



HESS COGNITIVE RIGOR MATRIX | READING-LISTENING CRM

Integrating Depth-of-Knowledge Levels with Bloom's Cognitive Process Dimensions



Revised Bloom's Taxonomy	DOK Level 1 Recall and Reproduction	DOK Level 2 Skills and Concepts	DOK Level 3 Strategic Thinking or Reasoning	DOK Level 4 Extended Thinking
Remember Retrieve knowledge from long-term memory, recognize, recall, locate, identify	- Recall, recognize, or locate basic facts, terms, details, events, or ideas explicit in texts - Read words orally in connected text with fluency and accuracy	Use these Hess CRM curricular examples with most close reading or listening assignments or assessments in any content area.		
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	- Identify or describe literary elements (characters, setting, sequence, etc.) - Select appropriate words when intended meaning or definition is clearly evident - Describe or explain who, what, where, when, or how - Define or describe facts, details, terms, principles - Write simple sentences	- Specify, explain, show relationships; explain why (e.g., cause-effect) - Give non examples or examples - Summarize results, concepts, ideas - Make basic inferences or logical predictions from data or texts - Identify main ideas or accurate generalizations of texts - Locate information to support explicit-implicit central ideas	- Explain, generalize, or connect ideas using supporting evidence (quote, example, text reference) - Identify or make inferences about explicit or implicit themes - Describe how word choice, point of view, or bias may affect the readers' interpretation of a text - Write multi paragraph composition for specific purpose, focus, voice, tone, and audience	- Explain how concepts or ideas specifically relate to other content domains (e.g., social, political, historical) or concepts - Develop generalizations of the results obtained or strategies used and apply them to new problem-based 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	- Use language structure (pre-, or suffix) or word relationships (synonym or antonym) to determine meaning of words - Apply rules or resources to edit spelling, grammar, punctuation, conventions, word use - Apply basic formats for documenting sources	- Use context to identify the meaning of words or phrases - Obtain and interpret information using text features - Develop a text that may be limited to one paragraph - Apply simple organizational structures (paragraph, sentence types) in writing	- Apply a concept in a new context - Revise final draft for meaning or progression of ideas - Apply internal consistency of text organization and structure to composing a full composition - Apply word choice, point of view, style to impact readers' or viewers' interpretation of a text	- Illustrate how multiple themes (historical, geographic, social, artistic, literary) may be interrelated - Select or devise an approach among many alternatives to research a novel problem
Analyze Break into constituent parts, determine how parts relate, differentiate between relevant-irrelevant, distinguish, focus, select, organize, outline, find coherence, deconstruct (e.g., for bias or point of view)	- Identify whether specific information is contained in graphic representations (e.g., map, chart, table, graph, T-chart, diagram) or text features (e.g., headings, subheadings, captions) - Decide which text structure is appropriate to audience and purpose	- Categorize or compare literary elements, terms, facts or details, events - Identify use of literary devices - Analyze format, organization, and internal text structure (signal words, transitions, semantic cues) of different texts - Distinguish: relevant-irrelevant information; fact or opinion - Identify characteristic text features; distinguish between texts, genres	- Analyze information within data sets or texts - Analyze interrelationships among concepts, issues, problems - Analyze or interpret author's craft (literary devices, viewpoint, or potential bias) to create or critique a text - Use reasoning, planning, and evidence to support inferences	- Analyze multiple sources of evidence, or multiple works by the same author, or across genres, time periods, themes - Analyze complex or abstract themes, perspectives, concepts - Gather, analyze, and organize multiple information sources - Analyze discourse styles
Evaluate Make judgments based on criteria, check, detect inconsistencies or fallacies, judge, critique	"UG"—unsubstantiated generalizations = stating an opinion without providing any support for it!		- Cite evidence and develop a logical argument for conjectures - Describe, compare, and contrast solution methods - Verify reasonableness of results - Justify or critique conclusions drawn	- Evaluate relevancy, accuracy, and completeness of information from multiple sources - Apply understanding in a novel way, provide argument or justification for the application
Create Reorganize elements into new patterns or structures, generate, hypothesize, design, plan, produce	Brainstorm ideas, concepts, problems, or perspectives related to a topic, principle, or concept	Generate conjectures or hypotheses based on observations or prior knowledge and experience	- Synthesize information within one source or text - Develop a complex model for a given situation - Develop an alternative solution	- Synthesize information across multiple sources or texts - Articulate a new voice, alternate theme, new knowledge or perspective



