Science Classroom Observation Guide
Facilitator's Guide

Background Information
The research findings from *How People Learn* have been used to guide the development of the *Science Classroom Observation Guide* and this professional development presentation.

Key Findings from How People Learn

- Students come to the classroom with preconceptions about how the world works. If their initial understanding is not engaged, they may fail to grasp the new concepts and information that are taught, or they may learn them for purposes of a test but revert to their preconceptions outside the classroom.

- To develop competence in an area of inquiry, students must: (a) have a deep foundation of factual knowledge, (b) understand facts and ideas in the context of a conceptual framework, and (c) organize knowledge in ways that facilitate retrieval and application.

- A "metacognitive" approach to instruction can help students learn to take control of their own learning by defining learning goals and monitoring their progress in achieving them.

Prior to Presentation
The resources listed were instrumental in formation of this tool. Reviewing the resources will enhance an understanding of the role of this professional development tool.

- Bransford JD, Brown AL & Cocking RR. (1999) How People Learn, Washington DC: National Academy Press.
- *Private Universe/Minds of Their Own (video)*, Harvard/Smithsonian Center for Astrophysics. (SA 2004)
- *Inside the Classroom: Observation and Analytic Protocol*, Horizon Research, Inc. Chapel Hill, NC. (2000)

Preparation
Select the appropriate PowerPoint for your audience.

- Introduction to the *Science Classroom Observation Guide* for Elementary Teachers
- Introduction to the *Science Classroom Observation Guide* for Middle/High School Teachers
- Introduction to the *Science Classroom Observation Guide* for Administrators

Funded by National Science Foundation Grant No. DUE-0315060,

The *Science Classroom Observation Guide* is divided into 4 components:

1. Classroom Culture is Conducive to Learning Science
2. Science Content is Intellectually Engaging
3. Instruction Fosters and Monitors Student Understanding
4. Students Organize, Relate and Apply Their Scientific Knowledge

While supporting text is provided for all four components of the *Science Classroom Observation Guide* in each of the PowerPoint presentations, video clips are provided for components 1, 2 and 3 in the Middle School and Administrators PowerPoint and for components 1, 3 and 4 in the Elementary PowerPoint.

The video clips for the elementary version are from a middle school classroom, and the clips for middle school are from an elementary classroom. This was done intentionally so teachers will focus on the elements of instruction, not on the content or the classroom. The administrator's version uses the elementary video clips.

Using all four components in a presentation is not recommended. Select the components that fit the needs of your professional development. Where grade appropriate video clips are not available, links are provided for optional clips and a written case study.

Documents to Copy:

1. *Science Classroom Observation Guide*: 1 for each participant. (Suggested use of color and card stock paper)
2. *Science Classroom Observation Guide: Note Taking Edition*: 1 for each participant

Timeline for Presentation:

Preparation: 90 minutes to review PowerPoint and video clips, and make copies
Presentation: 90 minutes

Funded by National Science Foundation Grant No. DUE-0315060, Copyright 2009