The New Hampshire Gifted and Talented Curriculum Frameworks Addendum

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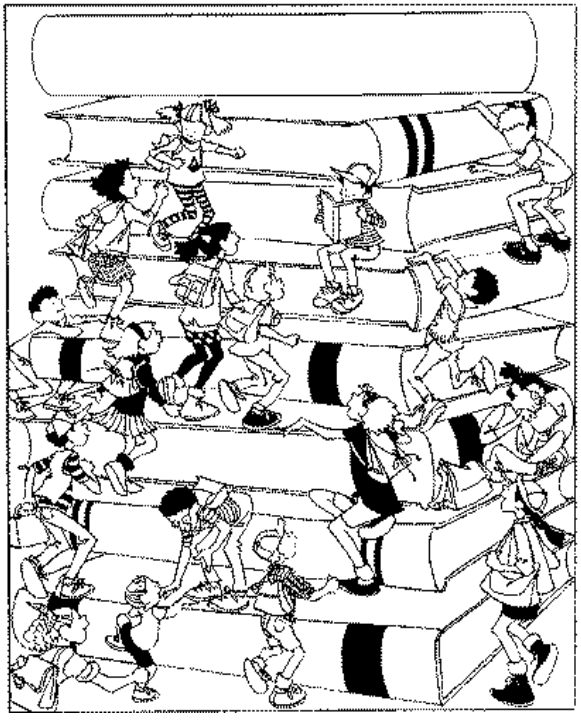

Curriculum Frameworks Rationale

Introduction to this Addendum

This Addendum is designed as a supplement to the *New Hampshire K-12 Curriculum Frameworks (i.e., Language Arts, Mathematics, Science, and Social Studies).*
It is intended to help school districts address the needs of gifted and talented students across the curriculum and throughout the grades (K –12).

Gifted and Talented Addendum Rationale

This *Addendum* provides information on assessment, instructional strategies, support services, and other professional education resources for teachers and other school staff who are involved in educating students, in grades K-12, who have demonstrated proficiency on statewide measures, a potential for higher level understanding and performance within and across curriculums, and a desire to excel in, and exceed, grade level expectations.

Accommodations can vary significantly among students. For an individual student these may include support to achieve grade level expectations in one discipline, while receiving material and instruction in another discipline that exceeds grade level content. This *Addendum* can assist educators in understanding the special needs of students with gifted behaviors and offers an array of strategies and instructional techniques that have proven to be both practical and effective.

Although statewide standards can guide a teacher in discovering both exceptional ability and a student's individual interests, educators will find within this *Addendum* a unique variety of other assessment tools and instructional strategies for assisting gifted and talented learners.

Teachers, whose students have demonstrated high levels of proficiency, performance, understanding, and a desire to excel beyond grade-level expectations, need specific strategies and techniques that address their students' unique educational needs. It is the sincere belief of the *Addendum Committee of the New Hampshire Association for Gifted Education* that this document will assist educators in that endeavor.

Definition

" Gifted Education in New Hampshire is viewed as a commitment to create, support, and sustain many services through which educators seek, bring out, and nurture *gifted behaviors* –the strengths, talents, sustained interests, and best potentials of our students. The goals and purposes of gifted education should therefore be considered more broadly (and we believe, more powerfully) than merely to select and label a single, fixed group of students to be assigned to a single, fixed program."

Gifted Education . . . does not merely imply "having a gifted program" in your school, district, or SAU, as much as it should address the dynamic and on-going process of challenging all students to become aware of their best potentials, and to fulfill those potentials as fully as possible through the opportunities and services offered throughout the school program."

Dr. Ellen Winner, head of the graduate psychology department at Boston College, wrote *Gifted Children: Myths and Realities* in 1996. In this book she states that gifted people "demonstrate three atypical characteristics:

- Precocity - Performing well above age level expectations in some area
- Rage to Master - Having a passion to do or to know in some specific area
- Marching to a Different Drummer - looking at their area of interest in a unique or unusual way."

