TUE DEC 21, 2004:
-Finish and hand in Newton's Laws Investigations…
-Starrt Terminal Velocity on Interactive Physics…. Due end of class Thur Dec 23rd…

Interactive Physics:
Finish examining all demo files in the folder:
Users:Physics:Projectiles
Also run the demonstration files:
Users:Physics:Projectiles::Projectiles and Rockets: Airdrop.ip
Users:Physics:Projectiles::Projectiles and Rockets: Projectile Motion.ip
Users:Physics:Projectiles::Projectiles and Rockets: Outfielder.ip
Users:Physics:Projectiles::Projectiles and Rockets: SoccerPlayer.ip
Users:Physics:Projectiles:Projectiles:MaxRangeOf ElevatedLaunch.ip
Users:Physics:Projectiles:Projectiles:ProjectileWordProblem.ip

If you have time, walk through the tutorials in the help file….
Continue doing ALL the workshop examples and directions so that you know how to:
Make controls for initial velocities.
Show velocity, force, and acceleration vectors for a moving object.
Make graphs and meters of position, velocity and acceleration for a moving object. VERY important.
Change the world size, air resistance, and gravity.

HINTS FOR USING INTERACTIVE PHYSICS

Add a picture to an object (open the sample pictures from the Physics folder in Paint, select all, copy, then paste into an Interactive Physics file. Resize the picture, then shift click both the picture and an object at the same time, from the object menu "attach picture". Or search for picture in the help file!)

Change the initial direction of an object.
angles are measured in radians 1 radian = 360/(2*3.14159) degrees

To Change the air resistance, go to the WORLD menu.

To change the properties of an object:, select it, then go to WINDOW, PROPERTIES…
This will allow you to adjust the density (and thus the mass) without changing the area.

To change the shape (area), either drag the object, or go to WINDOW: Appearance.

WINDOW: Appearance is also where you can change the color.

To measure the velocity, select the object, then go to MEASURE, VELOCITY menu.
Toggling on the meter will change it from a graph to a bar to a digital meter.
Use the help files!!!

PHYSICS Terminal Velocity Investigation part I Interactive Physics.

When an object falls under the influence of gravity, air friction may influence the motion of the object to a considerable extent. With air present, there will be an opposing force due to air friction which gets larger as the velocity of the object increases. If the object is falling straight down, at some velocity, the two forces (friction and gravity) acting on the object will balance out and the object will stop accelerating. This velocity is called **terminal velocity**.

What are the factors about an object that you think affect the air resistance acting upon it as it travels through the air? How do you think they affect it?

Using Interactive Physics, and sample files as an example.. make files that demonstrates how such factors as mass, surface area, type of surface, gravity, etc… affect the force of air resistance to cause terminal velocity. Use graphs and meters to show your results. Only use the "standard" model for air resistance with constant of 6 or below.

SO: Open a new file. Make some objects. Watch them fall!

Write your conclusions for all your files in Word and save them in your folder in Users:Physics:2004Users: Name: Be sure to write detailed explanations for everything you investigate!!!