

Background: This is a good time to reflect on all the chemistry knowledge you've gained over the past several weeks. You might notice that you stand taller, run faster, speak with greater confidence, and can clear a room just by saying, "The ideal gas law is just a model, it has flaws".

What your friends aren't going to stick around to hear is completely true. The ideal gas law is what's called an equation of state, it is a static picture of a gas in terms of its temperature, pressure and volume. That static picture is based on some assumptions that may not always be applicable.

The assumptions that support the Ideal Gas Law contribute to the Kinetic Molecular Theory of gasses. In that theory, gases are treated as individual particles that have no individual volume and do not interact with one another. Both of these are completely untrue, but they can be assumed to be true when certain conditions are met.

And since we are able to determine the number of moles of a gas based on other quantities, and moles are used in chemical reactions...You can see where this is going. We can do gas stoichiometry!

Hello? Are you still there? Hello...

Objectives:

1. Compare ideal and real gases.
2. Describe the assumptions used in the Kinetic Molecular Theory of gasses.
3. Describe the relationship between temperature and average kinetic energy.
4. Perform gas based stoichiometry calculations.

Reading: Zumdahl Chapter 13