In 1972, then United States Secretary of Education S. P. Marland, Jr. presented a report to congress on the gifted and talented. Recognized as a landmark document of research, the Marland Report is widely accepted and currently used as reference regarding this population. In his report he stated:

> "Gifted and talented children are those identified by professionally qualified persons who, by virtue of outstanding abilities, are capable of high performance. These are children who require differentiated educational programs and services beyond those normally provided by the regular school program in order to realize their contribution to self and society.
>
> Children capable of high performance include those with demonstrated achievement and/or potential in any of the following areas:
>
> 1. General intellectual ability
> 2. Specific academic aptitude
> 3. Creative or productive thinking
> 4. Leadership ability
> 5. Visual and performing arts
> 6. Psychomotor ability."

In 1988 Congress further changed the official definition of the gifted and talented to state:

> *"The term 'gifted and talented students' means children and youth who give evidence of high performance capability in areas such as intellectual, creative, artistic, or leadership capacity, or in specific academic fields, and who require services or activities not ordinarily provided by the school in order to fully develop such capabilities."* (P.L. 100-297, Sec. 41003, Definitions)

Regardless of the definition used, students with exceptionalities exist, and once recognized, their needs must be addressed.

Gifted Education – A Brief Overview

The true nature of human intelligence has been a hot topic of debate in scientific and academic circles reaching back to the 19th century. The following brief overview presents the historical, scientific, and legislative basis for gifted education, beginning with Darwin's contemporaries in Europe through federal budget cuts in the 1990's in the US. Educators, parents and other advocates may find this information useful in promoting their efforts to assure that children who are gifted and talented receive the support they need to reach their full potential.

Midway through the nineteenth century, Sir Francis Galton, an English scientist and a first cousin of Charles Darwin, began an investigation of human intelligence. Prior to his work in this area, no one had done a systematic investigation of the individual differences among human beings (Clark, 1986). The influence of his famous cousin's research into hereditary factors in the evolution of life, led Galton and many in the scientific community to explain differences in human intellectual capacity as the results of these factors. The effect of such scientific investigations into mental measurements had profound and far-reaching effects on the educational reforms during the second half of the nineteenth century.

A prominent figure in these early investigations of individual differences was Alfred Binet, a French psychologist. In the closing years of the nineteenth century Binet was approached by the French Government to determine which of the children of the city of Paris could benefit from instruction and which might not. In the process of completing his assignment he developed his now famous intelligence scales. In 1921, Dr. Lewis Terman of Stanford University revised Binet's intelligence scales, making note in the process of a dramatic rise in the IQ levels, especially of the youngest children, from the original test's normed scores. In 1925, Terman began a longitudinal study of the characteristics and behaviors of gifted children. This study has created, over the years, a wealth of data that supports a wider and more expansive view of intelligence, that is, that it can be altered by experience and improved upon by learning. A contemporary of Benet and Terman, Graham Wallas (1926) suggested that, however individuals' experiences may differ, creative thought must include the sequence defined by preparation (defining the problem), incubation (an idea is formed in the mind), illumination (moment of insight), and verification (testing the idea and checking solutions). Professor Leta Hollingworth at Teachers College, Columbia University, conducted systematic observations of children's gifted behaviors and produced, among other contributions, *Gifted Children: Their Nature and Nurture* (1926) one of the first textbooks for teachers to use with gifted children.

Jean Piaget (1954) proposed one of the more influential interactive theories intelligence, stating that stages of a child's development depend on both genetic endowment and the quality of the environment. He believed that the growth of the intellect was a result of the active participation of the child in the learning process.

In 1956, J.P. Gilford proposed his *structure of intellect*, theorizing that creativity was an important function of the human mental process. He coined the term *divergent thinking* to help explain the mental process of gifted children. Also in 1956, Benjamin Bloom, a professor at the University of Chicago, published his *Taxonomy of Educational Objectives*. Bloom asserted that individual differences are not so much between learners as people, as between what is learned (Smith, 1986). The work of Piaget, Guilford and Bloom in the 1950's convinced many professional educators throughout the last half of the twentieth century of the critical nature of early educational enrichment.

Throughout the school years, educators have observed that children who received instructional programs that matched ability with enriched learning experiences could be expected to achieve a substantially higher level of intellectual capacity as adults (J.McV.Hunt, 1961). In 1983, Howard Gardner, a Harvard University psychologist, debuted his highly popular book *Frames of Mind: The Theory of Multiple Intelligences.* He believed that intelligence evolves through a dynamic of the individual learner's competencies and the society's values and cultural institutions.

