



K-12
Gifted and Talented Education
Curriculum Frameworks

Western Arkansas Educational Service
Cooperative
Revised 2008

Table of Contents

Preface	3
Frameworks	4
Cognition	
Creative Thinking	5
Critical Thinking	7
Affective Development	10
Content	
Differentiation	12
Product	
Research/Independent Learning.	13
Communication	14
Appendix.	16
Secondary Content Documentation Form.	22

PREFACE

To better meet the needs of Gifted and Talented students in the Western Arkansas Education Service Cooperative, this Gifted and Talented Frameworks document was developed through a collaborative effort of the Western Arkansas Education Service Cooperative administrators, coordinators and facilitators of gifted students during the 2005-2006 school year. The student learning expectations in this document were developed through a consensus using the latest research, best practices, models and developments in the field of gifted education and revising existing scope and sequence documents to better align with Arkansas Frameworks format.

Frameworks team:

Elizabeth Sidwell, G/T Supervisor– WAESC

Patti Bowles, Alma

Lorna Bryant, Booneville

Linda Pendergrass, Cedarville

Pamela Mixon, Charleston

Connie Watkins, Clarksville

Celia Looney, County Line

Sandra Aaron, Fort Smith

Debbie Bentley, Fort Smith

Carrah Efurd, Greenwood

Rick Clow, Greenwood

Gayla Edwards, Hackett

Gayle Hall, Hartford

Sundi Williams, Lamar

Margaret Moore, Lavaca

Rhonda Garner, Magazine

Sharon Blythe, Mansfield

Martha Cochenour, Mountainburg

Kelly Ray, Mountainburg

Kim Hallmark, Mulberry-Pleasant View

Lorrie West, Ozark

Margaret Wilks, Paris

Aaron Chastain, Scranton

Suzanne McPherson, Van Buren

Teresa Holleman, Waldron

Debra Kasper, Westside

Gifted and Talented Education Frameworks

Standards	
Cognition	
1. Creative Thinking	Students will increase their ability to generate many, varied, innovative, and elaborate ideas and solutions to problems.
2. Critical Thinking	Students will use observation skills, questioning, analysis, and evaluation to explore issues, concepts, and ideas then use metacognition to examine their process of thinking.
3. Affective Development	Students will develop habits of mind and an increased awareness of the skills of self and others in decision-making.
Content	
4. Differentiation	Students will have opportunities for content that is accelerated, involves greater depth and complexity, is authentic to the disciplines, and provides choices in study.
Product	
5. Research/ Independent Learning	Students will select a topic, research, and analyze information.
6. Communication	Students will develop effective presentation formats using communication skills and develop implementation plans for problem solutions.

Strand: Cognition

Standard 1. Creative Thinking

Students will increase their ability to generate many, varied, innovative, and elaborate ideas and solutions to problems.

	Grades Primary	Grades Intermediate	Grades Secondary
Fluency	<p>C.1.P.1 Generate many alternatives in problem finding and/or solving with assistance</p> <p>C.1.P.2 Learn brainstorming techniques</p> <p>C.1.P.3 Generate a list of pros and cons with assistance</p>	<p>C.1.I.1 Independently generate many alternatives in problem finding and/or solving</p> <p>C.1.I.2 Utilize brainstorming techniques</p> <p>C.1.I.3 Generate a list of pros and cons</p>	<p>C.1.S.1 Independently generate many and varied alternatives in problem finding and/or solving</p> <p>C.1.S.2 Determine appropriate circumstances and apply brainstorming techniques</p> <p>C.1.S.3 Generate an in depth list of pros and cons</p>
Flexibility	<p>C.1.P.4 Identify the benefits of new and different approaches to problems</p> <p>C.1.P.5 Apply or adapt a single idea or material to different uses</p> <p>C.1.P.6 Examine concept from another perspective</p>	<p>C.1.I.4 Utilize a new or different approach to a problem</p> <p>C.1.I.5 Modify and adapt ideas or concepts</p> <p>C.1.I.6 Identify and apply various perspectives</p> <p>C.1.I.7 Transform information into a different representation</p>	<p>C.1.S.4 Utilize multiple new and different approaches to problems</p> <p>C.1.S.5 Modify and adapt ideas or concepts</p> <p>C.1.S.6 Identify and apply perspectives beyond the obvious</p> <p>C.1.S.7 Transform information into a different representation incorporating symbolism and abstraction</p>
Originality	<p>C.1.P.8 Create unique products or ideas by combining concepts or materials</p> <p>C.1.P.9 Generate unusual solutions to problems and unusual answers to questions</p>	<p>C.1.I.8 Create unique products or ideas by combining, organizing, or redesigning concepts or materials</p> <p>C.1.I.9 Generate unusual solutions to problems and unusual answers to questions with greater depth and complexity</p>	<p>C.1.S.8 Create unique products or ideas by combining, organizing, redesigning, reversing, or substituting concepts or materials</p> <p>C.1.S.9 Generate unusual solutions to problems and unusual answers to questions with greater depth and complexity</p>

