



## Student Worksheet or Guide

### ***The Bigger the Better - Not always True - Exploring Size Effect on Chemical Reaction Times***

#### **Materials**

- 3 - 100 mL graduated cylinders
- 1 L soda water
- 5 - 10 g (approx) each of rock salt, sea salt, and table salt
- Timer or stopwatch
- Weigh dishes or similar to hold salts

#### **Make a Prediction**

Does molecular size affect the rate of rate of change? \_\_\_\_\_

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#### **Conduct an Experiment**

1. Pour 75 mL of soda water in each cylinder. Label the cylinders as rock, sea, and table.
2. Simultaneously place the appropriate salts in each cylinder.
3. Observe the reaction times of each. Record the time it takes for each salt to dissolve in the soda water on the table below.

## Record your Observations

	Rock	Sea	Table
Amount of soda water			
Amount of salt			
Reaction time			

## Analyze the Results

1. Did you observe what you predicted? Explain -

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If not, how did your observation differ from your prediction?

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2. Would it be important to have a control group? Which of the salts would you use as a control group? Why?

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3. Do your observations leave you with any more questions? Do they enable you to make more predictions? If so, what are they?

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4. How do you think this activity would have gone if you had salts that were “nano” in size i.e.,  $10^{-9}$ .

## Draw Conclusions

5. If you were to take Alka Seltzer and water in film canisters or pill bottles to make "rockets" would it make a difference if you used the whole Alka Seltzer tablet or if you crushed it?

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