

COMPILATION: simulations using "Interactive Physics". Also QuickTime movies

Date: Wed, 15 Jan 2003

From: Jane Jackson <jane.jackson@ASU.EDU>

Below are URLs of interactive simulations that physics teachers have written using Interactive Physics™ from MSC.Working Knowledge™ (formerly Knowledge Revolution™).

copied/pasted in Jan. 2003 at

<<http://www.interactivephysics.com/sites.html>>

1) Cal Poly Pomona University Physics Department.

A. John Mallinckrodt, Physics Professor.

An ever-expanding set of advanced (and eclectic) simulations covering a wide variety of topics including rotating reference frames, orbital dynamics, gravitation, oscillations, thermodynamics, and electrostatics.

<<http://www.csupomona.edu/~ajm/ip.html>>

[Note: Many QuickTime movies too! I count 26 simulations. Some are on Newton's laws (including 5 on basic stuff), astronomy (tidal effects), chemistry (4 on molecular interactions). Most of his simulations are in IP Student Version Player format and should be directly usable in the Macintosh or Windows environments using Interactive Physics™ version 2.0 or higher or the Interactive Physics™ Player. The simulations are available for individual download - free. - Jane JJ]

2) Western Washington University.

Richard Vawter, Physics Professor.

Site containing about 35 Interactive Physics simulations created by Professor Vawter for use in his physics course.

<<http://www.ac.wvu.edu/~vawter/>>

[Many QuickTime movies too! For algebra-based and calculus-based physics courses. Much on mechanics! Richard Vawter and John Mallinckrodt cooperate in developing their simulations.]

3) Mississippi State University Physics Department.

Taha Mzoughi, Physics Professor.

Physics I students can access class notes, quizzes, grades, and physics concept animations developed using Interactive Physics. The animations allow you to view an IP simulation and select which vectors to display.

<<http://webphysics.ph.msstate.edu/webphysics.html>>

[Links to a dozen college physics sites that use the web for instruction, including applets (physlets).]

4) U.C. Berkeley Interactive Physics Curriculum.

Includes hundreds of sample simulations and mpeg files.

<<http://istsocrates.berkeley.edu:7521/projects/IPPS/Contents.html>>

[For calculus based general physics courses. 100 practice problems for physics students, accompanied by detailed solutions and interactive computer experiments. The computer experiments only run on Macintosh computers that have Interactive Physics II or newer installed, but MPEG movies are available for many of the problems.]

5) The ScienceMan.

Josef Martha, a high-school science teacher in Onoway, Canada, has put together a great resource for both teachers and students. Here you can find links to curriculum suggestions, software reviews, hardware reviews, and more.

<<http://www.scienceman.com/>>

[Josef uses Interactive Physics (IP) with Macintosh; he says IP is a must for HS physics. He likes version 3, for the most part. He sees no reason to upgrade to IP-2000. He thinks that the version 5 upgrade is too expensive for what little improvements it offers to version 3.]

[I asked David Hill, an experienced modeler near Phoenix, to comment on whether the Interactive Physics simulations in my post today would be of value for modelers. Here is his reply. - Jane J]

Date: Wed, 15 Jan 2003
From: "David Hill <dwmhill@EARTHLINK.NET>
Jane,

I do use Interactive Physics throughout the semester in Physics. I have used a number of simulations I have found online. I checked out some of your links and found them to be pretty good. I think it would be a great resource to post on the listserv. Teachers can download the I.P. Player to have students just view the simulations. I have the full Interactive Physics program, so I often modify the downloaded simulations to specifically meet my needs.

Sometimes I will use the simulations as a motion animation of a concept I am trying to show the students. These simulations are far superior to just viewing a picture from a text. Sometimes I can work the simulations into a problem for students to solve and then see the answer when we are done. I have also used some of the simulations in place of an actual hands-on lab. If I don't have the proper equipment, students can still use the simulation to collect data, graph the results and construct math models. This is less effective than running a lab and using probes to collect the data. However, it is much better than a lecture on the concept, as students still construct a model themselves!

Teachers will need to evaluate the various simulations to meet their needs. Some of these are on the college level, AP level or even apply to Physics with Calculus. Many are even appropriate and very visual or entertaining for junior high students.

Interactive Physics is a very good tool.

Date: Thu, 16 Jan 2003
From: Steven Keith <skeith@SANJUAN.EDU>

I too use Interactive Physics 3.0 (Mac) in my modeling classes but I HAVE THE STUDENTS CONSTRUCT SIMULATIONS WHICH GIVE THEM YET ANOTHER REPRESENTATION TO ADD TO THEIR LIST OF PROBLEM SOLVING TOOLS, DYNAMIC SIMULATIONS. The students then work the same problems with pencil, paper and calculator to see if the Interactive Physics folks "got it right."

By the way, the Interactive Physics folks did indeed GET IT RIGHT!