**HESS COGNITIVE RIGOR MATRIX (HEALTH AND PHYSICAL EDUCATION):**

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

<table>
<thead>
<tr>
<th>Porter’s Cognitive Demand Categories</th>
<th>DOK Level 1 Recall and Reproduction</th>
<th>DOK Level 2 Connect or Apply Skills and Concepts</th>
<th>DOK Level 3 Strategic Thinking/Abstract Reasoning</th>
<th>DOK Level 4 Extended Thinking</th>
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<tbody>
<tr>
<td>Having the knowledge required; do not need to “figure it out”</td>
<td>Making connections among skills or concepts or decisions (e.g., about approach, tools)</td>
<td>Complex and Abstract; Exploring multiple solution paths; Justifying with evidence</td>
<td>Relating or developing complex ideas using multi sources and evidence</td>
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- **Memorize**
  - Recall or identify basic facts, terms, definitions, skills, rules, principles, concepts, symbols
  - Acquire new terms, vocabulary, etc.

- **Communicate Understanding**
  - Define terms, principles, concepts
  - Use words, visuals, or symbols to represent basic ideas, movements, procedures, etc.
  - Explain concepts: show or predict relationships (if-then, cause-effect); provide examples and non-examples
  - Observe and interpret teacher or student demonstrations
  - Summarize a concept, series of events, movements, or a result
  - Use evidence (data, examples, source, observations) to justify an interpretation of a result or performance
  - Locate or reproduce supporting evidence for results of effectiveness of a plan (e.g., exercise or diet routine)
  - Create a personal plan when given criteria
  - Share results of comparing different plans (e.g., compare exercise or diet routines) using data and evidence from multiple sources or data sets
  - Explain how a concept relates across content domains or to “big ideas” (e.g., systems, patterns)

- **Perform Procedures**
  - Safely demonstrate or use appropriate tools or equipment
  - Execute or repeat basic skills or procedures (e.g., follow step-by-step directions or pattern)
  - Demonstrate a basic skill sequence, movement pattern, etc., with smooth transitions
  - Make observations; collect and record data and observations (e.g., health diary, skills progress)
  - Select and use appropriate tool or equipment for a given task
  - Complete routine tasks in a fitness assessment
  - Plan, execute, and evaluate multistep procedures (a dance routine, football play, rules of a new game, etc.)
  - Test effects and trends of using different activities by observing and collecting data (e.g., exercise or diet routines)
  - Select and plan how to use a combination of movements to achieve a desired effect
  - 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)
  - Test effects of different variables on performance (e.g., applied to a new situation)

- **Apply Concepts/Make Connections**
  - Apply rules or score-keeping of a game or simple routine
  - Apply appropriate content-specific vocabulary or terms to tasks
  - Brainstorm ideas, problems, or perspectives related to a situation, scenario, or observation
  - 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)
  - Explain connections among concepts or skills in a given context (e.g., movement or open space concepts, health benefits)
  - Revise a plan (self, peer) based on feedback and evidence
  - Use concepts to explain phenomena or research or medical advances (e.g., use of steroids, drugs, food choices)
  - Investigate how an event or advancement led to a new perspective or outcome
  - Apply and adapt information and concepts to real-world situations
  - Integrate ideas from multiple sources to extend an idea or solve a problem with an alternative solution
  - Trace the evolution of (game, drug, etc.) from past to present, citing sources used

- **Analyze Information**
  - Identify, describe, match, or name parts in a diagram or visual (e.g., muscle groups or skeletal system) or patterns
  - Determine which skill, rule, or principle applies to a given situation
  - Record performance data
  - Compare-contrast routines, skill sets, or qualities (e.g., use T-chart, graphic organizer for locomotor-nonlocomotor)
  - Generate questions and make predictions based on observations or information
  - Classify types of . . . (movements, sports, symptoms, examples, etc.)
  - Analyze data in order to recognize patterns or draw conclusions based on evidence (e.g., batting averages, areas needing remediation)
  - Identify faulty arguments, strategies, or misrepresentations of data or media message
  - Defend the selection of criteria used to critique or develop a performance or product
  - Research a topic in-depth, evaluating relevancy, accuracy, and completeness of information from multiple sources or perspectives
  - Analyze evidence and recommend the most effective course of action for intended purpose (e.g., food, fitness)

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