Figure 1.6

Four Categories of Cognitive Demand

Lower-Level Cognitive Demand

Memorization: Requires eliciting information such as a fact, definition, term, or a simple procedure, as well as performing a simple algorithm or applying a formula.

Procedures without connections: Requires the engagement of some mental processing beyond a recall of information.

Higher-Level Cognitive Demand

Procedures with connections: Requires complex reasoning, planning, using evidence, and explanations of thinking.

Doing mathematics: Requires complex reasoning, planning, developing, and thinking most likely over an extended period of time.

Source: Smith, M. S., & Stein, M. K. (2012). Selecting and creating mathematical tasks: From research to practice. In G. Lappan, M. K. Smith, & E. Jones (Eds.), Rich and engaging mathematical tasks, grades 5–9 *(pp. 344–350). Reston, VA: National Council of Teachers of Mathematics.*