

Figure A.1: The New Art and Science of Teaching Framework Overview

<i>The New Art and Science of Teaching Framework Overview</i>					
Category	Teacher Actions	Desired Student Mental States and Processes	Design Questions	Forty-Three Elements	Strategies (We address the bolded strategies in this book.)
Feedback	Chapter 1: Providing and Communicating Clear Learning Goals	1. Students understand the progression of knowledge they are expected to master and where they are along that progression.	How will I communicate clear learning goals that help students understand the progression of knowledge I expect them to master and where they are along that progression?	1. Providing scales and rubrics How will I design scales or rubrics?	1. Clearly articulating learning goals 2. Creating scales or rubrics for learning goals 3. Implementing routines for using targets and scales 4. Using teacher-created targets and scales 5. Creating student-friendly scales 6. Identifying individual student learning goals
				2. Tracking student progress How will I track progress?	7. Using formative scores 8. Designing assessments that generate formative scores 9. Using individual score-level assessments 10. Using different types of assessments 11. Generating summative scores 12. Charting student progress 13. Charting class progress
				3. Celebrating success How will I celebrate success?	14. Status celebration 15. Knowledge gain celebration 16. Verbal feedback

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Feedback	Chapter 2: Using Assessments	2. Students understand how test scores and grades relate to their status on the progression of knowledge they are expected to master.	How will I design and administer assessments that help students understand how their test scores and grades relate to their status on the progression of knowledge I expect them to master?	4. Using informal assessments of the whole class How will I informally assess the whole class?	17. Confidence rating techniques 18. Voting techniques 19. Response cards 20. Unrecorded assessments
				5. Using formal assessments of individual students How will I formally assess individual students?	21. Common assessments designed using proficiency scales 22. Assessments involving selected-response or short constructed-response items 23. Student demonstrations 24. Student interviews 25. Observations of students 26. Student-generated assessments 27. Response patterns
Content	Chapter 3: Conducting Direct Instruction Lessons	3. When content is new, students understand which parts are important and how the parts fit together.	When content is new, how will I design and deliver direct instruction lessons that help students understand which parts are important and how the parts fit together?	6. Chunking content How will I chunk the new content into short, digestible bites?	28. Using preassessment data to plan for chunks 29. Presenting content in small, sequentially related sets 30. Allowing for processing time between chunks
				7. Processing content How will I help students process the individual chunks and the content as a whole?	31. Perspective analysis 32. Thinking hats 33. Collaborative process 34. Jigsaw cooperative learning 35. Reciprocal teaching 36. Concept attainment 37. Think-pair-share 38. Scripted cooperative dyads

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Content				8. Recording and representing content How will I help students record and represent their knowledge?	39. Informal outlines 40. Summaries 41. Pictorial notes and pictographs 42. Combination notes, pictures, and summaries 43. Graphic organizers 44. Free-flowing webs 45. Academic notebooks 46. Dramatic enactments 47. Mnemonic devices 48. Rhyming pegwords 49. Link strategies
	Chapter 4: Conducting Practicing and Deepening Lessons	4. After teachers present new content, students deepen their understanding and develop fluency in skills and processes.	After presenting content, how will I design and deliver lessons that help students deepen their understanding and develop fluency in skills and processes?	9. Using structured practice sessions How will I use structured practice?	50. Modeling 51. Guided practice 52. Close monitoring 53. Frequent structured practice 54. Varied practice 55. Fluency practice 56. Worked examples 57. Practice sessions prior to testing
				10. Examining similarities and differences How will I help students examine similarities and differences?	58. Sentence-stem comparisons 59. Summaries 60. Constructed-response comparisons 61. Venn diagrams 62. T-charts 63. Double-bubble diagrams 64. Comparison matrices 65. Classification charts 66. Dichotomous keys 67. Sorting, matching, and categorizing 68. Similes 69. Metaphors 70. Sentence-stem analogies 71. Visual analogies

