TEMPERATURE AT PLAY

ULYSSES PHILOMATHIC LIBRARY SCIENCE AT HOME 2020

THE STEP BY STEP

1 - Blow up your balloon about half way, tie it off, and use the measuring string to find out the circumference of the inflated balloon at room temperature. (you might want to make a mark on the balloon with a marker so you know exactly where you measured)

2 - Fill a bowl with hot water and float the balloon in the water for several minutes.

3 - Measure the balloon again. (it should be larger, but the difference might be small depending on how full you've blown the balloon and how hot the water is)

4 - Allow the balloon to cool down and then place it in your freezer or into a bowl of ice water.

5 - Measure the balloon again after five or six minutes. (it should be smaller, but again, the amount of decrease depends on several factors)

ADDITIONAL QUESTIONS

What is Charles' Law?

How does the temperature of a gas affect it's volume and it's density?

What does this tell you about hot air balloons?

What other day to day items react to temperature changes in this way? (soda cans, car tires, etc)

How does this information change your understanding of the weather?

ADDITIONAL RESOURCES

Hot Air Balloon Physics
https://www.real-world-physics-problems.com/hot-air-balloon-physics.html

NWS JetStream: Air Pressure
https://www.weather.gov/jetstream/pressure

NYSci: How Do Hot Air Balloons Fly?
https://www.youtube.com/watch?v=oJZvr6mgzfY

Properties of Matter: Gases
https://www.livescience.com/53304-gases.html

SciGuys: Charles' Law of Ideal Gases
https://www.youtube.com/watch?v=NplVuTrr59U