

# Cognitive Demand Categories for Mathematics

Memorize Facts, Definitions, Formulas	Perform Procedures	Demonstrate Understanding of Mathematical Ideas	Conjecture, Analyze, Generalize, Prove	Solve Non-Routine Problems / Make Connections
<ul style="list-style-type: none"> <li>Recite basic mathematical facts</li> <li>Recall mathematics terms and definitions</li> <li>Recall formulas and computational procedures</li> </ul>	<ul style="list-style-type: none"> <li>Use numbers to count, order, denote</li> <li>Do computational procedures or algorithms</li> <li>Follow procedures/instructions</li> <li>Solve equations, formulas, or routine word problems</li> <li>Organize or display data</li> <li>Read or produce graphs and tables</li> <li>Execute geometric constructions</li> </ul>	<ul style="list-style-type: none"> <li>Communicate mathematical ideas</li> <li>Use representations to model mathematical ideas</li> <li>Explain findings and results from data analysis strategies</li> <li>Develop/explain relationships between concepts</li> <li>Show or explain relationships between models, diagrams, and/or other representations</li> </ul>	<ul style="list-style-type: none"> <li>Determine the truth of a mathematical pattern or proposition</li> <li>Write formal or informal proofs</li> <li>Recognize, generate or create patterns</li> <li>Find a mathematical rule to generate a pattern or number sequence</li> <li>Make and investigate mathematical conjectures</li> <li>Identify faulty arguments or misrepresentations of data</li> <li>Reason inductively or deductively</li> </ul>	<ul style="list-style-type: none"> <li>Apply and adapt a variety of appropriate strategies to solve non-routine problems</li> <li>Apply mathematics in contexts outside of mathematics</li> <li>Apply to real-world situations</li> <li>Synthesize content and ideas from several sources</li> </ul>