



EXPERIMENT: "Soap That Grows!"

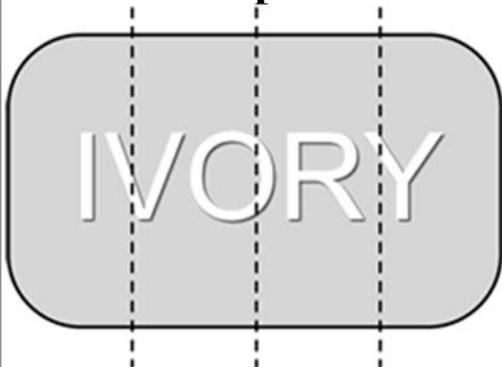
This activity is very simple but has a big "wow" factor.

What do you think will happen if you put a bar of ivory soap into the microwave? Hint: Ivory soap has a lot of air whipped into it.

HYPOTHESIS: _____

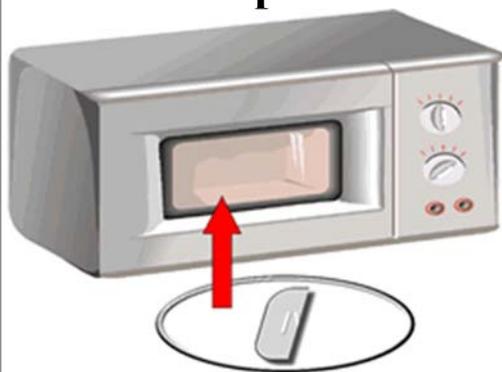
Materials needed: Ivory Soap (Ivory soap is full of air and it floats, that is why this experiment works).

Step 1



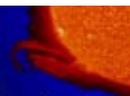
Take a bar of Ivory soap and cut it in fourths. Note: you can use an entire bar for this experiment, but this way you can do the experiment more than once.

Step 2



Place one piece of the soap on a microwave safe plate and put it into the microwave for one to two minutes. (Once it stops "growing" you may take it out - see step 3).

What happened?



Step 3



Carefully take the plate out of the microwave. **CAREFUL -- THE PLATE MIGHT BE HOT!**

ALSO -- MAKE SURE YOU LET THE SOAP COOL COMPLETELY BEFORE TOUCHING IT.

What happened?

Conclusion

Why do you think the soap expanded?

So how does it work?

First it is important to know that Ivory soap floats -- but why? When Ivory soap is made, it has air "whipped" into it. This trapped air makes it less dense than water, that is why it floats. When you heat the soap, the trapped air and water vapor expand. The heat also softens the soap so that it is flexible, making it easy to "grow".

Charles' Law: In the early 1800's a man named Jacques Charles did some experimentation with gases and found that as the temperature of a gas increases, so does the volume of the gas. So what you witnessed with the soap was Charles' Law in action. As the air (gas) in the soap heated up, so did the volume of that air, causing the soap to expand.

