

QUICK START GUIDE

- Select the Periscope lessons that meet your needs.
- Plan 30-45 minutes of class time for each lesson.
- For each lesson, do at least two cycles of communal viewing, small-group discussion, and whole-class discussion.
- Each cycle of viewing and discussion should be focused on a particular question or prompt.

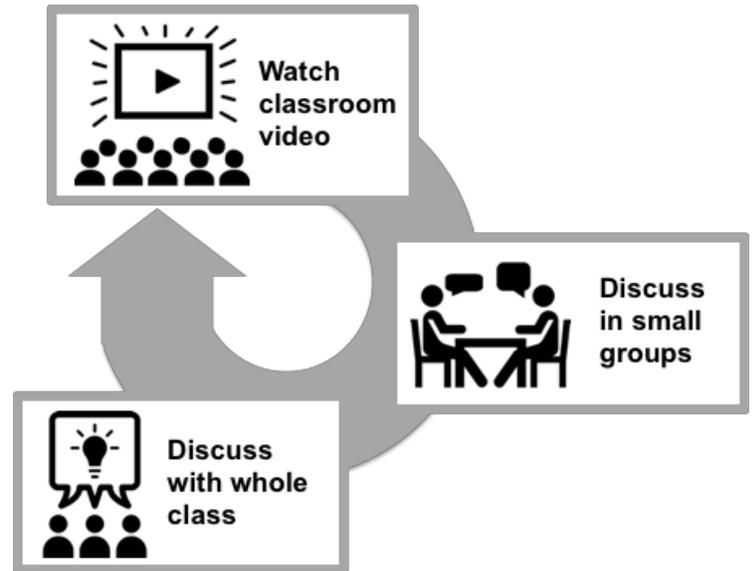


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Periscope

physport.org/periscope

Facilitator's guide: *Best practices for facilitating Periscope lessons*

1. What is Periscope and what is it for overall?

Periscope connects authentic video episodes from best-practices physics classrooms to big questions of teaching and learning. Periscope lessons are useful if you:

- supervise learning assistants (LAs) or teaching assistants (TAs)
- lead faculty development
- seek to improve physics teaching in your department
- want to improve your own physics teaching

Periscope's primary aim is to help physics instructors see authentic teaching events the way an expert educator does – to develop their “professional vision” (C. Goodwin, *American Anthropologist* 96(3), 1994). This development of professional vision is particularly critical for educators in transformed physics courses, who are expected to respond to students' ideas and interactions as they unfold moment to moment.

By watching and discussing authentic teaching events, instructors:

- enrich their experience with noticing and interpreting student behavior
- practice applying lessons learned about teaching to actual teaching situations
- train to listen to and watch students in their own classrooms by having them practice on video episodes of students in other classrooms
- observe, discuss, and reflect on teaching situations similar to their own
- develop pedagogical content knowledge
- get a view of other institutions' transformed courses
- expand their vision of their own instructional improvement

Periscope is free to qualified educators at physport.org/periscope.

2. What does a single Periscope lesson consist of?

Each Periscope lesson includes the following materials:

1. A one- to five-minute video episode
2. A handout linking the episode to big ideas in teaching and learning, including:
 - a question about teaching and learning (e.g., “How can I bring out student ideas?”)
 - a description of the video episode for that lesson
 - the physics task the students in the episode are working on
 - transcript of the students' conversation
 - sample discussion prompts linking the episode to the lesson topic
3. A lesson guide, including:
 - sample sentence with which to introduce each video episode
 - objective of the lesson
 - common responses participants have
 - the answer to the physics task the students are working on



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3. What do I need to do to prepare to use a Periscope lesson in my class?

1. Select lessons

The Periscope website offers a wide variety of lessons on numerous topics. Select lessons that meet your needs.

- There are collections of lessons that all address a common theme, such as “Productive group work” or “Student ideas.”
- The Physics Content, Pedagogy Content, and STEM-wide filters may help you find what you want.

2. Plan class time

Periscope lessons are designed for use in a classroom setting that alternates whole-class discussion with small-group discussions in groups of 2-4. The main part of a Periscope lesson is cycles of

1. watching the video episode as a whole class
2. discussing a question or prompt about it in small groups
3. having groups report the results of their discussions to the whole class

Each cycle should last 10-20 minutes, and there should be a minimum of 2 cycles. Therefore, you should schedule a minimum of 30-45 minutes for a single lesson.

