $y$ -intercept,  $b$ : where the line crosses the  $y$  axis.

$y$  = A value of the DV

$x$  = A value of the IV

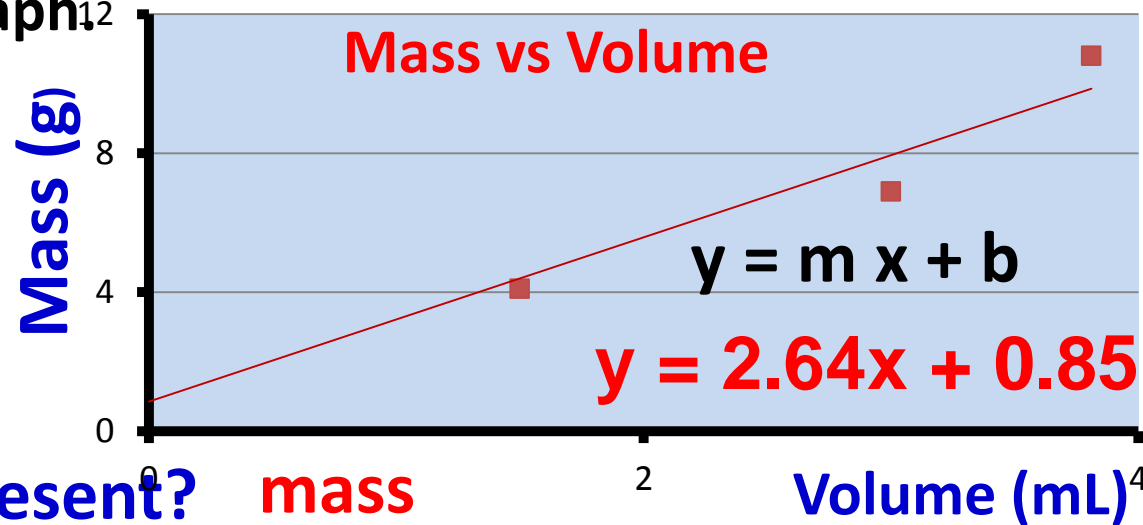




# Chemistry Bell Work, Thursday, 9/21/17 (9 questions)

Copy the data table, sketch the graph

<b>x</b> Volume of Sample (mL)	<b>y</b> Mass of Sample (g)
1.50	4.10
2.70	7.20
3.81	10.3



1. What does the y axis represent? **mass**
2. What does the x axis represent? **volume**
3. What is the relation ship between y and x (the mass & volume)?  
**It is the mass to volume ratio: for each 1 milliliter that the volume increases, the mass increases by 2.64 grams.**
4. What is the slope of this mass- volume graph? **2.64 g/1mL = 2.64 g/mL**  
**or a ratio of 2.64 grams of mass per each 1 mL of volume.**
5. What is the name of this mass to volume ratio? **Density**
6. Write a mathematical model (equation) for this mass to volume ratio in the form of  $y = m \bullet x + b$   
**Mass = (2.64 g/1 mL) • volume + 0.85 g**



# Bell Work, Monday , 2/26/18, 4 questions



## 1. What is a system?

The thing you are experimenting with including the container.  
When creating a model, a system is the thing or things you are representing.

## 2. Define “open system”?

Stuff can enter and exit the system.

## 3. Define closed system.

Nothing can enter or exit the system.

## 4. State the law of Conservation of Mass based on your lab result.

**COM:** If nothing enters or leaves the system, the mass of the system remains the same, despite changes in its appearance.

If matter is neither created nor destroyed during a chemical reaction, the mass of a closed system should remain constant during any chemical process.

*“In a closed system, whatever amount of mass you start with, that’s what you end up with.”*

1. For the chemical reaction  $X + Y \rightarrow Z$ , how much product will result from mixing 100 grams of X with 50 grams of Y?

The law of Conservation of Mass (COM) says grams of reactants = grams of product

$$100 \text{ g of X} + 50 \text{ g of Y} = \text{g of Z}$$

$$100 \text{ g} + 50 \text{ g} = 150 \text{ g} \quad 150 \text{ g of Z}$$

grams reactants = 150g, grams of product = 150g

2. In the chemical reaction  $M + N \rightarrow P$

25 grams of P are produced. If there was originally 10 grams of M, how many grams of N did you start with?

$$10 \text{ g of M} + ? \text{ g of N} = 25 \text{ g of P}$$

$$\text{g of N} = 25 \text{ g P} - 10 \text{ g M}$$

$$\text{g of N} = 15 \text{ g}$$

grams reactants = 25 g, grams of product = 25 g



## Bell Work, Tuesday, 2/27/18, 4 questions

3. Steel wool is composed mostly of iron ( $\approx 99\%$ ). Explain what happened to the steel wool when heated that resulted in a mass increase.

**Oxygen particles were added to the steel wool.**

4. Is the mass increase the result of a physical or chemical change? Justify your answer.

**The change was a chemical change because the iron that makes up the steel wool and the a chemical reaction to form iron oxide, known as rust, thus forming a new substance. The production of a new substance is a chemical change.**

## 1. Results of ACT I Test

A	B	C	D	E	F
Type of Passage	Passage Numbers (question numbers)	Total number of questions	Total Number Answered without Guessing	Number of correct answers not including guesses	Percent Correct Answers $(E/D) * 100$
Charts & Graphs	2, 4, 5 (questions 7-11, 19– 27 )	15			
Experiments	3, 4, 7 (questions 1–6, 11-22, 35 – 40)	18			
Conflicting Viewpoints	6 (questions 28 – 34)	7			



# ACT Prep, Bell Work Thursday, March 1

## 1. Explain the Personal Order Of Difficulty (POOD) strategy.

Knowing how many questions you should attempt on the ACT is only half the battle; you also need to know which ones to attempt.

- Now questions: you know exactly how to answer these.
- Later questions: you're pretty sure you can do but want to see if there are some Now questions ahead before you tackle them. *Do the Later questions after you go through the test and finish all the Now questions.*
- Never questions: Skip the questions and the passages. Don't waste time: pick a Letter of the Day (LOTD) and move on.

## 2. How will the ACT Science exam count towards your grade?

ACT Science score counts as one test grades.

