Level 4: Extended Thinking

Curricular elements assigned to this level demand extended and integrated use of higher order thinking processes such as critical and creative-productive thinking, reflection, and adjustment of plans over time. Students are engaged in conducting multi-faceted investigations to solve real-world problems with unpredictable solutions. Employing and sustaining strategic thinking processes over a longer period of time to solve the problem or produce an authentic product is a key feature of curricular objectives assigned to DOK 4. Key aspects that denote this particular level typically include authentic problems and audiences, and collaboration within a project-based setting.

Verbs	Teacher Role	Student Role
Initiate, design and conduct, collaborate, research, synthesize, self-monitor, critique, produce/present	Questions to extend thinking and broaden perspectives; facilitates teaming, collaboration, self-evaluation	Designs, takes risks, researches synthesizing multiple resources, collaborates, plans, organizes, and modifies, creates concrete tangible products

Possible Products

- Short film
- Agency presentation
- Research report
- Play
- Video Game
- Documentary
- Newspaper or series of articles
- Multi-Media product
- Anthology of original writing, art, music, etc.

- Applying information from more than one discipline to solve ill-defined problems in novel or real-world situations
- Research tasks that involve generating questions, and formulating and testing hypotheses
- Tasks that require making multiple strategic and procedural decisions as new information is processed
- Tasks that require multiple roles and collaboration and coordination with others (e.g., script writing, camera work, editing, and acting/talent)
- Tasks that involve drawing evidence from multiple sources to support solutions/conclusions
- Conducting an internship in industry where students are faced with real-world, unpredictable problems
- Organizing/conducting a community service project or school-based event

Potential Questions

What changes would you make to solve or address this major problem/ or ssue...?
How would you improve upon this invention or innovation?
Can you propose an alternative solution to...?
What could be done to minimize (maximize) ...?
In what way would you design or redesign ... and why ?
What evidence would you cite to defend the actions of ...?
How would you evaluate ... ?
How would you prioritize criteria for making this (local zoning) decision … and why?
How would you evaluate the works by this author over time?
Can you formulate and test a conjecture for...?
Can you predict the potential benefits and drawbacks if this law does/does not pass ?
Can you construct a model that would change ...?
Can you think of an original way to apply ... ?
Do you agree with the actions ...? with the outcomes ... ? with the decision to …?
How would you prove ...? disprove ...?
Can you assess the value or importance of ...?
What information would you use to support a differing perspective ... ?
What can be learned about this time in history from reading and analyzing various cultural, political, and social perspectives?

ELA, History & Social Studies Alignment to Bloom's Taxonomy (sources: Hess ELA-SS and Writing CRMs)

Revised Bloom's Taxonomy	Webb's DOK Level 4 | Extended Thinking
REMEMBER Retrieve knowledge from long-term memory, recognize, recall, locate, identify	Not Applicable
UNDERSTAND Construct meaning, clarify, paraphrase, represent, translate, illustrate, give examples, classify, categorize, summarize, generalize, infer a logical conclusion, predict, compare/contrast, match like ideas, explain, construct models	▪ Use multiple sources to elaborate on how concepts or ideas specifically draw from other content domains or differing concepts (e.g., research paper, arguments of policy: – should this law be passed? What will be the impact of this change?) ▪ Develop generalizations about the results obtained or strategies used and apply them to a new problem or contextual scenario
APPLY Carry out or use a procedure in a given situation, carry out (apply to a familiar task), or use (apply) to an unfamiliar task	▪ Select or devise an approach among many alternatives to research and present a novel problem or issue ▪ Illustrate how multiple themes (e.g., historical, geographic, social) may be interrelated within a text or topic
ANALYZE Break into constituent parts, determine how parts relate, differentiate between relevant-irrelevant, distinguish, focus, select, organize, outline, find coherence, deconstruct	▪ Analyze multiple sources of evidence, or multiple works by the same author, or across genres, or time periods ▪ Analyze complex/abstract themes, perspectives, concepts ▪ Gather, analyze, and organize multiple information sources ▪ Compare and contrast conflicting judgments or policies (e.g., Supreme Court decisions)
EVALUATE Make judgments based on criteria, check, detect inconsistencies or fallacies, judge, critique	▪ Evaluate relevancy, accuracy, and completeness of information across multiple sources ▪ Apply understanding in a novel way, provide argument or justification for the application ▪ Critique the historical impact (e.g., policy, writings, discoveries, etc.)
CREATE Reorganize elements into new patterns/structures, generate, hypothesize, design, plan, construct, produce	▪ Synthesize information across multiple sources or texts in order to articulate a new voice, alternate theme, new knowledge or nuanced perspective

Math & Science Alignment to Bloom's Taxonomy (source: Hess Math-Science CRM)

Revised Bloom's Taxonomy	Webb's DOK Level 4 | Extended Thinking
REMEMBER Retrieve knowledge from long-term memory, recognize, recall, locate, identify	Not Applicable
UNDERSTAND Construct meaning, clarify, paraphrase, represent, translate, illustrate, give examples, classify, categorize, summarize, generalize, infer a logical conclusion (such as from examples given), predict, compare/contrast, match like ideas, explain, construct models	▪ Relate mathematical or scientific concepts to other content areas, other domains, or other concepts ▪ Develop generalizations of the results obtained and the strategies used (from investigation or readings) and apply them to new problem situations
APPLY Carry out or use a procedure in a given situation, carry out (apply to a familiar task), or use (apply) to an unfamiliar task	▪ Select or devise an approach among many alternatives to solve a problem ▪ Conduct a project that specifies a problem, identities solution paths, solves the problem, and reports results
ANALYZE Break into constituent parts, determine how parts relate, differentiate between relevant-irrelevant, distinguish, focus, select, organize, outline, lind coherence, deconstruct	▪ Analyze multiple sources of evidence ▪ Analyze complex/abstract themes ▪ Gather, analyze, and evaluate information
EVALUATE Make judgments based on criteria, check, detect inconsistencies or fallacies, judge, critique	▪ Gather, analyze, & evaluate information in order to draw conclusions ▪ Apply understanding in a novel way, provide argument or justification for the application
CREATE Reorganize elements into new patterns/structures, generate, hypothesize, design, plan, construct, produce	▪ Synthesize information across multiple sources or texts ▪ Design a mathematical model to inform and solve a practical or abstract situation