HESS COGNITIVE RIGOR MATRIX | MATH-SCIENCE CRM

Integrating Depth-of-Knowledge Levels with Bloom's Cognitive Process Dimensions



Revised Bloom's Taxonomy	DOK Level 1 Recall and Reproduction	DOK Level 2 Skills and Concepts	DOK Level 3 Strategic Thinking or Reasoning	DOK Level 4 Extended Thinking
Remember Retrieve knowledge from long-term memory, recognize, recall, locate, identify	- o Recall, observe, and recognize facts, principles, properties - o Recall/ identify conversions among representations or numbers (e.g., customary and metric measures)	Use these Hess CRM curricular examples with most mathematics or science assignments or assessments.		
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	- o Evaluate an expression - o Locate points on a grid or number on number line - o Solve a one-step problem - o Represent math relationships in words, pictures, or symbols - o Read, write, compare decimals in scientific notation	- o Specify and explain relationships (e.g., non examples or examples; cause-effect) - o Make and record observations - o Explain steps followed - o Summarize results or concepts - o Make basic inferences or logical predictions from data or observations - o Use models or diagrams to represent or explain mathematical concepts - o Make and explain estimates	- o Use concepts to solve non routine problems - o Explain, generalize, or connect ideas using supporting evidence - o Make and justify conjectures - o Explain thinking or reasoning when more than one solution or approach is possible - o Explain phenomena in terms of concepts	- o Relate mathematical or scientific concepts to other content areas, other domains, or other concepts - o 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	- o Follow simple procedures (recipe-type directions) - o Calculate, measure, apply a rule (e.g., rounding) - o Apply algorithm or formula (e.g., area, perimeter) - o Solve linear equations - o Make conversions among representations or numbers, or within and between customary and metric measures	- o Select a procedure according to criteria and perform it - o Solve routine problem applying multiple concepts or decision points - o Retrieve information from a table, graph, or figure and use it solve a problem requiring multiple steps - o Translate between tables, graphs, words, and symbolic notations (e.g., graph data from a table) - o Construct models given criteria	- o Design investigation for a specific purpose or research question - o Conduct a designed investigation - o Use concepts to solve non routine problems - o Use and show reasoning, planning, and evidence - o Translate between problem and symbolic notation when not a direct translation	- o Select or devise approach among many alternatives to solve a problem - o Conduct a project that specifies a problem, identifies 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, find coherence, deconstruct	- o Retrieve information from a table or graph to answer a question - o Identify whether specific information is contained in graphic representations (e.g., table, graph, T-chart, diagram) - o Identify a pattern or trend	- o Categorize, classify materials, data, figures based on characteristics - o Organize or order data - o Compare-contrast figures or data - o Select appropriate graph and organize and display data - o Interpret data from a simple graph - o Extend a pattern	- o Compare information within or across data sets or texts - o Analyze and draw conclusions from data, citing evidence - o Generalize a pattern - o Interpret data from complex graph - o Analyze similarities-differences between procedures or solutions	- o Analyze multiple sources of evidence - o Analyze complex or abstract themes - o Gather, analyze, and evaluate information
Evaluate Make judgments based on criteria, check, detect inconsistencies or fallacies, judge, critique	"UG"—unsubstantiated generalizations = stating an opinion without providing any support for it!		- o Cite evidence and develop a logical argument for concepts or solutions - o Describe, compare, and contrast solution methods - o Verify reasonableness of results	- o Gather, analyze, and evaluate information to draw conclusions - o Apply understanding in a novel way, provide argument or justification for the application
Create Reorganize elements into new patterns or structures, generate, hypothesize, design, plan, produce	o Brainstorm ideas, concepts, or perspectives related to a topic	o Generate conjectures or hypotheses based on observations or prior knowledge and experience	- o Synthesize information within one data set, source, or text - o Formulate an original problem given a situation - o Develop a scientific/mathematical model for a complex situation	- o Synthesize information across multiple sources or texts - o Design a mathematical model to inform and solve a practical or abstract situation