If your ACT scaled score an 18, your grade is a 90; 20 = 93, 23 = 96

# Results of ACT I Test

A	B	C	D	E	F
Type of Passage	Passage Numbers (question numbers)	Total number of questions	Total Number Answered without Guessing	Number of correct answers not including guesses	Percent Correct Answers ( D/E) * 100
Charts & Graphs	2, 4, 5 (questions 7-11, 19– 27 )	15	8	5	63%
Experiments	3, 4, 7 (questions 1–6, 11-22, 35 – 40)	18	9	7	77%
Conflicting Viewpoints	6 (questions 28 – 34)	7	0	0	0%

# ACT Prep

**What are the “four steps “ used as you read and answer ACT science reasoning passages?**

**Step 1. Skim and identify the passage. Do not read the passage carefully at first!**

**You should be able to complete this step in less than a minute.**

**Skim the passage to find what each paragraph in the passage is all about.**

**Only read the first and last sentences.**

**Look over any charts and diagrams just enough to get an idea of what they are about.**

**Don't try to read or interpret the data just yet. You just want to know what sort of data is available.**

**Identify the passage as data representation, research summary, or conflicting viewpoints.**

**Look carefully at any words in italics or bold print.**

# ACT Prep

**Step 2. Read the question and all the answers. Read each question and all the answer choices.**

Be sure you are clear about what the question is asking. You want to answer the question on the test, not some other question.

**Step 3. Eliminate obviously incorrect answers. Cross off any answers you're sure are incorrect.**

Eliminating incorrect answers is a big help in determining the correct answer.

**Step 4. Choose the correct answer from the remaining choices.**

Choose the answer that is most correct.

If you don't know the correct answer, guess.

**Never leave an answer choice blank.**



# Bell Work, Monday , 2/26/18, 4 questions



## 1. What is a system?

The thing you are experimenting with including the container.  
When creating a model, a system is the thing or things you are representing.

## 2. Define “open system”?

Stuff can enter and exit the system.

## 3. Define closed system.

Nothing can enter or exit the system.

## 4. State the law of Conservation of Mass based on your lab result.



## Exit Ticket, Sept 18, 2015

Steel wool is composed mostly of iron ( $\approx 99\%$ ).

1. Explain why heating the steel wool resulted in a mass increase.

Heating cause other particles to be added to the steel wool.

2. Were other particles or substances (other than steel wool or iron) involved in the mass increase? Name them.

Oxygen particles from the air were added to the steel wool.

3. Is the mass increase the result of a physical or chemical change? Justify your answer.

The change was a chemical change because the iron that makes up the steel wool and the oxygen in the air underwent a chemical reaction to form iron oxide, known as rust, thus forming a new substance.

The production of a new substance is a chemical change.

# Bell Work, Monday , 2/19/18, 6 questions



**1. Who was the man who lived from 460 B.C.–370 B.C. and was among the first to suggest the idea of atoms? (1)**

- a. Atomos
- b. Dalton
- c. Democritus
- d. Thomson

**2. Which of the following is part of Democritus' ideas?**

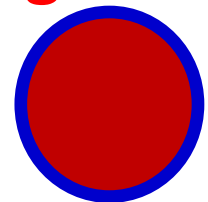
- a. Matter consists of tiny particles.
- b. These particles are indivisible.
- c. These particles are indestructible.
- d. These particles combine to form other substances

**3. What is the particle model of matter?**

- a. All matter is made up of particles.
- b. A given type of particle has distinct properties that make it different from other types of particles including mass & volume.
- c. The mass and volume of a given particle do not change.

**4. How do we model (represent) a particle?**

**We represent the particles with spheres or circles:**







**5. Determine if the following changes are physical changes (pc) or chemical change (cc).**

Stretch steel wool, **pc**

dissolve Alka Seltzer. **cc**

melt ice, **pc**

heat steel wool. **cc**

dissolve sugar, **pc**

form a precipitate. **cc**

**6. Consider the following chemical reaction where mixing chemical A and chemical B results in chemical C:  $A + B \rightarrow C$**

**The reactants are always written on the (a) left and the products are always written on the (b) right. The reactants are (c)  $A + B$  and the product(s) is/are (d)  $C$ .**



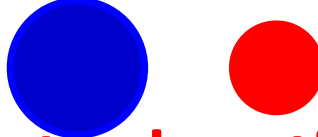
**The arrow means (e) forms or produces or yields.**

**Reactants are starting materials** (they are reacted).

**Products are produced** (from the stuff that is reacted).

# Bell Work, Tuesday, 2/20/18, 1 long question

## 1. Explain the particle model of matter

- a. All matter is made up of particles. 
- b. Mass is a measure of the number of particles present.
- c. Volume is a measure of the space the particles take up.
- d. The particles cannot be divided.
- e. Some particles are more massive than others particles:  

- f. Some particles take up more space. 
- g. Each substance is comprised of a identical particles with a unique mass, unique volume and other unique properties.
- h. Example, all water particles have the same mass & volume, they are identical. All sugar particles have identical mass & volume but different than water particles.
- i. The mass and volume of a given particle do not change.
- j. A given type of particle has distinct properties that make it different than particles of a different type pf particle.

# Chemistry, Bell Work, Wednesday, 2/21/18

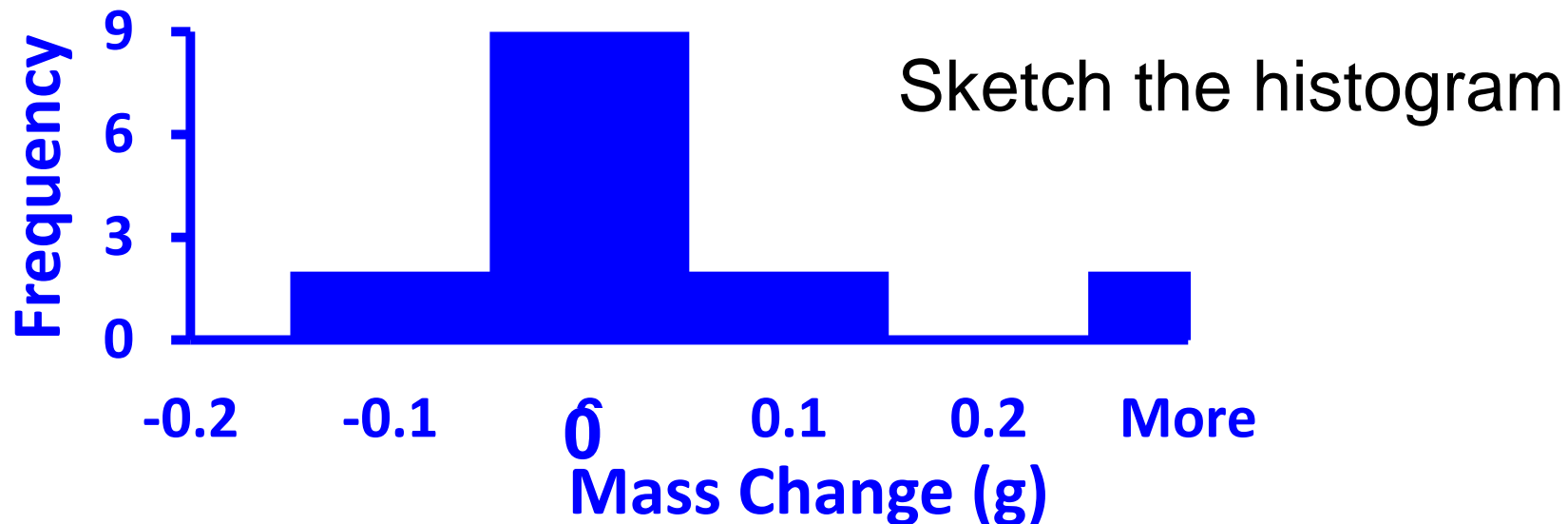
6 Questions, write questions 1-4 on the front



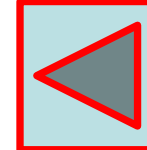
1. A precipitate is

a solid that forms and settles out of a liquid usually due to a chemical change.