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Content	Chapter 4: Conducting Practicing and Deepening Lessons	4. After teachers present new content, students deepen their understanding and develop fluency in skills and processes.	After presenting content, how will I design and deliver lessons that help students deepen their understanding and develop fluency in skills and processes?	11. Examining errors in reasoning How will I help students examine errors in reasoning?	72. Identifying errors of faulty logic 73. Identifying errors of attack 74. Identifying errors of weak reference 75. Identifying errors of misinformation 76. Practicing identifying errors in logic 77. Finding errors in the media 78. Examining support for claims 79. Judging reasoning and evidence in an author’s work 80. Identifying statistical limitations 81. Using student-friendly prompts 82. Anticipating student errors 83. Avoiding unproductive habits of mind
	Chapter 5: Conducting Knowledge Application Lessons	5. After teachers present new content, students generate and defend claims through knowledge application tasks.	After presenting content, how will I design and deliver lessons that help students generate and defend claims through knowledge application?	12. Engaging students in cognitively complex tasks How will I engage students in cognitively complex tasks?	84. Experimental-inquiry tasks 85. Problem-solving tasks 86. Tasks to examine the efficiencies of multiple methods of problem solving 87. Decision-making tasks 88. Investigation tasks 89. Invention tasks 90. Student-designed tasks
				13. Providing resources and guidance How will I provide resources and guidance?	91. Using proficiency or scoring scales 92. Providing resources 93. Providing informational handouts 94. Teaching research skills 95. Conducting interviews 96. Circulating around the room 97. Collecting informal assessment information 98. Offering feedback 99. Creating cognitive dissonance

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Content	Chapter 5: Conducting Knowledge Application Lessons	5. After teachers present new content, students generate and defend claims through knowledge application tasks.	After presenting content, how will I design and deliver lessons that help students generate and defend claims through knowledge application?	14. Generating and defending claims How will I help students generate and defend claims?	100. Introducing the concept of claims and support 101. Presenting the formal structure of claims and support 102. Generating claims 103. Providing grounds 104. Providing backing 105. Generating qualifiers 106. Formally presenting claims
	Chapter 6: Using Strategies That Appear in All Types of Lessons	6. Students continually integrate new knowledge with old knowledge and revise their understanding accordingly.	Throughout all types of lessons, what strategies will I use to help students continually integrate new knowledge with old knowledge and revise their understanding accordingly?	15. Previewing strategies How will I help students preview content?	107. Informational hooks 108. Bell ringers 109. What do you think you know? 110. Overt linkages 111. Preview questions 112. Brief teacher summaries 113. Skimming 114. Teacher-prepared notes 115. K-W-L strategies 116. Advance organizers 117. Anticipation guides 118. Word splashes 119. Preassessments

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Content	Chapter 6: Using Strategies That Appear in All Types of Lessons	6. Students continually integrate new knowledge with old knowledge and revise their understanding accordingly.	Throughout all types of lessons, what strategies will I use to help students continually integrate new knowledge with old knowledge and revise their understanding accordingly?	16. Highlighting critical information How will I highlight critical information?	120. Repeating the most important content 121. Asking questions that focus on critical information 122. Using visual activities 123. Using narrative activities 124. Using tone of voice, gestures, and body position 125. Using pause time 126. Identifying critical-input experiences 127. Using explicit instruction to convey critical content 128. Using dramatic instruction to convey critical content 129. Providing advance organizers to cue critical content 130. Using what students already know to cue critical content
				17. Reviewing content How will I help students review content?	131. Cumulative review 132. Cloze activities 133. Summary 134. Presented problem 135. Demonstration 136. Brief practice test or exercise 137. Questioning 138. Give one, get one
				18. Revising knowledge How will I help students revise knowledge?	139. Academic notebook entries 140. Academic notebook review 141. Peer feedback 142. Assignment revision 143. The five basic processes 144. Visual symbols 145. Writing tools

