Chemistry Bell Work, February 19 - 23

ACT Prep, Physical & Chemical Change, Mass, Volume, Matter, Histograms Particle Models

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 **c. Democritus**

b. Dalton **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?

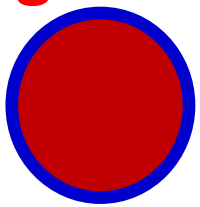
a. All matter is made up of particles.

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:



Bell Work, Monday , 2/19/18, Sept 14

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

Stretch steel wool, pc

melt ice, pc

dissolve sugar, pc

dissolve Alka Seltzer. cc

heat steel wool. cc

form a precipitate. cc

6. Consider the following chemical reaction where mixing chemical A and chemical B results in chemical C: A + B → 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.

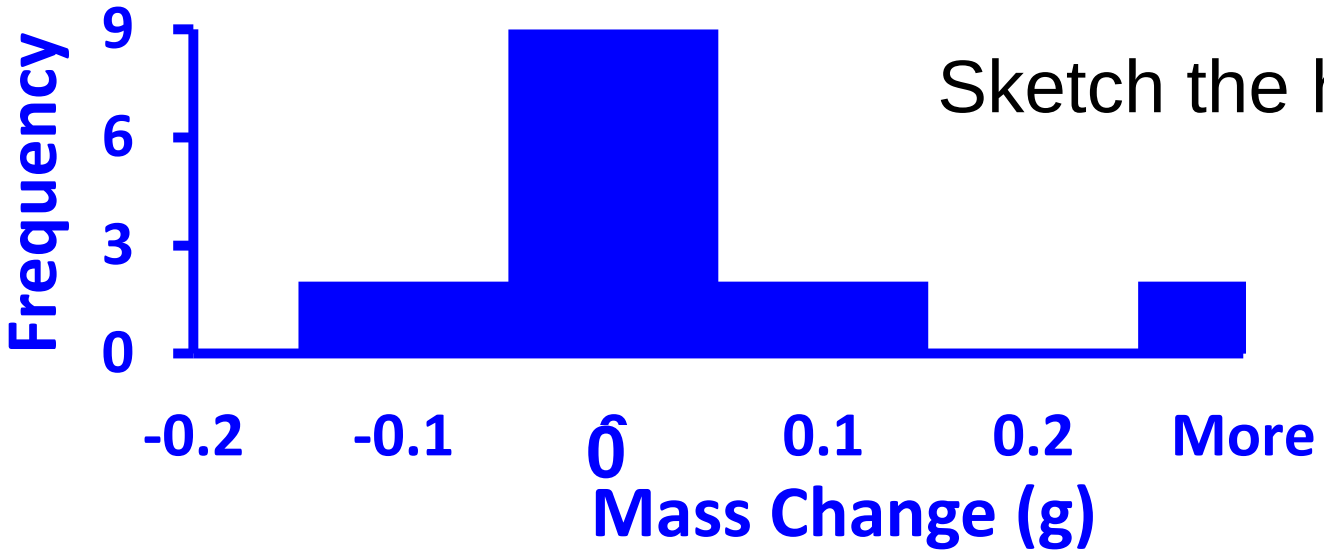
Chemistry, Bell Work, Wednesday, 2/21/18

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?



Sketch the histogram

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.

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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_____.