	C.1.P.10 Make analogies with assistance	C.1.I.10 Make analogies for a unique perspective	C.1.S.10 Make analogies between seemingly unconnected information for greater depth of understanding
Elaboration	C.1.P.11 Recognize the need for detail C.1.P.12 Brainstorm uses for familiar objects in ways different from their intended purpose	C.1.I.11 Recognize the need for detail and use detail to embellish or enhance objects, concepts, or questions C.1.I.12 Distinguish between necessary and extension components of concepts or products C.1.I.13 Experience sustained periods of intense and concentrated thought and effort	C.1.S.11 Recognize the need for detail and use detail to embellish or enhance objects, concepts, or questions C.1.S.12 Distinguish between necessary and extension components of concepts or products C.1.S.13 Experience flow with heightened sensitivity and increased complexity during sustained period of intense and concentrated thought and effort
Curiosity	C.1.P.14 Examine unfamiliar concepts C.1.P.15 Pose questions C.1.P.16 Recognize the relationship between problem-finding and problem-solving with assistance	C.1.I.14 Examine unfamiliar concepts C.1.I.15 Pose questions in depth and with creative insight C.1.I.16 Recognize the relationship between problem-finding and problem-solving without prompting C.1.I.17 Question relationships and interpretation	C.1.S.14 Examine unfamiliar concepts C.1.S.15 Pose questions in depth and complexity C.1.S.16 Independently seek out problems and solutions C.1.S.17 Question relationships and interpretation
Imagination	C.1.P.18 Create alternate outcomes for reality through imagination C.1.P.19 Give human traits to inanimate objects C.1.P.20 Demonstrate an ability to overcome the constraints of logic	C.1.I.18 Create alternate outcomes for reality through imagination C.1.I.19 Develop metaphors and symbols C.1.I.20 Demonstrate an ability to overcome the constraints of logic, time, and environment	C.1.S.18 Create alternate outcomes for reality through imagination; envision possibilities for present systems C.1.S.19 Develop original examples of metaphors, symbols, satire, understatements, irony, and hyperbole C.1.S.20 Demonstrate an ability to overcome the constraints of logic, time, and environment

Strand: Cognition**Standard 2: *Critical Thinking***

Students will use observation skills, questioning, analysis, and evaluation to explore issues, concepts, and ideas then use metacognition to examine their process of thinking.

	Grades P	Grades I	Grades S
Observation	<p>C.2.P.1 Identify details</p> <p>C.2.P.2 Generate a list of attributes with assistance using all senses</p>	<p>C.2.I.1 Make unique observations</p> <p>C.2.I.2 Generate a list of attributes using all senses</p>	<p>C.2.S.1 Perceive in depth and complexity</p> <p>C.2.S.2 Generate an extensive list of attributes using all senses</p>
Questioning	<p>C.2.P.3 Develop value of questioning</p> <p>C.2.P.4 Develop an attitude of questioning</p>	<p>C.2.I.3 Develop lateral thinking and questioning</p> <p>C.2.I.4 Refine questioning techniques</p> <p>C.2.I.5 Develop skeptical attitude regarding media and research</p>	<p>C.2.S.3 Analyze and evaluate the level of questioning</p> <p>C.2.S.4 Create investigative questions</p> <p>C.2.S.5 Independently employ skeptical attitude regarding media and research</p> <p>C.2.S.6 Determine what assumptions are being made in an issue</p>
Analysis	<p>C.2.P.7 Identify main idea</p> <p>C.2.P.8 Identify fact from fiction</p> <p>C.2.P.9 Analyze characteristics with assistance</p>	<p>C.2.I.7 Abstract major points and summarize from the whole</p> <p>C.2.I.8 Distinguish fact from opinion and relevance from irrelevance</p> <p>C.2.I.9 Analyze characteristics with fine discrimination</p> <p>C.2.I.10 Identify purpose in media presentations; identify stakeholders and understand how their role and point of view shape perspective and opinion</p>	<p>C.2.S.7 Abstract general theme and summarize from the whole</p> <p>C.2.S.8 Distinguish fact from opinion and relevance from irrelevance in fuzzy situations</p> <p>C.2.S.9 Analyze characteristics with fine discrimination and in novel ways</p> <p>C.2.S.10 Identify purpose in media presentations with greater sophistication; identify stakeholders and determine presence of bias</p>