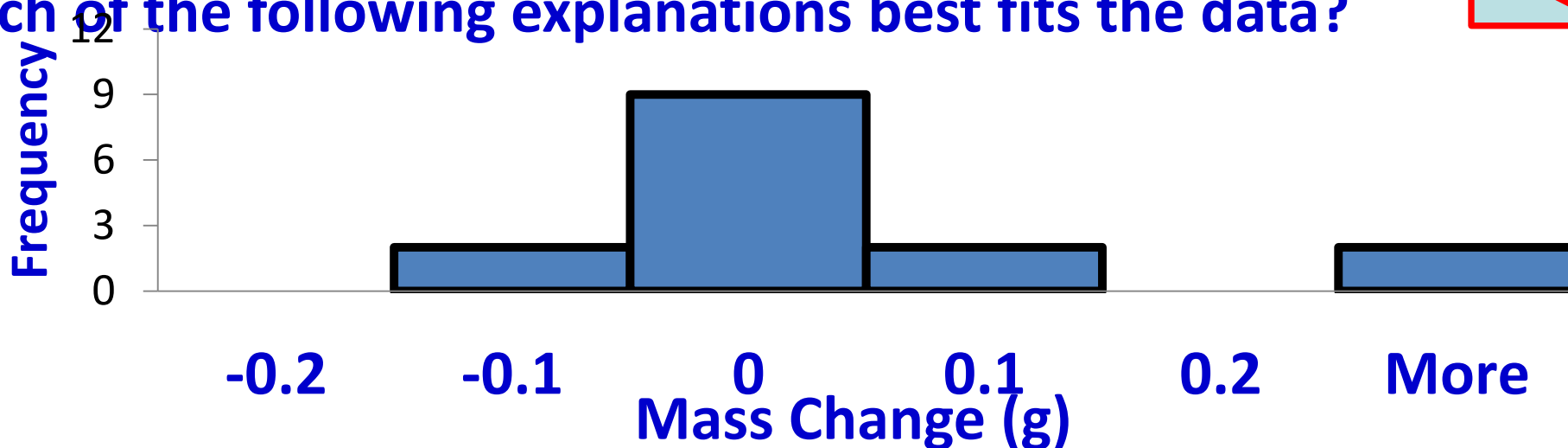
2. What data do histograms display?



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.



3. Which of the following explanations best fits the data?



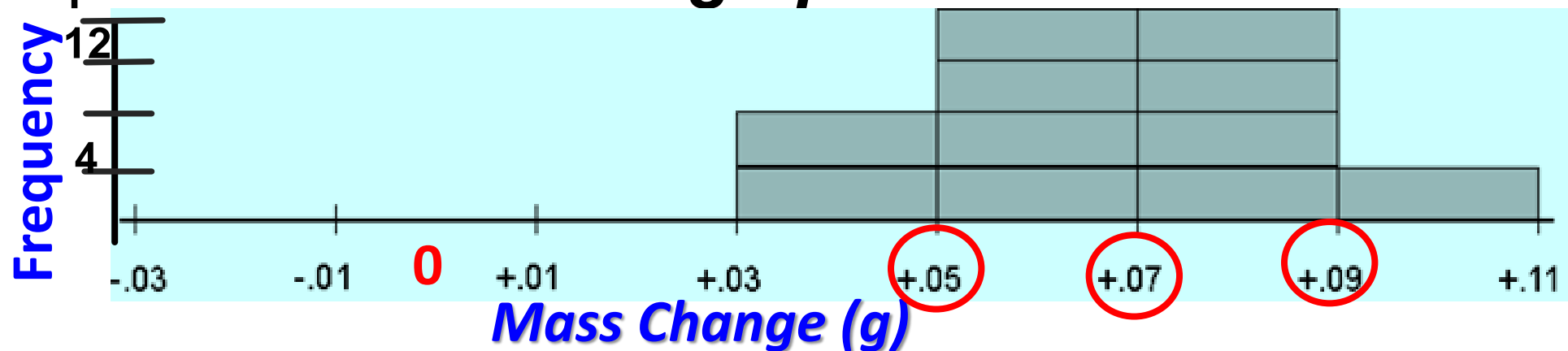
Any experiment where mass is unchanged two solutions were mixed (chemical A + chemical B) and formed a precipitate, or stretching steel wool, dissolving sugar, melting ice.

4. When an iron nail rusts, its mass increases.

Why? Is rusting a physical or chemical change?

- The mass increases because oxygen is added to the iron.
- The iron reacts with oxygen in the air and produces a new “compounded substance”, iron oxide, aka: rust.
- Rusting (aka: oxidation) is a chemical change.  
iron + oxygen  $\rightarrow$  Rust (iron reacts with oxygen & produces rust).