Federal legislation & gifted program supports

In 1957, the launching of the satellite, Sputnik, by the Soviet Union caught the scientific and academic communities across the country quite by surprise. This apparent state of technological unpreparedness was interpreted in Washington as a threat to our national security. This resulted in the creation, in 1960, of the National Defense Education Act (NDEA). This Act provided federal funds for college students entering professional schools, especially science, engineering, and math. Programs for students who were gifted began to appear throughout the country (Skitic, 1988).

A study conducted by the U.S. Commissioner of Education, Sidney Marland Jr. and released in 1971 determined that there were 2.6 million students across the country who were gifted and talented and that services for these children and youth were either non-existent or woefully inadequate. The Marland Report (1972) brought about legislation for gifted and talented students with an allocation of 2.56 million dollars of federal assistance. This legislation established a National Office of the Gifted and Talented to assist states in identifying students and for program development. Federal funding increased in 1978 with the passage of the Gifted and Talented Children's Act, which allowed for discretionary grants to states. In 1982 total federal funding for gifted education topped $126 million and reached all but two states with program support. However, federal support has been unstable. In spite of support for special projects, a Presidential Scholar's Program, and increased federal funding in 1975, by the end of the decade of the 1970's, the conditions identified in the Marland Report were little changed.

During the decade of the 1980's, citing other educational priorities, the federal government severely cut back its support of gifted education. Problems most frequently mentioned by state directors have been the lack of adequate funding, a need for trained and qualified teachers, and the development of comprehensive K-12 programming. Advocacy groups, including international and national organizations for the gifted began to from to meet some of these needs. In 1981, professional standards for training programs in gifted education were recommenced by the National Association for Gifted Children (NAGC). Currently the *Jacob K. Javits Gifted and Talented Education Act* (1988) provides funding for research, demonstration projects, personnel training, and similar activities designed to identify and meet the needs of gifted and talented students. It funded a National Research Center on the Gifted and Talented. By 1998, the Center had expanded to include four sites throughout the country: Yale University, University of Connecticut, University of Georgia, and the University of Virginia. Congress reduced the original authorization from $20 million down to a maximum of $10 million per year in 1995. This has had the effect of reducing program development, personnel training, and other such supports. Currently, however, there is new legislation, the Gifted and Talented Students Education Act (1999) introduced in the House as HR 627. If authorized the Act would provide gifted education funding to states based upon population (approximately $160 million, with at least $1 million per state). The funds would be targeted for personnel preparation, technical assistance, innovative programs and services, accountability systems, distance learning, and state infrastructure.

New Hampshire

In the report *Education for Gifted Children and Youth: A Guide for Planning Programs* (May 1056), a group of northeastern states, including New *Hampshire (The Eight State Committee*), proposed enrichment experiences in the public schools, special courses, accelerated scheduling, creative activities, investment in new instructional designs and other program development for students identified as gifted and talented. The New Hampshire State Board of Education in 1984 endorsed a policy that local districts identify and meet the needs of gifted and talented students within their districts. In 1985, a survey of State Directors of Gifted and Talented Programs (O'Connell, 1985) listed New Hampshire as having a full time consultant handling gifted and talented coordination for the Department of Education. Also in 1985, then Governor John Sununu presented his *Governor's Initiative for Excellence in Education*. Four hundred projects to benefit gifted and talented students were guided by this *Initiative's* Gifted and Talented Action Committee. In 1988, this same Committee prepared *A Feasibility Study of the New Hampshire "Magnet" School for Gifted and Talented.* From the results of their study the Committee recommended setting up summer schools (with specific themes such as science, math, or music) at a college/university for students who qualified, training of teachers and staff at summer institutes, pilot projects for distance learning, and curriculum development (e.g., diversified instruction). *The Governor's Initiative* included gifted and talented projects at college and university campuses, workshops and program development projects at local elementary and secondary school sites throughout the state.

