

Name:

OL Lab 7: Ideal Gas

Law Learning

Objectives

- Explain the physical concepts of temperature and absolute zero
- Define the relationship between pressure, volume and temperature in gases using gas thermometry
- Apply the Ideal Gas Law
- Give examples of acids and bases from everyday life
- Define pH and identify acids and bases using the pH scale
- Apply the Bronsted-Lowry definition of acids and bases to chemical compounds
- Describe the amphoteric and self-ionization capacity of water
- Calculate the pH of a strong acid and base in solution
- Assess whether a neutralization reaction will occur
- Evaluate the outcome of simple acid-base reactions

Introduction

Do you know that you can save a life using the ideal gas law? In the Ideal Gas Law simulation, you will define the physical concept of temperature and absolute zero. You'll learn about the relationship between pressure, volume and temperature in gases using gas thermometry.

Explore your workbench

Your first mission in the Ideal Gas Law simulation will be to have a look at the equipment at your disposal and acknowledge what you would need for your experiment. Learn the roles of each piece of equipment and how they will play a part in your gas thermometry.

Experiment with gas thermometry

Handling extreme temperatures is not a hazard as long as you're a part of this simulation! Observe the changes in the pressure of an ideal gas as you cool it down from the temperature of boiling water to the temperature of boiling nitrogen. You are lucky you're in a virtual lab as this means you can speed up time for the pressure to reach equilibrium! You will have complete freedom to repeat the experiment with any amount of gas and to define the absolute zero temperature.

Are you ready to apply the Ideal Gas Law and everything you learned in gas thermometry in order to assist the transfer of an organ for a transplant surgery?

Report back to the paramedics

Once you have completed your experiment and have collected all of your data, your final mission would be to share the results with the paramedics so that they can keep