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Content	Chapter 6: Using Strategies That Appear in All Types of Lessons	6. Students continually integrate new knowledge with old knowledge and revise their understanding accordingly.	Throughout all types of lessons, what strategies will I use to help students continually integrate new knowledge with old knowledge and revise their understanding accordingly?	19. Reflecting on learning How will I help students reflect on their learning?	146. Reflective journals 147. Think logs 148. Exit slips 149. Knowledge comparisons 150. Two-column notes
				20. Assigning purposeful homework How will I use purposeful homework?	151. Homework preview 152. Homework to deepen knowledge 153. Homework to practice a process or skill 154. Parent-assessed homework
				21. Elaborating on information How will I help students elaborate on information?	155. General inferential questions 156. Elaborative interrogation 157. Questioning sequences
				22. Organizing students to interact How will I organize students to interact?	158. Group for active processing 159. Group norm creation 160. Fishbowl demonstration 161. Job cards 162. Predetermined buddies to help form ad hoc groups 163. Contingency plan for ungrouped students 164. Grouping students using preassessment information 165. Pair-check 166. Think-pair-share and think-pair-square 167. Student tournaments 168. Inside-outside circle 169. Cooperative learning 170. Peer-response groups 171. Peer tutoring 172. Structured grouping 173. Group reflecting on learning

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Context	Chapter 7: Using Engagement Strategies	7. Students are paying attention, energized, intrigued, and inspired.	What engagement strategies will I use to help students pay attention, be energized, be intrigued, and be inspired?	23. Noticing and reacting when students are not engaged What will I do to notice and react when students are not engaged?	174. Monitoring individual student engagement 175. Monitoring overall class engagement 176. Using self-reported student engagement data 177. Re-engaging individual students 178. Boosting overall class energy levels
				24. Increasing response rates What will I do to increase students' response rates?	179. Random names 180. Hand signals 181. Response cards 182. Response chaining 183. Paired response 184. Choral response 185. Wait time 186. Elaborative interrogation 187. Multiple types of questions
				25. Using physical movement What will I do to increase students' physical movements?	188. Stand up and stretch 189. Vote with your feet 190. Corners activities 191. Stand and be counted 192. Body representations 193. Drama-related activities
				26. Maintaining a lively pace What will I do to maintain a lively pace?	194. Instructional segments 195. Pace modulation 196. The parking lot 197. Motivational hooks

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Context	Chapter 7: Using Engagement Strategies	7. Students are paying attention, energized, intrigued, and inspired.	What engagement strategies will I use to help students pay attention, be energized, be intrigued, and be inspired?	27. Demonstrating intensity and enthusiasm What will I do to demonstrate intensity and enthusiasm?	198. Direct statements about the importance of content 199. Explicit connections 200. Nonlinguistic representations 201. Personal stories 202. Verbal and nonverbal signals 203. Humor 204. Quotations 205. Video clips
				28. Presenting unusual information What will I do to present unusual information?	206. Teacher-presented information 207. WebQuests 208. Fast facts 209. Believe it or not 210. History files 211. Guest speakers and firsthand consultants
				29. Using friendly controversy What will I do to engage students in friendly controversy?	212. Friendly controversy 213. Class vote 214. Seminars 215. Expert opinions 216. Opposite point of view 217. Diagrams comparing perspectives 218. Lincoln-Douglas debate 219. Town-hall meeting 220. Legal model
				30. Using academic games What will I do to engage students in academic games?	221. What is the question? 222. Name that category 223. Talk a mile a minute 224. Classroom feud 225. Which one doesn't belong? 226. Inconsequential competition 227. Turning questions into games 228. Vocabulary review games

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				32. Motivating and inspiring students What will I do to motivate and inspire students?	233. Academic goal setting 234. Growth mindset cultivation 235. Possible selves activities 236. Personal projects 237. Altruism projects 238. Gratitude journals 239. Mindfulness practice 240. Inspirational media

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Context	Chapter 8: Implementing Rules and Procedures	8. Students understand and follow rules and procedures.	What strategies will I use to help students understand and follow rules and procedures?	33. Establishing rules and procedures What will I do to establish rules and procedures?	241. Using a small set of rules and procedures 242. Explaining rules and procedures to students 243. Generating rules and procedures with students 244. Modifying rules and procedures with students 245. Reviewing rules and procedures with students 246. Using the language of responsibility and statements of school beliefs 247. Posting rules around the room 248. Writing a class pledge or classroom constitution 249. Using posters and graphics 250. Establishing gestures and symbols 251. Modeling with vignettes and role playing 252. Holding classroom meetings 253. Implementing student self-assessment
				34. Organizing the physical layout of the classroom What will I do to make the physical layout of the classroom most conducive to learning?	254. Designing classroom décor 255. Displaying student work 256. Considering classroom materials 257. Placing the teacher's desk 258. Placing student desks 259. Planning areas for whole-group instruction 260. Planning areas for group work 261. Planning learning centers 262. Considering computers and technology equipment 263. Considering lab equipment and supplies 264. Planning classroom libraries 265. Involving students in the design process