		<p>C.2.I.11 Clarify true problem and delineate sub-problems; focus concentration on most significant or relevant problem</p>	<p>C.2.S.11 Clarify true problem and delineate sub-problems in fuzzier situations; focus concentration on most significant or relevant problem</p>
Connections	<p>C.2.P.12 Perceive relationships such as sequence, compare and contrast, and cause and effect</p> <p>C.2.P.13 Classify information based on broad categories</p> <p>C.2.P.14 Comprehend analogies</p>	<p>C.2.I.12 Perceive, seek, and form relationships/patterns such as sequence, compare/contrast, and cause and effect</p> <p>C.2.I.13 Classify information with greater refinement and subtlety; classify information in multiple ways</p> <p>C.2.I.14 Comprehend and construct more advanced analogies</p> <p>C.2.I.15 Connect and organize information logically</p> <p>C.2.I.16 Connect and apply information and skills across disciplines; conduct interdisciplinary studies</p> <p>C.2.I.17 Analyze how ideas are related over time and why change has occurred</p>	<p>C.2.S.12 Perceive, seek, and form complex relationships/patterns beyond surface level</p> <p>C.2.S.13 Classify information in creative formats</p> <p>C.2.S.14 Construct more abstract analogies</p> <p>C.2.S.15 Connect and organize information logically and creatively</p> <p>C.2.S.16 Connect and apply information and skills across disciplines; conduct interdisciplinary studies</p> <p>C.2.S.17 Analyze how ideas are related over time and why change has occurred</p>
Extension	<p>C.2.P.18 Make inferences within available information</p> <p>C.2.P.21 Make predictions based on results</p>	<p>C.2.I.18 Infer and interpret within available information</p> <p>C.2.I.19 Integrate new information into existing schemas</p> <p>C.2.I.20 Combine concepts, principles, and data to generate new understanding</p> <p>C.2.I.21 Examine implications and consequences of decisions and events</p>	<p>C.2.S.18 Infer and interpret beyond available information</p> <p>C.2.S.19 Create new information to be integrated into schemas</p> <p>C.2.S.20 Combine concepts, principles, and data to generate new understanding</p> <p>C.2.S.21 Construct predictions based on implications and consequences of decisions and events</p>

<p>Evaluation</p>	<p>C.2.P.22 Evaluate alternatives based on established criteria</p>	<p>C.2.1.22 Evaluate alternatives with some input on constructing criteria</p> <p>C.2.1.23 Employ inductive and deductive reasoning to make conclusions</p> <p>C.2.1.24 Learn and practice aspects of logical reasoning to examine arguments and recognize contradictions or fallacies</p> <p>C.2.1.25 Draw accurate or reasonable conclusions with statement "supported or not" by evidence</p> <p>C.2.1.26 Judge appropriateness of procedures or methods for solving a problem</p> <p>C.2.1.27 Self-assess quality of work</p> <p>C.2.1.28 Define and assess employment of thinking processes</p> <p>C.2.1.29 Establish and apply criteria for judging accuracy ,relevance, or quality</p>	<p>C.S.22 Evaluate alternatives with considerable input on constructing criteria</p> <p>C.2.S.23 Employ inductive and deductive reasoning to make conclusions</p> <p>C.2.S.24 Employ logical reasoning to examine arguments and recognize contradictions or fallacies</p> <p>C.2.S.25 Draw accurate or reasonable conclusions with statement "supported or not" by evidence</p> <p>C.2.S.26 Judge appropriateness (based on multiple criteria) of procedures or methods for solving a complex problem</p> <p>C.2.S.27 Self-assess quality of work and disposition/habits of mind</p> <p>C.2.S.28 Plan and monitor metacognition</p> <p>C.2.S.29 Establish and apply criteria for judging accuracy, relevance, or quality</p>
--------------------------	---	---	--

