Florida's Frameworks for K–12 Gifted Learners

Providing guidelines, which support a challenging and rigorous curriculum that enhances the *Florida Sunshine State Standards* in order to meet the needs of gifted students in our schools.

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Florida Department of Education Working on Gifted Issues Challenge Grant Project
Florida Association for the Gifted

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PREFACE

This document, *Florida's Frameworks for K-12 Gifted Learners*, is the product of the Working on Gifted Issues (WOGI) grant, funded by the State of Florida, Department of Education 2005-2007. It provides a framework for developing and designing differentiated learning experiences for gifted students that complements the standards and benchmarks outlined in the *Florida Sunshine State Standards*. The resulting document combines the current research and practices related to educating gifted children and the expertise of a task force consisting of gifted educators, parents, and representatives from the Florida Department of Education.

The task force members discussed the work of two previous documents published by the Florida Department of Education-*GAGE: Greater Accountability in Gifted Education* (1994) and *Blueprint: Organizing for Results* (1995)-and the impact these documents had on the accountability of meeting students' needs in the state of Florida. The task force members determined the need to update those reports in the form of a curricular framework for gifted learners. Additional guidelines were provided by *Aiming for Excellence: Gifted Program Standards* published by the National Association for Gifted Children (NAGC). This document is intended to assist educators as they plan outcomes that are appropriate for gifted learners. See the Glossary on pages 44-45 for an explanation of terms and concepts.

RATIONALE/MISSION STATEMENT

Students who are gifted have learning needs that go beyond what is traditionally offered in the regular classroom. The nature of their abilities, demonstrated or latent, requires differentiated learning experiences and opportunities for them to maximize their potential. Teachers need to develop the depth and quality of their students' experiences while adjusting the pace to meet individual needs. This can be accomplished by offering opportunities for students to:

- Pursue topics of study in greater depth or to a greater level of cognitive challenge
- Tackle a wider range of authentic and complex academic tasks that require doing real world work
- Advance through activities at a faster pace
- Develop a sense of self and the possibilities that the world has to offer

These experiences may be addressed in a differentiated curriculum that may involve the modification of content, process, product, and/or the learning environment (Tomlinson, 1999).

In *Curriculum for Gifted and Talented Students* (2004), Joyce Van Tassel-Baska states:

> The trend for curriculum designed for the gifted in the future must embrace paradox. It must provide students with a rigorous, high-quality experience that readies them to successfully traverse the next level of educational challenge in a selective university as well as ground them in self-learning and social learning of the moment. It must help them find true self in the midst of growing toward a professional career. It must inculcate a healthy sense of respect for civilizations' past accomplishments as well as the desire to shape a new and better world in the future. Such a curriculum must first be envisioned, then developed, and then implemented. The real challenge for the future of curriculum in this field is the preparation of educators committed to the vision of curriculum as the core of what makes gifted education a worthwhile enterprise (p. xxxii).

The goal of the *Florida's Frameworks for K–12 Gifted Learners* is to provide guidelines, which support a challenging and rigorous curriculum that enhances the *Florida Sunshine State Standards* in order to meet the needs of gifted students in our schools. The following rigor and challenge guidelines interrelate and reinforce curriculum, instruction, and assessment

to help define academic excellence in programs for gifted learners. William Daggett (2005) suggests that when these three components of instructional planning are viewed together, relevant learning becomes the focus.

- **Curriculum** is advanced, sophisticated, and consistently building upon and extending beyond the general curriculum. Rigorous and challenging curriculum is enhanced through the study of universal concepts, complex levels of generalizations, and essential questions. Students are consistently engaged in multiple, complex, thought provoking and ambiguous texts/materials that challenge what they think and feel. Application is made to real-world unpredictable situations.

- **Instructional delivery** employs a variety of research-based strategies and methods from various curricular models that emphasize skills such as inquiry, investigation, and experimentation. Students are regularly provided with opportunities for understanding the "whys" through scholarly dialogue/discussions and they reflect on concepts, generalizations, and essential questions encountered with rigorous texts/materials. The teacher constantly probes students to deepen meaning and to provide rationale for positions.

- **Multiple assessments** are used to consistently monitor students' growth and understanding of increasing complexity of materials, ideas, issues, and problems. The teacher provides opportunities for students to reflect on understanding and growth. Assessments match the level of rigor and relevance identified in the learning objectives.

(adapted from the North Carolina's Public School's *Rigor Rubric for Education Programs,* http://www.ncpublicschools.org/ec/development/gifted/nonnegotiables/and *Daggett's Rigor/Relevance Framework, 2005*)

References

Blueprint: Organizing for results (1995). Tallahassee, FL: Florida Department of Education.

Daggett, W. R. (2005). *Achieving academic excellence through rigor and relevance.* International Center for Leadership Education. White Paper. Available: September 2005.

GAGE: Greater accountability in gifted education (1994). Tallahassee, FL: Florida Department of Education.

Landrum, M. S., Callahan, C. M., & Shaklee, B. D. (Eds.). (2001). *Aiming for excellence: Gifted program standards.* Waco, TX: Prufrock Press.

North Carolina Public Schools. *Rigor rubric for education programs.* Retrieved January, 23, 2007, from http://www.ncpublicschools.org/ec/development/gifted/nonnegotiables/?&print=true

Tomlinson, C. A. (1999). *The differentiated classroom: Responding to the needs of all learners.* Alexandria, VA: ASCD.

Van Tassel Baska, J. (Ed.). (2004). *Curriculum for gifted and talented students*. Thousand Oaks, CA: NAGC and Corwin Press.

SUGGESTED USE OF FLORIDA'S FRAMEWORKS FOR K–12 GIFTED LEARNERS

Florida's Frameworks for K–12 Gifted Learners has been created for many different stakeholders within gifted education. We envision the document as primarily serving district coordinators and teachers of gifted learners-those in the trenches. We also have designed the document to assist superintendents, ESE specialists, regular education classroom teachers, parents, and students in understanding how gifted education can be more effective, engaging, and enriching.

Each group just mentioned will have different reasons to use the *Frameworks*. However, all groups will benefit from a few points of reference prior to delving into its content.

- Think of the Program Goals as a woven tapestry rather than a list. While we have arranged the goals by content (1 & 2), process (3 & 4), affect (5 & 6), and product (7), they do not stand alone or relate to just one goal. Each goal reflects components of and can be linked with all other goals. There is no hierarchy or recommended order for addressing the goals in curricular design. This is true of the objectives and traits within each goal. We encourage you to never single out any trait, objective, or goal as you use this document to design, evaluate, or implement gifted education services.
- The Program Goals include both an expository explanation and a set of rubrics to assist in the understanding process. We recognize that some readers will go immediately to the rubrics to glean their pertinent information from the document, while others will dwell upon the exposition. We suggest using both, and we recommend the reading of all Program Goal expositions prior to delving into the rubrics. That way you will have 'created a space' in your mind for the specificity the rubrics will deliver.
- The Rubrics present a four-tiered scale for measuring student outcomes within the particular trait for each objective. This scale: Know, Understand, Perform, and Accomplish (see Interpreting the Rubrics, p. 9) qualitatively describes the behaviors and attitudes you will discern in students to move them along the rubric. We picture these measures as being workable throughout the student's tenure during Gifted Education services. In other words, it is possible that a second grade gifted learner could work at an Accomplish level in a particular trait/objective/goal, though later, in sixth grade, be working at an Understand level in the same trait/objective/goal. This scenario is not problematic. The scale should not be seen as a ladder to climb through the years, but rather a descriptor of the student's Zone of Proximal Development at any particular point in time during his/her education.

- A graphic organizer helps to show the integrated nature of the program goals.
- A set of support materials helps to explain several concepts found within the programs goals/objectives/rubrics.
- A glossary also clarifies some of the terminology used within the program goals/objectives/rubrics.
- A bibliography which identifies resources used in the development of the *Frameworks*.

As previously stated, teachers of gifted learners and district coordinators can use the *Frameworks* in many ways. We hope it is used to help design and revise gifted education services statewide. It is a tool for enhancing curricular design, assisting teachers and coordinators in their quest to create rigorous and challenging learning experiences. It can be used in the creation of Individual Student Education Plans, as it describes many areas (66 traits within 22 objectives within seven program goals) of focused study. Equally, it can be a tool of assessment, helping districts hone and organize their programs around central issues.

