Lessons centered on video episodes from best-practices physics classrooms, to help instructors:

- enrich their experience with noticing and interpreting student behavior and
- practice applying lessons learned about teaching to actual teaching situations

**Primary aim:** To help instructors see authentic teaching events the way an expert educator does – to develop their “professional vision” (Goodwin, 1994).
Videos of exemplary instruction
A. A bed of nails is not especially comfortable. However, it’s a lot more comfortable than draping your body over a single spike. Explain why this is, especially when we’re not there. How can we facilitate students working well in groups?

B. Lying on the floor is even more comfortable than lying on a bed of nails. Why? Draw a diagram to illustrate your answer.

C. Lying on a soft bed is the most comfortable of all. Why is it more comfortable than the floor? Again, draw a diagram to explain this phenomenon.

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1. (Task design) The instructional format for the class represented in the episode depends on students engaging productively with one another. What features of the task help them to do so?

2. (Group dynamics) Does the discussion in this episode appear to be generative, in the sense that new ideas emerge? Or does it seem to be more of a case of one student teaching something to another? What does your observation imply about how best to organize students into groups?

3. (Group dynamics) Do you get the sense that one student knows more physics than the others? If so, does this hinder the discussion, help the discussion, or neither? Does your answer have implications for organizing students into groups?

4. (Classroom culture) One of the trickiest things about being a student in a group is managing the tension between sharing your ideas, and possibly looking inept if your peers don’t admire your idea. Does this group make it safe for everyone to share their ideas? If so, how? What might an instructor do to create a classroom culture in which people share their ideas freely?

5. (Nonverbal communication) What evidence suggests that the students may be subconsciously observing and mirroring one another? What effect might that have on their collaboration? How might an instructor cultivate this behavior?
Periscope has many uses

Use Periscope if you want to:

• Lead a weekly seminar on physics teaching and learning for TAs/LAs
• Share best practices in physics instruction with other faculty
• Prepare other faculty to train TAs/LAs
• Teach TAs/LAs what ideas students have about a particular physics topic
• …
Lesson topics

- What ideas do students have about (energy, forces, circuits, etc) and how do I address them?
- How can I best facilitate a student discussion?
- How do I bring out students’ physics ideas?
- When is it okay to leave students with the wrong answer?
- Does it matter if students are unhappy in my class?
- How can I assess students in a class emphasizing group work?
- What instructor behaviors facilitate student learning?
- How can I support underrepresented groups in succeeding in my class?
- How can I arrange my classroom physically to facilitate student learning?
- What kinds of tasks help students work together constructively?
- What is there to learn from students who don’t talk much?
Real events in teaching and learning

Alan: What'd you put? Two? Three?
Brandy: Huh?
Alan: Three?
Hello

Open Source Tutorials
Seeing like an expert educator

All university and college instructors need opportunities to **observe, discuss, and reflect on** teaching situations similar to the ones they themselves face in order to learn to **see** students’ ideas, questions, expectations, gestures, engagement, progress, and so on.

*Particularly critical in an interactive classroom, in which instructors are expected to respond to students’ ideas and interactions as they unfold moment to moment.*
Benefits of video

- Feeling like you are really there gives insight into what happened and why
- Watching with others reveals both unique and universal interpretations of the same events
- Watching repeatedly supports testing intuitions against evidence
- Discussion reveals the principles and values that motivate instructor and student behavior
- Diverse, intimate examples of what reform teaching really looks like
Coming soon to PhysPort!

physport.org/periscope

Open access for instructors
To be released soon!