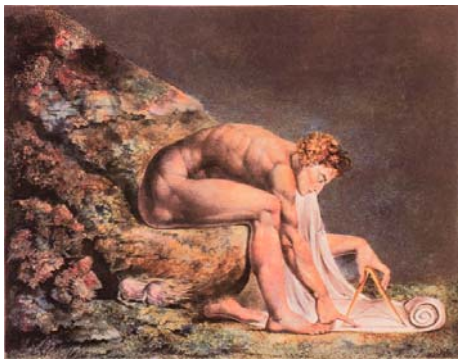
Newton by William Blake (1805)



Hey, UT Students!

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About the "First Year Undergraduate Office"

- McLennan Labs MP129
  - 1st Floor, North Wing
- Ms. April Seeley is at the front
- Dr. Savaria's office is there
- Previously: Ms. Seeley was only there in the afternoons
  - If Dr. Savaria was not in his office, the room was locked
- Ms. Seeley is now there all day

About the Lab

- The lab home page is: http://faraday.physics.utoronto.ca/IYearLab.html
- Start dates, preparation for your 1st lab, etc. can be found by going to News from this page
- Dr. Deyirmenjian informs me that the although you should do the Error Analysis Assignment you "are not required to hand it in for grading."

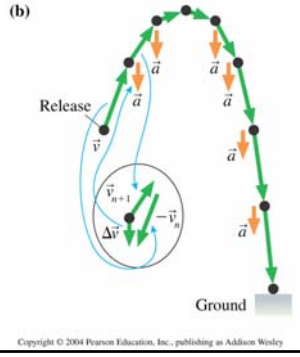
Reminder: About Questions From You During Class

- Only Physics questions please
  - I will try to "triage" and choose questions I think are of general interest
  - I will save questions in the last 5 minutes of class for next time
- Administration questions:
  - Course/Lab home pages
  - Dr Savaria before class
  - Me after class (if I know the answer)

Writing is a "Good Thing"

- Gets hand-eye-brain coordinated
- Reading a textbook
  - Fiction: a page a minute
  - Any textbook: this is much too fast
  - Taking detailed notes slows you down
  - Also helps you to concentrate
  - Copy figures, definitions, equations
  - Fill in missing steps of derivations
  - Your choice: keep the notes or not

Figure 1.22 (b) [for the 3rd time]



"Good Thing" continued

- In class, taking notes is good for most students for the same reasons
  - This is one reason why we use a Tablet PC instead of "canned" PowerPoint
- MP Problem Sets
  - Don't just scribble on scrap paper, solve it carefully on paper
  - Use the recommended Problem Solving Strategy

Some "Tips" from Previous PHY138 Students

- "Keep a sheet of paper free during lectures and write down any relevent [sic] formulas on it the moment you learn it."
- "… but the cheat sheet is never any use it's either you know it or you don't."
- "Keep up with the homework!"
- "DO MP YOURSELF!"
- "Draw diagrams and label clearly!"

More "Tips" from Previous PHY138 Students

- "You should ALWAYS write the information you're given in a problem. If v1=10 m/s, WRITE IT DOWN! Whether it's known or unknown. This helps greatly, trust me."
- "Plugging numbers should ALWAYS be the second last step. The last step, of course, is to write the answer."
- "It's more important to understand the concepts involved."

From *biome*

Last Time

- Introduce Forces
- Newton's Second Law: $a = F_{net} / m$
- Newton's First Law: If $F_{net} = 0$, $a = 0$
- Inertial Reference Frames
- Equilibrium
- Mass & Weight
  - Apparent Weight

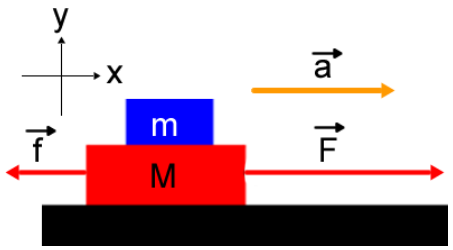
Today

- Finish Chapter 5: a couple of examples
- Chapter 6: **Dynamics II: Motion in a Plane**
  - Perhaps we will finish this chapter

Question From Last Time

"Would your weight change if you're on a slant?"

Friction Example



$a_x = (F - f) / (m + M)$

Cartesian Components

The Cartesian (x, y, z) components of motion are independent of each other.

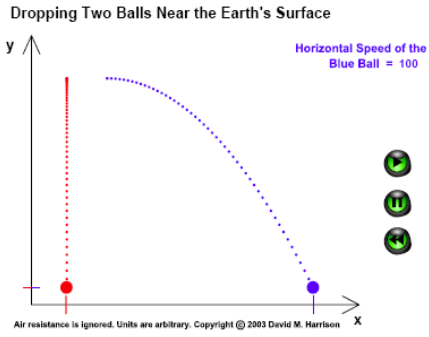
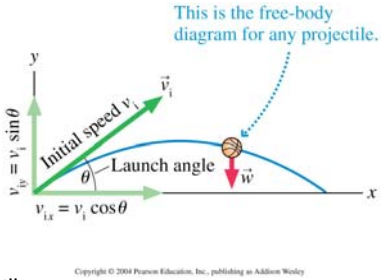


Figure 6.14



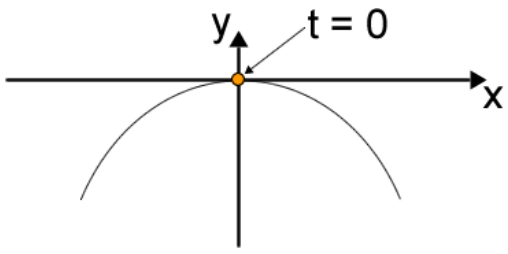
Projectile:

$x_f = v_i \cos(\theta)\, t$

$y_f = v_i \sin(\theta)\, t - \frac{1}{2} g t^2$

Generic Parabola:

$(y - y0) = c\,(x - x0)^2$



$y = -g/(2\, v_i^2 \cos^2\theta)\, x^2 = c\, x^2$

$c < 0$