Superintendents and ESE specialists can use the *Frameworks* in this latter area, availing themselves a way to look at the special world of gifted education. Some of our administrators may not have a sufficient background or training in gifted education, so these *Frameworks* will help them perceive and approach the quality control to which we all aspire.

General education classroom teachers can also benefit by considering the nature of challenge and rigor that these *Frameworks* suggest. While gifted learners cannot meet high expectations for success without high challenges in their learning environments, all students will benefit from high challenges. And as most general education teachers will work with gifted learners on a regular basis, this document also will help these teachers to better understand how that work might be developed in the differentiated classroom.

Finally, parents and students can use this document to evaluate the education they are receiving. Gifted education is an important component in the lives of many students, and it behooves us to avail them and their families with better ways to understand how that education should be conducted.

STUDENT OUTCOMES – FRAMEWORK GOALS AND OBJECTIVES

1. By graduation, the student identified as gifted will be able to critically examine the complexity of knowledge: the location, definition, and organization of a variety of fields of knowledge.
   a) Locate, define, and organize a field of study as it relates to the broad spectrum of knowledge.
   b) Identify and illustrate basic principles and the foundational concepts that are central to understanding the essence of a field of study.
   c) Identify and apply investigative methodologies that are followed in a selected field of knowledge.

2. By graduation, the student identified as gifted will be able to create, adapt, and assess multifaceted questions in a variety of fields/disciplines.
   a) Identify significant questions within and across disciplines.
   b) Generate significant questions within and across disciplines.
   c) Evaluate and refine significant questions within and across disciplines.

3. By graduation, the student identified as gifted will be able to conduct thoughtful research/exploration in multiple fields.
   a) Use a variety of research tools and methodologies.
   b) Use and manipulate information sources.
   c) Detect bias and reliability in the process of research.
   d) Apply ethical standards to research and analyses.

4. By graduation, the student identified as gifted will be able to think creatively and critically to identify and solve real-world problems.
   a) Identify and investigate a problem and generate supportive arguments from multiple perspectives of a complex issue.
   b) Analyze the relevance, reliability, and usefulness of data to draw conclusions and forecast effective problem solutions.
   c) Use and evaluate various problem-solving methods to determine effectiveness in solving real-world problems.

5. By graduation, the student identified as gifted will be able to assume leadership and participatory roles in both gifted and heterogeneous group learning situations.
   a) Accept divergent views to positively effect change.
   b) Identify leadership traits and qualities as they appear in different individuals and situations.
   c) Manifest significant leadership skills and organize group(s) to achieve project goals.

6. By graduation, the student identified as gifted will be able to set and achieve personal, academic, and career goals.
   a) Identify personal strengths and weaknesses and accept challenges in both areas to maximize learning.
   b) Assume primary responsibility for learning, including identifying needs and setting reasonable goals.
   c) Design plans of action to address benefits and obstacles in achieving goals of personal interest.

7. By graduation, the student identified as gifted will be able to develop and deliver a variety of authentic products/performances that demonstrate understanding in multiple fields/disciplines.
   a) Develop products that communicate expertise in multiple fields and disciplines to a variety of authentic audiences.
   b) Create products that synthesize information from diverse sources illustrating divergent solutions or perspectives.

INTERPRETING THE RUBRICS

Rubrics use four markers to describe successful meeting of a particular trait. These markers are defined here:

Know—the ability to recall and locate information. One who knows can cite facts, concepts, and ideas. One who knows deals with knowledge in singular fashion; not recognizing, and poorly able to function with the interconnectedness between knowledge fields.

Learners who know see the individual snapshot.

Understand—the ability to recall, interpret, and connect information. One who understands can use information from multiple sources, though not always simultaneously. One who understands can be flexible and creative with knowledge. Combining knowledge fields occurs here, though not necessarily with ease or on one's own.

Learners who understand see the collage of snapshots.

Perform—the ability to analyze and synthesize information from multiple sources simultaneously. One who performs can use knowledge inventively, in novel situations. One who performs links knowledge fields in creative ways so that boundaries blur.

Learners who perform see the snapshots in motion.

Accomplish—the ability to evaluate and use information from multiple sources critically and effectively to accomplish a significant purpose. One who accomplishes has internalized the processes addressed in the first three levels and has the ability to call on those processes automatically. One who accomplishes has ownership of knowledge, yet will share it willingly.

Learners who accomplish see the snapshots moving in 3D.

Student Outcomes Program Goal 1

By graduation, the student identified as gifted will be able to critically examine the complexity of knowledge: the location, definition, and organization of a variety of fields of knowledge.

This program goal speaks to the recognition of knowledge as a human system of understanding. It recognizes that knowledge is a human construct, and that all knowledge is affected by setting (time and place), terms, and structures. Knowledge changes people, and people change knowledge. Knowledge is a complex process including experiences, interactions, and interpretations. Knowledge is much more than what we know. It is also how we know, why we know, where we know, and when we know.

For gifted learners these ideas are both approachable and appropriate. Gifted learners should be guided toward the development of a personal epistemology (theory of knowledge) while moving through gifted programs. Their intellectual talents must be challenged to find ways to explore the nature of knowing so that they begin to see how knowledge developed and used in different disciplines is made up of characteristics inherent to those disciplines. Gifted students' abilities to comprehend complex issues and to evaluate knowledge systems of divergent fields must be nurtured.

Student Objectives:

The gifted student will:

- Locate, define, and organize a field of study as it relates to the broad spectrum of knowledge
- Identify and illustrate basic principles and the foundational concepts that are central to understanding the essence of a field of study
- Identify and apply investigative methodologies that are followed in a selected field of knowledge

Student Outcomes Program Goal 1

Objective 1: The student will locate, define, and organize a field of study as it relates to the broad spectrum of knowledge.

TRAIT	KNOW	UNDERSTAND	PERFORM	ACCOMPLISH
Nature of Knowledge	Locates and lists the general divisions of knowledge, i.e., art, science, humanities, etc., and recognizes integrated fields and disciplines	Identifies and defines a field of interest and analyzes how the field is organized by explaining what criteria define the discipline and how those criteria are organized and divided	Differentiates fact, concept, theory, and principle and employs each in developing meaning and knowledge	Constructs own meaning within a chosen field and makes new contributions to this respective field of study
Basic Research	Identifies and locates basic reference sources that support general research in several disciplines	Analyzes the relevance and usefulness of primary and secondary references while identifying how fields are organized and subdivided	Uses multiple primary and secondary sources to analyze, synthesize, and evaluate relevant persons, places, events, or beliefs that are dominant in a field	Uses a variety of professional journals, professional databases, and college textbooks to make connections between and/or among fields of discipline
Manipulation of Data	Manipulates data in order to determine contributions of the discipline to the community and world	Seeks connections between fields to make sense of patterns and trends	Poses research questions that help interpret the effects of major trends and issues over time	Develops themes and connections across historical events, periods, and fields
Organization of Data	Creates or selects an existing system for organizing data in a sequence	Constructs an organizational system (i.e., knowledge tree, graphic organizer, or diagram) that represents and illustrates the organization in a field of study and the subdivisions within that field	Identifies and illustrates themes, patterns, and structures that define an area of study	Challenges accepted bodies of knowledge and organizational methodologies

Student Outcomes Program Goal 1

Objective 2: The student will identify and illustrate basic principles and the foundational concepts that are central to understanding the essence of a field of study.

TRAIT	KNOW	UNDERSTAND	PERFORM	ACCOMPLISH
Conceptual Frameworks	Formulates questions to determine the relevance of the skills and knowledge required of a discipline Identifies established rules or laws (principles) of nature which impact daily life and draws conclusions regarding their role in the world of work	Demonstrates understanding of conceptual themes and their organizational opportunities within a body of knowledge Differentiates similarities and differences between functional concepts and principles within a field	Creates graphic organizers that organize the logical sequences of key conceptual themes in a field of study Assimilates the often conflicting nature of knowledge generated within integrated disciplines	Analyzes data and research methods used and developed by scholars within a field; internalizes conceptual themes of that (those) discipline(s) Questions accepted conventions and rules and identifies ambiguity
Components and Methodologies	Identifies and uses terminology authentic to a chosen discipline of knowledge	Creates a list of the methodological skills and processes (general and specific) used by practicing professionals in a field	Understands and delineates the diversity of language, tools, and methodologies between and among disciplines	Experiments with a variety of methods to analyze data to develop greater understanding
Conceptual Connections	Identifies essential principles that govern and drive a series of key concepts in a chosen field	Demonstrates foundational knowledge of various fields and disciplines	Analyzes and synthesizes concepts and principles within a discipline in order to isolate essential concepts and identify macroconcepts	Applies and transfers understanding to other disciplines

Student Outcomes Program Goal 1

Objective 3: The student will identify and apply investigative methodologies that are followed in a selected field of knowledge.

