

## How to use the Instructor's Guides

The instructor guides that accompany the Modeling Instruction for University Physics package are intended to be used to aid the instructor in planning for the week's activities, as well as to keep track of the model building process from day-to-day in the classroom. Though the content of each week varies, the structure of the Guide remains fairly similar. This appendix is designed to help you understand how to use the Instructor's Guide.

First, the Guide is just that. They are not set in stone structures for how to run your classroom. Each instructor works within a set of constraints, and the Guide is intended to be flexible enough to accommodate those constraints. That being said, the Guides do make a few assumptions that are worth mentioning.

### Assumptions

- All of the lab instructions are written for the Vernier systems. If you use something different in your classroom, you will have to adjust activity instructions accordingly.
- The whiteboards we expect you are using are approximately 3ft x 2ft in size. This is large enough that a substantial amount of information can be fit on them, but small enough to be portable. If you do not have these whiteboards available you will need to adjust Board Meetings accordingly.
- Homework in the Modeling Instruction environment is intended to supplement and extend what the students have done in class. As a result, the homework sections of the Guide often include a choice of problems. We would not expect an instructor to assign all the problems listed under homework for a given week.

As you move through the Instructor Guides you will notice that a particular sequence of activities occurs often: Activity, Whiteboard, Board Meeting. This sequence is at the core of model building in the sense that students build models in small groups that then contribute to models being built and shared by the larger class.

### Headings:

- Activity: The activity is the thing that students are doing. Sometimes it is a laboratory where they are investigating a phenomenon. Other times it is working on a worksheet to develop skills or tools. The Guide tells the instructor the flow of the activity, common problems they should watch for, and what seeding questions should be developed during the activity.
- Whiteboard: The whiteboard heading tells the Instructor what you should have students put on their whiteboard. With a laboratory this is often (1) What have you learned, (2) What rules can you make, (3) What questions do you still have? With a worksheet it is sometimes a complete model to a

- problem where the instructor assigns different solutions to different groups, while other times everyone puts the solution to the same problem.
- **Board Meeting:** The board meeting heading is the least stringent of the headings. Listed under this heading are the goals the instructor should have for the discussion. Often times, it may be helpful for the instructor to use these bullets while the students are constructing their whiteboards to make sure that all the points for the discussion are represented on students' boards. There is rarely a chronological order to the bullets, and oftentimes the discussion flows around the bullet points, not directly through them. As an instructor, it may be useful to check off points that are discussed as they come up in the Board Meeting to make sure that all of the points were hit.

The last note about using the Instructor Guides centers on notation. We have attempted to keep the notation consistent throughout all weeks of the Instructor Guides, and so it is worth the effort of communicating the ideas behind the notation.

Notation:

- **Bold** – Bold headings are used to denote each component of the Guide, which could be interpreted as a shift in what the class should be doing. Additional bold notation is used to indicate an idea to be seeded.
- CAPS – The purpose of each component of the Guide is indicated in all CAPS directly underneath the bolded heading.
- *Italics* – Notes to the instructor, which are not intended to be communicated to the students, are listed in *italics*.