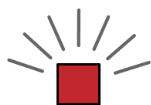




Experiment

## FLOATING A GRAPE

### Introduction







This week's newspaper is about The Ocean Cleanup. The Ocean Cleanup makes inventions to clean up oceans. The Ocean Cleanup also has an invention that cleans up trash in rivers so it does not flow into oceans. The water in oceans is salt water. The water in rivers is fresh water. The particles in a cup of salt water are closer together and more concentrated than they are in a cup of fresh water, so we say salt water is more dense than fresh water. The more dense water is, the more likely that it will support things put into it and make the things float in it.

In this experiment, students can explore how the density of water affects how things can float in it. Each student will start with two cups of fresh, warm water. Water from the faucet is all that is needed. Different materials sink or float in fresh water. Something that is more dense than fresh water will sink while something that is less dense will float. For example, a grape is more dense than fresh water because it contains water, sugar and other materials. Students will add one grape to one cup and should see that the grape sinks to, or near, the bottom of the cup. The students will then add salt to the other cup, a little at a time, and stir until the salt mostly dissolves. The warmer the water is, the faster the salt will dissolve in it. The students may notice that the water level did not rise when they added salt to the water. Instead, the little pieces of matter that make up the water and the salt will have moved closer together. The salt water has more matter in the same amount of space than the fresh water does, so we say the salt water is more dense than the fresh water.

A grape can be less dense than salt water, meaning the grape may float in a cup of salt water. In this experiment, students will add two tablespoons of salt at a time. They will continue to add salt until the grape floats. If they use more than 6 tablespoons, they can write the number of tablespoons they used on the Floating Grape Chart, in the last row.




## What We Know:

- The Ocean Cleanup makes inventions to clean up oceans. 
- Water in oceans is salt water. 
- Salt water is more dense than fresh water. 
- Salt water can make things float. 



## Step 1: Ask a Question

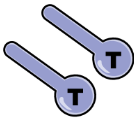
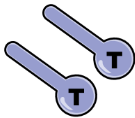
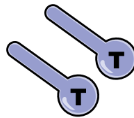
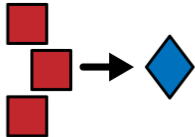
- How much salt will make a grape float in a cup of water? 



## Step 2: Make a Guess / Hypothesis

I think...

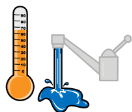


2 tablespoons	4 tablespoons	6 tablespoons	other
<b>2</b> 	<b>4</b> 	<b>6</b> 	



Need:

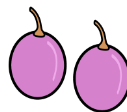
warm water



2 tall, clear cups



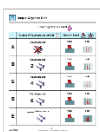
2 grapes



pencil



Floating Grape Chart  
(page 61)



tablespoon



salt



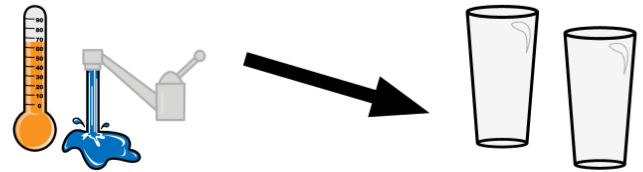
spoon



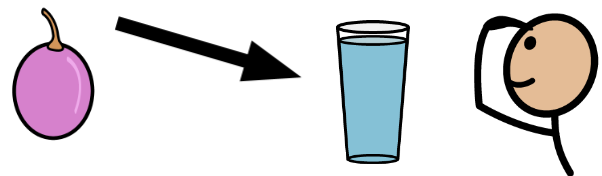


# Step 3: Do an Experiment

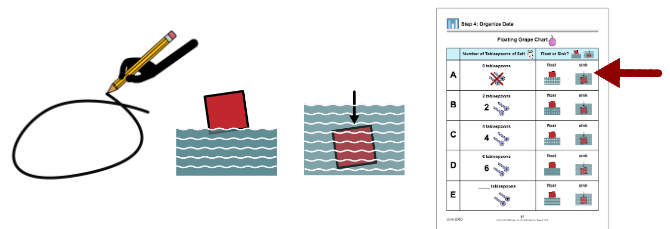
1. Put warm water into both cups, nearly full.



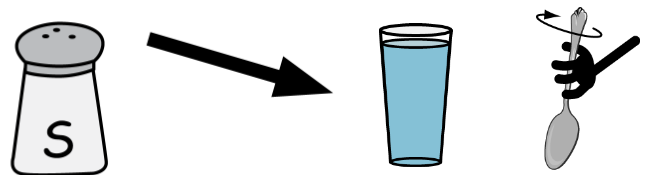
2. Put one grape into one cup. Observe grape.