TRAIT	KNOW	UNDERSTAND	PERFORM	ACCOMPLISH
Skill Development	Locates relevant information about varied professionals and identifies personal strengths that may contribute to the field	Compares and contrasts job descriptions, methods of working, and challenges faced by various practicing professionals to determine relevance to personal needs and goals	Uses and refines the skills and methods of a professional in a discipline	Seeks an understanding of the ethical issues and standards that frame a discipline
Management of Data for Research	Identifies a list of methods manuals, "How To" books, and other resources to research methodologies used by practitioners	Compares and contrasts general and specific methods of research used by practitioners to seek answers to viable professional questions	Uses appropriate data gathering instruments needed for a research study	Applies the scientific method naturally, i.e., identifies routine problem areas, focuses the problem, states hypotheses, locates resources, classifies and organizes data, draws conclusions, and reports findings
Investigative Methodologies	Identifies content area specialists to establish a sense of cause and effect within a field	Understands, identifies, and analyzes relationships among variables, constants, and controls in research	Applies the indicators that reflect quality in a field and understands how the field measures success	Challenges existing theories, principles, and rules through research and experimentation
Support Structures	Recognizes and identifies the need for support structures found within a designated field of study and establishes the nature of specific supports	Recognizes the values and perspectives of those who hold opposing views within the discipline	Interviews content area specialists to verify the application of methodologies incorporated in a study	Collaborates with professionals, experts, and others in the field to advance research, development, and understanding in the field

Student Outcomes Program Goal 2

By graduation, the student identified as gifted will be able to create, adapt, and assess multifaceted questions in a variety of fields/disciplines.

This program goal speaks to a need of developing the critical inquiry skills of gifted students. Inquiry drives learning, frames curiosity, and connects topics. Inquiry helps students produce quality research and engage in reflective self-assessment. Questioning, as a pedagogical skill, is sometimes taken for granted, since it is such a prominent tool within the process of learning. However, developing our students' skills to improve and enrich their abilities to construct, refine, and evaluate questions of all types and across a wide range of disciplines is a major goal of education.

For gifted students who see and experience the world differently from their peers, critical inquiry may be one of the keys to discovering new avenues for life's pursuits. It must be said that this is more than a research and 'schooling' issue, as it speaks to the way our students will both listen and react to the news of the world around them. As this world continues to integrate and coalesce in myriad ways, critical thinking and inquiry become all the more important. The art of questioning allows students to develop deeper and clearer perspectives. They will be able to evaluate their leaders, their colleagues, their friends, and themselves when they can generate, refine, and evaluate questions critically.

Student Objectives:

The gifted student will:

- Identify significant questions within and across disciplines
- Generate significant questions within and across disciplines
- Evaluate and refine significant questions within and across disciplines

Student Outcomes Program Goal 2

Objective 1: The student will identify significant questions within and across disciplines.

Trait	Know	Understand	Perform	Accomplish
The nature of questions	Regards questions as seeking black/white information, facts, in singular disciplines	Sees potential for questions to explore broader aspects of knowledge, moving toward speculative and evaluative aspects	Recognizes that questions connect disciplines and build better frameworks for thinking	Seeks and uses questions that connect divergent disciplines in order to expand understanding
The importance of questions	Identifies and situates questions within a singular discipline's method of inquiry	Analyzes and synthesizes questions that connect methods of inquiry in different disciplines	Orders/categorizes questions that link divergent disciplines and frame different inquiry methods	Uses questions that frame inquiry within divergent disciplines in order to understand the links between and/or among the disciplines
The power of questions	Explains the function of questions within singular disciplines	Understands the function of questions to connect multiple disciplines	Demonstrates an initial use of questions to drive critical thought within a discipline	Manifests an understanding of the integrative nature and function of questions that drive inquiry in multiple disciplines

Student Outcomes Program Goal 2
Objective 2: The student will generate significant questions within and across disciplines.

Trait	Know	Understand	Perform	Accomplish
Question creation	Creates questions that drive factual exploration within singular disciplines	Unites questions that drive broader exploration within disciplines	Manipulates ideas to create and organize questions that drive inquiry and connect divergent disciplines	Uses questions that link divergent disciplines to develop personal understandings of experiences
Questions and inquiry	Explains the kind of information questions seek	Explains how the questions limit and/or expand the nature of the exploration	Uses questions to refocus the nature of the inquiry	Uses questions to situate personal interest and background within the inquiry

Student Outcomes Program Goal 2
Objective 3: The student will evaluate and refine significant questions within and across disciplines.

Trait	Know	Understand	Perform	Accomplish
Questions scrutinized	Recognizes the quality of questions (both identified and created) that frame singular disciplinary inquiry	Explains the quality of questions (both identified and created) that work to expand inquiry into integrated disciplines	Evaluates questions (both identified and created) as a regular component of personal research and exploration	Explores the nature of questioning, always aware that better questions deliver the potential for more complete information
Questions revised	Refines questions as directed so they explore a clearer line of inquiry within a single discipline	Synthesizes questions as directed so they explore a clearer line of inquiry and integrate disciplines	Develops questions spontaneously and independently while conducting personal research and exploration	Refines questions as a general practice or characteristic of intellectual pursuit

Student Outcomes Program Goal 3

By graduation, the student identified as gifted will be able to conduct thoughtful research/exploration in multiple fields.

This program goal speaks to the development of a broad range of research skills and strategies that manifest themselves in a variety of disciplines and intellectual pursuits. Research skills, in this context, include both research done for academic pursuits as well as that which is pursued for personal interest. Skills of analysis, of discerning the importance and nature of differing sources, and of the pursuit of further study are all significant parts of the activities that embody research.

For gifted students, this represents the opportunity to explore deeply and freely areas of significant interest. Gifted learners should be encouraged to investigate those areas and ideas they find fascinating. Such interest could be harnessed to expose these learners to more significant research methodologies and practices. Important here is the idea that research should be conducted in multiple fields/disciplines. Throughout the full range of the gifted program, students should be encouraged to explore and integrate multiple areas of research.

Student Objectives:

The gifted student will:

- Use a variety of research tools and methodologies
- Use and manipulate information sources
- Detect bias and reliability in the process of research
- Apply ethical standards to research and analyses

Student Outcomes Program Goal 3

Objective 1: The student will use a variety of research tools and methodologies.

Trait	Know	Understand	Perform	Accomplish
Cooperative research	Participates in a cooperative group to solve problems and/or complete a research project	Demonstrates ethical leadership and/or teamwork within a research workgroup	Works cooperatively with peers from a variety of perspectives and abilities while obtaining valid research and/or products from research	Integrates a variety of appropriate components uncovered from cooperative research within a field of study
Scientific method	Demonstrates the ability to gather and document data relevant to scientific investigations using the scientific method	Analyzes the impact or effect of chosen alternatives (variables) within the scientific method	Constructs scientific research using proper protocol for scientific study	Uses scientific method to produce products or solutions to problems in a research setting and in a non-research setting
Research tools	Recognizes organizational tools used for research in a variety of fields	Uses organizational strategies to generate ideas for research and/or creative products	Communicates results of research using the established organizational tools within a field of study	Creates unique tools that incorporate a variety of methods of communication/organization for the clarification of others about a field of study

Student Outcomes Program Goal 3

Objective 2: The student will use and manipulate information sources.

Trait	Know	Understand	Perform	Accomplish
Information in Multiple Contexts	Identifies and locates information available in a multitude of places, including newspapers, magazines, catalogues, Internet directories, time schedules, and media, all of which include local, state, national, and/or international sources.	Analyzes the relevance and usefulness of information for the completion of a specific task	Generates, classifies, and evaluates ideas, objects, and/or events in a unique way to construct original projects that illustrate solutions to real-world problems and concerns	Assembles ideas, objects, and/or events from a variety of sources (primary and secondary) to conduct research in a field of study
	Uses a systematic approach to locate information from a variety of reference materials, including the use of parts of a book,(e.g., table of contents, index, appendices, glossary, index, title page)	Appropriates accurate information for research and experimentation to create an original work	Uses multiple secondary and primary sources to analyze, synthesize, and evaluate relevant details and facts to examine relationships, infer meanings, define relationships, and predict outcomes	Analyzes and synthesizes information and concepts contained in multiple sources and communicates results in a unique way, i.e., designing a better model or creating a simulation

Student Outcomes Program Goal 3

Objective 3: The student will detect bias in the process of research.