HESS COGNITIVE RIGOR MATRIX | WRITING-SPEAKING CRM

Integrating Depth-of-Knowledge Levels with Bloom's Cognitive Process Dimensions



Revised Bloom's Taxonomy	DOK Level 1 Recall and Reproduction	DOK Level 2 Skills and Concepts	DOK Level 3 Strategic Thinking or Reasoning	DOK Level 4 Extended Thinking
Remember Retrieve knowledge from long-term memory, recognize, recall, locate, identify	Complete short answer questions with facts, details, terms, principles, etc. (e.g., label parts of diagram)	Use these Hess CRM curricular examples with most writing and oral communication assignments or assessments in any content area.		
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	- Describe or define facts, details, terms, principles, etc. - Select appropriate word or phrase to use when intended meaning or definition is clearly evident - Write simple complete sentences - Add an appropriate caption to a photo or illustration - Write "fact statements" on a topic (e.g., spiders build webs)	- Specify, explain, show relationships; explain why, cause-effect - Provide and explain non examples and examples - Take notes; organize ideas or data (e.g., relevance, trends, perspectives) - Summarize results, key concepts, ideas - Explain central ideas or accurate generalizations of texts or topics - Describe steps in a process (e.g., science procedure, how to and why control variables)	- Write a multi paragraph composition for specific purpose, focus, voice, tone, and audience - Develop and explain opposing perspectives or connect ideas, principles, or concepts using supporting evidence (quote, example, text reference, etc.) - Develop arguments of fact (e.g., Are these criticisms supported by the historical facts? Is this claim or equation true?)	- 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	- Apply rules or use resources to edit specific spelling, grammar, punctuation, conventions, or word use - Apply basic formats for documenting sources	- Use context to identify or infer the intended meaning of words or phrases - Obtain, interpret, and explain information using text features (table, diagram, etc.) - Develop a (brief) text that may be limited to one paragraph, précis - Apply basic organizational structures (paragraph, sentence types, topic sentence, introduction, etc.) in writing	- Revise final draft for meaning, progression of ideas, or logic chain - Apply internal consistency of text organization and structure to a full composition or oral communication - Apply a concept in a new context - Apply word choice, point of view, style, rhetorical devices to impact readers' interpretation of a text	- Select or devise an approach among many alternatives to research and present a novel problem or issue - Illustrate how multiple themes (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 (e.g., for bias or point of view)	- Decide which text structure is appropriate to audience and purpose (e.g., compare-contrast, proposition-support) - Determine appropriate, relevant key words for conducting an Internet search or researching a topic	- Compare-contrast perspectives, events, characters, etc. - Analyze-revise format, organization, and internal text structure (signal words, transitions, semantic cues) of different print and non print texts - Distinguish: relevant-irrelevant information; fact-opinion (e.g., What are the characteristics of a hero's journey?) - Locate evidence that supports a perspective-differing perspectives	- Analyze interrelationships among concepts, issues, and problems in a text - Analyze impact or use of author's craft (literary devices, viewpoint, dialogue) in a single text - Use reasoning and evidence to generate criteria for making and supporting an argument of judgment (Was FDR a great president? Who was the greatest ball player?) - Support conclusions with evidence	- Analyze multiple sources of evidence, or multiple works by the same author, or across genres, or time periods - Analyze complex or 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	"UG"—unsubstantiated generalizations = stating an opinion without providing any support for it!		- Evaluate validity and relevance of evidence used to develop an argument or support a perspective - Describe, compare, and contrast solution methods - Verify or critique the accuracy, logic, and reasonableness of stated conclusions or assumptions	- 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 (policy, writings, discoveries, etc.)
Create Reorganize elements into new patterns or structures, generate, hypothesize, design, plan, produce	Brainstorm facts, ideas, concepts, problems, or perspectives related to a topic, text, idea, issue, or concept	- Generate conjectures, hypotheses, or predictions based on facts, observations, evidence/observations, or prior knowledge and experience - Generate believable "grounds" (reasons) for an opinion-argument	- Develop a complex model for a given situation or problem - Develop an alternative solution or perspective to one proposed (e.g., debate)	Synthesize information across multiple sources or texts in order to articulate a new voice, alternate theme, new knowledge or nuanced perspective



