

## Reading Guide for the Fluids unit

Most of the properties of fluids that we'll explore in this unit are not covered in the book. However, part of Chapter 6 is appropriate here.

### Chemistry Chapter 6: Matter in a State

There's an awful lot of stuff in this chapter, but only a small part is of interest to us right now. So, I'll have you skip around a bit. The important concept to us is that molecules in different **states** of matter (solid, liquid, gas) have different potential energies, and this affects their thermal behavior.

pp. 105–109. I'd really like you to read this now, even though it may seem like a tangent.

p. 105. This explains the major characteristics of the states of matter on the basis of their microscopic structures.

pp. 106–107 This describes different reasons for the potential energy between molecules. Only skim this; we won't address this in earnest until the chemistry portion of the course. Do at least skim this, though: it explains the physics that is the basis of that chemistry.

p. 109. Read this through once fast. It explains why different substances have different temperature ranges for their solid, liquid, and gaseous states.

pp. 110–113. This is the part that really applies to this week's unit. It explains the properties of gases in the context of a simple (that means: not true) model, the **ideal gas**. Although this model does not account for all properties of real gases, it can bring us a lot of insight into how all gases behave.

p. 110. Sets the stage for the quantities that determine the properties of a gas.

p. 111. This page is really what we're about this week: **pressure**.

- What is pressure?
- Why do gases exert pressure on the things they contact?
- Why is pressure constant throughout a gas?

p. 112. Skim this page; don't try to remember which name attached to which law, because all three of the laws are subsumed into the ideal gas law on the next page.

p. 113–114. Read these pages through once, to get an idea of why gases behave as described by this equation. Skim the calculations to see how they are done.