

The Value and Use of Demonstrations

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Outline

- Why do demos?
- What makes a good demo
- Demos as instruction
- Demos as an example
- Demos to illustrate
- Demos to excite



Why Do Demos?

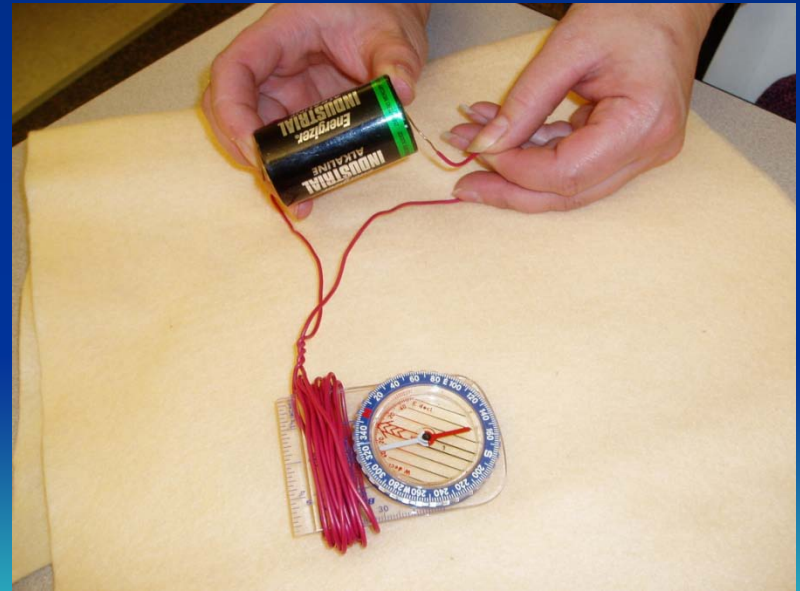
- Memorable
 - For the right reasons!
- Addresses Different Learning Styles
- Potential for Interaction
 - Interactive Lecture Demonstrations, Sokoloff & Thornton
 - Peer Instruction, Eric Mazur
- Great for Recruiting and Outreach



What Makes a Good Demo?

For the classroom:

- Keep it simple
 - Keeps it real, less intimidating
- Close relation to course material
 - Not entertainment
- No trickery
 - Student trust is valuable
- Always practice it first
- Keep it safe



Demos As Instruction

- Discrepant Events
 - Improve conceptual understanding
- ILD/Peer Instruction
 - Interactive, engaging
 - Conceptual or quantitative
- Example:
 - High Road, Low Road



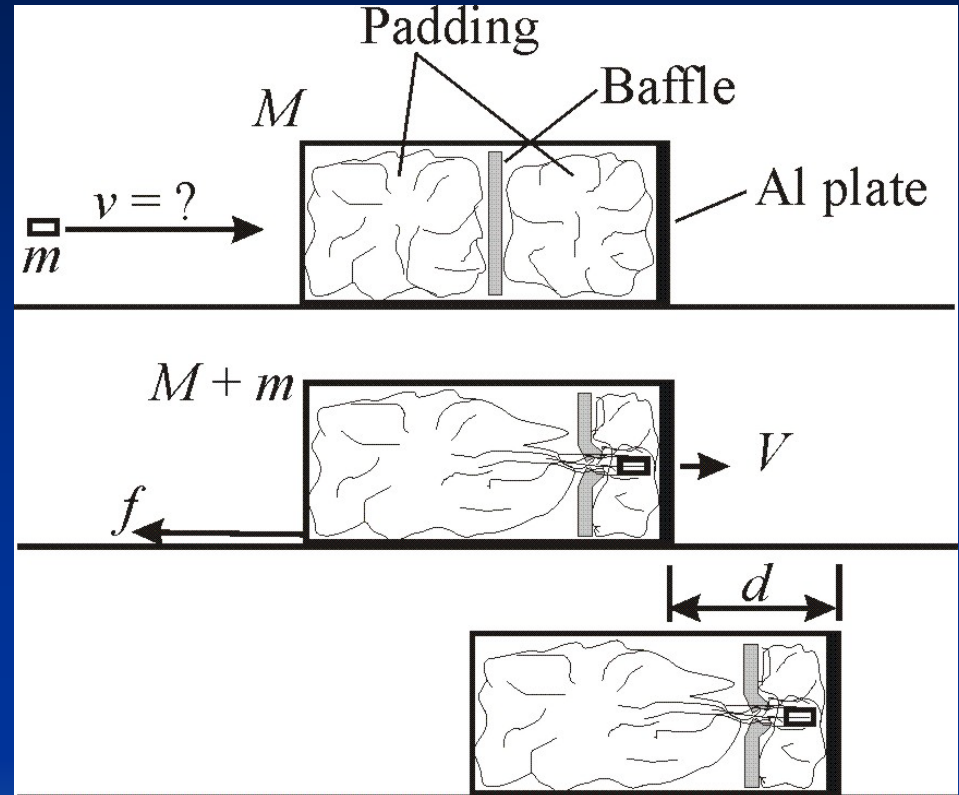
Demos As An Example

- Example:
 - Potato Gun Ballistics

$$mv = (M + m)V$$

$$fd = \frac{1}{2}(M + m)V^2$$

$$v = \frac{1}{m} \sqrt{2(M + m)fd}$$



Demos to illustrate

- Post Instruction
- Unify Multiple Concepts
- Confidence Building
- Example:
 - Boiling Green Water Sucker



Demos to excite

- Good for outreach and recruiting
- For classes, use in moderation
 - Improves attendance and interest
- Example:
 - Flame Tornado



References

- *Peer Instruction: A User's Manual*, Eric Mazur, Prentice Hall, 1997
- D.R. Sokoloff and R.K. Thornton, *Using Interactive Lecture Demonstrations to Create an Active Learning Environment*, Phys. Teacher, 35, 340 (1997).
- *Why Toast Lands Jelly-Side Down*, Robert Ehrlich, Princeton University Press, 1997
- Physics Instructional Resource Association (PIRA) Demonstration Bibliography, <http://www.physics.ncsu.edu/pira/>