3. Circle float or sink in row A of Floating Grape Chart.



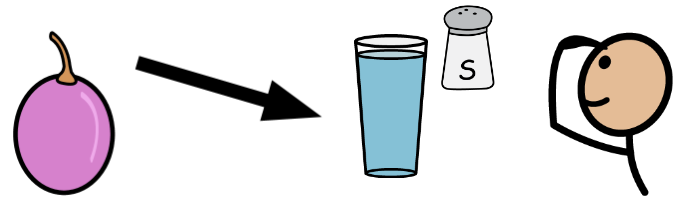
4. Put 2 T salt into other cup. Stir to dissolve salt.



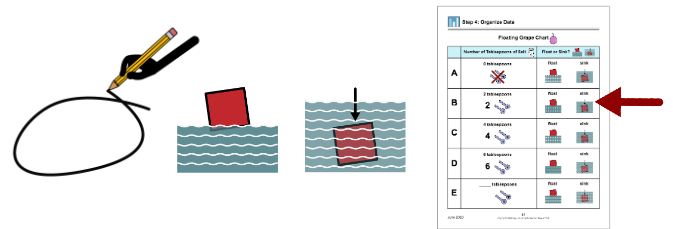


# Step 3: Do an Experiment

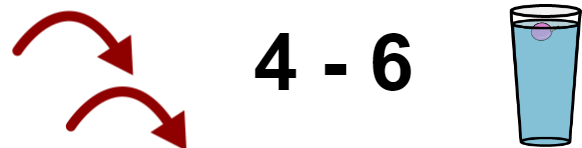
5. Put other grape into water with salt. Observe grape.

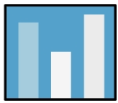


6. Circle float or sink in next row of Floating Grape Chart.








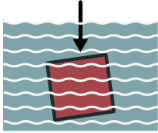
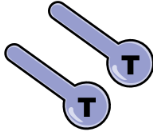
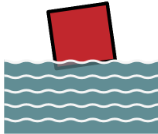
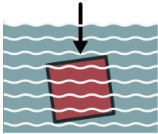
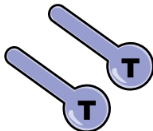

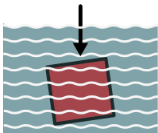
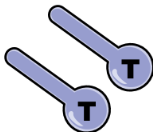

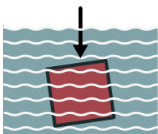
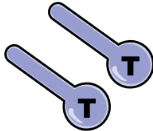

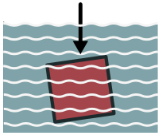
7. Repeat steps 4 and 6 until grape floats near top.





# Step 4: Organize Data

## Floating Grape Chart

	Number of Tablespoons of Salt 	Float or Sink?  
<b>A</b>	0 tablespoons 	float  sink 
<b>B</b>	2 tablespoons 2 	float  sink 
<b>C</b>	4 tablespoons 4 	float  sink 
<b>D</b>	6 tablespoons 6 	float  sink 
<b>E</b>	_____ tablespoons 	float  sink 



## Step 5: Find the Conclusion

1. Which water made the grape float best?



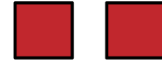
fresh water



salt water



same

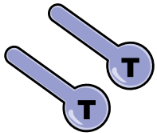


2. How much salt made grape float near the top?



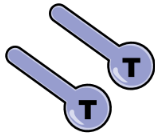
2 tablespoons

2



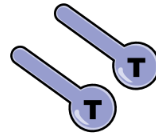
4 tablespoons

4

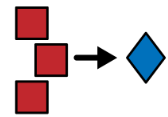


6 tablespoons

6



other



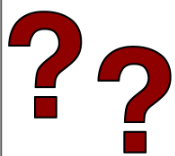
3. Was your guess correct?



