COMPILATION: 3-day PS workshop on modeling; also, repeating 'underpinnings' labs

Date: Tue, 13 May 2003
From: stan hutto <fizwiz2@YAHOO.COM>
Subject: Ideas & suggestions for 3-day presentation

I will be presenting a short three day "taste teaser" on Modeling to local physics and physical science (freshmen level science) teachers. What are some suggestions for the topics and activities I should present? I know some of you have done short workshops like this. I appreciate all input.

Date: Wed, 14 May 2003
From: David Hill <dwmhill@EARTHLINK.NET>

You might want to check out the Modeling Physical Science Curriculum materials. They are available on-line at the modeling website. You will find some great activities to have your teachers go through, that will give them a good taste of modeling and its teaching practices.

Some of the initial activities are really good dealing with measurement and graphing (Circle Lab). You can look at mass, volume, density activities, then go on to the constant velocity (Dune Buggy) lab. These would give a nice overview with an intro to physics for the physics teachers. It will be on the right level of interest for your physical science audience. There are some neat simple opportunities to whiteboard, graph, discuss and generate some models.

Our 7th grade, 8th grade, and high school teachers really got a lot out of these materials in our 3 week Modeling Workshops last summer.

Date: Thu, 15 May 2003
From: "Kathleen A. Harper" <harper.217@OSU.EDU>

I've had great success using a Hooke's Law lab when I had to make a brief (30 min - 1 hr) presentation for diverse audiences. It's definitely something to consider.

Date: Thu, 15 May 2003
From: Stan Hutto <shutto@AHISD.NET>

Kathy, thanks. I've gotten several good suggestions. *I'm doing a 3-day workshop, so I'll be able to do several bits of Modeling. Right now I think we'll do some of the graphing intro labs, then constant velocity, and acceleration labs. I will also assign some readings from various articles about PER for discussion, and will include for the physical science teachers the article about inaccuracies in PS and middle school texts.*

Date: Thu, 15 May 2003
From: Stan Hutto <shutto@AHISD.NET>

David [Hill], I looked at these and what bothers me in a way is that some of the activities are the very same ones that we have for the Modeling curriculum. I really think that we (modelers) should either replace the paradigm labs in the physics units or replace these activities in the PS curriculum underpinnings. If the students do these (constant velocity, acceleration) then why should we repeat the same lab? I found in the past that when I did something similar in chemistry or physics to what had been done in PS (typically pendulum lab or acid/bases intro) it was not an effective exercise ("we already did this", whine, whine). It seems that when a higher course in a vertical sequence comes up with some neat little lab/demo/exercise - then before we know it the lower PS class started doing it. It looks as though the folks who worked on the underpinnings simply lifted the material from the Modeling materials. Is this underpinnings or undercutting? Okay, I'm venting on you - because I know you are closer to "Modeling Central" and I believe worked on the Underpinnings material - I just wanted to express my opinion on this topic.

Date: Fri, 16 May 2003
From: David Hill <dwmhill@EARTHLINK.NET>

Thanks for your comments on the Modeling Physical Science Curriculum. In our district, we have some of our middle school and ninth grade teachers doing some of those labs and activities in their classes. Those students haven't reached my physics classes yet, but I'm already making plans for when they do. For me there are really only a couple of things that are repeated that would be a problem.

First of all, any activity that teaches the kids graphing skills and the use of Graphical Analysis in lower grades will open up more time for me in physics. I can't wait for the day when kids already know the basics of graphing before coming to me. It's running only about 50% right now, so I have to review / teach it. *This past year I gave up the Circle Lab and the Pendulum Lab as a paradigm lab to begin the year with and jumped right into Constant Velocity. It worked great and I dealt with linear graphs there.* When we got to acceleration, we practiced on linearizing graphs there.

The other main lab that repeats from earlier classes would be the Dune Buggy Lab. Our physical science classes work on graphing, data collection and basic ideas of speed and velocity. I will either replace the Dune Buggy Lab or have the kids recall what they did before and extend on it; cars starting away from the origin, cars moving toward the origin, cars with only one battery, etc. Then the students will analyze the meanings of the graphs and compare to the actual differences in motions.

I am on the block schedule and only have 18 weeks with my kids. I barely get through the basic Modeling mechanics curriculum with my physics classes, along with a few projects, lab practicums, and tying my curriculum to math and literacy standards. *Any place where the "underpinnings" of modeling (graphing, whiteboarding, using simple models to describe particle behavior, even basic intro physics concepts) are taught in an earlier class, it will help me move to more real physics concepts.* I think that was the intent of the underpinnings curriculum.

Date: Fri, 16 May 2003
From: Kent Ellis <kemarble@HOTMAIL.COM>

You mentioned the drawbacks of repeating labs from one grade to another. I deal with this frequently. Part of science is the process of repeating experiments. If students have already done a lab, they should be that much more experienced at analyzing the results. No apologies on your part are necessary to address students' whining.