Unit 7 NAME

Class Work 2/27/14

7.1 Rate of Reactions – Collision Theory

SPARK February break packet = HW bin ~ Project = Extra bin

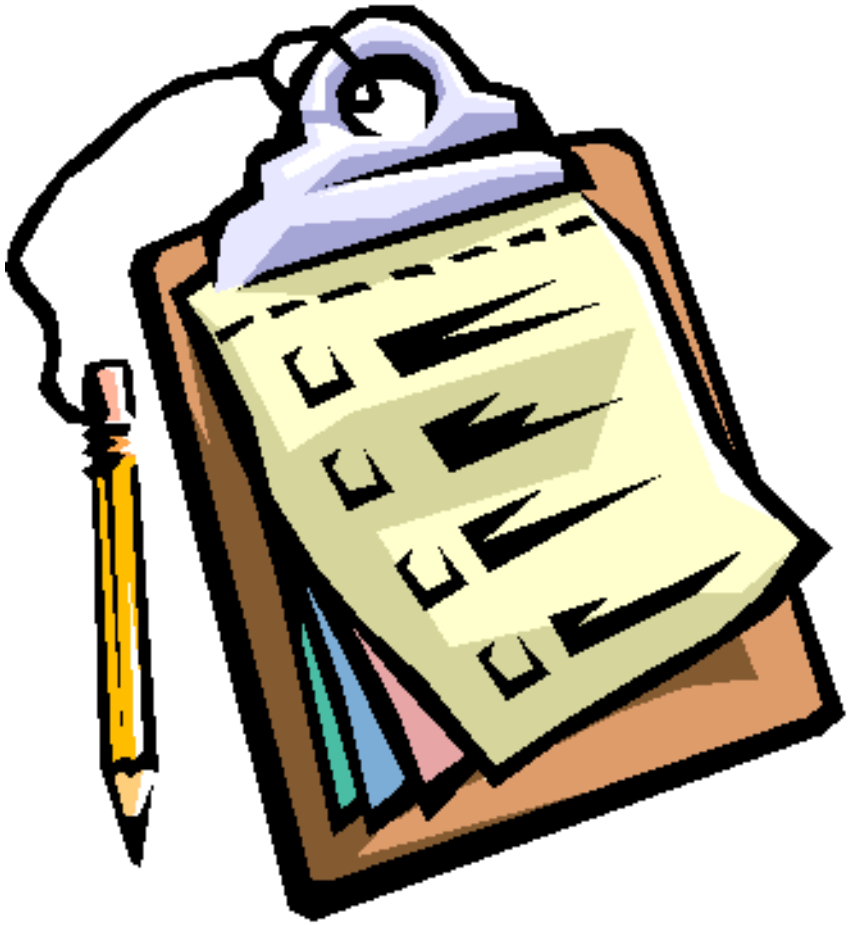
1. What is the grams formula mass of H_2O?
2. How many grams are there in 5 moles of H_2O?
3. What does the word rate mean?

Objective

SWBAT explain collision theory and determine the factors that affect reaction rates

Agenda:

- SPARK/Objective
- Notes
- Lab
- Practice
- Homework



Objective: SWBAT explain collision theory and determine the factors that affect reaction rates

Clean Up/Announcements

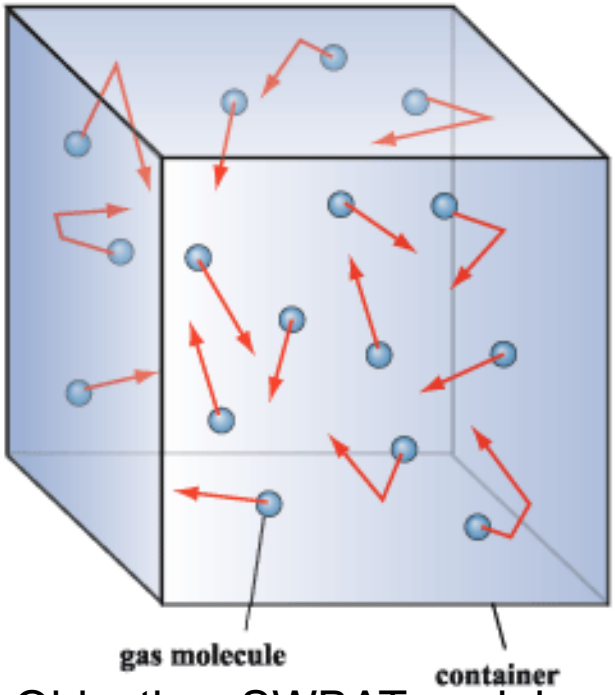
- Marking period is over _____
- Parent teacher conferences on THURS!
- Pick up your lab folder!
- Add the following labs to your lab tracker:

Lab #15: Law of Conservation of Mass	**2/3/14**	**.75**
Lab #16: Mole Walk	**2/6/14**	**.5**
Lab #17: Chemical Reactions	**2/10/14**	**.5**

Objective: SWBAT explain collision theory and determine the factors that affect reaction rates

Welcome to Unit 7

KINETICS: the SPEED at which a reaction occurs!



Objective: SWBAT explain collision theory and determine the factors that affect reaction rates

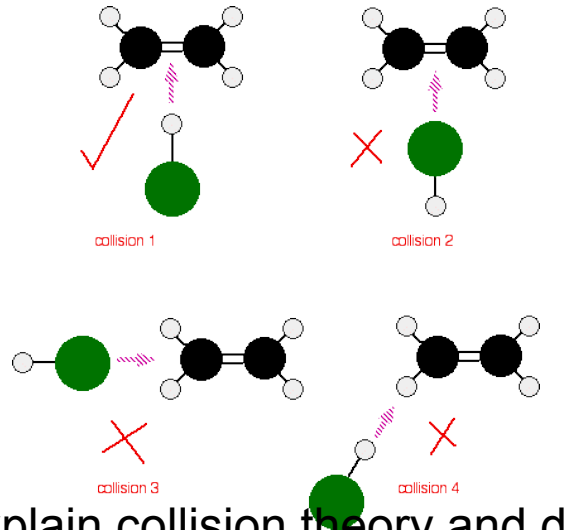
Why Do We Care?

Sometimes we need to slow reactions down.

Sometimes we need reactions to happen quickly.

Collision Theory

- In order for particles to react, they must collide with each other.
- In order to be **EFFECTIVE**, collisions must have… enough **ENERGY** and the **PROPER ORIENTATION**



Objective: SWBAT explain collision theory and determine the factors that

Notes

- Reaction rate = speed of reaction
  - Depends on the # of collisions and how many of those collision are effective

Objective: SWBAT explain collision theory and determine the factors that affect reaction rates

Stop and Jot

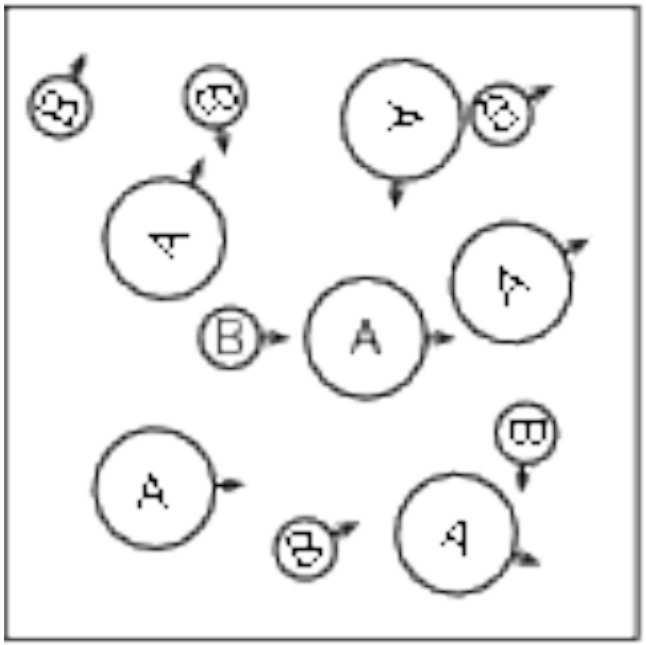
- Based on what you know about chemical reaction, write down what you think some of the factors might be that influence a reaction rate.

