EXTENSION-REACTION RATE LAB

Chemical reactions occur at a number of different speeds. They may be very fast or they may be very slow. The reaction rate can often be sped up or slowed down. In this lab, you will investigate a few factors which affect the rate of a reaction.

PRE-LAB: Using the laminated reference sheet at your table, complete the following table about rate of reaction factors.

REACTION RATE FACTOR	HOW DOES THIS MAKE THE REACTION FASTER?
2	
3.	
5	
G	

 $\label{eq:linear} \begin{array}{l} & \forall \mathbb{D} \mathbb{E} \mathbb{O}: \mbox{ Watch the following video and answer the questions: (Link to video is on website) } \\ & \underline{\mbox{ https://www.youtube.com/watch?v=OttRV5ykP7A&t=1s} \end{array}$

1. What two important factors do collisions need to have?

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2. What are the 5 educational environments that can be created to increase the chance of getting a date for the dance. And what is the chemical equivalent to them?

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EDUCATIONAL ENVIRONMENT	CHEMICAL EQUIVALENT
1.	
2.	
3.	
4.	
5.	

MATERIALS: Stop Watch, Film Canister with Lid, 3 ½ Alka-Seltzer tablets, Graduated cylinder.

PROCEDURES:

In this lab you will test the reaction rate of an Alka-Seltzer tablet in 6 different situations. For each test, you must keep accurate time on how long it takes for the reaction to cause the lid of the film canister to pop off.

<u>TESTS:</u>

1. Place ½ of a tablet into the film canister containing 20 mL **COLD** water. Quickly close the lid and time how long it takes for the lid to pop off.

What factor impacted this rate of reaction? ______

2.	Place ½ of a tablet into the film canister containing 20 mL HOT water.	Quickly close the lid and time how
	long it takes for the lid to pop off.	

What factor impacted this rate of reaction?

3.	Place ½ of a tablet into the film canister containing 20 mL room temperature water.	Quickly close the lid
	and time how long it takes for the lid to pop off.	
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What factor impacted this rate of reaction? ______ Time: _____

4. Place ½ of a **CRUSHED** tablet into the film canister containing 20mL room temperature water. Quickly close the lid and time how long it takes for the lid to pop off.

What factor impacted this rate of reaction? ______ Time: ______

Place ½ of a tablet into the film canister containing 20 mL room temperature water. Quickly close the lid and SWIRL TO AGITATE, time how long it takes for the lid to pop off.
What factor impacted this rate of reaction? ______ Time: ______

6. Place **1 WHOLE** tablet into the film canister containing 20 mL room temperature water. Quickly close the lid and time how long it takes for the lid to pop off.

What factor impacted this rate of reaction?

Time:

Time:

TEST	INDEPENDENT VARIABLE	DEPENDENT VARIABLE	CONTROLLED VARIABLE((S))
2			
(F)			
<u> </u>			
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LAB QUESTIONS:

- 1. What was the time difference between hot and cold water reactions? Why was there a difference?
- 2. What was the time difference between crushed and control tablets? Why was there a difference?
- 3. What was the time difference between the swirled and control tablets? Why was there a difference?
- 4. What was the time difference between the WHOLE and control tablets? Why was there a difference?
- 5. Which of the 6 reaction rate factors you tested today caused the reaction to occur the fastest?
- 6. Why do you think it made it occur faster than the other 5?