Consider the histogram of mass change from an experiment. ***Draw the graph.***



**5. Which of the following explanations best fits the data?**

A. Steel wool was strongly heated. (+ mass change).

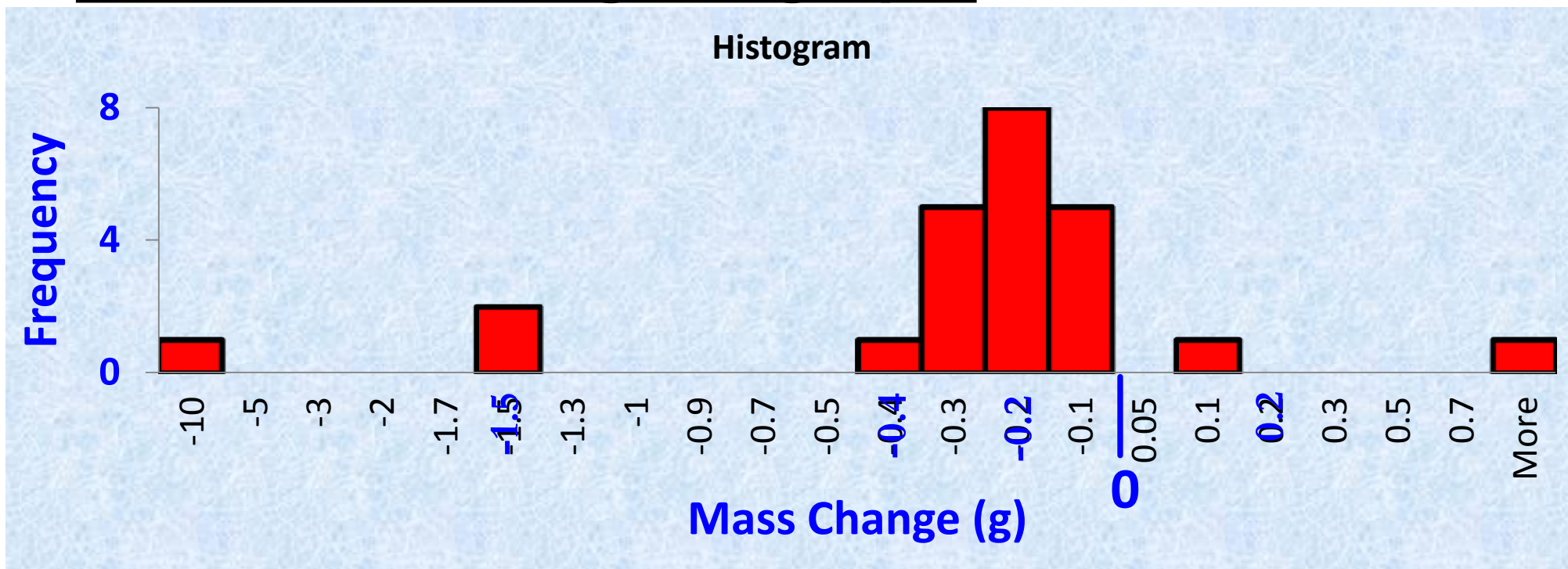
B. Sugar was dissolved in water.

C. Two solutions were mixed and formed a precipitate.

D. Alka-Seltzer was dissolved in water.



**6. Sketch the histogram graph.**



**Which of the following explanations best fits the data?**

- A. Steel wool was strongly heated.
- B. A two groups were careless and lost material.
- C. Two solutions were mixed and formed a precipitate.



**D. Alka-Seltzer was dissolved in water (mass decreased).**



## 1. Name and describe the types of ACT science passages

### A. Charts and Graphs (Data Representation)

- *Questions ask you to read & interpret the graphs, tables, diagrams, etc. Can have short passages.*
- 30% - 40% of the questions

### B. Experiments (Research Summary)

- Usually describes two or more experiments or studies (occasionally just one experiment).
- combination of reading text and charts and graphs in the same question.
- 45% - 55% of the questions

### C. Conflicting Points of View (Conflicting Viewpoints or Battling Scientists ).

- Presents two or more scientists views or hypothesis that do not agree (these passages involve lots of reading).
- 15% - 20% of the questions

# Bell Work, Thursday, 2/22/18

## 2. Explain the ACT guessing strategy.

- Answer all questions even if you are guessing. Do this:

Position:

1

2

3

4

A

B

C

D

F

G

H

J

- If you have no idea which is the correct answer or you are out of time, choose one of these “positions” (like B & G, or D & J) and always use those letter pairs for your guess answers.
- If you can use process of elimination to “cross out” one of the four answers, you making an educated guess.
  - In this case, go with your best hunch, or use the first answer that you did not eliminate.

- Example: You know F & J are wrong but unsure about G & H

~~F~~

G

H

~~J~~

Your answer is G because it is the first answer not crossed off.



# Bell Work, Thursday, 2/22/18

## 3. How will the guessing strategy improve your ACT score?

If you answers 16 - 17 questions correct (40% - 43%) and guess using the guessing strategy, you should score a 20,

- If you know the correct answer for half of the questions and you guess using just one pair of letters on the remaining half, ***your score will probably be a 22 – 23.***
- **This is called the letters of the day strategy.**

If you know the correct answer for half of the questions and you make educated guesses on the remaining half, narrowing the choices to two, ***your score will be 25 - 27.***

- **This is called the educated guessing strategy.**





## **2. How can you identify each of the three types of passages?**

**Charts & Graphs (Data Representation) passages are usually followed by 5 questions.**

**Experiments (Research Summaries) passages are usually followed by 6 questions.**

**Conflicting Viewpoints are usually followed by 7 questions.**

**There are usually:**

**3 Charts & Graphs (Data Representation) passages.**

**3 Experiments (Research Summaries) passages.**

**1 Conflicting Viewpoints passage.**



# Bell Work, Thursday, 2/22/18

## 1. What is a system?

The thing you are experimenting with including the container.  
When creating a model, a system is the thing or things you are representing.

## 2. Define “open system”?

Stuff can enter and exit the system.

## 3. Define closed system.

Nothing can enter or exit the system.

## 4. State the law of Conservation of Mass based on your lab result.

**COM:** If nothing enters or leaves the system, the mass of the system remains the same, despite changes in its appearance.

If matter is neither created nor destroyed during a chemical reaction, the mass of a closed system should remain constant during any chemical process.

*“In a closed system, whatever amount of mass you start with, that’s what you end up with.”*



5. For the chemical reaction  $X + Y \rightarrow Z$ , how much product will result from mixing 100 grams of X with 50 grams of Y?

The law of Conservation of Mass (COM) says grams of reactants = grams of product

$$100 \text{ g of X} + 50 \text{ g of Y} = \text{g of Z}$$

$$100 \text{ g} + 50 \text{ g} = 150 \text{ g} \quad 150 \text{ g of Z}$$

grams reactants = 150g, grams of product = 150g

6. In the chemical reaction  $M + N \rightarrow P$

25 grams of P are produced. If there was originally 10 grams of M, how many grams of N did you start with?

$$10 \text{ g of M} + ? \text{ g of N} = 25 \text{ g of P}$$

$$\text{g of N} = 25 \text{ g P} - 10 \text{ g M}$$

$$\text{g of N} = 15 \text{ g}$$

grams reactants = 25 g, grams of product = 25 g



**6. In the chemical reaction  $M + N \rightarrow P$**

**25 grams of P are produced. If there was originally 10 grams of M, how many grams of N did you start with?**

$$10 \text{ g of M} + ? \text{ g of N} = 25 \text{ g of P}$$

$$\text{g of N} = 25 \text{ g P} - 10 \text{ g M}$$

$$\text{g of N} = 15 \text{ g}$$

**15 g of N**

grams reactants = 25 g, grams of product = 25 g



# Bell Work, Thursday, 2/22/18

**Objective: I can explain open and closed system and use the idea of systems to create scientific models.**

## **1. What is a system?**

**The thing you are experimenting with including the container. When creating a model, a system is the thing or things you are representing.**

## **2. Define “open system”?**

**Stuff can enter and exit the system.**

## **3. Define closed system.**

**Nothing can enter or exit the system.**



**4. State the law of Conservation of Mass based on your lab result.**

**COM: If nothing enters or leaves the system, the mass of the system remains the same, despite changes in its appearance.**