Objective: SWBAT explain collision theory and determine the factors that affect reaction rates

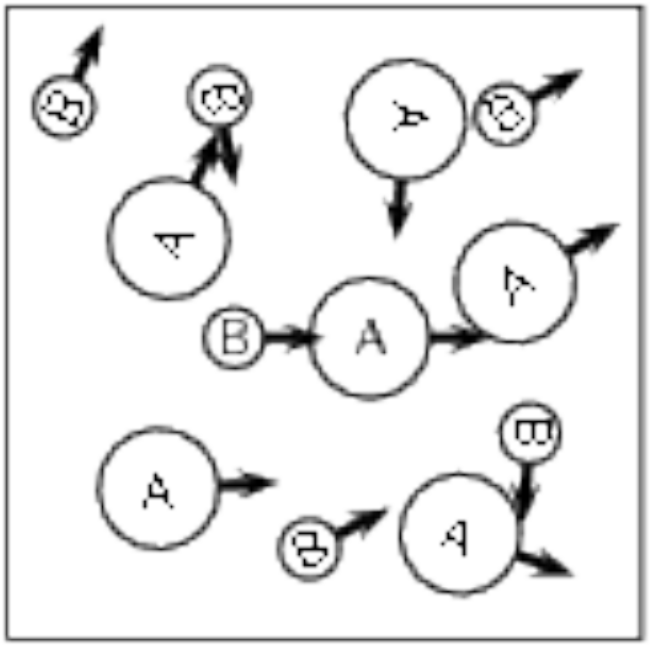
Reaction Rate

- Reaction rate depends on five factors:

1. TEMPERATURE: high T = increase in collisions



Low Temperature

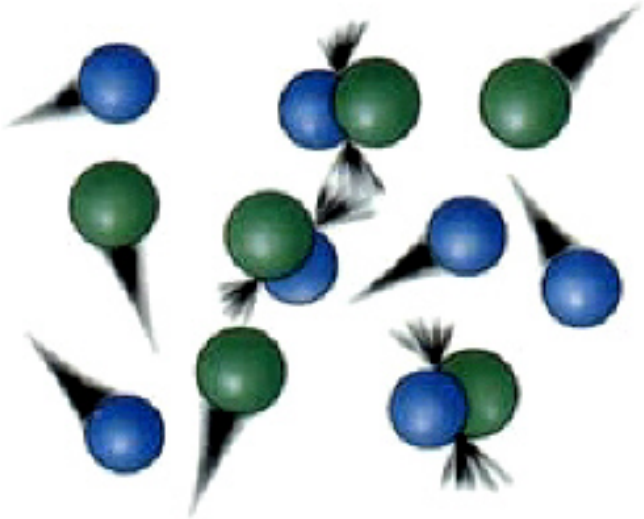


High Temperature

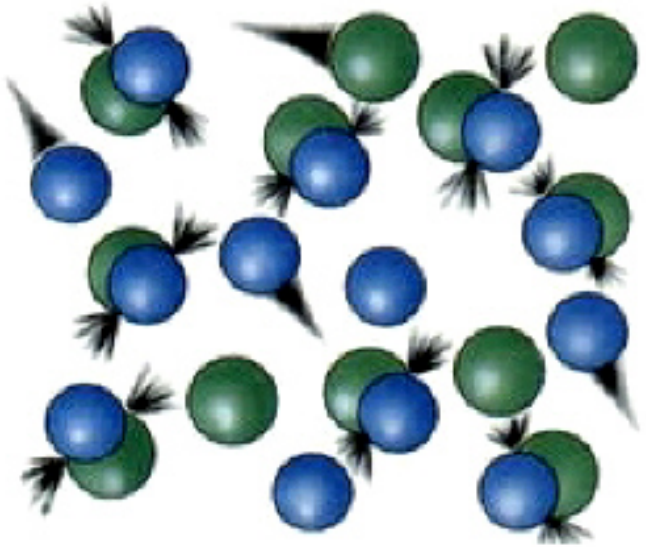
Reaction Rate

- Reaction rate depends on five factors:

