Rate of Dissolution

Engage

Materials: small piece of candy for each student such as Skittles or Conversation Hearts, timer

What To Do:

1. Your teacher will give each member of your group a piece of candy.
2. Determine how you will try to make the candy last the longest in your mouth.
3. Everyone will place the candy in their mouth at the same time and start the timer.
4. Look at the timer when your candy is gone.
5. Record the time in the chart below.
6. Describe what you did to keep the candy in your mouth the longest.
7. Record the information from each classmate.

Name of Classmate	Time	What they did

Explore

Materials: granulated sugar packets, sugar cubes, hot water, warm water, cold water, spoon, clear beakers or glasses, balance, timer

What To Do:

1. Pour some granulated sugar into a cup of warm water. DO NOT stir.
2. Time how fast it dissolves. Record the time in the table below.
3. Pour the same amount of granulated sugar into another cup of warm water. Then stir.
4. Time how fast it dissolves. Record the time in the table below.

	Dissolving Time with no Stirring	Dissolving Time with Stirring.
Granulated Sugar in warm water		

5. Pour some granulated sugar into cold water. DO NOT stir.
6. Time how fast it dissolves. Record the time in the table below.
7. Pour the same amount of granulated sugar into hot water. DO NOT stir.
8. Time how fast it dissolves. Record the time in the table below.

	Dissolving Time in Cold Water	Dissolving Time in Hot Water.
Granulated Sugar		

9. Find the mass of the sugar cube. Record it below.
10. Measure the same amount of granulated sugar on the balance.
11. Place the sugar cube in hot water. DO NOT stir
12. Time how fast it dissolves. Record the time in the table below.
13. Place the granulated sugar in hot water. DO NOT stir.
14. Time how fast it dissolves. Record the time in the table below.

	Mass in grams	Dissolving Time
Sugar cube		
Granulated sugar		

Underline the correct answers below.

1. Stirring makes a solute dissolve (faster, slower).

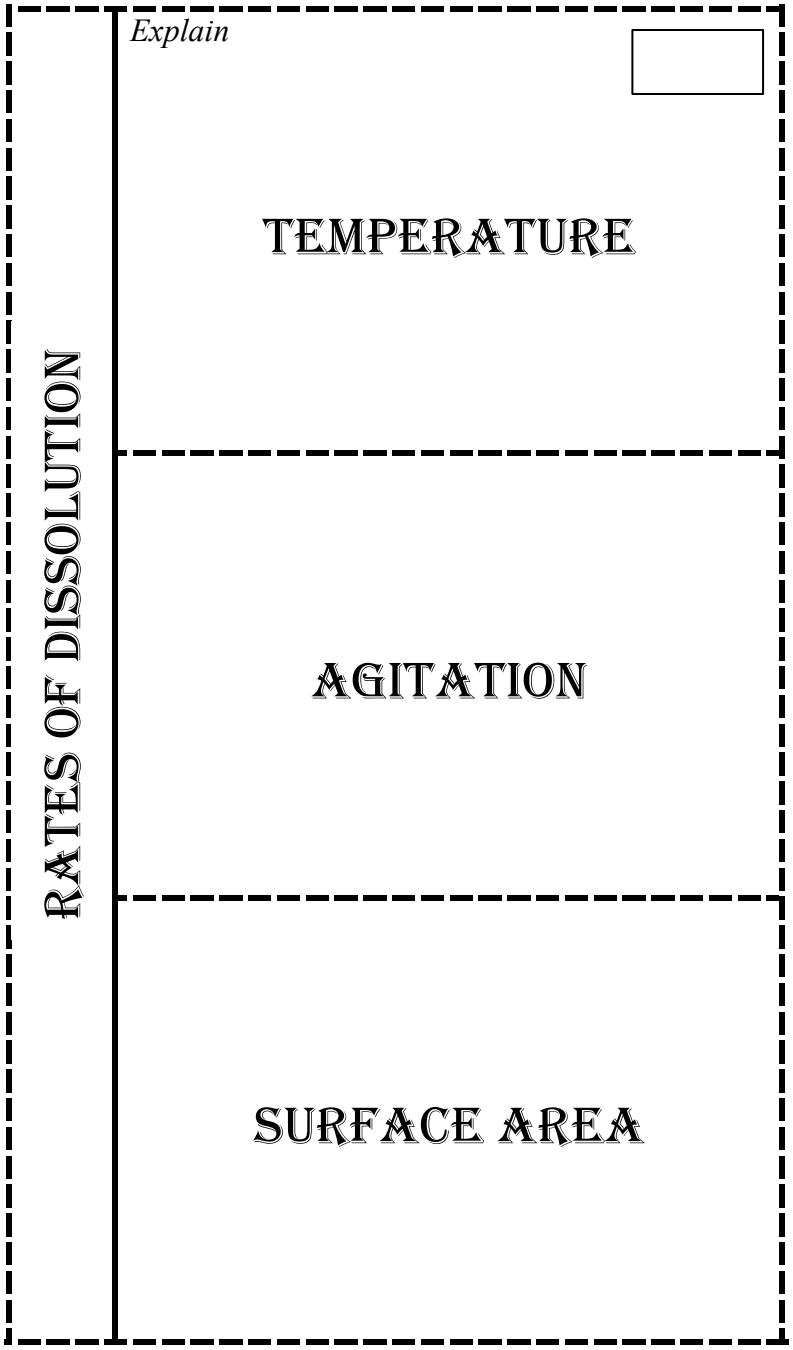
2. A solute dissolves faster in a (hot, cold) solvent.