Trait	Know	Understand	Perform	Accomplish
Deductive and Inductive Reasoning	Demonstrates the ability to retrieve information from a reliable data base Defines deductive and inductive reasoning and distinguishes the different thought processes each uses	Describes the nature of an argument, the degree of ambiguity, and the source (deductive/inductive) of the argument's authority Explains whether an argument depends on ambiguity, a shift in the line of reasoning, or whether the alleged authority is reliable	Critiques and defends statements of deductive and inductive reasoning Evaluates judgments made within the context of an argument	Implements deductive and/or inductive reasoning within discussion and/or product development in a field of study Brings consistent use of different reasoning types to active study and research in a field
Fact versus Opinion	Identifies fact and opinion and recognizes the important implications for each	Juxtaposes opinions and facts from multiple sources to support or validate conclusions	Analyzes opinions and facts of experts within a research field	Creates, defends, and adapts opinions developed after the analysis of data within a variety of fields

Student Outcomes Program Goal 3

Objective 4: The student will apply ethical standards to research and analyses.

Trait	Know	Understand	Perform	Accomplish
Ethics	Identifies ethical concerns related to the use of knowledge (copyright, security, integrity, piracy, privacy, etc.)	Explains ethical standards in regard to intellectual effects on research outcomes	Clarifies and develops a personal ethic regarding critical research	Analyzes the use of ethical protocol as it pertains to real-world problems and concerns

Student Outcomes Program Goal 4

By graduation, the student identified as gifted will be able to think creatively and critically to identify and solve real-world problems.

This program goal speaks to the need of learners' ability to blend ideas and potential solutions for problems from a wide variety of inputs. Divergent views are the mainstay of teamwork and team-based learning, as it is rare for any two individuals to feel exactly the same way about any body of data. By embracing divergent views, the process of problem finding is enhanced. With critical evaluation and synthesis, multiple information sources can be included into action plans that use broad arching evidence and seek acceptance from multiple audiences. This leads to building consensus rather than merely compromising.

For gifted students, the ability to evaluate divergent views is important because often those students have been able to depend upon their own thinking in exclusion of others' points of view to obtain success in school. Learning to synthesize multiple viewpoints is important in continuing cognitive growth as well as engendering a more positive acceptance of viewpoints that differ from one's own thinking. Making sure that gifted learners have significant time to engage with real-world problems from multiple perspectives helps grow not only their problem solving skills but also their inter- and intra-personal skills. Though gifted students often have success in the world of school, part of our task is to assure them an equally significant success outside of school.

Student Objectives:

The gifted student will:

- Identify and investigate a problem and generate supportive arguments from multiple perspectives of a complex issue
- Analyze the relevance, reliability, and usefulness of data to draw conclusions and forecast effective solutions
- Use and evaluate various problem-solving methods to determine effectiveness in solving real-world problems

Student Outcomes Program Goal 4

Objective 1: The student will identify and investigate a problem and generate supportive arguments from multiple perspectives of a complex issue.

TRAIT	KNOW	UNDERSTAND	PERFORM	ACCOMPLISH
Problem Investigation	Recognizes multiple problems within a complex issue; poses research questions	Categorizes and prioritizes identified problems within a complex issue; generates hypotheses	Uses established criteria to focus the problem statement and generate solutions	Proposes new avenues for research of existing and future related problems
Multiple Perspectives	Acknowledges diverse viewpoints of a problem	Compares and contrasts multiple perspectives of a problem	Integrates multiple points of view into a problem statement	Restructures the problem statement to reflect new perspectives
Supportive Constructs	Generates an effective argument on each side of a problem	Develops multiple supporting statements from different perspectives	Communicates supportive evidence convincingly in multiple formats	Defends, challenges, and articulates points of view using available resources; develops effective rebuttals
Solution Finding	Proposes multiple solutions to a problem within varied categories (i.e., social, technological, educational, environmental, political)	Establishes and applies criteria for evaluation of solutions	Creates original solutions and products based on evaluated criteria; analyzes possible consequences and impacts; tests conclusions to improve ideas	Extends solutions to aid in solving future problems; seeks alternative innovative outcomes or solutions
Creative Thinking	Generates numerous and varied ideas to solve a real-world problem (fluency and flexibility)	Synthesizes unique alternatives to solve a problem (originality)	Elaborates ideas through collaborative processes with colleagues	Evaluates and modifies ideas and products to improve usefulness

Student Outcomes Program Goal 4

Objective 2: The student will analyze the relevance, reliability, and usefulness of data to draw conclusions and forecast effective solutions.

TRAIT	KNOW	UNDERSTAND	PERFORM	ACCOMPLISH
Data Analysis	Locates information and data sources relative to a complex, real-world problem	Makes decisions about the usefulness of data to filter out extraneous information	Uses a variety of tools and techniques to organize data to draw conclusive statements	Performs data analysis using tools of practicing professionals for a specific intent
Forecasting Solutions	Identifies patterns within related facts and information	Organizes facts and information using various methods to predict potential outcomes	Uses forecasting tools to evaluate possible solutions (e.g., trend analysis, futures wheels, and Delphi Technique)	Anticipates and plans for possible, probable, and preferable future outcomes
Critical Thinking	Distinguishes between fact and opinion in a variety of sources	Recognizes bias and value statements in a variety of media	Uses inductive and deductive thinking processes to draw conclusions	Analyzes, interprets, and synthesizes details and facts to examine relationships, infer meanings, and predict outcomes
Ethics	Recognizes the role of values in the development of attitudes about a complex problem	Uses knowledge of recognized ethical standards of various stakeholders to formulate problem statements and solutions	Uses the value system most common to a field of study to evaluate solutions and products	Promotes humane and respectful solutions to complex problems

Student Outcomes Program Goal 4

Objective 3: The student will use and evaluate various problem-solving methods to determine effectiveness in solving real-world problems.

TRAIT	KNOW	UNDERSTAND	PERFORM	ACCOMPLISH
Evaluation	Recognizes existing knowledge and attitudes about a complex problem	Analyzes the impacts of existing knowledge and attitudes; identifies personal assumptions and blind spots in approaching the problem	Identifies knowledge gaps and inconsistencies to challenge existing attitudes and beliefs	Uses multiple sources to affect change in generally accepted knowledge and attitudes
Creative Methodology	Recognizes contributions of inventors and innovators in multiple fields of accomplishment Identifies a variety of problem solving methods	Analyzes and/or replicates methods used by creators and problem solvers in multiple fields Differentiates the effectiveness of problem solving methods in a variety of settings	Creates original products using various inventive strategies Applies appropriate methodologies for problem solving based on their usefulness	Designs original problem solving models for use in specific situations Reflects on adequacy of inventive processes and problem solving in various disciplines
Communication	Identifies stakeholders within a complex problem	Uses multiple tools and techniques to target identified audiences; uses precise language to explain positions	Uses information about the stakeholders to develop convincing arguments to support solutions	Advocates convincingly to diverse audiences using sophisticated techniques (oral, written, technological) appropriate to the field and audience

Student Outcomes Program Goal 5

By graduation, the student identified as gifted will be able to assume leadership and participatory roles in both gifted and heterogeneous group learning situations.

This program goal speaks to the social nature of learning and its relationship to leadership. Intellectual prowess is not found only in isolated segments of cognitive thought but is found throughout an individual's life-long journey. It is found in relationships with family, friends, mentors, and with everyone who shares social contact with the individual. Recognizing that some situations require an individual to 'step up' and assume a leadership role while other situations equally demand a more following frame of mind is an essential skill in navigating social interactions.

For gifted learners there is often a common struggle between leading and following. Implied in this program goal is the directive to engage gifted learners in all levels of learning so that they experience the pursuit of intellectual goals from several perspectives. Some elements of leadership seem to come naturally to gifted learners, especially as they become intellectual leaders in the classroom setting. Yet, recent research has shown there is a need to establish effective leadership skills as a curricular component in the gifted classroom. When gifted learners get together, it is important for them to understand that through the art of weaving relationships, we learn how to work with others towards common goals, leading and following.

