

The 7 Elements of Ambitious Science Teaching*



1 ANCHOR LEARNING:

Teachers anchor students' on-going learning experiences in the press to understand complex and puzzling science phenomena.

2 STUDENTS' IDEAS USED AS RESOURCES:

Students' everyday ideas, experiences, and questions are treated as resources for the classroom community to advance everyone's thinking.

3 COMPLEX UNDERSTANDINGS GET BUILT OVER TIME:

Learning experiences are sequenced to help students build toward cumulative understandings of "big science ideas."

4 TALKING IS THINKING:

Teachers provide varied opportunities for students to reason through talk.

5 STUDENTS ENGAGE IN SCIENCE PRACTICES FOR A PURPOSE:

Students are apprenticed into using ensembles of scientific practices to test ideas they believe are important to their developing explanations and models.

6 MAKE THINKING VISIBLE AND "WORK ON IDEAS" TOGETHER:

Student thinking is made visible and subject to critique by the classroom community.

7 SCAFFOLD TALK, WRITING, & PARTICIPATION:

Students have access to specialized tools and routines that support their attempts at science-specific forms of writing, talk and participation in activity. Everyone participates, no one is left behind.

* No one of these is effective unless coupled with others.