3. Prepare for class

1. Make sure your classroom has the proper facilities for playing video (with audio) to the whole class. Showing the video on a large screen to the whole class is technically simpler than having participants watch it on their individual computers.
2. Prepare a copy of the lesson handout for each participant (print two-sided and in color, if possible). Participants will use these to refer to the task for students, the transcript, and the discussion questions.
3. Review the lesson guide for each lesson that you use.
4. Plan in advance what [discussion prompts or prompting techniques](#) will best suit your circumstances. Though there are sample discussion prompts on each handout, these are only one possible source of prompts.

Prepare for self-study

You can use Periscope lessons for self-study by watching the video episode and reflecting on the sample discussion prompts. In this case, print out the handout so that you can easily refer to it while watching the episode, or open both the episode and the handout on a large screen.

4. How do I introduce Periscope to participants?

The first time you use a Periscope lesson with a particular group of participants, explain to them *why* you will be using video of best-practices classrooms from around the country to help them learn about big issues in teaching and learning. Here are some possible reasons:

- Periscope episodes show diverse, intimate examples of what best-practices physics teaching really looks like at several different institutions around the country.
- Periscope episodes help you feel like you are really there for a moment in teaching and learning, sometimes more so than a live observation; this sense of being in on the action gives insight into what happened and why.
- When we all watch the same teaching and learning event together, we learn which of our observations and interpretations are universal and which are unique.
- When we watch the same teaching and learning event more than once, we can test our initial intuitions against evidence in the episode.
- When we discuss teaching and learning events together, we learn about the principles and values that motivate us as instructors and as students.
- Periscope lessons help us practice noticing and interpreting what happens in real teaching and learning events, training ourselves to notice and interpret what happens in our own classrooms.
- Periscope lessons help us practice applying broad principles of teaching and learning to specific moments in specific classrooms, without any students being harmed in the process.

5. How do I establish a safe and respectful atmosphere for discussions?

Expect expression of values

Discussions about teaching often involve values that run very deep for the participants. Maintaining a respectful and safe atmosphere is crucial not only for developing a learning community among your participants, but also for enabling your participants to identify and share their values, examine them thoughtfully, and consider other possible perspectives.



[Video 1 \[Values\]](#): A facilitator explains that Periscope lessons often touch on deeply-held values about teaching and learning.



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Establish an agreement

The first time you use a Periscope lesson with a particular group of participants, you might want to establish an agreement such as one of the following:

- Strive to characterize what's going on in the episode *according to the people in it*. Describe events in a way that the participants themselves would likely agree with if they were present.
- Limit discussion to what we see happening in the episode (observable evidence) and what we think it means (evidence-based interpretation). Set aside opinion, judgment, and critique.
- Recognize that while we will likely all agree on *observations* (e.g., "The LA never spoke"), and we may persuade each other of *interpretations* ("Those two students have the same idea"), *value statements* (such as "The LA should not have done that") are personal: they provide an opportunity to learn about the person speaking, and may reveal commitments and priorities that are not universally shared.

6. How do I introduce each specific Periscope lesson?

1. Summarize lesson

Each time you start a new Periscope lesson, give participants a sense of what the lesson will be about. This information is summarized in the lesson title and introduction. You might also share the lesson objectives with them: these are stated in the Lesson Guide for each specific lesson. This should only take a minute.

2. Do "Task for Students"

Explain that you will be watching a video episode together of students who are working on the "Task for students" that is reproduced in the box on the handout. Have participants answer the "Task for students" themselves and discuss the right answer with each other. That way they start watching the episode with a sense of what the students in the episode are thinking about.

Participants can spend very little time or a lot of time on the "Task for Students," depending on their background. Decide how much time you want them to spend on the physics question vs. discussing the teaching issues in the episode. We usually try to keep the time for the "Task for students" down to five minutes or less.

A correct answer to the "Task for students" is in the Lesson Guide for each lesson.

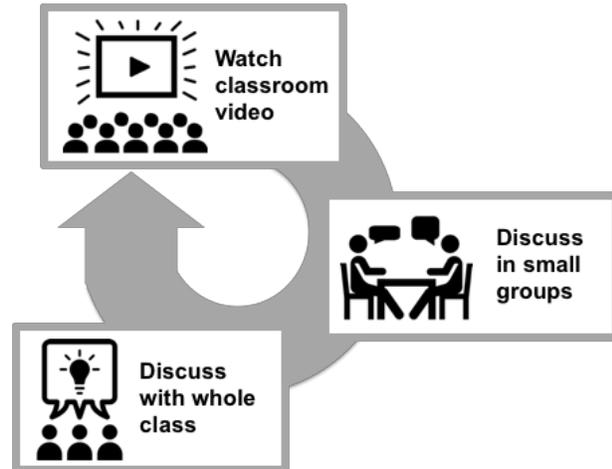
7. How do I use the three-stage cycle of communal viewing, small-group discussion, and whole-class discussion?