HESS COGNITIVE RIGOR MATRIX | SOCIAL STUDIES-HUMANITIES CRM



Integrating Depth-of-Knowledge Levels with Bloom's Cognitive Process Dimensions

Revised Bloom's Taxonomy	DOK Level 1 Recall and Reproduction	DOK Level 2 Skills and Concepts	DOK Level 3 Strategic Thinking or Reasoning	DOK Level 4 Extended Thinking
Remember Retrieve knowledge from long-term memory, recognize, recall, locate, identify	o Recall or locate key facts, dates, terms, details, events, or ideas explicit in texts	Use these Hess CRM curricular examples with most assignments, assessments, or inquiry activities in social studies, history, civics, geography, economics, or humanities.		
Understand Construct meaning, clarify, paraphrase, represent, translate, illustrate, give examples, classify, categorize, summarize, generalize, infer a logical conclusion, predict, observe, compare-contrast, match like ideas, explain, construct models	- o Select appropriate words or terms when intended meaning is clearly evident - o Describe or explain who, what, where, when, or how - o Define facts, details, terms, principles - o Locate or identify symbols that represent . . . - o Raise related questions for possible investigation	- o Specify, explain, illustrate relationships; explain why (e.g., cause-effect) - o Provide and explain non examples and examples - o Summarize results, concepts, main ideas, generalizations - o Make basic inferences or logical predictions (using data or text) - o Locate relevant information to support explicit-implicit central ideas	- o Explain, generalize, or connect ideas using supporting evidence (quote, example, text reference, data) - o Support inferences about explicit or implicit themes - o Describe how word choice, point of view, or bias may affect the reader or viewer interpretation - o Write multi-paragraph composition or essay for specific purpose, focus, voice, tone, and audience	- o Explain how concepts or ideas specifically relate to other content domains or concepts (social, political, historical, cultural) - o Apply generalizations to new problem-based situations - o 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?)
Apply Carry out or use a procedure in a given situation; carry out (apply to a familiar task), or use (transfer) to an unfamiliar or non routine task	- o Apply basic formats for documenting sources - o Apply use of reference materials and tools for gathering information (e.g., key word searches)	- o Use context to identify the meaning of words or phrases - o Interpret information using text features (diagrams, data tables, captions, etc.) - o Apply simple organizational structures (paragraph outline)	o Investigate to determine how an historical, cultural or political context may be the source of an underlying theme, central idea, or unresolved issue or crisis	o Integrate or juxtapose multiple (historical, cultural) contexts drawn from source materials (e.g., literature, music, historical events, media) with intent to develop a complex or multimedia product and personal viewpoint
Analyze Break into constituent parts, determine how parts relate, differentiate between relevant-irrelevant, distinguish, focus, select, organize, outline, find coherence, deconstruct (e.g., for bias, point of view, approach/strategy used)	- o Identify causes or effects - o Describe processes or tools used to research ideas, artifacts, or images reflecting history, culture, tradition, etc. - o Identify ways symbols and metaphors are used to represent universal ideas - o Identify specific information given in graphics (e.g., map, T-chart, diagram) or text features (e.g., heading, subheading, captions)	- o Compare similarities or differences in processes, methods, styles due to influences of time period, politics or culture - o Distinguish relevant-irrelevant information, fact or opinion; primary from a secondary source - o Draw inferences about social, historical, cultural contexts portrayed in (literature, arts, film, political cartoons, primary sources) - o Explain, categorize events or ideas in the evolution of ____ across time periods	- o Analyze information within data sets or a text (e.g., interrelationships among concepts, issues, problems) - o Analyze an author's viewpoint or potential bias (e.g., political cartoon) - o Use reasoning, planning, and evidence to support or refute inferences in policy or speech - o Use reasoning and evidence to generate criteria for making and supporting an 'argument of judgment' (e.g., Was FDR a great president? Is this a fair law?)	- o Analyze multiple sources of evidence across time periods, themes, issues - o Analyze diverse, complex or abstract perspectives - o Gather, analyze, and organize information from multiple sources - o Analyze discourse styles or bias in speeches, legal briefs, etc. across time or authors - o 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	"UG"—unsubstantiated generalizations = stating an opinion without providing any support for it!		- o Develop a logical argument for conjectures, citing evidence - o Verify reasonableness of results of others - o Critique conclusions drawn, evidence used, credibility of sources	- o Evaluate relevancy, accuracy, and completeness of information using multiple sources - o Apply understanding in a novel way, provide argument or justification for the application - o Critique the historical impact on policy, writings, advances
Create Reorganize elements into new patterns, structures, or schemas, generate, hypothesize, design, plan, produce	o Brainstorm ideas, concepts, problems, or perspectives related to a topic, principle, or concept	o Generate testable conjectures or hypotheses based on observations, prior knowledge, and/or artifacts	- o Synthesize information within one source or text - o Develop a complex model or symbol for given issue - o Develop and support an alternative solution	- o Synthesize information across multiple sources or texts - o Articulate a new voice, alternate theme, new knowledge or new perspective - o Create historical fiction drawing on sources