Instructional Approaches for Math Rigor

It's important to align your instructional strategies with the demands of the standards, including aspects of rigor. This chart identifies instructional strategies that are *especially effective* for each aspect of rigor. This is not an exhaustive list and note that strategies such as discussion, multiple solution methods, and integrating content apply to other aspects of rigor, as well.

Aspect of Rigor	Main Goals	Effective Instructional Strategies
Conceptual Understanding	• Introduce concepts • Emphasize sense-making instead of answer-getting • Uncover and unscramble common misconceptions	❏ **Discussion and reflection:** Students build their own understanding through experience, discussion, explaining, justifying, and/or reflection; teacher facilitates through questioning and making connections ❏ **Manipulatives and visual models:** Deepen knowledge of concepts before moving to abstract representations ❏ **Multiple Representations:** Provide opportunities for students to experience and work between different representations of the same content (ex. table, graph) ❏ **Error analysis:** Target common misconceptions by determining if a mistake exists; explain the mistake
Procedural Skill and Fluency	• Learn or develop algorithms • Execute procedures accurately and efficiently • Learn how to use models or tools	❏ **Connect procedures to conceptual understanding:** Link algorithms to concepts, help students understand the "why" behind the procedure ❏ **Explicit instruction:** I Do, We Do, You Do, teacher "Think Aloud," or teacher modeling ❏ **Practice:** Spiraled or distributed practice with consistent teacher feedback to lead to fluency
Application	• Apply skills and understandings to: new situations, other subject areas, real-world and problem solving situations	❏ **Problem-solving opportunities:** Provide time for student to work on tasks independently, with a partner, or in small groups with consistent teacher feedback ❏ **Share multiple solution methods:** Facilitate classroom discussions where students share, explain, and justify a variety of problem solving strategies and/or solutions ❏ **Intentionally integrate content:** Provide learning opportunities for students to apply their knowledge of multiple standards, clusters, or domains