Strand: Cognition

Standard 3. Affective Development

Students will develop habits of mind and an increased awareness in self and of others of the skills in decision-making

	Grades P	Grades I	Grades S
Self understanding and efficacy	<p>C.3.P.1 Develop a belief in one's ability to succeed</p> <p>C.3.P.3 Establish personal priorities in activity options based on interests</p>	<p>C.3.I.1 Act with confidence; commit to a stance</p> <p>C.3.I.2 Recognize, understand, and accept or improve one's own special levels of ability</p> <p>C.3.I.3 Assess personal options in light of interests and abilities; prioritize options after weighing pros and cons</p> <p>C.3.I.4 Explore varied career options</p> <p>C.3.I.5 Set goals and standards appropriate to ability level</p> <p>C.3.I.6 Explore coping strategies for issues in giftedness (e.g., perfectionism, isolation, special needs of gifted females and gifted males, underachievement, and twice exceptional)</p> <p>C.3.I.7 Place positive and negative feedback into perspective</p>	<p>C.3.S.1 Act with confidence; commit to a stance</p> <p>C.3.S.2 Recognize, understand, and accept or improve one's own special levels of ability</p> <p>C.3.S.3 Assess personal options in light of interests, abilities, and time commitments; prioritize options after weighing pros and cons</p> <p>C.3.S.4 Explore in depth the requirements of various career options; evaluate options in light of interests and abilities</p> <p>C.3.S.5 Set goals and standards appropriate to ability level</p> <p>C.3.S.6 Utilize strategies for coping with issues in giftedness</p> <p>C.3.S.7 Integrate feedback into plans for future actions</p>
Habits of mind (additional)	<p>C.3.P.8 Begin development of empathy, management of impulsivity, risking failure, open-mindedness to new experiences and ideas, and perseverance</p>	<p>C.3.I.8 Refine habits and include desire for clarity and accuracy, desire to surpass mere compliance, humor, comfort with ambiguity, appropriate risk-taking in creative thinking, courage of convictions, and suspension of judgment until evidence is sufficient; recognize habits when being employed</p>	<p>C.3.S.8 Practice habits with little prompting</p>

		C.3.I.9 Self-monitor level of intrinsic motivation; improve as needed	C.3.S.9 Self-monitor level of intrinsic motivation; improve as needed
Interpersonal relations and leadership	C.3.P.10 Identify and demonstrate an awareness of various emotions in self and others	C.3.I.10 Identify and demonstrate an awareness of various emotions and values in self and others as displayed in verbal, non-verbal, and written forms; appropriately respond to those emotions	C.3.S.10 Analyze emotions and values in self and others as displayed in multiple formats including visual arts; appropriately respond to those emotions
	C.3.P.11 Discover and respect the uniqueness of others; work cooperatively and responsibly	C.3.I.11 Value the abilities and talents of others; utilize the skills of others in cooperative endeavors	C.3.S.11 Value the abilities and talents of others; utilize the skills of others in cooperative endeavors
	C.3.P.13 Accept the responsibility of peer and adult expectations; accept consequences of one's action	C.3.I.12 Recognize and act on one's own role and contributions in various groups	C.3.S.12 Recognize and act on one's own role and contributions in various groups
		C.3.I.13 Accept the responsibility of peer and adult expectations; accept consequences of one's actions	C.3.S.13 Accept the responsibility of peer and adult expectations; accept consequences of one's actions
		C.3.I.14 Provide feedback in constructive manner	C.3.S.14 Provide feedback in constructive manner
		C.3.I.15 Anticipate interpersonal conflicts	C.3.S.15 Anticipate interpersonal conflicts and plan interventions
		C.3.I.16 Understand the benefits and limitations of competition; win and lose graciously	C.3.S.16 Select appropriate time for competitiveness and proceed in appropriate manner
	C.3.P.17 Define characteristics of leadership	C.3.I.17 Define and identify examples of leadership qualities and skills	C.3.S.17 Identify leadership qualities and skills in greater depth
C.3.P.18 Demonstrate basic leadership skills	C.3.I.18 Demonstrate leadership skills	C.3.S.18 Anticipate and utilize advanced leadership skills needed for specific situations	
C.3.P.19 Demonstrate just behavior in basic situations	C.3.I.19 Define and practice integrity, ethics, and justice	C.3.S.19 Understand and practice integrity, ethics, and justice especially in difficult situations	

