"If, in some cataclysm, all of scientific knowledge were to be destroyed, and only one sentence passed on to the next generation of creatures, what statement would contain the most information in the fewest words? I believe it is the atomic hypothesis (or the atomic fact, or whatever you wish to call it) that all things are made of atoms—little particles that move around in perpetual motion, attracting each other when they are a little distance apart, but repelling upon being squeezed into one another. In that one sentence, you will see, there is an enormous amount of information about the world, if just a little imagination and thinking are applied."

Richard Feynman

Molecular Dynamics for All Ages

Dan Schroeder, Weber State University

Every child should have a visual, interactive molecular dynamics simulation to play with.

Every physics major should write one.

Quit reading this poster and go run the applet: http://physics.weber.edu/schroeder/software (or just google "molecular dynamics applet")

Then write your own version, or improve mine!

Visualizing Matter

Attracting... Repelling... Perpetual motion

Gas Liquid Solid

Dislocations Evaporation Explosion!

The Arrow of Time

(Deprecated by John Mallinckrodt)

Dropped... First bounce... Equilibrium

Incoming... Initial shock... Equilibrium

Hot and cold... Heat flow... Equilibrium

Coding (for Grownups)

In go Newton's laws...

...out comes thermodynamics.

Richard Feynman

Physics major Rhett Zollinger with daughter Missy, age 3

Data Cornucopia

Discrete Speed Distribution, $N = 1000$

Energy vs. Temperature (K = 100, $N = 1000$)

Density vs. Temperature (K = 100, $N = 1000$)

Chemical binding of a benzene rings bond

Thermal expansion of a benzene rings solid

Challenging... but worth it.