Mr. Jenkins
Physics 1

Assignment Sheet
Linear Motion

Objectives
You will be able to:

A. Use the factor-label method for converting units and for calculations involving units.
   Use significant digits when taking measurements in lab. (In general, we'll apply a "close enough" rule for their use in calculation and not be too formal about sig figs in calculations)
   Create graphs using independent and dependent variables on paper and in a spreadsheet (No, for the record, which spreadsheet you use generally doesn't matter as long as you know how to use it Microsoft Excel 2003 or 2009, OpenOffice.org Calc, Gnumeric, etc. will all work)
B. Use drawings to represent motion.
   Explain the application of coordinate systems to motion diagrams.
   Distinguish between instantaneous and average speed.
   Explain the concepts of distance, speed, and time.
C. Define vector and scalar.
   Distinguish between speed and velocity.
   Relate distance to displacement (change in position) and speed to velocity.
D. Explain the concept of acceleration.
   Explain the meaning of the units of acceleration and velocity.
E. Explain the "7 types of motion" (horizontally or vertically).
   Explain the graph associated with each "type" of motion.
   Draw graphs of position vs. time and velocity vs. time.
   Use correct units when describing position, velocity, and acceleration.
F. Apply the equations of uniformly accelerated motion to solve problems, including free fall

Reading

A. 1.1 Mathematics and Physics, p. 3–10
   1.2 Measurements, p. 11–14
   1.3 Graphing Data, p. 15–19
B. 2.1 Picturing Motion, p. 31–33
   2.2 Where and When, p. 34–37
C. 2.4 How Fast?, p. 43–47
D. 3.1 Acceleration, p. 57–64
E. 2.3 Position-Time Graphs, p. 38–42
   H1.01 How to Graph
F. 3.2 Motion with Constant Acceleration, p. 65–71
   3.3 Free Fall, p. 72–75

Laboratory
Motion Sensor
Cycloid Trough
Free Fall

Written Homework ***Study notes and read text nightly***
Assignments as necessary to support class work and reading (as given on board and website)

Focus Questions:

1. What is the difference between a position and a distance? A speed and a velocity? Give an example of a case when this distinction is important.
2. You have probably included the “7 types of motion” in your chapter summary. We use this categorization as a tool to describe the world around us. Give an example of each type. Does a car “moving backwards” mean that it must be in reverse?