Student Objectives

The student will:

- Accept divergent views to positively affect change
- Identify leadership traits and qualities as they appear in different individuals and situations
- Manifest significant leadership skills and organize group(s) to achieve project goals

Student Outcomes Program Goal 5

Objective 1: The student will accept divergent views to positively effect change.

TRAIT	KNOW	UNDERSTAND	PERFORM	ACCOMPLISH
Consensus Building	Recognizes the essential need to respect the ideas, feelings, and abilities of others	Demonstrates a greater awareness of others through participation in programs and projects that emphasize service to others	Uses diverse individual beliefs and values of the group to design plans of action that address issues or problems	Defends the results and gains support for a plan of action to address issues or problems within a diverse population
Personal Qualities	Identifies personal strengths and weaknesses that influence positive group dynamics Identifies personal abilities, talents, strengths and weaknesses for certain tasks, recognizing the power to influence one's own destiny	Recognizes leadership patterns and behaviors that positively affect change in a group Compares and contrasts the personal and academic goals of self and others in order to build cohesion	Improves group performances through individual strengths and collaborative rules of courtesy and order Demonstrates the ability to state personal preferences and support a personal point of view when contrary to the accepted view of others	Analyzes positive and negative aspects of leadership that drive the beliefs and values of a diverse group Designs, plans, and evaluates a plan of action to address an issue or problem of personal interest
Conflict Resolution	Verbalizes an awareness of the cause/effect relationship of his/her behavior within a group setting	Generates a list of solutions to a group conflict, predicting possible concomitant results that might impact the group	Implements conflict management and resolution techniques to bring about positive change	Reflects upon the effectiveness of conflict management and resolution techniques used to develop strategies for future group problem solving

Student Outcomes Program Goal 5

Objective 2: The student will identify leadership traits and qualities as they appear in different individuals and situations.

TRAIT	KNOW	UNDERSTAND	PERFORM	ACCOMPLISH
Problem Solving	Identifies characteristics that empower an individual to be a proficient, creative problem solver	Recognizes and emulates effective implementation of creative problem solving skills	Simulates a creative problem solving encounter with a diverse group of individuals	Analyzes the productivity of the group's response to the problem following the conclusion of a creative problem solving experience
Diversity	Identifies in individuals the qualities of empathy and sensitivity to the ideas of others	Promotes diversity in talents and intellectual abilities of each member of the group	Displays flexibility when incorporating individual beliefs and values toward goal attainment	Analyzes diverse leadership styles of outstanding leaders and evaluates the impact to one's own personal leadership skills
Self-awareness	Identifies personal attributes as areas of strengths or weakness	Differentiates between individual strengths and weaknesses as motivators and/or limiters	Demonstrates an understanding of positive self-worth and recognizes limits in the emotional capacity of individuals	Celebrates self-advocacy as a personal strength; accepts weaknesses as an opportunity for change

Student Outcomes Program Goal 5

Objective 3: The student will manifest significant leadership skills and organize group(s) to achieve project goals.

TRAIT	KNOW	UNDERSTAND	PERFORM	ACCOMPLISH
Group Dynamics	Adheres to the established rules of interaction in accepting and respecting consensus	Demonstrates the ability to convey to group members good decision making skills	Stimulates group discussion and decision making by asking appropriate questions	Directs the group through an analysis and synthesis of the final solution to the achievement of a project goal
Communication	Conveys information, concepts, and ideas using appropriate and advanced techniques	Shows an awareness of the experiences, needs, and concerns of others in the communication process	Solidifies group cohesion toward an assigned task using both verbal and non-verbal skills	Analyzes and synthesizes the presentation skills necessary to communicate ideas, information, concerns, and solutions to a project goal
Technology	Identifies appropriate technology to achieve a project goal	Demonstrates the ability to propose new uses for current technology	Integrates information systems in the problem solving process	Uses information systems to identify and analyze trends and events in order to forecast future implications
Cooperative Learning	Recognizes positive interdependence as a basic tenet	Conveys an understanding of the importance of group cohesiveness and pride	Demonstrates the ability to work with peers from a variety of cultures and ability levels respecting individual strengths, talents, and learning styles	Displays flexibility in the incorporation of individual beliefs and values in the completion of a goal while recognizing the diversity of group members

Student Outcomes Program Goal 6

By graduation, the student identified as gifted will be able to set and achieve personal, academic, and career goals.

This program goal speaks to the need of students to become self-reflective about the nature of their learning. Such abilities engender stronger metacognitive skills and work to enhance traits of lifelong learning. Being able to understand and describe both strengths and weaknesses allows a learner to navigate the paths toward higher learning with better success. Such a skill also puts personal learning into a clearer perspective: when learners are able to enumerate strengths and weaknesses, they are able to determine which of those they might use while pursuing life's pleasures and endeavors. And, as the goal suggests, such knowledge has the potential to help students set personal goals that may effect changes in those measures. It is hoped that gifted learners will perceive and understand the nature of learning weaknesses and then set a course to rectify that situation. Of course, it is important here to note that not all goals in this area will address institutional learning.

Gifted learners often dance to rhythms of a different sort. Our task in this goal is to encourage gifted learners to become self-reflective and self-affecting, thereby giving them the potential to deal with goals and standards personally and individually. Combined with the other program goals, this goal puts the gifted learner in a position to develop even after formal, institutional learning has ended. It is our hope that gifted learners always pursue personal research interests, ask informative and probing questions, develop outstanding products of their creative intelligence, and critically examine the complexity of knowledge in their world. This goal helps engender that thinking, though it may be carried out in ways far different from what we may initially imagine.

Student Objectives:

The gifted student will:

- Identify personal strengths and weaknesses and accept challenges in both areas to maximize learning
- Assume primary responsibility for learning, including identifying needs and setting reasonable goals
- Design plans of action to address benefits and obstacles in achieving goals of personal interest

Student Outcomes Program Goal 6

Objective 1: The student will identify personal strengths and weaknesses and accept challenges in both areas to maximize learning.

TRAIT	KNOW	UNDERSTAND	PERFORM	ACCOMPLISH
Metacognition	Identifies and uses numerous tools to recognize personal strengths/weaknesses, learning styles/ preferences	Interprets assessments and identifies skills/abilities necessary for professional performance in a field of study	Recognizes challenges and creates goals for developing expertise in a field of study	Evaluates and refocuses goals and the path to accomplishment through self-reflection and evaluation
Learning Profile	Recognizes the components of personal learning preferences	Reflects on learning/work preferences to identify themes and changes over time	Compares how components of learning preferences align with professionals in a field of study	Uses learning/work preferences to develop products in one or more disciplines
Acceptance of Challenge	Recognizes the need to accomplish tasks in areas of both strength and weakness	Identifies strategies and resources to overcome obstacles	Returns to a task that was not successful; evaluates alternatives and seeks support from outside resources	Seeks opportunities to try new experiences in areas of strengths and weaknesses
Evaluation	Uses evaluation of previous tasks to improve performance	Reviews progress toward accepting challenges in various areas	Reflects on failures and successes through self evaluation; acknowledges constructive criticism	Solicits feedback from professionals related to projects and synthesizes critiques into personal growth

Student Outcomes Program Goal 6

Objective 2: The student will assume primary responsibility for learning, including identifying needs and setting goals.

TRAIT	KNOW	UNDERSTAND	PERFORM	ACCOMPLISH
Independence	Recognizes the need to set goals for assigned tasks	Systematically approaches setting and modifying goals with support from teachers and/or peers	Documents failures as a learning tool and alters plans when appropriate	Incorporates a system of goal-setting as a lifelong learner
Self-Motivation	Follows directions to complete a task	Takes initiative to complete tasks	Demonstrates persistence in returning to tasks and overcoming obstacles; adheres to timelines and other benchmarks	Strives for professional quality in self-selected projects and performances
Priority	Identifies a number of long and short-term goals and distinguishes between them	Prioritizes goals by importance, time, resources, and sustainability	Evaluates and anticipates how controllable and non-controllable events and behavior affect goal achievement	Exercises visionary thinking and focuses on the future to adjust and readjust goals
Critical Reflection	Identifies assumptions, beliefs, values, cultural practices, and social structures to assess impact	Analyzes assumptions in relation to specific historical and cultural context	Proposes alternative ways of thinking to challenge prevailing ways of knowing and acting	Questions patterns of action to establish truth or viability of a proposition or action

Student Outcomes Program Goal 6

Objective 3: The student will design plans of action to address benefits and obstacles in achieving goals of personal interest.