In 1989, the Office of Gifted Education in the Bureau of Instructional Services for Elementary and Secondary Education published *Guidelines for Planning Gifted Education Programming in New Hampshire.* This was the culmination of work done in 1986-87 at the New Hampshire Governor's Institute on Gifted Education. By the spring of 1990, however, the New Hampshire State Department's Office of Gifted Education was officially closed due to budget cuts. The Department has since then assigned a consultant at the Bureau level to provide coordination and technical assistance for gifted education. In spite of the reduced federal and state funding, professional groups and interested individuals have continued to create and develop sustainable supports for students who are gifted. These supports have included enrichment activities for individual students and programs at school, after school, on weekends, and during summer breaks. In 1994 the New England Conference on the Gifted and Talented was established as an annual event. In 1996, the New Hampshire Association for Gifted Education hosted the New England Regional Conference in Nashua, NH, setting a record for attendance at its fourth annual two-day conference on Gifted Education. In 1999 the New Hampshire Association for Gifted Education, in collaboration with the New Hampshire State Department of Education, created the Gifted and Talented Curriculum Frameworks Addendum Committee. The Committee's primary goal was to produce a Gifted and Talented Addendum to the New Hampshire Curriculum Frameworks. This Addendum contains strategies and techniques for the use of teachers, specialists in gifted and talented education, and other professional educators to address the needs of children and youth who are gifted.

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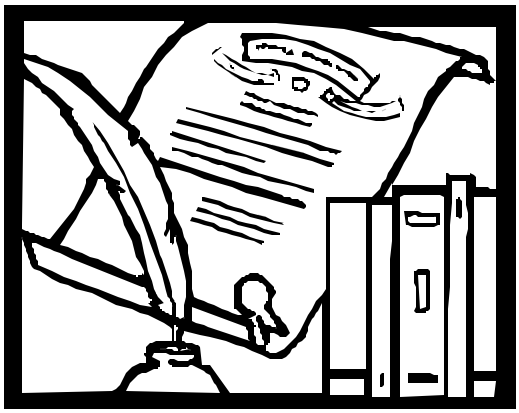
Historical Time Line of Gifted Education

1869 Sir Francis Galton, an English scientist, wrote Hereditary Genius and is credited with the earliest significant research and writing devoted to intelligence.

1904 The city fathers of Paris approached a psychologist named Alfred Binet with an unusual request: to devise some kind of measure which would predict which youngsters would succeed and which would fail in the primary grades in the city's schools. His discovery is known as *The Intelligence Test*. His measure was the IQ (Intelligence Quotient), a single score. An IQ test only tells how well one may do in school, by a specifically defined standard, and not how well one may succeed in life.

1916 Stanford psychologist, Lewis Terman made two historically significant contributions to gifted education. First he supervised the formal modification and Americanization of the Binet test, which then became the Stanford/ Binet IQ Test. Then, in 1920, he began the identification and long term study of 1,500 gifted children. These people were, and still are, the most studied group of gifted individuals in the world.



1926 Dr. Leta Hollingworth, of Teachers College, Columbia University published Gifted Children: Their Nature and Nurture, one of the very first textbooks in gifted education. Her work is now internationally recognized as significant in the field. Today many centers for gifted children throughout the United States are named for Dr. Hollingworth.

Graham Wallas, in an attempt to formulate an explanation regarding the unique mental processes of the gifted, defined the "Creative Process" as a four-step procedure:

1. Preparation (define the problem)
2. Incubation (idea takes shape unconsciously)
3. Illumination (moment of insight)
4. Verification (idea is tested and solution is checked).

1936-1940 Dr. Leta Hollingworth ran the *Speyer School Experiment* in New York City for gifted children. It was a joint project between Columbia University's Teachers College and the New York City Board of Education.

1957 The launching of the Russian satellite Sputnik led to many reports criticizing American education and, particularly the lack of recognition of the needs of gifted

children. Russia's scientific minds had outperformed America's. This triggered an American effort to improve education, particularly in the sciences and for gifted students.

1960 By the start of the decade the following had occurred:

- J.P. Guilford coined the term "divergent thinking" to explain the different mental capabilities of the gifted.
- Dr. Benjamin Bloom had created the structure of his "taxonomy":
    1. Fluency - producing many ideas
    2. Flexibility - producing ideas that go in different directions
    3. Originality - unusual, unique ideas
    4. Elaboration - the intense or extensive development of an idea
    5. Evaluation - finding merit or value in an idea.
- Anna Roe published her research on sixty-four eminent scientists.
- Donald MacKinnon researched architects and conducted left brain and right brain research.