yes



no

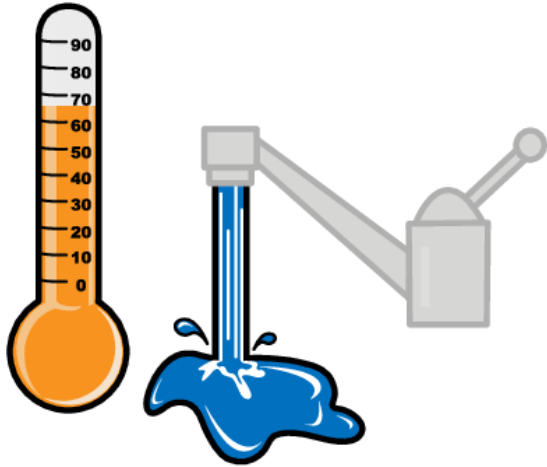


### Questions for Class Discussion

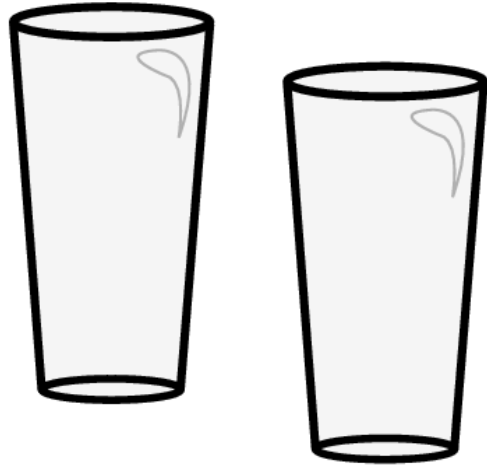
- What other things float in water?
- What other things dissolve in water?
- Do you think you could float in the ocean? Why?

Read, practice and post these words on classroom or craft area word walls.

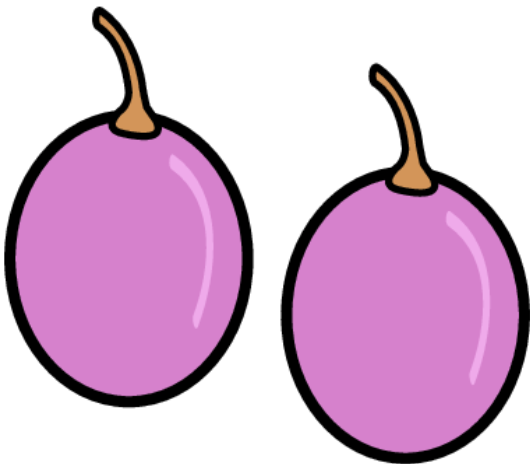
warm water



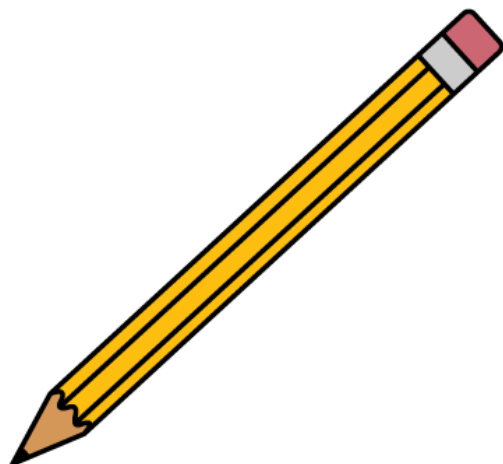
tall, clear cups



grapes



pencil


















Read, practice and post these words on classroom or craft area word walls.

# Floating Grape Chart

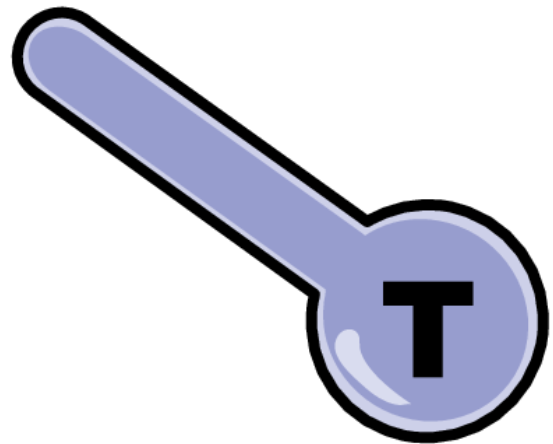
Step 4: Organize Data

Floating Grape Chart

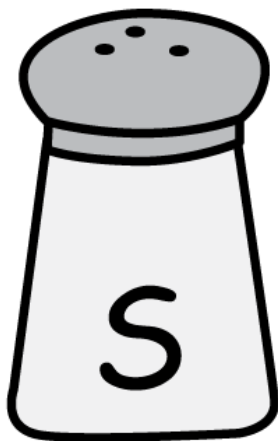
	Number of Tablespoons of Salt	Float or Sink?	Float or Sink?
A	0 tablespoons 	float 	sink 
B	2 tablespoons 	float 	sink 
C	4 tablespoons 	float 	sink 
D	6 tablespoons 	float 	sink 
E	___ tablespoons 	float 	sink 

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tablespoon



salt



spoon

