Cognitive rigor (CR) matrix with curricular examples.

Revised Bloom's Taxonomy levels	Webb's Depth-of-Knowledge Levels Level 1 Recall and Reproduction	Level 2 Skills and Concepts	Level 3 Strategic Thinking/ Reasoning	Level 4 Extended Thinking
Remember Retrieve knowledge from long-term memory, recognize, recall, locate, identify	Recall, recognize, locate basic facts, ideas, principles Recall or identify conversions: between units of measure Identify facts/details in texts			
Understand Construct meaning, clarify, paraphrase, represent, translate, illustrate, give examples, classify, categorize, summarize, generalize, infer a logical conclusion, predict, compare/contrast, match like ideas, explain, construct models	Compose/decompose numbers Evaluate an expression Locate points on a grid Symbolize math relationships Write simple sentences Describe/explain how or why	Specify and explain relationships Give non-examples/examples Make and record observations Summarize results, concepts, ideas Infer or predict from data or texts Identify main ideas	Explain, generalize, or connect ideas using supporting evidence Explain phenomena in terms of concepts Write full composition to meet specific purpose Identify themes	Explain how concepts or ideas specifically relate to other content domains or concepts Develop generalizations of the results obtained or strategies used and apply them to new problem situations
Apply Carry out or use a procedure in a given situation; carry out (apply to a familiar task), or use (apply) to an unfamiliar task	Follow simple/routine procedures Solve a one-step problem Calculate, measure, apply a rule Apply an algorithm or formula Represent in words or diagrams a concept or relationship Apply rules or use resources to edit spelling and grammar	Select a procedure according to task needed and perform it Solve routine problem applying multiple concepts or decision points Retrieve information from a graph and use it solve a multi-step problem Use models to represent concepts Write paragraph using appropriate organization, text structure	Use concepts to solve non-routine problems Design investigation for a specific purpose or research question Conduct a designed investigation Use reasoning, planning, and evidence Revise final draft for meaning or progression of ideas	Select or devise an approach among many alternatives to solve a novel problem Conduct a project that specifies a problem, identifies solution paths, solves the problem, and reports results Illustrate how multiple themes (historical, geographic, social) may be interrelated
Analyze Break into constituent parts, determine how parts relate, differentiate between relevant-irrelevant, distinguish, focus, select, organize, outline, find coherence, deconstruct (e.g., for bias or point of view)	Retrieve information from a table or graph to answer a question Identify or locate specific information contained in maps, charts, tables, graphs, or diagrams	Categorize, classify materials Compare/ contrast figures or data Select appropriate display data Extend a pattern Identify use of literary devices Identify text structure of paragraph	Compare information within or across data sets or texts Analyze and draw conclusions Generalize a pattern Organize/interpret data Analyze author's craft or viewpoint	Analyze multiple sources of evidence or multiple works by the same author, or across genres Analyze complex/abstract themes Gather, analyze, and organize information Analyze discourse styles
Evaluate Make judgments based on criteria, check, detect inconsistencies or fallacies, judge, critique			Cite evidence and develop a logical argument for concepts Describe, compare, and contrast solution methods Verify reasonableness of results Justify conclusions made	Gather, analyze, and evaluate relevancy and accuracy Draw and justify conclusions Apply understanding in a novel way, provide argument or justification for the application
Create Reorganize elements into new patterns/structures, generate, hypothesize, design, plan, construct, produce	Brainstorm ideas, concepts, or perspectives related to a topic or concept	Generate conjectures or hypotheses based on observations or prior knowledge	Synthesize information within one source or text Formulate an original problem Develop a complex model for a given situation	Synthesize information across multiple sources or texts Design a model to inform and solve a real-world, complex, or abstract situations

Hess, K. K., Jones, B. S., Carlock, D., & Walkup, J. R. (2009, March 9). *Cognitive rigor: Blending the strengths of Bloom's Taxonomy and Webb's Depth of Knowledge to enhance classroom-level processes.* Retrieved from http://files.eric.ed.gov/fulltext/ED517804.pdf