	C.3.P.20 Demonstrate intellectual humility	C.3.I.20 Understand the need for humility in leadership; practice intellectual humility C.3.I.21 Explain the consequences of lack of leadership and ethical practice in history and current events	C.3.S.20 Understand the need for humility in leadership; practice intellectual humility C.3.S.21 Analyze the consequences and predict future results due to lack of leadership and ethical practice in history and current events
--	---	---	--

Strand: Content

Standard 1. Differentiation

Students will have opportunities for content that is accelerated, involves greater depth and complexity, is authentic to the disciplines, and provides choices in study.

	Grades P	Grades I	Grades S
Acceleration		CN.1.I.1 Work in above grade level content or content not covered by general curriculum	CN.1.S.1 Work in above grade level content or content not covered by general curriculum
Breadth and depth	CN.1.P.2 Explore topics and concepts in greater depth and complexity	CN.1.I.2 Explore topics and concepts in greater depth and complexity CN.1.I.3 Broaden understanding of the scope of a topic or concept including connections with other topics	CN.1.S.2 Explore topics and concepts in greater depth and complexity with more independence CN.1.S.3 Broaden understanding of the scope of a topic or concept including connections with other disciplines
Authentic practice	CN.1.P.4 Begin learning the vocabulary of the disciplines	CN.1.I.4 Extend vocabulary of the disciplines CN.1.I.5 (As much as is feasible) conduct work in authentic manner as professionals in the discipline	CN.1.S.4 Apply vocabulary of the disciplines with little prompting CN.1.S.5 Conduct work in authentic manner as professionals in the discipline
Personal interests		CN.1.I.6 Pursue study based on personal interests	CN.1.S.6 Pursue advanced study based on personal interests

		<p>P.1.I.11 Use organizational and documentation skills (e.g., note taking, outlining, photography, graphs, tables)</p> <p>P.1.I.12 Monitor accuracy and ethics of information recording</p>	<p>P.1.S.11 Use organizational and documentation skills (e.g., note taking, outlining, photography, graphs, tables)</p> <p>P.1.S.12 Monitor accuracy and ethics of information recording</p>
Organizing/analyzing data	<p>P.1.P.13 Organize data using manipulatives and charts/graphs</p> <p>P.1.P.14 Describe results</p>	<p>P.1.I.13 Organize information and data for clarity in appropriate format including use of media and technology</p> <p>P.1.I.14 Interpret information</p>	<p>P.1.S.13 Select most appropriate format for organizing information and data for clarity including use of media and technology</p> <p>P.1.S.14 Interpret information with greater sophistication of analysis</p>

Strand: Product

Standard 2. Communication

Students will develop effective presentation formats using communication skills and develop implementation plans for problem solutions.

	Grades P	Grades I	Grades S
Communication skills	<p>P.2.P.1 Verbally and in writing express basic concepts, opinions, and feelings clearly and appropriately</p> <p>P.2.P.3 Increase vocabulary in content and beyond</p> <p>P.2.P.4 Identify and demonstrate basic skills of listening (e.g., eye contact, attentiveness)</p>	<p>P.2.I.1 Verbally and in writing express ideas, opinions, explanations, and feelings clearly and appropriately</p> <p>P.2.I.2 Accurately apply conventions of language</p> <p>P.2.I.3 Increase and utilize vocabulary</p> <p>P.2.I.4 Identify and demonstrate listening techniques</p>	<p>P.2.S.1 Verbally and in writing clearly express advanced and abstract ideas, opinions, explanations, and feelings appropriately</p> <p>P.2.S.2 Apply writing techniques in advanced and sophisticated way</p> <p>P.2.S.3 Increase and utilize vocabulary with fine discrimination of meaning</p> <p>P.2.S.4 Listen for the type of language used and analyze its effect</p>

