Tool 5D

Hess Cognitive Rigor Matrix Career and Technical Education (CTE CRM): Hess' Interpretation Applying Webb's Depth-of-Knowledge Levels to Bloom's Cognitive Process Dimensions

Revised Bloom's Taxonomy	Webb's DOK Level 1 Recall and Reproduction	Webb's DOK Level 2 Skills and Concepts	Webb's DOK Level 3 Strategic Thinking/Reasoning	Webb's DOK Level 4 Extended Thinking
Remember Memorize, recognize, recall, locate, identify	○ Recall or locate key facts, terms, details, procedures (e.g., explicit in a technical manual)	Use these Hess CRM curricular examples with most assignments, assessments, or inquiry activities for Career and Technical Education.		
Understand Construct meaning, clarify, paraphrase, represent, translate, illustrate, give examples, summarize, generalize, infer a logical conclusion, predict, observe, match like ideas, explain, construct models	○ Select correct terms or graphics for intended meaning ○ Describe or explain who, what, where, when, or how ○ Define terms, principles, concepts ○ Represent relationships with words, diagrams, symbols ○ Solve routine problems	○ Specify and explain relationships (e.g., nonexamples/examples; cause/effect; if/then) ○ Summarize procedures, results, concepts, key ideas (paragraph) ○ Make and explain estimates, basic inferences, or predictions ○ Use models to explain concepts ○ Make and record observations	○ Explain, generalize, or connect ideas using supporting evidence (quote, example, text reference, data) ○ Justify your interpretation when more than one is plausible ○ Explain how a concept can be used to solve a nonroutine problem ○ Develop a multiparagraph manual or infographic for specific purpose or focus	○ Use multiple sources to outline varying perspectives on a problem or issue ○ Explain how a concept relates across content domains or to "Big Ideas" (e.g., patterns in the human or designed world; structure function) ○ Apply generalizations from one investigation to new problem-based situations, using evidence or data
Apply Carry out or use a procedure in a given situation; apply or use in an unfamiliar situation or nonroutine task	○ Apply basic formulas, algorithms, conversion rules ○ Calculate, measure ○ Use reference materials and tools to gather information ○ Demo safe procedures	○ Select and use appropriate tool or procedure for specified task ○ Use context to identify the meaning of terms or phrases ○ Interpret information using diagrams, data tables, etc.	○ Build or revise a plan for investigation using (new) evidence or data ○ Use and show reasoning, planning, and evidence to support conclusions or to identify design flaws ○ Conduct a designed investigation	○ Draw from source materials with intent to develop a complex or multimedia product with personal viewpoint ○ Conduct a project that specifies a problem, identifies solution paths, tests the solution, and reports results
Analyze Break into constituent parts, determine how parts relate, compare/contrast, differentiate between relevant/irrelevant, distinguish, focus, select, organize, outline, find coherence, deconstruct (e.g., for potential bias, point of view, technique, or strategy used)	○ Identify trend, pattern, possible cause or effect ○ Describe processes or tools used to research ideas ○ Identify ways symbols or metaphors are used to represent universal ideas ○ Retrieve data to answer a question (e.g., diagram, graph)	○ Compare similarities or differences or draw inferences about ____ due to influences of _____ ○ Distinguish relevant/irrelevant information; fact or opinion; primary from a secondary source ○ Extend a pattern ○ Organize and represent data ○ Categorize materials, data, etc., based on characteristics	○ Interpret information from a complex graph or model (e.g., interrelationships among variables, concepts) ○ Use reasoning, planning, and evidence to support or refute inferences or results stated ○ Use reasoning and evidence to generate criteria for making and supporting an argument ○ Generalize and support a pattern/trend	○ Analyze multiple sources of evidence (e.g., compare/contrast various plans, solution methods) ○ Analyze and compare diverse, complex abstract perspectives, models, etc. ○ Gather, organize, and analyze information from multiple sources to answer a research question
Evaluate Make judgments based on specified criteria, detect inconsistencies, flaws, or fallacies, judge, critique	"UG" (unsubstantiated generalizations) = Stating an opinion without providing any support for it!		○ Develop a logical argument for conjectures, citing evidence ○ Verify reasonableness of results or conjectures (e.g., of others) ○ Critique conclusions drawn or evidence used or credibility of sources	○ Evaluate relevancy, accuracy, and completeness of sources used ○ Apply understanding in a novel way, provide argument or justification for the application ○ Critique the historical impact of ____ on ____
Create Reorganize into new patterns or schemas, design, plan, produce	○ Brainstorm ideas, concepts, problems, or perspectives related to a given scenario, observation, question posed	○ Generate testable conjectures or hypotheses based on observations, prior knowledge, or artifacts	○ Develop a complex model for a given concept and justify your reasoning ○ Develop an alternative solution and justify your reasoning	○ Synthesize information across multiple models, sources, or texts ○ Articulate new knowledge or new perspectives

online resources Available for download at **http://resources.corwin.com/DeeperCompetencyBasedLearning** and **www.karin-hess.com/free-resources**.

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