**If matter is neither created nor destroyed during a chemical reaction, the mass of a closed system should remain constant during any chemical process.**

***“In a closed system, whatever amount of mass you start with, that’s what you end up with.”***

**5. For the chemical reaction  $X + Y \rightarrow Z$ , how much product will result from mixing 100 grams of X with 50 grams of Y?**

**The law of Conservation of Mass (COM) says grams of reactants = grams of product**

$$\mathbf{100\text{ g of }X + 50\text{ g of }Y = \text{g of }Z}$$

$$\mathbf{100\text{ g} + 50\text{ g} = 150\text{ g} \quad \mathbf{150\text{ g of }Z}}$$

**grams reactants = 150g, grams of product = 150g**



**5. When an iron nail rusts, its mass \_\_\_\_\_. Why? Is rusting a physical or chemical change?**

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

- **The mass increases because oxygen is added to the iron.**
- **The iron reacts with oxygen in the air and produces a new “compounded substance”, iron oxide, aka: rust.**
- **Rusting (aka: oxidation) is a chemical change.**  
**iron + oxygen → Rust**

# Bell Work, Tuesday, Feb 6, 2018, 2 questions

## 1. How is the test constructed?

A 40-question, 35-minute test scored: 0 – 36

There are three types of passages, followed by questions.

Data Representation questions are 38% of the test.

Research Summaries questions are 45% of the test.

Conflicting Viewpoints are 17% of the test.

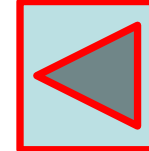
## 2. Why is it important to know how the test is constructed ?

For most students there is not enough time to answer all 40 questions.

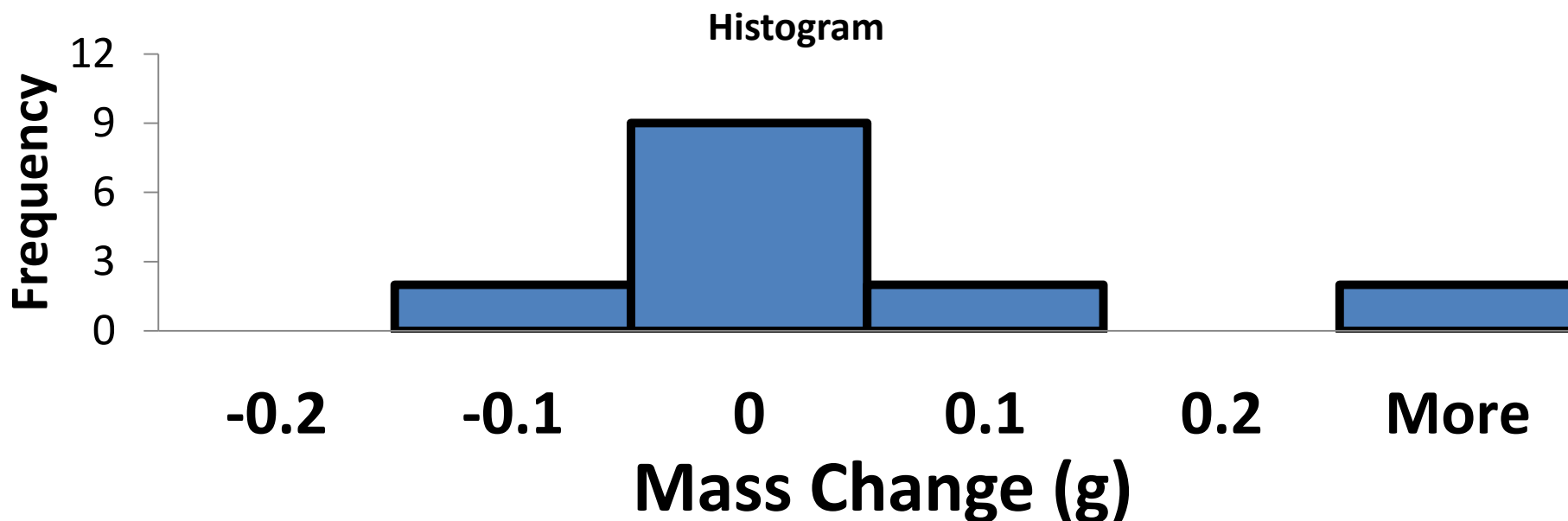
Students must learn to manage the testing time. Knowing how many questions you should attempt and which questions to answer will give you more time to answer more accurately the questions you will attempt .

Some students find they are better at answering certain types of questions.

Thus , you should spend more time on those questions and guess on the questions you are not good at.



**3. Which of the following explanations best fits the data?**



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.

( 0 mass change).

# Bell Work, Tuesday, Feb 11, 2014

## 1. How is the test constructed?

**A 40-question, 35-minute test scored: 0 – 36**

**There are three types of passages, followed by questions.**

**Data Representation questions are 38% of the test.**

**Research Summaries questions are 45% of the test.**

**Conflicting Viewpoints are 17% of the test.**

## 2. How can you identify each of the three types of passages?

**Data Representation passages are always followed by 5 questions.**

**Research Summaries passages are followed by 6 questions.**

**Conflicting Viewpoints are followed by 7 questions.**

**There are always: 3 Data Representation passages**

**3 Research Summaries passages**

**1 Conflicting Viewpoints passage**

## 5. What is a system?

The thing you are experimenting with including the container.

## 6. Define “open system”?

Stuff can enter and exit the system.

## 7. Define closed system.

Nothing can enter or exit the system.

## 8. Determine if the following changes are physical changes (pc) or chemical change (cc).

Stretch steel wool, **pc**

dissolve Alka Seltzer. **cc**

melt ice, **pc**

heat steel wool. **cc**

dissolve sugar, **pc**

form a precipitate. **cc**

# Bell Work, Tuesday, Feb 6, 2018, 2 questions

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# Chemistry, Bell Work, Thursday, 2/8/18, 2 questions

## 3. What is a physical change?

**Physical change: does not result in a new substance.**

**A physical change can usually be undone and result in the original composition of the substance.**

**Example: water can be frozen into ice then melted back to water.**

## 4. What is a chemical change?

**A chemical change results in a new substance(s).**

**A chemical change is a chemical reaction.**

**Example: Burning (combustion) a match results in ash, water vapor and carbon dioxide**

**5. What is mass change?**

**Final Mass – Initial Mass = Mass Change**

**In this class: Change equals final minus initial.**

**6. Copy the data table Calculate the mass change.**

Sample	Initial Mass (g)	Final mass (g)	Change in mass (g)
Sand	16.15	15.95	<b>-0.20</b>

