Circle time: mixing up active learning activities

Problem
- How do we escape the boredom of peer instruction activities
- How do we drive inclusion?
- How do we write really open ended problems that work for learning

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Example modeling questions (see handout)
- Magic scissors
- Families of planes
- What kind of crystal structure is perovskites
- Predicting the results of a demo
- Developing a model from experimental data
- How would you have saved this company?

Approach
- Use the modeling approach developed by Laird Kramer in the physics department at Florida International University
- Develop modeling questions that are open ended yet can be completed in 10 to 20 minutes.
- Buy 4x8 foot sheets of melamine paneling and have them cut into six 2x3 foot whiteboards. Five sheets gave us 30 boards for just $50.00.
- Break students into groups of two or three

Practical Issues
- You need a lot of space
- You need a lot of time
  - Choose problems that incorporate several concepts
  - Remove recitation and lecture to buy time
  - Use an appropriate replacement for the first introduction of the material
- You need excellent instructional aides and you need to work with them

Summary
- Students get a deep learning experience
- Inclusion is easy
- Whiteboards provide an excellent drawing opportunity
- Communication skills are enhanced

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