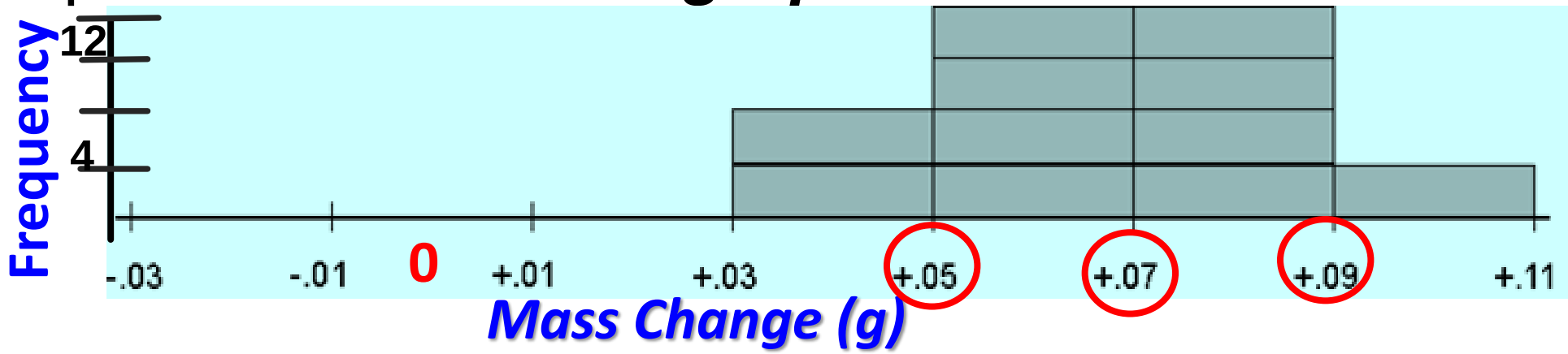
Why? Is rusting a physical or chemical change?

- **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 → Rust (iron reacts with oxygen & produces rust).

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

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).**

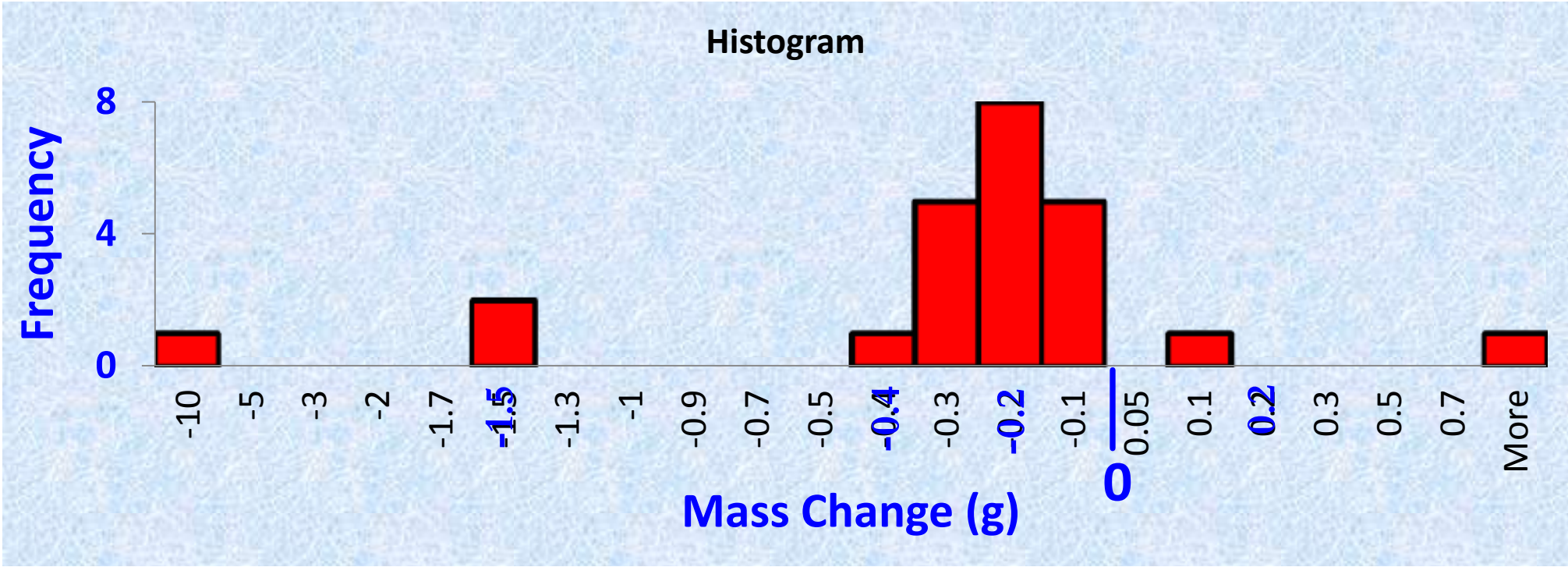
B. Sugar was dissolved in water.

C. Two solutions were mixed and formed a precipitate.

D. Alka-Seltzer was dissolved in water.

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

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).**

Bell Work, Thursday, 2/22/18

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.**