

Scientific Inquiry Lectures and Demonstrations

With modifications, teacher-centered activities can help students develop content understanding and scientific inquiry practices.

- Keep lectures and demonstrations short to focus student attention on important concepts.
- Ask students to make predictions.
- Ask lots of “how” and “why” questions at every stage of a presentation, and wait for students to think.
- Pause frequently, and ask students to generate questions and ideas in writing or in small-group discussions to make sure all students are engaged in thinking.
- Demonstrate discrepant events that explicitly defy common-sense thinking or conflict with naïve assumptions about how the world works.
- Keep the focus on what you want students to think about, rather than on your performance.
- When possible, have students repeat a demonstration for further investigation. Do not give away the “ending”—let students’ own investigations discover the hows and whys.