	<p>P.2.P.5 Experience expression through non-verbal means (such as visual and performing arts)</p>	<p>P.2.I.5 Express ideas and feelings through non-verbal means; interpret non-verbal representations of others</p> <p>P.2.I.6 Recognize and demonstrate non-verbal methods that influence thinking and emotions</p>	<p>P.2.S.5 Express more abstract ideas and feelings through non-verbal means; interpret non-verbal representations of others with depth of insight</p> <p>P.2.S.6 Recognize and utilize non-verbal methods to influence thinking and emotions</p>
Acceptance finding		<p>P.2.I.7 Construct support by logically and clearly presenting evidence</p> <p>P.2.I.8 Determine stakeholders involved in implementation and understand some of the positive and negative forces at work</p> <p>P.2.I.9 Develop plan for implementation of problem solution or acceptance of ideas including overcoming barriers and resource management</p>	<p>P.2.S.7 Construct elaborate support by logically, clearly, and creatively presenting evidence</p> <p>P.2.S.8 Determine broader view of stakeholders involved in implementation and understand all positive and negative forces at work</p> <p>P.2.S.9 Develop detailed plan for implementation of problem solution or acceptance of ideas including overcoming barriers and resource management</p>
Presentation	<p>P.2.P.12 Apply established criteria to judge student presentations</p> <p>P.2.P.13 Make presentation to appropriate audience</p>	<p>P.2.I.10 Select appropriate presentation format, (including technology options) or performance based on information, audience, and personal interests/talents</p> <p>P.2.I.11 Design and construct presentation format (including technology options) or performance according to student and teacher developed rubric on quality</p> <p>P.2.I.12 Accurately and objectively apply evaluative criteria to judge own work and the work of peers</p> <p>P.2.I.13 Make presentation to appropriate (and as authentic as feasible) audience</p>	<p>P.2.S.10 Select appropriate presentation format (including technology options) or performance based on information, audience, and personal interests/talents</p> <p>P.2.S.11 Design and construct presentation format (including technology options) or performance according to student developed (with teacher input) rubric on quality</p> <p>P.2.S.12 Accurately and objectively apply evaluative criteria to judge own work, the work of peers, and the work of professionals</p> <p>P.2.S.13 Make presentation to appropriate and authentic audience</p>

GT Frameworks Appendix

Revised Bloom's Taxonomy:

1. Remember
 - 1.1 Recognizing—identifying
 - 1.2 Recalling—retrieving
2. Understand
 - 2.1 Interpreting--clarifying, paraphrasing, representing, translating
 - 2.2 Exemplifying—illustrating, instantiating
 - 2.3 Classifying—categorizing, subsuming
 - 2.4 Summarizing—abstracting, generalizing
 - 2.5 Inferring—concluding, extrapolating, interpolating, predicting
 - 2.6 Comparing—contrasting, mapping, matching
 - 2.7 Explaining—constructing models
3. Apply
 - 3.1 Executing—carrying out
 - 3.2 Implementing—using
4. Analyze
 - 4.1 Differentiating—discriminating, distinguishing, focusing, selecting
 - 4.2 Organizing—finding coherence, integrating, outlining, parsing, structuring
 - 4.3 Attributing—deconstructing
5. Evaluate
 - 5.1 Checking—coordinating, detecting, monitoring, testing
 - 5.2 Critiquing—judging
6. Create
 - 6.1 Generating—hypothesizing
 - 6.2 Planning—designing
 - 6.3 Producing—constructing, inventing

Theodore Sizer's Model:

- Analysis/Reasoning Process
- Error analysis
 - Experimental inquiry
 - Problem solving
 - Constructing support
- Intelligences
- Creativity
 - Persistence
 - Initiative
 - Cooperation
 - Problem solving
 - Seeking patterns and connections
 - Reasoning from data to conclusion
 - Sensitivity to feedback
 - Resource management

- Talents Unlimited:
- Productive thinking
 - Forecasting
 - Communication
 - Planning
 - Decision-making

ASCD Dimensions of Learning:

1. Positive attitudes and perceptions about learning
2. Acquiring and integrating knowledge
3. Extending and refining knowledge
4. Using knowledge meaningfully
5. Productive habits of mind

ASCD Thinking Skills from Dimensions of Learning:

