

Dr. Stephen Ressler's 8 Principles for Doing Physical Demos

Presented by Marcy McDonald

Here are three purposes—in priority order—for using demos:

1. To show how a physical object or system works or behaves,
2. To show how something is constructed or assembled, and
3. To show how a 3-dimensional object looks.
 - For purpose (3), it's often the case that a photo or a 3D computer model will work at least as well as a demo. If you use a demo just to show how something looks, be sure that it offers something that a 2-D image doesn't.
 - For purpose (2), a 3D computer model might very well be superior to a demo, depending on how complex the thing is. (The more complex, the more likely a 3D model will be superior to a demo.)
 - But for purpose (1), a demo is very often the best solution, because a physical demonstration is always subject to the same laws of physics as the object or system it is representing—and thus is more convincing than a simulation, animation, or diagram.

Principle #1—Never do a demo for the sake of doing a demo.

1. There should always be a specific educational objective driving the use of a demo.
2. Ask yourself whether the teaching is truly enhanced by the demo or if some other approach would work better.

Principle #2—If possible, the demo should derive from the lecture, not the other way around.

1. Always write the lecture script first—telling the story you want to tell, perhaps envisioning what the associated demo might be, but focusing first and foremost on the story.
2. Then design and build the demo that supports the story. This process ensures that the demo is fully integrated with the lecture. (Of course, it's hard to achieve this goal unless you can, in fact, design and build your own demos.)

Principle #3—Carefully plan, in detail, how you will present the demo.

1. Before doing any manipulations, describe the demo—including some discussion of the mapping between the demo and the physical reality it represents (unless this mapping is plainly obvious).
2. If the demonstration requires some preparatory steps, describe these steps as you actually perform them.
3. For the main manipulation that illustrates the key learning point, *don't speak* while performing the manipulation—then describe what just happened immediately afterward.
4. In other words: tell them what you're going to show them, what to look at, and what they'll get out of it. Show them. Tell them what they saw.

Principles #4, 5, and 6—practice, practice, practice.

1. Once you're very confident with performing the demo, be sure to do at least one final practice with the producer and camera operator observing.
2. The goal is to work out and finalize camera angles, tight shots, etc.

Principle #7—When using demos, don't be afraid to take a risk.

Principle #8—When all else fails and the demo falls apart, create an outtakes reel.