



Tool 5B

# Hess Cognitive Rigor Matrix (Health & 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 multisources and evidence
Memorize	<ul style="list-style-type: none"> <li>Recall or identify basic facts, terms, definitions, skills, rules, principles, concepts, symbols</li> <li>Acquire new terms, vocabulary, etc.</li> </ul>	<p>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.</p>		
Communicate Understanding	<ul style="list-style-type: none"> <li>Define terms, principles, concepts</li> <li>Describe how to perform a routine skill or task</li> <li>Use words, visuals, or symbols to represent basic ideas, movements, procedures, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Explain concepts: show or predict relationships (if/then, cause/effect); provide examples and nonexamples</li> <li>Observe and interpret teacher or student demonstrations</li> <li>Summarize a concept, series of events, movements, or a result</li> </ul>	<ul style="list-style-type: none"> <li>Use evidence (data, examples, source, observations) to justify an interpretation of a result or performance</li> <li>Locate or reproduce supporting evidence for results of effectiveness of a plan (e.g., exercise or diet routine)</li> <li>Create a personal plan when given criteria</li> </ul>	<ul style="list-style-type: none"> <li>Share results of comparing different plans (e.g., compare exercise or diet routines) using data and evidence from multiple sources or data sets</li> <li>Explain how a concept relates across content domains or to "Big Ideas" (e.g., systems, patterns)</li> </ul>
Perform Procedures	<ul style="list-style-type: none"> <li>Safely demonstrate or use appropriate tools or equipment</li> <li>Executes or repeat basic skills or procedures (e.g., follow step-by-step directions or pattern)</li> <li>Demonstrate a basic skill sequence, movement pattern, etc., with smooth transitions</li> </ul>	<ul style="list-style-type: none"> <li>Make observations; collect and record data and observations (e.g., health diary, skills progress)</li> <li>Select and use appropriate tool or equipment for a given task</li> <li>Complete routine tasks in a fitness assessment</li> </ul>	<ul style="list-style-type: none"> <li>Plan, execute, and evaluate multistep procedures (a dance routine, football play, rules of a new game, etc.)</li> <li>Test effects and trends of using different activities by observing and collecting data (e.g., exercise or diet routines)</li> <li>Select and plan how to use a combination of movements to achieve a desired effect</li> </ul>	<ul style="list-style-type: none"> <li>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)</li> <li>Test effects of different variables on performance (e.g., applied to a new situation)</li> </ul>
Apply Concepts/Make Connections	<ul style="list-style-type: none"> <li>Apply rules or score-keeping of a game or simple routine</li> <li>Apply appropriate content-specific vocabulary or terms to tasks</li> <li>Brainstorm ideas, problems, or perspectives related to a situation, scenario, or observation</li> </ul>	<ul style="list-style-type: none"> <li>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/unhealthy)</li> <li>Explain connections among concepts or skills in a given context (e.g., movement or open space concepts, health benefits)</li> </ul>	<ul style="list-style-type: none"> <li>Revise a plan (self, peer) based on feedback and evidence</li> <li>Use concepts to explain phenomena or research or medical advances (e.g., use of steroids, drugs, food choices)</li> <li>Investigate how an event or advancement led to a new perspective or outcome</li> </ul>	<ul style="list-style-type: none"> <li>Apply and adapt information and concepts to real-world situations</li> <li>Integrate ideas from multiple sources to extend an idea or solve a problem with an alternative solution</li> <li>Trace the evolution of (game, drug, etc.) from past to present, citing sources used</li> </ul>
Analyze Information	<ul style="list-style-type: none"> <li>Identify, describe, match, or name parts in a diagram or visual (e.g., muscle groups or skeletal system) or patterns</li> <li>Determine which skill, rule, or principle applies to a given situation</li> <li>Record performance data</li> </ul>	<ul style="list-style-type: none"> <li>Compare/contrast routines, skill sets, or qualities (e.g., use T-chart, graphic organizer for locomotor/nonlocomotor)</li> <li>Generate questions and make predictions based on observations or information</li> <li>Classify types of movements, sports, symptoms, examples, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Analyze data in order to recognize patterns or draw conclusions based on evidence (e.g., batting averages, areas needing remediation)</li> <li>Identify faulty arguments, strategies, or misrepresentations of data or media message</li> <li>Defend the selection of criteria used to critique or develop a performance or product</li> </ul>	<ul style="list-style-type: none"> <li>Research a topic in-depth, evaluating relevancy, accuracy, and completeness of information from multiple sources or perspectives</li> <li>Analyze evidence and recommend the most effective course of action for intended purpose (e.g., food, fitness)</li> </ul>



Available for download at <http://resources.corwin.com/DeeperCompetencyBasedLearning> and [www.karin-hess.com/free-resources](http://www.karin-hess.com/free-resources).

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