Task Analysis Guide

Memorization	Procedures without Connections	Procedures with Connections	Doing Mathematics
• Reproducing previously learned facts or formula • No connections to concepts • Involves reproducing previously seen material and what is to be reproduced is directly stated	• Algorithmic with little ambiguity about what needs to be done • Focused on producing correct answers, rather than developing mathematical understanding • Use of the procedure is stated • Expects use of previous learned procedure • No connections to the concepts or meaning that underline the procedure • Requires no explanation	• Use procedures for the purpose of developing deeper understanding of the concept • Usually represented in multiple ways • Suggest pathways to follow (explicitly or implicitly) • Help students create meaning for procedures and develop an understanding of why things work	• Require students to analyze the task and actively examine the constraints • Require students to explore and understand the nature of mathematical concepts, processes, or relationships • Does not explicitly suggest a pathway • Requires justification of solution
Example:	**Example:**	**Example:**	**Example:**
What are the decimal and percent equivalents for the fractions $\frac{1}{2}$ and $\frac{1}{4}$?	Convert the fraction $\frac{3}{8}$ to a decimal and a percent.	Using a 10 x 10 grid, identify the decimal and percent equivalents of $\frac{3}{5}$.	Shade 6 small squares in a 4 x 10 rectangle. Using the rectangle, explain how to determine each of the following: a) the percent of area that is shaded b) the decimal part of area that is shaded c) the fractional part of area that is shaded

Modified from Stein, Smith, Henningsen, & Silver (2000). *Implementing standards-based mathematics instruction: A casebook for professional development*, p. 16. New York: Teachers College Press.