Focusing—directing one’s attention to selected information

Defining problems—clarifying problem situations

Setting goals—establishing direction and purpose

Information gathering—acquiring relevant data

Observing—obtaining information through one or more senses

Questioning—seeking new information by formulating questions

Remembering—storing and retrieving information

Encoding—storing information in long-term memory

Recalling—retrieving information from long-term memory

Organizing—arranging information so that it can be used more effectively

Comparing—noting similarities and differences between two or more entities

Classifying—placing entities in groups by common attributes

Ordering—sequencing entities according to a given criterion

Analyzing—clarifying existing information by identifying and distinguishing among components, attributes, and so on

Identifying attributes and components—determining characteristics or parts of something

Identifying relationships and patterns—recognizing ways elements are related

Generating—using prior knowledge to add new information

Inferring—reasoning beyond available information to fill in gaps

Predicting—anticipating or forecasting future events

Elaborating—using prior knowledge to add meaning to new information and to link it to existing structures

Representing—adding new meaning by changing the form of information

Integrating—connecting and combining information

Summarizing—abstracting information efficiently and parsimoniously

Restructuring—changing existing knowledge structures to incorporate new information

Evaluating—assessing the reasonableness and quality of ideas

Establishing criteria—setting standards for making judgments

Verifying—confirming the accuracy of claims

Identifying errors—recognizing logical fallacies

Marzano's Taxonomy:

Level 1—Comprehension

Recall—Identify or recognize features of information but does not necessarily understand the structure of knowledge or cannot differentiate critical from non-critical elements

Execution—Perform a procedure without significant error but does not necessarily understand how and why the procedure works

Level 2—Comprehension

Synthesis—Identify the basic structure of the knowledge and the critical as opposed to non-critical characteristics

Representation—Construct an accurate symbolic representation of the knowledge differentiating critical from non-critical elements

Level 3—Analysis

Matching—Identify important similarities and differences between knowledge

Classifying—Identify superordinate and subordinate categories related to the knowledge

Error analysis—Identify errors in the presentation or use of the knowledge

Generalizing—Construct new generalizations or principles based on the knowledge

Specifying—Identify specific applications or logical consequences of the knowledge

Level 4—Utilization

Decision making—Use the knowledge to make decisions or can make decisions about the use of the knowledge

Problem solving—Use the knowledge to solve problems or can solve problems about the knowledge

Experimental inquiry—Use the knowledge to generate and test hypotheses or can generate and test hypotheses about the knowledge

Investigation—Use the knowledge to construct investigations or can conduct investigations about the knowledge

Level 5—Metacognition

Goal specification—Set and plan goals relative to the knowledge

Process monitoring—Monitor the execution of the knowledge

Monitoring clarity—Determine the extent to which he or she has clarity about the knowledge

Monitoring accuracy—Determine the extent to which he or she is accurate about the knowledge

Level 6—Self

Examining importance—Identify how important the knowledge is to him or her and the reasoning underlying this perception

Examining efficacy—Identify beliefs about his or her ability to improve competence or understanding relative to the knowledge and the reasons for these responses

Examining emotional response—Identify emotional responses to the knowledge and the reasons for these responses

Examining motivation—Identify his or her level of motivation to improve competence or understanding relative to the knowledge and the reasons for this level of motivation

Treffinger's Creative Problem Solving:

Understanding the challenge

Constructing opportunities

- Generate possible opportunities and challenges to consider
- Focus by identifying the most promising opportunities to pursue

Exploring data

- Examine many sources of data from different points of view
- Identify the key or most important data

Framing problems

- Generate many, varied, and unusual ways to state the problem
- Select or form a specific problem statement

Generating ideas

- Produce many, varied, and unusual ideas
- Identify ideas with interesting potential to develop or use

Preparing for action

Developing solutions

- Organize, analyze, refine, or strengthen promising possibilities
- Combine, evaluate, prioritize, or select promising solutions

Building acceptance

- Consider various sources of assistance and resistance and possible actions for implementation
- Formulate specific plans to gain support for, carry out, and evaluate actions

SCAMPER

- S Substitute or subtract (material, color, function, quality ...)
- C Combine (unite, join, embody, assimilate, blend ...)
- A Adapt, add, or alter (conform, regulate, adjust, fit ...)
- M Modify, magnify, minimize, or multiply (transform, vary, moderate, strengthen ...)
- P Put to other uses or pull apart
- E Eliminate
- R Reverse or rearrange (place contrary or opposite to, transpose, invert, change order ...)