TRAIT	KNOW	UNDERSTAND	PERFORM	ACCOMPLISH
Communication	Communicates recognition of personal growth in areas of weakness and areas of strength	Uses appropriate and field-specific language to describe challenges in a variety of areas; goals are well-defined and specific	Designs oral and written plans to set goals and identify steps toward goal achievement and uses those plans in work	Reflects on appropriateness of designed goal-setting plans; alters plans when appropriate; makes future plans for goal achievement based on successes/failures
Talent Development	Identifies stages of talent development within a body of content	Evaluates personal levels of achievement and aligns them with levels of talent development	Produces high-quality products and performances that advance through a field's level of talent development	Develops products and performances of professional quality through individual strengths in relationship to fields of study
Action Plan Components	Demonstrates knowledge of steps toward goal achievement	Goals and objectives developed are realistic and systematic	Action plans include appropriate allocation of time, money, materials, and other resources	Action plan includes components of evaluation, multiplicity of solutions to overcome obstacles, and recruitment of supporters and resources
Social Context	Recognizes how goals of self and others interconnect	Establishes goals for self that acknowledge goals of peers and others	Assumes responsibility for developing and managing goals that contribute to personal and group attainment	Incorporates multiple points of view to develop long-term personal and collective goals in various contexts (educational, social, political, career)

Student Outcomes Program Goal 7

By graduation the student identified as gifted will be able to develop and deliver a variety of authentic products/performances that demonstrate understanding in multiple fields/disciplines.

This program goal speaks to the student's natural tendency for transforming learning into meaningful products. Although learning manifests itself in many ways, too often it is driven by one-dimensional assignments that require minimal modes of cognition and expression. Creative learning, however, manifests itself in myriad ways, and students should be encouraged to explore creative expression through a variety of cognitive avenues. Outcomes should provide multiple linkages between fields and disciplines.

For the gifted learner this means designing presentations that unite problem solving systems within the various areas of human expression and thought. Gifted learners should pride themselves by developing products that define their level of new understanding, and by delivering those products to authentic audiences. The challenge here is in discerning how those audiences play a role in solving the problem inherent in the learning. Clearly this goal integrates with all other program goals. As each student strives for quality in her/his products, a level of expertise that demonstrates accomplished practice is developed. Here we pursue the larger goal of instilling the desire to think of all learning as the continuum of knowledge essential to developing self-efficacy and the continuous movement toward self-actualization.

Student Objectives:

The gifted student will:

- Develop products that communicate expertise in multiple fields and disciplines to a variety of authentic audiences
- Create products that synthesize information from multiple sources illustrating solutions to real-life problems

Student Outcomes Program Goal 7

Objective 1: The student will develop products that communicate expertise in multiple fields and disciplines to a variety of authentic audiences.

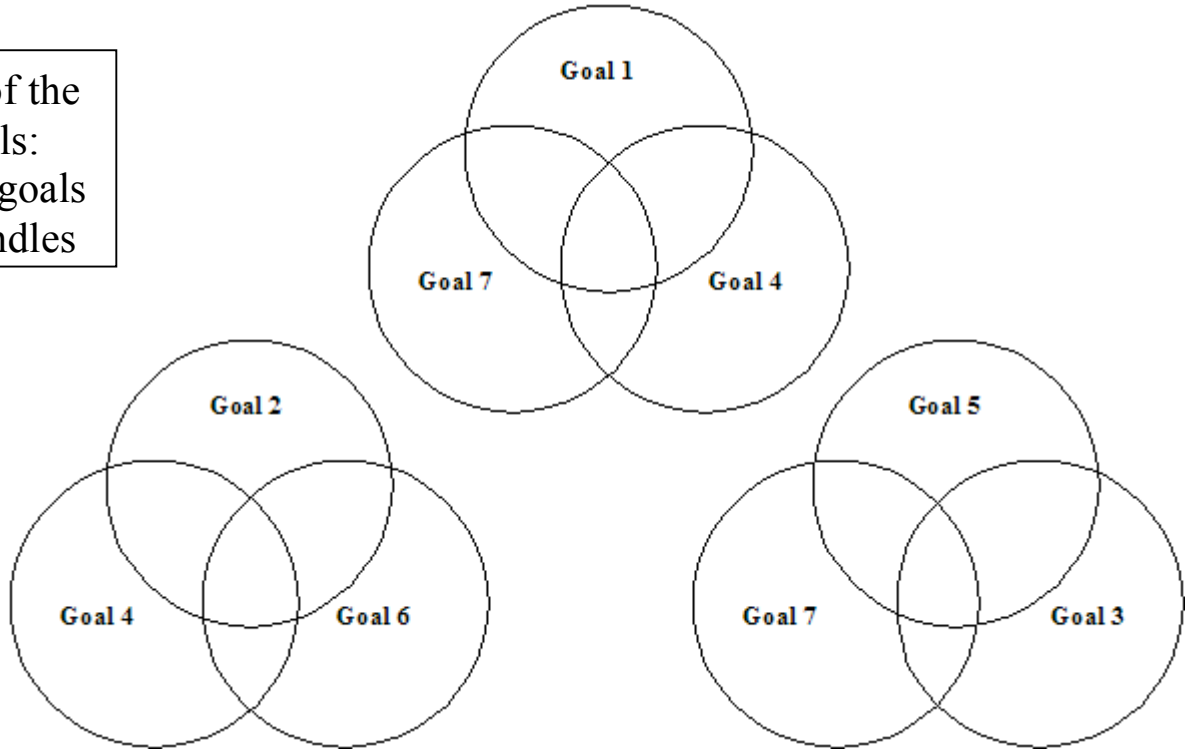
TRAIT	KNOW	UNDERSTAND	PERFORM	ACCOMPLISH
Audience Recognition	Identifies an authentic audience based on set criteria related to a specific topic	Communicates recognition of audience members' strengths and needs	Reacts and refines performance based on audiences' strengths and needs	Communicates intentional reaction to subtle and overt feedback from audience
Communication	Prepares and executes practiced performance to communicate ideas	Integrates ideas with visual supports to emphasize key point(s) in a performance	Identifies personal presentation style and adapts that style to different purposes, moods, tones	Demonstrates evidence of refining a performance to communicate personal style
Advanced Presentation	Uses advanced language and symbol systems to communicate ideas	Evaluates the personal preferences of others related to language and symbol systems	Evaluates self in the area of presentation, language, and symbol systems	Based on evaluation, revises and adapts presentation, language, and symbol systems for specific and various audiences
Problem Solving	Creates product to solve a problem or communicate a perspective	Uses strategies or tools of persuasion to resolve an issue or communicate a perspective	Creates specific strategies targeted at opposing viewpoints/perspectives	Addresses critics with prepared, defensible arguments that effectively defend solutions

Student Outcomes Program Goal 7

Objective 2: The student will create products that synthesize information from multiple sources illustrating solutions to real-life problems.

TRAIT	KNOW	UNDERSTAND	PERFORM	ACCOMPLISH
Inventive Thinking	Generates ways to improve an existing product using two related sources	Creates an original product for a specific audience using inductive and deductive reasoning	Creates a product with defined rationale using multiple sources from varied fields or disciplines	Creates and defends a product using multiple sources that can be used in and across fields/disciplines
Metaphorical Promotion	Creates a statement or product using two related ideas to strengthen the message	Illustrates a new concept using two or more related ideas innovatively	Creates two seemingly unrelated or opposing ideas to reflect an in-depth understanding of an issue, concept, or principle	Incorporates multiple sources from varied perspectives to create and test a novel theory
Praxis	Generates multiple solutions to a given problem	Generates a new, personal concept by synthesizing multiple solutions and multiple perspectives	Creates a new personal theory by synthesizing multiple solutions and perspectives that can be applied to a different field of study	Critiques or defends a personal theory based on evidence from multiple sources and multiple perspectives

Visual model of the program goals: Integrating the goals into usable bundles



Visualizing the integrated nature of the seven Program Goals helps to illustrate how the goals work to align many aspects of gifted education. Integration is demonstrated here in groups of three, though it is possible to expand into groups of four integrated elements. Our idea is that program decisions always include at least three combined goals, drawing together aspects of content, process, affect, and product in assorted ways. Decisions here mean a full range of possibilities, from full scale curricular design to consideration of a specific unit of study for an individual learner. Looking, then, at the first set of three circles, we see that content, process, and product are brought together, while the second set includes content, process, and affect. The third group includes process, affect, and product. Interestingly, this integration of program goals naturally creates a focus in the area where all three ideas mesh, or on the mergence of two of the goals. In this way, a combination of three goals allows a creative user to have four ways to perceive the integration. So, in the third set of three goals above, a teacher can think of ways Goals 7 (product) and 3 (process) combine; the way Goals 5 (affect) and 3 (process) combine; the way Goals 7 (product) and 5 (affect) combine; as well as how all three goals combine. As stated, it is even possible to imagine an integration of four goals, though we caution users against trying to take the model too far. While a combination of all four goal areas is possible, it is important to remember that programs and instruction of quality can not be all things to all people. Using the Venn diagram model as shown would allow a school and/or a district to create timely uses of different goals within the parameters of their whole program. Ultimately, each goal could be explored several times in conjunction with many other goals, in various combinations, and with different outcome productions.