3. A solute dissolves slower in a (hot, cold) solvent.

4. Heat makes a solute dissolve (slower, faster).

5. Big pieces dissolve (slower, faster) than small pieces.

6. Small pieces dissolve (slower, faster) than big pieces.



Elaborate

1. Read through the words in the Word Bank below.
2. Read through the fill in the blank statements.
3. Watch the video "Making Lemonade-Rate of Dissolving from https://www.youtube.com/watch?v=jiqhxDietqY
4. Read through the Word Bank and statements again.
5. Watch the video again and fill in the blanks.

WORD BANK			
surface area	exposed	slowest	speed
temperature	agitation	fastest	increases

1. The rate at which a solute dissolves depends on

- _____ of the solvent
- _____ of solute
- Stirring or _____

2. The dye in the ice water moved _____.

3. The dye in the hot water moved _____.

4. Higher temperature increases the _____ at which the particles move.

5. Stirring or agitation _____ the rate of dissolving.

6. The more _____ surface area sugar particles have to the water the more chances of contact they have.

Complete the Chart

If you …	then the solute dissolves faster.	slower.
1. make the pieces larger,		
2. make the pieces smaller,		
3. agitate,		
4. do not agitate,		
5. heat the solvent,		
6. do not heat the solvent		

Evaluate

Name _____ period _____

EXIT TICKET

Rate of Dissolution

1. Which of the following will help a solute to dissolve in a solvent faster?

A. letting is sit there
B. stirring it up
C. reducing the temperature of the solvent
D. Using the largest piece you can find

2. Which of the following will help a solute to dissolve in a solvent faster?

A. letting is sit there
B. reducing the temperature of the solvent
C. increasing the temperature of the solvent
D. using the largest piece you can find

3. Which of the following will help a solute to dissolve in a solvent faster?

A. letting is sit there
B. reducing the temperature of the solvent
C. using the largest piece you can find
D. crushing up the solute

4. Another word for agitation is –

A. Temperature
B. Stirring
C. Surface area
D. Solution

5. If the solvent is water, a solution is known as -

A. an aqueous solution
B. a nonaqueous solution
C. a saturated solution
D. a concentrated solution