Renzulli's Operation Houndstooth

- Optimism (hope, positive feelings from hard work)
- Courage (psychological/intellectual independence, moral conviction)
- Romance with a topic or discipline (absorption, passion)
- Sensitivity to human concerns (insight, empathy)
- Physical/mental energy (charisma, curiosity)

Vision/sense of destiny (sense of power to change things, sense of direction, pursuit of goals)

13 Thinking Tools of the World's Most Creative People

Robert and Michele Root-Bernstein

1. Observing
2. Imaging
3. Abstracting
4. Recognizing patterns
5. Forming patterns
6. Analogizing
7. Body thinking
8. Empathizing
9. Dimensional thinking
10. Modeling
11. Playing
12. Transforming
13. Synthesizing

Kaplan's Elements of Depth and Complexity

Language of the disciplines
Details
Patterns
Trends
Unanswered questions
Rules
Ethics
Big ideas
Change over time
Different perspectives
Interdisciplinary relationships

Flow—Mihaly Csikszentmihalyi

Flow is a sustained period of intense and concentrated thought and effort in which the person may be unaware of other surrounding events and actions. The result is heightened sensitivity and increased complexity of self in both differentiation (uniqueness) and integration (union with others or joining of parts).

Paul's Critical Thinking Model (interconnected)

Purpose/goal
Point of view
Concepts/ideas
Information/Evidence/data
Assumptions
Inferences
Implications/consequences
Issue/problem/question

CPSS Habits of Mind

Evidence: How do we know?
Viewpoint: Who's speaking?
Connections: What causes what?
Supposition: How might things be different?
Meaningfulness: What the point, why does it matter?

Project 2061 Habits of Mind

Integrity
Diligence
Fairness
Curiosity
Openness to new ideas
Skepticism
Imagination

Faciones and Sanchez Dispositions of a Critical Thinker

Inquisitiveness
Open-mindedness
Systematicity
Analyticity
Truth seeking
Critical-thinking self-confidence
Maturity

Ennis' Dispositions of a Critical Thinker

- To be clear about intended meanings
- To determine and maintain focus
- To take the total situation into account
- To seek and offer reasons
- To try to be well informed
- To look for alternatives
- To seek precision as required
- To be aware of one's own beliefs
- To be open-minded
- To withhold judgment when evidence is insufficient
- To take a position
- To use one's critical-thinking abilities

Perkins, Jay, and Tishman: Thinking Dispositions

- To be broad and adventurous
- Toward sustained intellectual curiosity
- To clarify and seek understanding
- To plan and be strategic
- To be intellectually careful
- To seek and evaluate reasons
- To be Metacognitive

Costa and Kallick Habits of Mind

- Persisting
- Managing impulsivity
- Listening with understanding and empathy
- Thinking flexibly
- Thinking about thinking (metacognition)
- Striving for accuracy
- Questioning and posing problems
- Applying past knowledge to new situations
- Thinking and communicating with clarity and precision
- Gathering data through all senses
- Creating, imagining, innovating
- Responding with wonderment and awe
- Taking responsible risks
- Finding humor

Paul's Virtues and Passions

- Passion for clarity, accuracy, fair-mindedness
- Fervor for getting to the bottom of things
- Sympathetic listening to opposing views
- Drive to seek out evidence
- Aversion to contradictions, sloppy thinking, inconsistent use of standards
- Devotion to truth
- Intellectual courage
- Intellectual humility
- Intellectual empathy
- Intellectual integrity
- Intellectual perseverance
- Faith in reason
- Intellectual sense of justice

Marzano: Habits of Creative and Critical Learning and Thinking

- Engaging intensely in tasks even when answers or solutions aren't immediately apparent
- Pushing the limits of your knowledge and abilities
- Generating, trusting, and maintaining your own standards of eval.
- Generating new ways of viewing a situation outside the boundaries of standard convention
- Being aware of your own thinking
- Planning
- Being aware of necessary resources
- Being sensitive to feedback
- Evaluating the effectiveness of your actions
- Being accurate and seeking accuracy
- Being clear and seeking clarity
- Being open-minded
- Restraining impulsivity
- Taking a position when the situation warrants it
- Being sensitive to others' feelings and level of knowledge

