# APPENDIX B

## Cognitive Levels

Smarter Balanced items should demonstrate that students have the ability to integrate knowledge and skills across multiple targets and are ready to meet the challenges of college and careers. Those items must be constructed at various levels of cognitive rigor representing different points on the Levels of Complexity scale. The numbers in the chart below represent the numbers to be used in the Smarter Balanced tables and forms for DOK.

This matrix from the *Smarter Balanced Content Specifications for ELA* draws from both Bloom's (revised) *Taxonomy of Educational Objectives* and Webb's *Depth-of-Knowledge Levels* below.

| Depth of Thinking (Webb) + Type of Thinking (Revised Bloom, 2001) | DOK Level 1 Recall & Reproduction | DOK Level 2 Basic Skills & Concepts | DOK Level 3 Strategic Thinking & Reasoning | DOK Level 4 Extended Thinking |
|---|---|---|---|---|
| **Remember** | - Recall, locate basic facts, definitions, details, events | | | |
| **Understand** | - Select appropriate words for use when intended meaning is clearly evident | - Specify, explain relationships<br>- summarize<br>– identify central ideas | - Explain, generalize, or connect ideas using supporting evidence (quote, text evidence, example…) | - Explain how concepts or ideas specifically relate to other content domains or concepts |
| **Apply** | - Use language structure (pre/suffix) or word relationships (synonym/antonym) to determine meaning | – Use context to identify word meanings<br>- Obtain and interpret information using text features | - Use concepts to solve non-routine problems | - Devise an approach among many alternatives to research a novel problem |
| **Analyze** | - Identify the kind of information contained in a graphic, table, visual, etc. | – Compare literary elements, facts, terms, events<br>– Analyze format, organization, & text structures | - Analyze or interpret author's craft (e.g., literary devices, viewpoint, or potential bias) to critique a text | – Analyze multiple sources or texts<br>- Analyze complex/ abstract themes |
| **Evaluate** | | | – Cite evidence and develop a logical argument for conjectures based on one text or problem | - Evaluate relevancy, accuracy, & completeness of information across texts/ sources |
| **Create** | - Brainstorm ideas, concepts, problems, or perspectives related to a topic or concept | -Generate conjectures or hypotheses based on observations or prior knowledge and experience | -Develop a complex model for a given situation<br>-Develop an alternative solution | -Synthesize information across multiple sources or texts<br>-Articulate a new voice, alternate theme, new knowledge or perspective |



Figure 1: A Snapshot of Cognitive Rigor Matrix (Hess, Carlock, Jones, & Walkup; 2009)