Categories of Knowledge

Facts
Are specific, concrete details that are verifiable.

Examples:
- The capital of Florida is Tallahassee.
- George Washington was the first president of the United States.

Concepts
Are general ideas or understandings, themes, patterns, structures or categories which define areas of study.
(They are the tools with which a specialist works. They serve as a vocabulary and are powerful organizers of a field.)

Examples:
- Culture
- Evaporation
- Migration

Macro-concepts
Are the concepts that extend across disciplines.
(They are powerful connections that extend meaning and relevance.)

Examples:
- Systems
- Change
- Patterns

Principles
Are the enduring truths, laws, or rules that are arrived at through rigorous study/research. They explain the relationships between two or more concepts.
(They help learners probe the "big idea" of a discipline.)

Examples:
- A culture consists of shared knowledge, art, customs, values, beliefs, habits, symbols and perceptions of its people.
- Objects in the sky have patterns of movement.

Skills
Are proficiencies, abilities, techniques, strategies, methods and procedures used by practitioners in a field of study.
(They are used to teach students the information necessary for acquiring knowledge about a field's methods.)

Examples:
- Learning how to analyze a plot like an author.
- Learning how to grid a dig site like an archeologist.
- Learning how to use a compass and the sun's position to determine directionality like a cartographer.

Attitudes
Are the appreciations, values, and beliefs of experts in a field.
(They may be used to examine where students are along the growth continuum.)

Examples:
- Does the student take responsibility for his/her own learning?
- Does the student envision new possibilities?

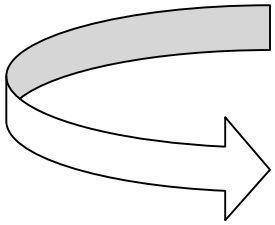
Adapted from Renzulli, J., & Hays, L. (2000). *The multiple menu model: A practical guide for developing differentiated curriculum* and Tomlinson, C. A., Kaplan, S., Purcell, P. Purcell, J., Leppien, J., Burns, D., & Strickland, C. (2006a). *The parallel curriculum in the classroom: A design to develop high potential and challenge high ability learners.*

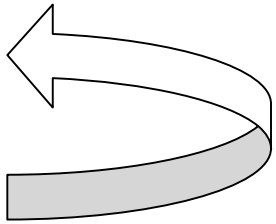
SCIENTIFIC METHOD

OBSERVATION
Take a look at some aspect of the universe or the nearby world. Notice details. Watch what is happening for a period of time or in repeated opportunities of observation.

HYPOTHESIS
Determine a tentative idea regarding <u>why</u> what observed is happening.

PREDICTIONS
Use the hypothesis to guess (predict) what may happen again.





EXPERIMENT
Using only one variable, test the predictions or make further observations multiple times. Some experiments should be conducted in different seasons, different laboratory conditions, different settings and/or with different personnel to ensure that the results are repeatable. Modify the hypothesis if you observe that the predicted outcome is different than expected. Try again.

THEORY
When consistency is obtained from the experimenting, the hypothesis becomes a theory. At that time, the theory is only a proposition as to why the phenomenon occurs. If further evidence is found later, the theory may be altered.

LAW
Theory becomes law when there is absolute proof that the hypothesis is correct. *Example: The Law of Gravity*

Bloom's Taxonomy*

Knowledge: Requires students to recall data or information.

Comprehension: Requires students to understand the meaning, translation, interpolation, and interpretation of facts.

Application: Requires students to use a concept in a new situation or in a novel way.

Analysis: Requires students to separate material or concepts into component parts in order to identify the organizational structure.

Synthesis: Requires students to create a structure or pattern from diverse elements.

Evaluation: Requires students to make judgments about the value of ideas or materials.

*Bloom, B. S. (1984). *Taxonomy of educational objectives.* Boston, MA: Allyn and Bacon.

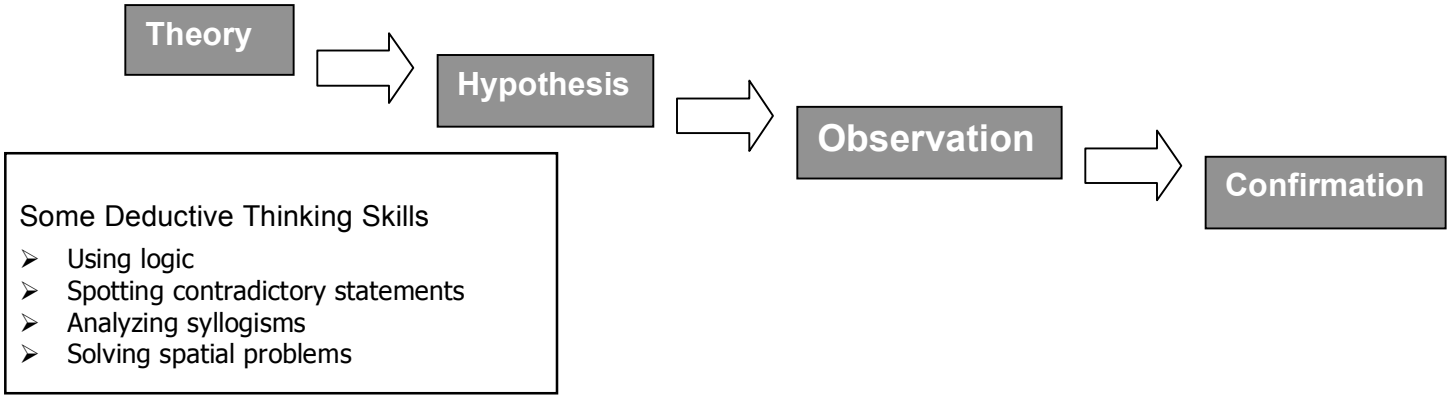
INDUCTIVE AND DEDUCTIVE THINKING

In logic, two broad methods of reasoning are often referred to as the ***deductive*** and ***inductive*** approaches.

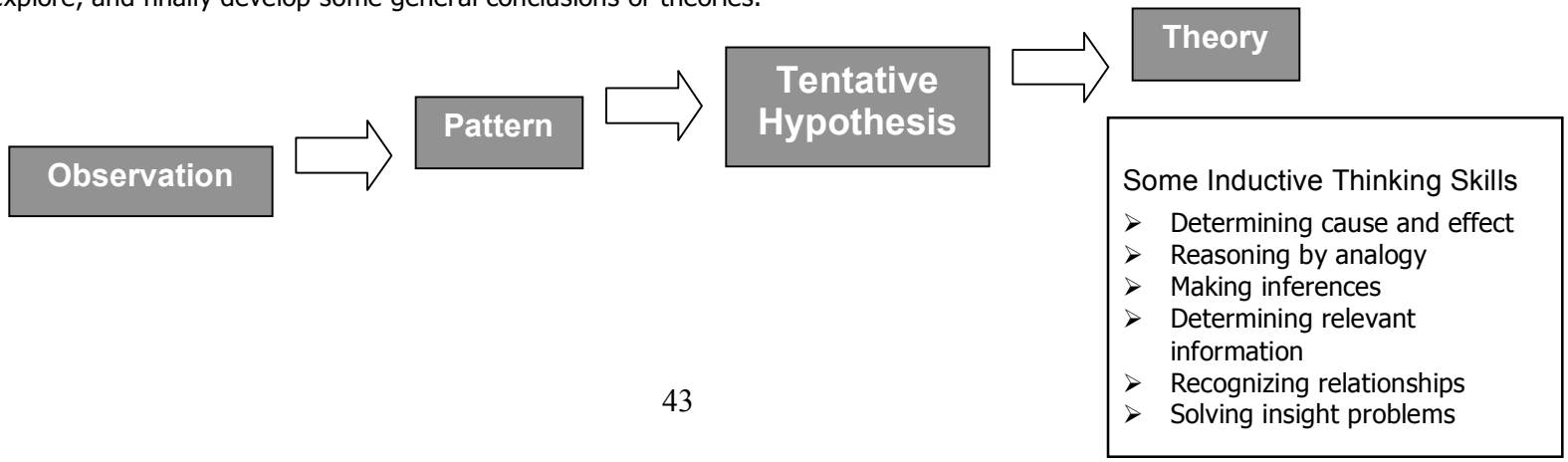
Deductive Thinking: The process of reasoning in which a specific conclusion follows from stated premises (from general to specific).