The main part of a Periscope lesson is a 10-20 minute cycle of communal viewing, small-group discussion, and whole-class discussion that repeats at least twice. Each cycle of viewing and discussion should be focused on a particular [question or prompt](#).

1. Watch episode together

The first stage of each cycle is for the large group to watch the episode together.

1. Tell participants to watch the captioned episode rather than following along with the transcript, so that they can see the action as well as hear what is said.
2. When you start the episode, say something simple such as "Okay, let's watch," without any special instructions.



We recommend communal viewing rather than having individuals watch the episode on separate screens, because

- it is technically simpler
- it gets the whole group thinking about the same event at the same time

2. Discuss in small groups

The second stage of each cycle is for small groups of 2-4 participants to discuss what they saw in the episode. Small-group discussions:

- give all individuals a chance to process their immediate reactions to the episode
- help participants focus their observations on the [specific prompt](#), if there was one

While participants talk to each other, you may:

- participate in a small-group discussion
- float to different groups and listen in
- just wait

After 1-5 minutes (depending on the schedule and the richness of participants' discussions), transition from small-group to whole-class discussion with a sentence like, "Okay, I'm interested to hear what you observed."

Alternatively, try having participants write individually in response to the prompt before small-group discussion. This can give people with a different interactional style the opportunity to respond in a different way.

3. Discuss as whole class

The third stage of each cycle is a whole-class discussion. The purpose of the whole-class discussion is to:

- expose participants to observations and interpretations that had not arisen in their small group
- (in some cases) to build consensus about a question or prompt

The following general guidelines may be useful for facilitating whole-class discussions:

1. Encourage participants to ground their statements in evidence from the episode. For example, when a participant says, "Great group dynamic," you might say, "What do you see that makes you say that?"
2. Encourage participants to respond to each other and let the discussion develop. e.g., "You see Deb as doing a thought experiment. Is that how other people interpreted line 15?"
3. Revoice participant contributions, i.e., say in your own words what you heard a participant saying. For example, if a participant says, "They have the idea that electrons jump from one tape to the other," you might say, "You see them talking in terms of a transfer of electrons."
4. Stay aware of when participants are making claims and inferences so that you can help them stay connected to the evidence. Claims and inferences can be welcomed, but identified – as in, "You're thinking that Caleb is the only one to use scientific vocabulary. That's a claim. Did anyone else make any observations about that?" or "You see Deb as being the leader. What observation led to your making that inference?"
5. As you listen to and revoice participants' contributions, see if you can recognize issues relevant to the lesson question, or if the participant is raising a new issue. For example, "You saw Deb disagreeing with Bridget. What ideas does each of them have about electrostatic charge?"
6. When there's a lull in the talk, you can always say, "What more did you see?"

4. Repeat

The complete cycle (communal viewing, small-group discussion or writing, large-group discussion) should repeat at least once, usually with a [different prompt](#) each time.

With more than one cycle of viewing, participants experience seeing different things in an episode than they saw the first time or reconsider inferences that they had made. Both of these experiences are important for the development of professional vision.

8. What are good discussion questions or prompts?

This section of the Facilitator's Guide is available online at physport.org/periscope/FAQ.

9. Are Periscope episodes authentic episodes of student learning?

Yes, these are real (not staged) episodes of student learning; they are ordinary events in best-practices physics classrooms. Video is contributed to Periscope by home institutions that do their own video recording for the purpose of researching physics learning. Students have all consented to video documentation of their work and are in that sense aware of the cameras, but they normally do not attend to the fact that they are being recorded.



[Video 7 \[About Videotaping\]](#): A facilitator discusses the authenticity of Periscope episodes.

10. May I share Periscope video with others?

Periscope video is contributed to Periscope by physics programs that video record classrooms for their own reasons, typically for research. These programs collect the video ethically under supervision of their own institutional review boards. People who appear in Periscope videos have consented to have the video shared with educators. They have **not** necessarily consented for their video to be shared with the public. Therefore:

- You may share Periscope videos with faculty, teaching assistants, learning assistants, and other instructors.
- You may show Periscope videos at professional meetings **for educators**, such as meetings of the American Association of Physics Teachers.
- You may **not** show Periscope videos publicly or post them publicly online, e.g., as unprotected YouTube videos or on your publicly accessible class website.