

Cognitive Demand Categories for Mathematics

B	C	D	E	F
Memorize Facts, Definitions, Formulas	Perform Procedures	Demonstrate Understanding of Mathematical Ideas	Conjecture, Analyze, Generalize, Prove	Solve Non-Routine Problems / Make Connections
<u>Recite basic mathematical facts</u>	<u>Use numbers to count, order, denote</u>	<u>Communicate mathematical ideas</u>	<u>Determine the truth of a mathematical pattern or proposition</u>	<u>Apply and adapt a variety of appropriate strategies to solve non-routine problems</u>
<u>Recall mathematics terms and definitions</u>	<u>Do computational procedures or algorithms</u>	<u>Use representations to model mathematical ideas</u>	<u>Write formal or informal proofs</u>	<u>Apply mathematics in contexts outside of mathematics</u>
<u>Recall formulas and computational procedures</u>	<u>Follow procedures / instructions</u>	<u>Explain findings and results from data analysis strategies</u>	<u>Recognize, generate or create patterns</u>	<u>Apply to real world situations</u>
	<u>Solve equations/formulas/routine word problems</u>	<u>Develop/explain relationships between concepts</u>	<u>Find a mathematical rule to generate a pattern or number sequence</u>	<u>Synthesize content and ideas from several sources</u>
	<u>Organize or display data</u>	<u>Show or explain relationships between models, diagrams, and/or other representations</u>	<u>Make and investigate mathematical conjectures</u>	
	<u>Read or produce graphs and tables</u>		<u>Identify faulty arguments or misrepresentations of data</u>	
	<u>Execute geometric constructions</u>		<u>Reason inductively or deductively</u>	

Cognitive Demand Categories for Science

B	C	D	E	F
Memorize Facts Definitions, Formulas	Conduct Investigations / Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts / Make Connections
<u>Recite basic science facts</u>	<u>Make observations</u>	<u>Explain concepts</u>	<u>Classify and compare data</u>	<u>Use and integrate science concepts</u>
<u>Recall science terms and definitions</u>	<u>Collect and record data</u>	<u>Observe and explain teacher demonstrations</u>	<u>Analyze data, recognize patterns</u>	<u>Apply and adapt science information to real-world situations</u>
<u>Recall scientific formulas</u>	<u>Use appropriate tools</u>	<u>Explain procedures and methods of science and inquiry</u>	<u>Generate questions, make predictions</u>	<u>Build or revise theory</u>
	<u>Make measurements, do computations</u>	<u>Organize and display data in tables and charts</u>	<u>Infer from data</u>	<u>Apply science ideas outside the context of scienc</u>
	<u>Execute procedures</u>		<u>Draw conclusions</u>	
	<u>Plan and design experiments</u>			
	<u>Test effects of different variables</u>			

Cognitive Demand Categories for English / Language Arts / Reading

B	C	D	E	F
Memorize / Recall	Perform Procedures / Explain	Generate / Create / Demonstrate	Analyze / Investigate	Evaluate/Integrate
<u>Reproduce sounds or words</u>	<u>Follow instructions</u>	<u>Create / develop connections among text, self, world</u>	<u>Categorize / schematize information</u>	<u>Determine relevance, coherence, internal consistency, logic</u>
<u>Provide facts, terms, definitions, conventions</u>	<u>Give examples</u>	<u>Recognize relationships</u>	<u>Distinguish fact and opinion</u>	<u>Assess adequacy, appropriateness, credibility</u>
<u>Locate literal answers in text</u>	<u>Check consistency</u>	<u>Dramatize</u>	<u>Compare and contrast</u>	<u>Test conclusions, hypotheses</u>
<u>Identify relevant information</u>	<u>Summarize</u>	<u>Order, group, outline, organize ideas</u>	<u>Identify with another's point of view</u>	<u>Synthesize content and ideas from several sources</u>
<u>Describe</u>	<u>Identify purpose, main ideas, organizational patterns</u>	<u>Express new ideas (or express ideas newly)</u>	<u>Make inferences, draw conclusions</u>	<u>Integrate with other topics and subjects</u>
	<u>Gather information</u>	<u>Develop reasonable alternatives</u>	<u>Predict probable consequences</u>	<u>Critique</u>
			<u>Generalize</u>	

Cognitive Demand Categories for Social Studies

B	C	D	E	F
Recall / Memorize	Process Information / Investigate	Demonstrate Understanding / Apply	Analyze / Hypothesize	Synthesize / Evaluate / Make Connections
<u>Name, Identify, List, Recognize, Label</u> <u>Recall facts, terms, definitions</u> <u>Locate features on a map</u> <u>Identify people, places, events, dates</u>	<u>Make observations</u> <u>Locate and collect information/data</u> <u>Read, decode, and interpret maps/graphics</u> <u>Conduct Interviews/fieldwork</u> <u>Use data collection tools/procedures</u> <u>Display data in tables or charts</u> <u>Summarize, classify, organize data</u> <u>Paraphrase, convert, translate information</u> <u>Generate questions</u>	<u>Describe, explain social studies issues/problems</u> <u>Explain procedures and methods of inquiry</u> <u>Recognize & explain misconceptions</u> <u>Explain the reasoning in making decisions</u> <u>Design effective displays of information/data</u>	<u>Classify and compare data</u> <u>Analyze data, recognize patterns / relationships</u> <u>Process and interpret data</u> <u>Identify bias, points of view, frame of reference</u> <u>Make predictions</u>	<u>Propose or evaluate solutions to social problems</u> <u>Use social studies concepts to solve problems</u> <u>Infer from data, draw conclusions</u> <u>Use multiple sources to make connections</u> <u>Make decisions, form judgements</u> <u>Develop new hypotheses</u> <u>Assess accuracy, credibility, relevance</u> <u>Plan effective research strategies</u>