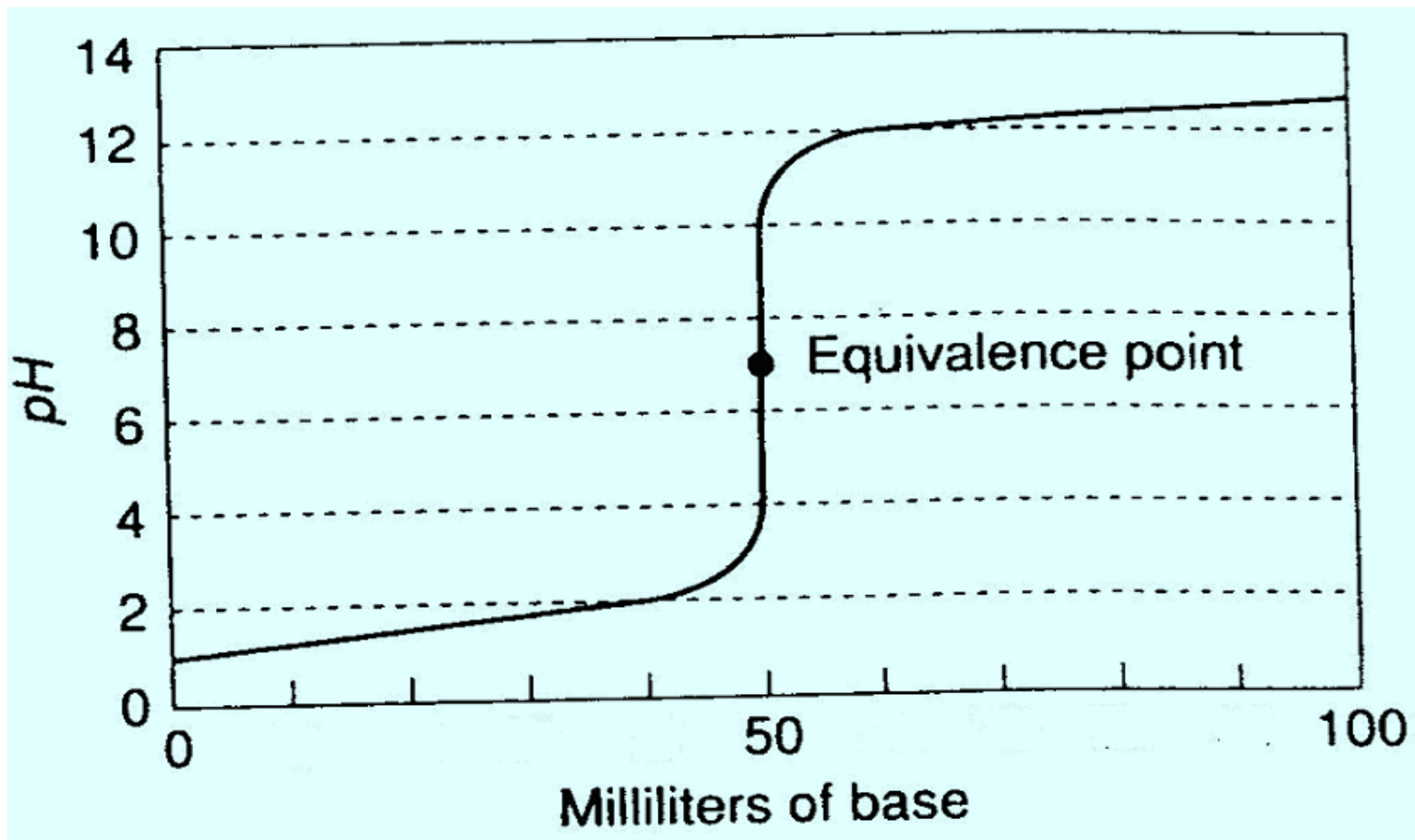
**Final Mass – Initial Mass = Change**

**15.95 – 16.15 = -0.20**

**- change indicates mass loss**  
**+ change indicates mass gain**

# ACT Prep, Bell Work, Wednesday , 1/27/16

Sketch the graph.



**Passage:**

$$\text{pH} + \text{pOH} = 14$$

**Acid:  $\text{pH} < 7$**

**Base  $\text{pH} > 7$**

**Water  $\text{pH} = 7$**

**equal amount acid + equal amount base  $\rightarrow$  water**



**1. A beaker contains 50 milliliters (mL) of a strong acid solution.** A researcher adds 100 mL of a strong base, 10 mL at a time, and measures the pH of the solution after each addition of the base. The graph at right shows the results of this experiment. *The equivalence point on the graph is where there are exactly 50 mL of base and 50 mL of acid.* Which of the following conclusions can the researcher draw from the graph?

**F.** The pH of a solution is 7 when the solution contains 50 mL of a strong acid.

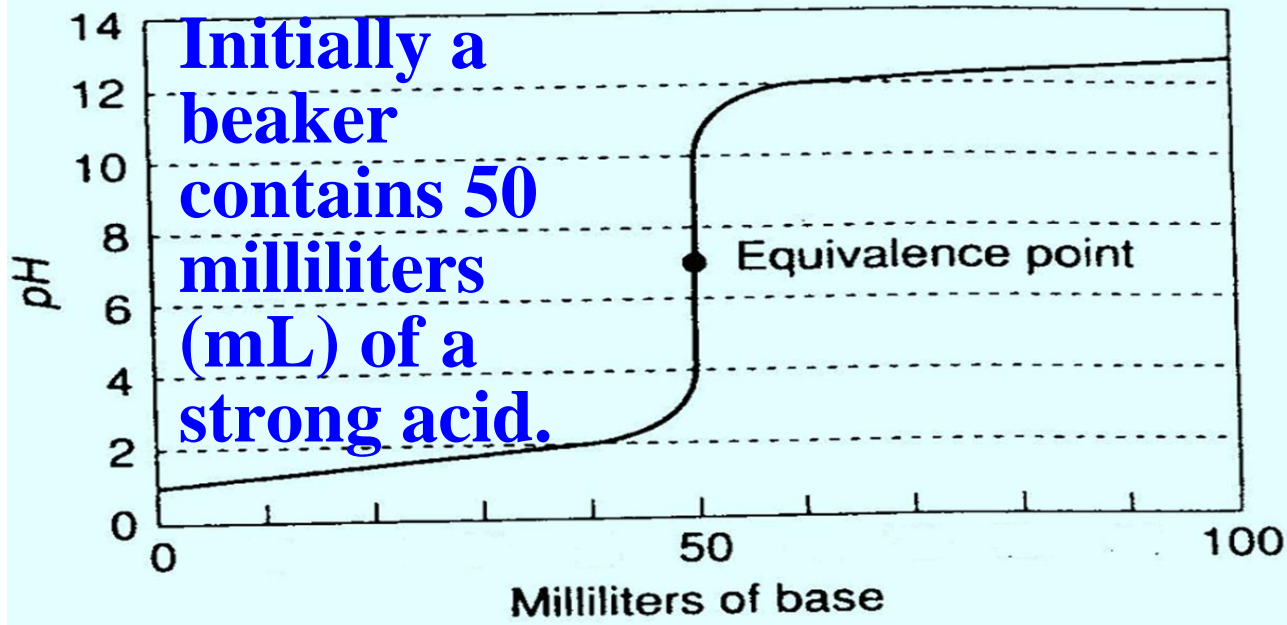
**G.** The solution is a base below the equivalence point on the graph.