1962-1966 Dr. Paul Torrance created the *Torrance Tests of Creativity*.

1963 Osborn and Parnes coined the term "brainstorming" to describe the type of thinking inherent in the gifted. They formulated and researched the formal process known as *Creative Problem Solving* (CPS).

Frank Barron, a Berkeley psychologist, compiled a short list of traits of highly creative people and developed the *Barron-Welsh Art Scale*.

1969 Amendments to the Elementary and Secondary Education Act (ESEA) directed the Commissioner of Education to make a national survey on the status of education for the gifted. This came to be known as *The Marland Report*.

1974 The first legislative action for the gifted and talented came with the allocation of $2.56 million of federal money. Since it had been estimated in The Marland Report that there were about 2.6 million gifted and talented children in the United States, this amount represented the sum of one dollar per child. This piece of legislation, however, did create the National Office of the Gifted and Talented and established a United States Office of Education definition (Marland Report), which was revised in 1978.

The National State Leadership Training Institute was created in Ventura County, California for the purpose of educating the gifted.

1980 – 1990 Research continued throughout the decade. Notables included:

Davis and Rimm, who published a college text Education of the Gifted and Talented. Dr. Rimm was also internationally recognized for her work with the underachieving gifted.

Joseph Renzulli formulated the *Enrichment Triad Model* and *The School Wide Enrichment Model* of education for the gifted.

Howard Gardner, Harvard University, formulated The *Theory of Multiple Intelligences*.

James Gallagher, University of North Carolina, served as president of the World Council on Gifted Children. Yearly conferences were held in Amsterdam, Tel Aviv, Hong Kong, as well as many other nations where concern for gifted children is a primary focus.

1990 - 1993 The United States Office for Gifted and Talented continues to dispense discretionary grants totaling over five million dollars a year. They are known as Javits Grants after the New York Senator, Jacob Javits, who worked tirelessly to further the cause of gifted education in the United States.

The National Research Center for Gifted and Talented is established with four sites throughout the U.S.: Yale University, University of Connecticut, University of Georgia, and the University of Virginia.

By spring of 1990 the New Hampshire State Office of the Gifted and Talented was officially closed due to budget cuts. However the Department of Education did make a part-time assignment of the post of State Director for Gifted and Talented Education to a consultant on staff.

1994 - The New England Conference on the Gifted and Talented was established.

1996 In October, The New Hampshire Association for Gifted Education hosted the New England Regional Conference in Nashua at the Marriott Hotel. It set a record for attendance for this fourth annual two-day conference on Gifted Education.

1999 – 2000 The New Hampshire Association for Gifted Education and The New Hampshire Department of Education collaborate to establish the New Hampshire Gifted and Talented Curriculum Frameworks Addendum Committee. The Committee's task was to write a document of strategies for teaching the gifted and talented aligned with the state curriculum frameworks.

Identification

CHARACTERISTICS

Although all of the following characteristics may not appear in each gifted individual, the following behavioral indicators assist in the identification of those students who could be defined as gifted and talented:

Skills beyond chronology
- reading well above grade level
- mastering a skill years before expectation
- having vast amounts of information regarding a particular subject

Exceptional body movement
- agility, grace, speed
- need to stand, sit, and change positions often throughout the day

Learning outside the classroom
- having information that has not yet been taught
- having skills that have not yet been taught or practiced

Social integration
- introversion
- aggressive behavior
- preference for relationships with older or younger people

Learning style
- perfectionism
- perseverance
- underachievement

Emotional
- heightened awareness
  - intellectual
  - sensory
- intensity – reaction to input (see research of J. Delisle)
  - thought
  - purpose
  - emotion
  - spirit
  - soul

- Overexcitabilities (OEs) (see research of K. Dabrowski)
  - Emotional - intensity of feeling
  - Imaginational - vivid imager, invention, and the capacity for creative imagination
  - Intellectual - a need to question, analyze, and think theoretically
  - Psychomotor - a high degree of energy, activity, and movement
  - Sensual - an intensity and craving for pleasure, a keen sensual aliveness to sights, sounds, smells, tastes, textures

Research has shown that the emotional OE combined with the intellectual OE is the most significant indicator of advanced potential.