2. CONCENTRATION: more amount of reactants = greater chance of combining



Low concentration = Few collisions



High concentration = More collisions

Objective: SWBAT explain collision theory and determine the factors that affect reaction rates

Reaction Rate

- Reaction rate depends on five factors:

3. Nature of the reactants = ions in solution react faster

Objective: SWBAT explain collision theory and determine the factors that affect reaction rates

Reaction Rate

- Reaction rate depends on five factors:

4. Surface area (particle size) = smaller particles means more opportunity for collisions

Objective: SWBAT explain collision theory and determine the factors that affect reaction rates

Reaction Rate

- Reaction rate depends on five factors:

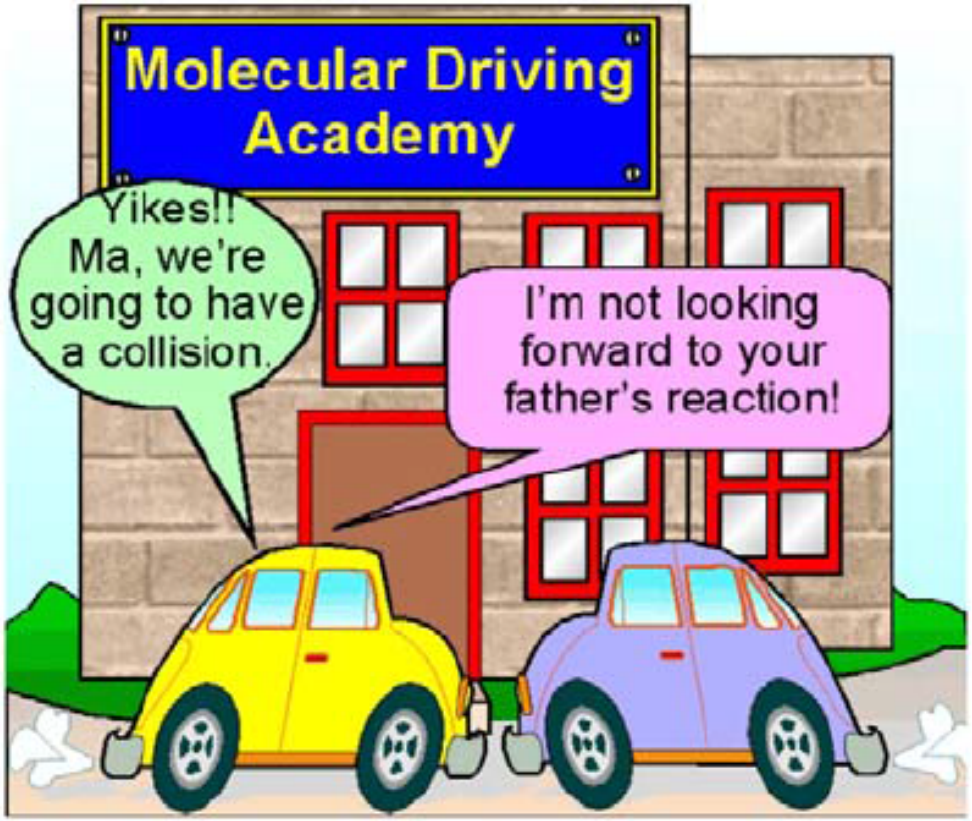
5. Catalyst = makes reactions faster!

6. (less thought of) = Pressure… greater pressure = faster reaction!

Objective: SWBAT explain collision theory and determine the factors that affect reaction rates

Simulation Time!

- http://www.kscience.co.uk/animations/collision.htm



Collisions Drive Reactions

Lab Time!

- Let's talk about tables!
- Grab a clipboard (NEW!) and goggles!
- If you finish your lab early, begin 7.1 Homework!

Objective: SWBAT explain collision theory and determine the factors that affect reaction rates

HOMEWORK

Finish Lab #18

Complete 7.1 WS

Objective: SWBAT explain collision theory and determine the factors that affect reaction rates