

Contents

	<i>Preface</i>	v
ONE	A Vision of Ambitious Science Teaching	1
TWO	Planning for Engagement with Big Science Ideas <i>Core Practice Set #1</i>	19
THREE	Talk as a Tool for Learning <i>Productive Discourse, Part 1</i>	39
FOUR	Encouraging More Students to Participate in Talk <i>Productive Discourse, Part 2</i>	65
FIVE	Eliciting Students' Ideas <i>Core Practice Set #2</i>	85
SIX	Making Thinking Visible Through Models <i>Modeling, Part 1</i>	111
SEVEN	Allowing Students to Show What They Know <i>Modeling, Part 2</i>	131
EIGHT	Supporting Ongoing Changes in Thinking: Introducing New Ideas <i>Core Practice Set #3</i>	151
NINE	Supporting Ongoing Changes in Thinking: Activity and Sense Making <i>Core Practice Set #3</i>	169

TEN	Supporting Ongoing Changes in Thinking: Collective Thinking <i>Core Practice Set # 3</i>	187
ELEVEN	Making and Justifying Claims in a Science Community <i>Scientific Argument</i>	199
TWELVE	Drawing Together Evidence-Based Explanations <i>Core Practice Set #4</i>	215
THIRTEEN	Organizing with Colleagues to Improve Teaching	237
FOURTEEN	Can We Be Ambitious Every Day?	257
APPENDIX A	Coherence Between AST and Professional Standards for Practice	265
APPENDIX B	Reminding Ourselves of the Bigger Picture of Instruction	269
APPENDIX C	Taxonomy of Tools	275
APPENDIX D	How to Help Students Understand the “What-How-Why” Levels of Explanation	277
APPENDIX E	Rapid Survey of Student Thinking (RSST) Tool	281
APPENDIX F	Supports for Students in Making Sense of Experimental Design and Purpose	283
APPENDIX G	Supporting Explanation Writing	285
	<i>Notes</i>	291
	<i>About the Authors</i>	297
	<i>Index</i>	299