**H.** The pOH of the solution is 14 after 100 mL of the base is added.

**J.** Most of the pH change is accounted for near the equivalence point.



nesday , 1/25/17



$$\text{pH} + \text{pOH} = 14$$

$$\text{Acid: pH} < 7$$

$$\text{Base pH} > 7$$

$$\text{Water pH} = 7$$

F. The pH of a solution is 7 when the solution contains 50 mL of a strong acid.

G. The solution is a base below the equivalence point on the graph.

H. The pOH of the solution is 14 after 100 mL of the base is added.

J. Most of the pH change is accounted for near the equivalence point.

$$\text{pH} + \text{pOH} = 14,$$

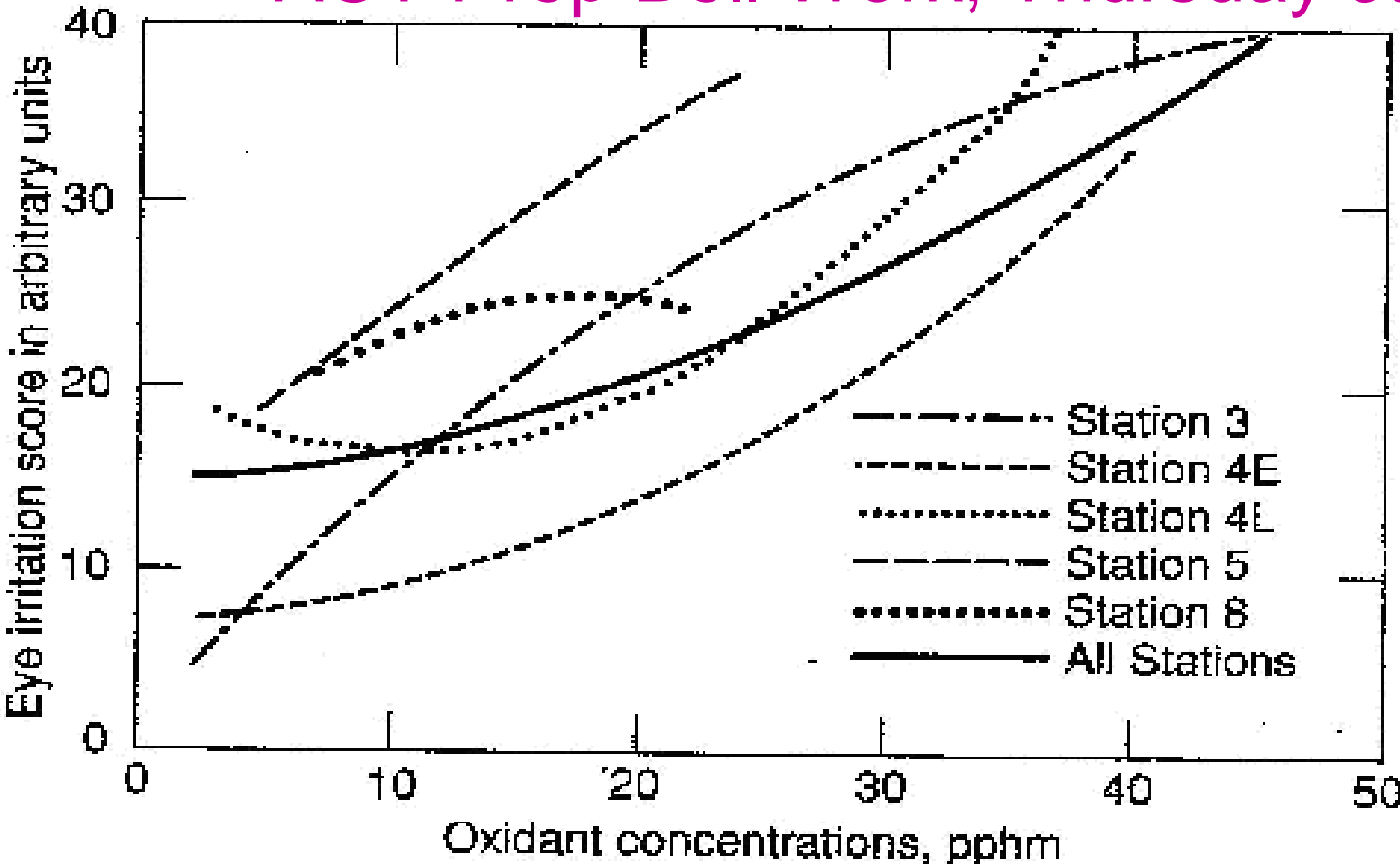
$$\text{pH} + 14 = 14 \quad (x + 14 = 14)$$