The following are exceptional behaviors, which are sometimes seen, in gifted students:

- Underachievement
- Perfectionism
- Learning Disability
- Emotional Disability

See "Needs" section beginning on page 21 for further explanation

TOOLS FOR IDENTIFICATION

Certain instruments of assessment indicate exceptional potential in children. They can be useful in supporting the behavioral characteristics. The following are samples of these tools:

Tests

- End of year content tests (i.e. Silver-Burdett, Grade 5, mathematics)
- Unit and chapter assessments
- Teacher made tests
- Nationally normed standardized tests – Iowa Test of Basic Skills, CAT, MET
- NHEIAP
- Woodcock-Johnson
- Gates-MacGinitie Reading Test
- Key Math
- TOMAGS – Test of Mathematical Abilities in Gifted Students
- Scholastic Aptitude Test
- Johns Hopkins Talent Search – SAT, PLUS, SCAT
- SAGES – Screening Assessment for Gifted Elementary Students –Johnson and Corn

Behavioral Profiles

- Barbara Clark's Gifted Identification Model
- Barbara Clark's Identification Program for Culturally Diverse Gifted Students
- Renzulli, Hartman, Smith, and Callahan – Scales for Rating The Behavioral Characteristics of Superior Students
- Observations and Reports (i.e., coaches, music teachers)
- Portfolios
- Baldwin Identification Matrix
- Frasier Talent Assessment Profile

Creativity

- Torrance Test of Creativity
- Products, portfolios, and performances

Intelligence Assessments

- Stanford-Binet – (LM edition preferred for the gifted population)
- Wechsler Intelligence Scale for Children
- Slosson

Special Populations

- Harry Passow and Mary M. Frasier - *Toward Improving Identification of Talent Potential Among Minority and Disadvantaged Students*
- C. June Maker - *Identification of Gifted Minority Students: A National Problem Needed Changes and Promising Solutions*
- Linda M. Cohen - *Meeting The Needs of Gifted and Talented Minority Language Students*

Needs

General Needs of All Gifted Students

A. Identification Needs

Procedures and criteria need to be broad, comprehensive, and innovative, and they should value and promote diversity. They need to pay special attention to the underserved populations:

- Disabled
- Low Socioeconomic
- Culturally and ethnically diverse
- Adolescent female
- Underachieving

B. Cognitive Needs

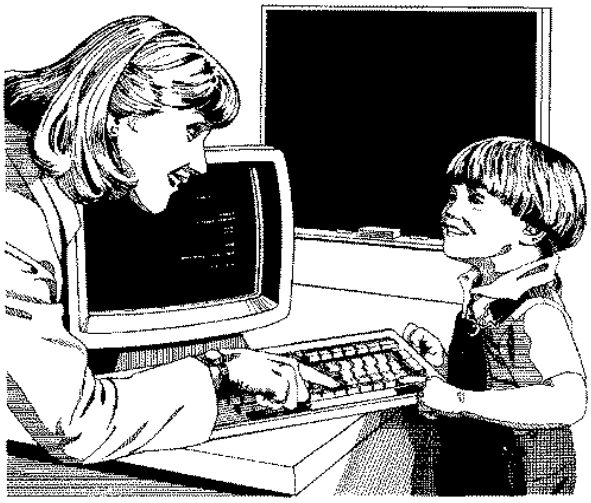
Services and programs for the gifted need to differentiate the curriculum through

- Establishment of base lines of mastery
- Pre-testing
- Compacting
- Acceleration in content and/or in grade level
- Enrichment in content, including depth and breadth
- Independent study
- Group directed study

C. Environmental Needs

The environment for the gifted needs to be one of acceptance by both teachers and students, and

- Be as non-restrictive as possible
- Encourage interaction with intellectual peers
- Cluster the gifted in classes where they can challenge each other
- Level curriculum so that it challenges the gifted
- Limit as much as possible short-term learning and time constraints
- Accept movement and nonconforming behavior



D. Affective Needs

The experiences of the gifted need to include opportunities to develop interpersonal and intrapersonal skills. These opportunities should include

- Interaction with intellectual peers for communication other than academic
- Attention to perfectionism and underachievement
- Career guidance, choices and paths

Whenever possible professionals, knowledgeable in the area of gifted children's affective development, should be consulted for support.