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Context	Chapter 8: Implementing Rules and Procedures	8. Students understand and follow rules and procedures.	What strategies will I use to help students understand and follow rules and procedures?	<p>35. Demonstrating withitness What will I do to demonstrate withitness?</p> <p>36. Acknowledging adherence to rules and procedures What will I do to acknowledge adherence to rules and procedures?</p> <p>37. Acknowledging lack of adherence to rules and procedures What will I do to acknowledge lack of adherence to rules and procedures?</p>	<p>266. Being proactive</p> <p>267. Occupying the whole room physically and visually</p> <p>268. Noticing potential problems</p> <p>269. Using a series of graduated actions</p> <p>270. Verbal affirmation</p> <p>271. Nonverbal affirmation</p> <p>272. Tangible recognition</p> <p>273. Token economies</p> <p>274. Daily recognition form</p> <p>275. Color-coded behavior</p> <p>276. Certificates</p> <p>277. Phone calls, emails, and notes</p> <p>278. Verbal cues</p> <p>279. Pregnant pause</p> <p>280. Nonverbal cues</p> <p>281. Time-out</p> <p>282. Overcorrection</p> <p>283. Interdependent group contingency</p> <p>284. Home contingency</p> <p>285. High-intensity situation plan</p> <p>286. Overall disciplinary plan</p>
	Chapter 9: Building Relationships	9. Students feel welcome, accepted, and valued.	What strategies will I use to help students feel welcome, accepted, and valued?	<p>38. Using verbal and nonverbal behaviors that indicate affection for students How will I use verbal and nonverbal behaviors that indicate affection for students?</p>	<p>287. Greeting students at the classroom door</p> <p>288. Holding informal conferences</p> <p>289. Attending after-school functions</p> <p>290. Greeting students by name outside of school</p> <p>291. Giving students special responsibilities or leadership roles in the classroom</p> <p>292. Scheduling interaction</p> <p>293. Creating a photo bulletin board</p> <p>294. Using physical behaviors</p> <p>295. Using humor</p>

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Context	Chapter 9: Building Relationships	9. Students feel welcome, accepted, and valued.	What strategies will I use to help students feel welcome, accepted, and valued?	<p>39. Understanding students' backgrounds and interests How will I demonstrate that I understand students' backgrounds and interests?</p>	<p>296. Student background surveys 297. Opinion questionnaires 298. Individual student-teacher conferences 299. Parent-teacher conferences 300. School newspaper, newsletter, or bulletin 301. Informal class interviews 302. Familiarity with student culture 303. Autobiographical metaphors and analogies 304. Six-word autobiographies 305. Independent investigations 306. Quotes 307. Comments about student achievement or areas of importance 308. Lineups 309. Individual student learning goals</p>
				<p>40. Displaying objectivity and control How will I demonstrate objectivity and control?</p>	<p>310. Self-reflection 311. Self-monitoring 312. Emotional triggers 313. Self-care 314. Assertiveness 315. A cool exterior 316. Active listening and speaking 317. Communication styles 318. Unique student needs</p>

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Context	Chapter 10: Communicating High Expectations	10. Typically reluctant students feel valued and do not hesitate to interact with the teacher or their peers.	What strategies will I use to help typically reluctant students feel valued and comfortable interacting with me or their peers?	41. Demonstrating value and respect for reluctant learners How will I demonstrate value and respect for reluctant learners?	319. Identifying expectation levels for all students 320. Identifying differential treatment of reluctant learners 321. Using nonverbal and verbal indicators of respect
				42. Asking in-depth questions of reluctant learners How will I ask in-depth questions of reluctant learners?	322. Question levels 323. Response opportunities 324. Follow-up questioning 325. Evidence and support for student answers 326. Encouragement 327. Wait time 328. Tracking responses 329. Inappropriate reactions
				43. Probing incorrect answers with reluctant learners How will I probe incorrect answers with reluctant learners?	330. Using an appropriate response process 331. Letting students off the hook temporarily 332. Using answer revision 333. Using think-pair-share

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