



## A Big Ideas Framework for Your CONNECT-ED PLC

Phase II of CONNECT-ED aims to help you bring what you have learned from Phase I (“big ideas thinking” in science and math) into the classroom, help more teachers in your district understand big ideas thinking so they can do the same, and help your district adopt big ideas thinking and apply it to K-12 science and math programs.

Your PLC and the learning you do together are the means to those ends.

“The aim is *not* to develop professional learning teams. The purpose is to provide a way for teachers to become increasingly accomplished instructors for the ultimate benefit of their students.” (p. 24)

“PLC work engages teachers “in regular, systematic thinking about their teaching practice so they can better meet the needs of their students.” (p. 10)

“Teachers in PLCs...use what they learn to change the way they teach.” (p. 15)

*Team to Teach: A Facilitator’s Guide to Professional Learning Communities.* Jolly, A., NSDC, 2008.

The idea is to use your PLC to *deepen teachers’ learning*, apply big ideas thinking to instruction and the way your students think about science/math, and develop services or initiatives in your district that support improved math/science education.

To guide you in the work, here is a description of “Big Ideas Thinking” and a set of guiding CONNECT-ED principles to keep in mind. **They are the context for your work.**

### Big Ideas Thinking in Science and Mathematics

Big Ideas Thinking involves using core concepts (big ideas) to organize our understanding of science and math content. Big Ideas Thinking leads us to find important connections among concepts, which in turn enable us to construct new and deeper knowledge. Concept connections are made within and across disciplines and across grade levels. Big Ideas Thinking uses the inquiry approach to teaching and learning to engage students in the process of scientific exploration and discovery because it helps learners make sense of new information in the context of what students already know, as well as in a larger context.

Big Ideas Thinking for teachers and districts looks different than it does for students.

Big Ideas Thinking and Teachers, Districts: Teachers need to develop the skills of Big Ideas Thinking (looking for and building connections and understanding how a single idea fits into the bigger picture) to effectively help students do so (Ma, 1999, *Knowing and Teaching Mathematics*). The curriculum students experience should be coherent and the units they experience have strategies built in to guide students to build connections and look for the bigger picture. Teachers should have a deep knowledge of the curriculum and of how ideas are built upon beyond their own grade level.

Big Ideas Thinking and Students: How Big Ideas Thinking looks in classrooms will vary depending on student age and your style of teaching, but it could include: students are guided to build connections as your curriculum unfolds; students look for and find common “themes” in different units that might on the surface seem to be different, and then deeply explore the connections; students are guided to always look for how what they learn fits into a bigger picture; students look for and find connections across disciplines.

# CONNECT-ED Guiding Principles

Your **learning** and your **work** as a CONNECT-ED PLC should:

1. Focus on science and/or mathematics as the core content areas.  
While the work can connect to other subject areas, it should not place those subjects at the center.
2. Align with district priorities and needs.
3. Formulate a goal(s) that is specific, measurable, attainable, results-based, and time-bound (see additional handout on SMART Goals) and design and implement an Action Plan to reach that goal(s).
  - Link every activity explicitly to a PLC goal.
  - Link every activity explicitly to district priorities for science and/or math.
  - Explicitly show how each activity helps get you to the goal.

For example:

If a goal is to introduce Big Ideas Thinking into 10 elementary classrooms in year 1, then you need to show how the activities you design and implement will get you to that goal.

4. Draw upon BIMs, Big Ideas Thinking, and what you have learned from designing or participating in BIMs.
5. Draw on previous Design Team members as a key resource to the work; build powerfully on what they know from experience.
6. Draw upon your new CONNECT-ED BIM Trainer(s) to incorporate into your work training other teachers in how to develop a BIM.  
Capitalize on their training to introduce more teachers to Big Ideas Thinking, which is CONNECT-ED's core enterprise.
7. Highlight one of the following:
  - a. professional development for the district's math/science teachers
  - b. curriculum development, adoption, or adaptation in science or math
  - c. in-class coaching for science or mathematics teachers around content, instructional strategies, or similar
  - d. development of mathematics or science lesson study teams or action research teams focused on the application of Big Ideas Thinking to teaching practice
  - e. some other set of carefully designed activities that will clearly advance the PLC's and the district's priorities for mathematics and science education improvement.
8. Involve practices that foster effective professional **learning** (some of which are introduced through the training provided to the PLC Leadership Team and in resources provided).
9. Involve others in the PLC over time in ways that make sense, will benefit those additional people and the district, and align with (or expand) the goal(s) set for your PLC.