$$\text{pH} = 0$$





# ACT Prep Bell Work, Thursday Jan 26

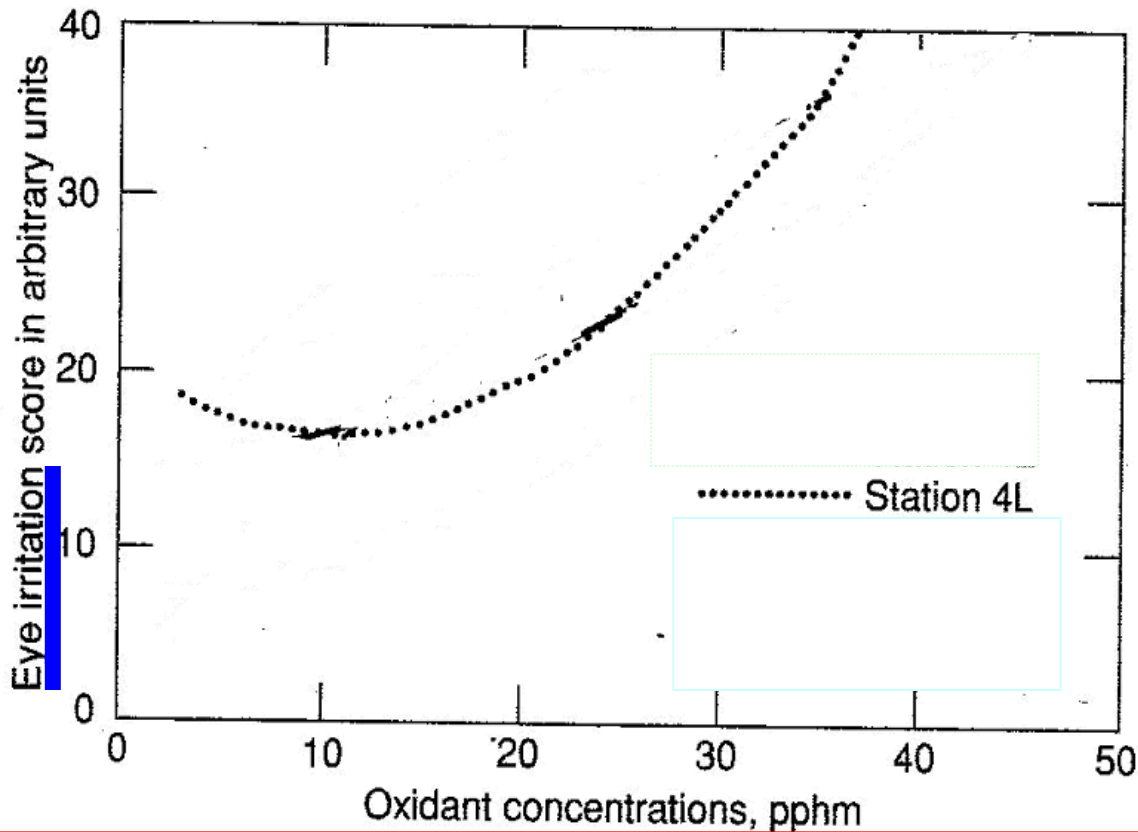


**1. Which of the following statements best represents the changes in eye irritation noted at Station 4L as the oxidant concentration increases?**

- A. The amount of eye irritation increases and then decreases.**
- B. The amount of eye irritation decreases and then increases.**
- C. The amount of eye irritation is directly related to an increase in oxidant.**
- D. The amount of eye irritation is inversely related to an increase in oxidant**

# ACT Prep Bell Work, Thursday Jan 26

**Sketch & label the graph**



**1. Which of the following statements best represents the changes in eye irritation noted at Station 4L as the oxidant concentration increases?**

**A. The amount of eye irritation increases and then decreases.**

**B. The amount of eye irritation decreases and then increases.**

**C. The amount of eye irritation is directly related to an increase in oxidant.**

**D. The amount of eye irritation is inversely related to an increase in oxidant.**





# ACT Prep, Bell Work, Thursday 1/26/17

## 2. Name and describe the types of ACT science passages

- **Charts and Graphs (Data Representation)**

- *Questions ask you to read & interpret the graphs, tables, diagrams, etc. Can have passages.*
- **30% - 40% of the questions**

- **Experiments (Research Summary)**

- Usually describes two or more experiments or studies (occasionally just one experiment).
- combination of reading text and charts and graphs in the same question.
- **45% - 55% of the questions**

- **Conflicting points of view (Viewpoints or Battling Scientists ).**

- Presents two or more scientists views or hypothesis that do not agree (these passages involve lots of reading).
- **15% - 20% of the questions**

# Unit 1, WS 3 (#6 – whole class)

**1. Red**

**Problem 1**

**2. Blue**

**Problem 2**

**3. Pink**

**Problem 3, 7**

**4. Orange**

**Problem 4**

**5. Green**

**Problem 5**

**1. White**

**Problem 1**

**2. Yellow**

**Problem 2**

**4. Brown**

**Problem 4**

**5. Grey**

**Problem 5**

**3. Purple**

**Problem 3, 7**

# ACT Prep, Bell Work, Thursday 1/28/16

- POOD –personal order of difficulty:
  - do the questions that are easiest for YOU first...save the hard ones for later.
  - Use a two-pass system. Answer easy questions first and then come back for the more difficult questions later.
- There are 6 - 7 science passages
- There are 3 types of passages in the science section: data, experiments, viewpoints.
- Do whichever passage type is easiest for you to do FIRST. Go through the whole test and do all these passages with their questions.

# ACT Prep, Bell Work, Thursday 1/28/16

**1. What are the “four steps “ used as you read and answer ACT science reasoning passages?**

**Step 1. Skim and identify the passage. Do not read the passage carefully at first!**

**Look carefully at any words in italics or bold print.**

**You should be able to complete this step in less than a minute.**

**Skim the passage to find what each paragraph in the passage is all about.**

**Only read the first and last informational sentences.**

**Look over any charts and diagrams. Read the titles, graph labels, and data table headings.**

**Don't try to read or interpret the data just yet. You just want to know what sort of data is available by reading the labels.**

**Identify the passage as data, experiments, or conflicting viewpoints.**

**First do the passages that you are best at.**

# ACT Prep, Bell Work, Thursday 1/28/16

**Step 2. Read the question and all the answers. Read each question and all the answer choices.**

Be sure you are clear about what the question is asking. You want to answer the question on the test, not some other question.

**Step 3. Eliminate obviously incorrect answers. Cross off any answers you're sure are incorrect.**

Eliminating incorrect answers is a big help in determining the correct answer.

**Step 4. Choose the correct answer from the remaining choices.**

Choose the answer that is most correct.

If you don't know the correct answer, guess.

**Never leave an answer choice blank.**



# ACT Prep

## 2. Name and describe the types of ACT science passages

### A. Data Representation

- *Questions ask you to read & interpret the graphs, tables, diagrams, etc.*
- **30% - 40% of the questions**

### B. Research Summary

- Usually describes two or more experiments or studies.
- May include graphs, tables, diagrams, etc
- *Questions ask you to interpret experiment & experimental results.*
- **45% - 55% of the questions**

### C. Conflicting points of view.

- Presents two or more views or hypothesis that do not agree (these passages involve lots of reading)
- **15% - 20% of the questions**

# ACT Prep

## 1. Explain the ACT guessing strategy.

- Answer all questions even if you are guessing. Do this:

Position:

1

2

3

4

A

B

C

D

F

G

H

J

- If you have no idea which is the correct answer or you are out of time, choose one of these “positions” (like B & G, or D & J) and always use those letter pairs for your guess answers.
- If you can use process of elimination to “cross out” one of the four answers, you making an educated guess.
  - In this case, go with your best hunch, or use the first answer that you did not eliminate.
  - Example: You know F & J are wrong but unsure about G & H

~~F~~

G

H

~~J~~

Your answer is G because it is the first answer not crossed off.



# ACT Prep

## 2. How will the guessing strategy improve your ACT score?

- If you know the correct answer for half of the questions and you guess using just one pair of letters on the remaining half, ***your score will probably be a 22 – 23.***
- **This is called the letters of the day strategy.**
- **If you answers 16 - 17 questions correct (40% - 43%) and guess using the letter of the day strategy, you should score a 20,**

If you know the correct answer for half of the questions and you make educated guesses on the remaining half, narrowing the choices to two, ***your score will be 25 - 27.***

- **This is called the educated guessing strategy.**

# ACT Prep

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