Tool 5B

HESS COGNITIVE RIGOR MATRIX (HEALTH AND PHYSICAL EDUCATION):

Applying (Hess's Interpretation of) Depth of Knowledge to Porter's Cognitive Demand Categories

Porter 's Cognitive Demand Categories	DOK Level 1 **Recall and Reproduction** Having the knowledge required; do not need to "figure it out"	DOK Level 2 **Connect or Apply Skills and Concepts** Making connections among skills or concepts or decisions (e.g., about approach, tools)	DOK Level 3 **Strategic Thinking/Abstract Reasoning** Complex and Abstract; Exploring multiple solution paths; Justifying *with evidence*	DOK Level 4 **Extended Thinking** Relating or developing complex ideas using multi sources *and evidence*
Memorize	o Recall or identify basic facts, terms, definitions, skills, rules, principles, concepts, symbols o Acquire new terms, vocabulary, etc.	Use these Hess CRM Curricular Examples with most assignments, assessments, or learning activities for Health and Physical Education. See also the Hess CRM for Fine Arts with examples for dance.		
Communicate Understanding	o Define terms, principles, concepts o Describe how to perform a routine skill or task o Use words, visuals, or symbols to represent basic ideas, movements, procedures, etc.	o Explain concepts: show or predict relationships (if–then, cause–effect); provide examples and non-examples o Observe and interpret teacher or student demonstrations o Summarize a concept, series of events, movements, or a result	o Use evidence (data, examples, source, observations) to justify an interpretation of a result or performance o Locate or reproduce supporting evidence for results of effectiveness of a plan (e.g., exercise or diet routine) o Create a personal plan when given criteria	o Share results of comparing different plans (e.g., compare exercise or diet routines) using data and evidence from multiple sources or data sets o Explain how a concept relates across content domains or to "big ideas" (e.g., systems, patterns)
Perform Procedures	o Safely demonstrate or use appropriate tools or equipment o Execute or repeat basic skills or procedures (e.g., follow step-by-step directions or pattern) o Demonstrate a basic skill sequence, movement pattern, etc., with smooth transitions	o Make observations; collect and record data and observations (e.g., health diary, skills progress) o Select and use appropriate tool or equipment for a given task o Complete routine tasks in a fitness assessment	o Plan, execute, and evaluate multistep procedures (a dance routine, football play, rules of a new game, etc.) o Test effects and trends of using different activities by observing and collecting data (e.g., exercise or diet routines) o Select and plan how to use a combination of movements to achieve a desired effect	o Design and conduct a performance (e.g., exercise or dance routine) using multiple sources or resources, and/or given constraints (e.g., use of space) o Test effects of different variables on performance (e.g., applied to a new situation)
Apply Concepts/ Make Connections	o Apply rules or score-keeping of a game or simple routine o Apply appropriate content-specific vocabulary or terms to tasks o Brainstorm ideas, problems, or perspectives related to a situation, scenario, or observation	o Create an infographic or visual to show connections or to summarize key ideas (e.g., cause–effect, heart rate–activity type, warm up–cool down, healthy or unhealthy) o Explain connections among concepts or skills in a given context (e.g., movement or open space concepts, health benefits)	o Revise a plan (self, peer) based on feedback and evidence o Use concepts to explain phenomena or research or medical advances (e.g., use of steroids, drugs, food choices) o Investigate how an event or advancement led to a new perspective or outcome	o Apply and adapt information and concepts to real-world situations o Integrate ideas from multiple sources to extend an idea or solve a problem with an alternative solution o Trace the evolution of (game, drug, etc.) from past to present, citing sources used
Analyze Information	o Identify, describe, match, or name parts in a diagram or visual (e.g., muscle groups or skeletal system) or patterns o Determine which skill, rule, or principle applies to a given situation o Record performance data	o Compare–contrast routines, skill sets, or qualities (e.g., use T-chart, graphic organizer for locomotor–nonlocomotor) o Generate questions and make predictions based on observations or information o Classify types of . . . (movements, sports, symptoms, examples, etc.)	o Analyze data in order to recognize patterns or draw conclusions based on evidence (e.g., batting averages, areas needing remediation) o Identify faulty arguments, strategies, or misrepresentations of data or media message o Defend the selection of criteria used to critique or develop a performance or product	o Research a topic in-depth, evaluating relevancy, accuracy, and completeness of information from multiple sources or perspectives o Analyze evidence and recommend the most effective course of action for intended purpose (e.g., food, fitness)

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