Inductive Thinking: The process of deriving general principles from particular facts or instances (from specific to general).

Deductive Thinking begins with a theory, which can lead to the development of a hypothesis we can test. Observations are made which can lead to the confirmation (or lack of confirmation) of the original theory.



In inductive reasoning, we begin with specific observations and measures, begin to detect patterns and regularities, formulate some tentative hypotheses to explore, and finally develop some general conclusions or theories.



Glossary

The following terms appear throughout the Program Goals. While each is probably understood, there may be times when a specific usage creates a minor shift in denotation or connotation. This glossary will assist in the use of the program goals and rubrics.

Analysis	The process of evaluating data for the purpose of developing a deeper understanding of the phenomena under consideration
Authentic Audience	A group of individuals representative of those who work directly in a particular field; a group that understands the intellectual and affective content of the material being presented
Complexity of Knowledge	The idea that all knowledge is, to one degree, an illusion, and to another degree temporary; an understanding that we must question what we know from multiple perspectives
Concepts	General ideas derived or inferred from specific instances or occurrences
Conceptual Frameworks	A broad set of related concepts supporting and describing a specific body of knowledge
Conceptual Sequence	An orderly progression of developing concepts from specific instances or occurrences
Construct	A concept, model, or schematic idea
Cooperative Learning	Learning engagements designed to bring diverse learners to the same 'table' of learning; learning where several stakeholders take part in finding and solving problems
Critical Inquiry	The set of abilities by which an individual can conduct investigations in a disciplined manner to develop explanations and knowledge about a matter
Critical Reflection	A personal look inside to discern the nature of a learning experience; a moment where what I think I know is questioned from the point of view of what knowledge is (see 'complexity of knowledge')
Critical Thinking	The process of 'unpacking' the issues and parameters within a particular inquiry; the ability to evaluate multiple issues simultaneously
Deductive Reasoning	The process of reasoning in which a specific conclusion follows from stated premises
Differentiated Curriculum	A learning program that is appropriate to different levels and abilities of students, taught in a manner that reflects their different natures and needs
Disciplines	Branches of knowledge or teaching
Divergent Disciplines	Branches of knowledge or teaching that are often thought of as markedly different from each other

Epistemology	An exploration of the character of knowledge; a theory of knowledge; the nature of knowledge applied through an understanding of the self
Fluency	The cognitive ability to work smoothly and, often, quickly within a domain
Forecasting Tools	Cognitive skills that allow effective predictions of outcomes, generally based on experience and application of specific and general ideas
Generalizations	Making specific knowledge apply to broad circumstances; turning the small details into the big picture
Inductive Reasoning	The process of deriving general principles from particular facts or instances
Inter-personal	Skills that help the individual interact with others in the social environment; often these are seen as the measure of an individual's ability to maneuver in the social world
Intra-personal	Skills that help individuals manage themselves within the social milieu; skills that help lessen internal conflict while also increasing understanding of external experience
Macroconcepts	General ideas involving whole systems or groups
Metacognition	Thinking about one's own thinking; awareness of the mental process of knowing
Pedagogy	The art or profession of teaching; a study or understanding of the skills used in a learning environment
Praxis	A process of conceptualizing meanings and theories, then practicing the knowledge outcome
Self-directed Learning	Learning that begins with the learner's understanding of interests and goals, that incorporates self-discovered questions and resources, that involves self-assessment and renewal, and that meets standards that are appreciable by a general assessment of learning
Synthesis	The art of bringing ideas together to form newer, more effective uses of the multiple ideas

Bibliography

Baum, S. (2004). *Twice-exceptional and special populations of gifted students.* Thousand Oaks, CA: Corwin Press.

Beyer, B. (2003). *Teaching thinking skills: A handbook for elementary school teachers.* Boston, MA: Allyn & Bacon.

Bloom, B. S. (1984). *Taxonomy of educational objectives.* Boston, MA: Allyn & Bacon.

Colangelo, N., & Davis, G. (Eds.). (2002). *Handbook of gifted education* (3rd ed.). Upper Saddle River, NJ: Prentice Hall

Colangelo, N., Assouline, J. A., & Gross, M. U. M. (2004). *A nation deceived: How schools hold back American's brightest students*. Retrieved December 21, 2006 from http://www.nationdeceived.org/links.html

Davis, G. (2004) *Creativity is forever* (5th ed.). Dubuque, IO: Kendall/Hunt Publishing Co.

Delisle, J., & Judy Galbraith. (2002). *When gifted kids don't have all the answers: How to meet their social and emotional needs.* Minneapolis, MN: Free Spirit Publishing

Dixon, F., & Moon, S. (2006). *The handbook of secondary gifted education*. Waco, TX: Prufrock Press.

Gay, G. (2000). *Culturally responsive teaching: Theory, research, & practice.* New York: Teachers College

Kingore , B. (2004). *Differentiation: Simplified, realistic and effective.* Austin, TX: Professional Associates Publishing.

Landrum, M., Callahan, C., & Shaklee, B. (2001). *Gifted program standards: Annotations to the NAGC pre-K-grade 12 gifted program standards.* Waco, TX: Prufrock Press.

Neihart, M., Reis, S. M., Robinson, N., & Moon, S. (2002). *The social and emotional development of gifted children: What do we know?* Waco, TX: Prufrock Press.

Palmer, D. (2006). *Parents guide to IQ testing and gifted education.* Long Beach, CA: Parent Guide Books.

Rakow, S. (2006). *Educating students in middle school: A practical guide.* Waco, TX: Prufrock Press.

Renzulli, J., & Hays, L. (2000). *The multiple menu model: A practical guide for developing differentiated curriculum.* Mansfield Center, CT: Creative Learning Press.

Rimm, S. (2006). *Keys to parenting the gifted child.* Scottsfield, AZ: Great Potential Press.

Rogers, K. B. (2002). *Reforming gifted education: How parents and teachers can match the program to the child.* Mansfield Center, CT: Great Potential Press.

Smutny, J. (2002). *Designing and developing programs for gifted students*. Thousand Oaks, CA: Corwin Press.

Starko, A. (2005) *Creativity in the classroom* (3rd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates Publishers.

Tomlinson, C. A., Kaplan, S., Purcell, P. Purcell, J., Leppien, J., Burns, D., & Strickland, C. (2006a). *The Parallel curriculum in the classroom: A design to develop high potential and challenge high ability learners.* Thousand Oaks, CA: Corwin Press.

Tomlinson, C. A., Kaplan, S., Purcell, P. Purcell, J., Leppien, J., Burns, D., & Strickland, C. (2006b). *The Parallel curriculum in the classroom: A design to develop high potential and challenge high ability learners, book 1.* Thousand Oaks, CA: Corwin Press.

Tomlinson, C. A., Kaplan, S., Purcell, P. Purcell, J., Leppien, J., Burns, D., & Strickland, C. (2006c). *The Parallel curriculum in the classroom: A design to develop high potential and challenge high ability learner, book 2.* Thousand Oaks, CA: Corwin Press.

Tomlinson, C. A., Kaplan, S., Purcell, P. Purcell, J., Leppien, J., Burns, D., & Strickland, C. (2006d). *The Parallel curriculum in the classroom: A design to develop high potential and challenge high ability learners, multimedia kit.* Thousand Oaks, CA: Corwin Press.

Van Tassel-Baska, J. (2003). *Curriculum planning and instructional design for gifted learners*. Denver, CO: Love Publishing Co.

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