Specific Needs of Special Populations

The United States Office for Gifted and Talented has acknowledged that certain, minority populations of the gifted and talented exist. These minority populations exhibit unique needs.

A. Gender

Each gender has specific needs at different age levels. While providing for the educational needs of highly able students, these differences should be considered.

Barbara Kerr, PhD, author of *Smart Girls/Gifted Women* and *Smart Girls* (the follow up report) has made a career long study of the needs of gifted females.

Through her research and that of others, the following have been recognized as needs specific to the female gifted population:

- Recognition of achievements
- Rigorous and challenging coursework
- Acceptance of giftedness
- Involvement in extracurricular activities
- High expectations
- Non-stereotypic role acceptance
- Acceptance of assertive behavior
- Mentors and role models

B. Underachievement

A gifted student is considered underachieving when an incompatibility exists between the expected level of high performance/achievement and that which the student is actually achieving or producing. The underlying causes of underachievement in the gifted begin very early in life. However, once formal school experience begins they become more pronounced. There are two major causes of underachievement.

- Denial of authenticity - a lack of acknowledgement of the person's abilities
  - Lack of social integration
  - Denial of self and abilities
  - Facade of average ability
- Perfectionism - a behavior that demands flawless performance and/or product
  - Failure to complete assignments
  - Impatience with others' imperfections
  - Resistance to sharing
  - Denial of support and assistance
  - Lack of any attempt to produce

C. Social

From very early ages the gifted demonstrate a differentiated social nature. Some of the characteristics that they display are:

- Need and enjoyment of time alone
- Preference for the company of older and much younger companions
- Need for prolonged and intense conversations about esoteric interests
- Need to question experts in fields of interest, even total strangers
- Apparent anti-social behavior in traditional settings

D. Cultural and Ethnic

People from minority cultures and ethnic groups have traditionally faced unique challenges and have been under-identified in gifted education. Special considerations include:

- Need for non-discrimination in identification and programming
- Assistance in coping with stereotypes and assumptions regarding race and ethnicity
- Need of recognition of various cultural beliefs and customs
- Broader and more diversified procedures and instruments for identification of the gifted
- Programs and opportunities for the gifted which value and promote diversity
- Demonstrations of the accomplishments of minority gifted students

E. Socioeconomic

The gifted with Low-Socioeconomic-Status (Low-SES) are unidentified. Even when identified, Low-SES often causes attitudes in others (teachers, parents, and students), that impact their development.

Special considerations include:

- School administrators and educators who acknowledge the Low-SES gifted child
- Identification procedures and instruments which acknowledge the differences in characteristics between Low-SES, Middle-SES, and High-SES students.
- Collaboration between social service agencies, school and public counsel
- Teachers and gifted educators trained to deal with this special population
- Parent support, education and awareness training

F. Learning Disabled

In recent years much work has been done in the field of gifted education with those children who are gifted and have disabilities. “The gifted disabled are individuals with exceptional ability or potential and who are able to achieve high performance despite such disabilities as hearing, speech, vision, orthopedic, or emotional impairment, learning disabilities or other health problems.” (Davis and Rimm, 1998)

Some of the needs of this special population includes:

- Identification instruments and procedures that identify both disabilities and gifts
- Acceptance of talents as well as disabilities
- Balance of attention between remediation and talent development
- Skills and opportunities for independent learning
- Student awareness of strengths and disabilities
- Coping skills

Instructional Strategies

The following are strategies that teachers and administrators can employ to assist in the education of the gifted and talented. All of them are being used within the schools of New Hampshire and have proven to be successful concepts.

All educators, specialist (art, music, physical education, etc.), psychologists, guidance counselors, and administrators will find these concepts applicable to their area of education. The explanations outline the concept. The rubrics can be used by individual educators to assess their own behavior. Together, both can serve as a means to self-educate in how to better assist the gifted and talented in fulfilling their potential.

These strategies are, for the most part, inexpensive to implement. They can be employed by classroom teachers and can be incorporated into secondary schedules with relative ease.

For those schools who have specially trained and assigned staff for the gifted and talented, these instructional practices will serve as a method to promote and advance gifted education.

This symbol refers to Higher Order Thinking Skills, which are the infrastructure of all the other strategies. It will appear through out this section to remind users to incorporate these skills into their strategies.
Please refer to page 48 for further information.

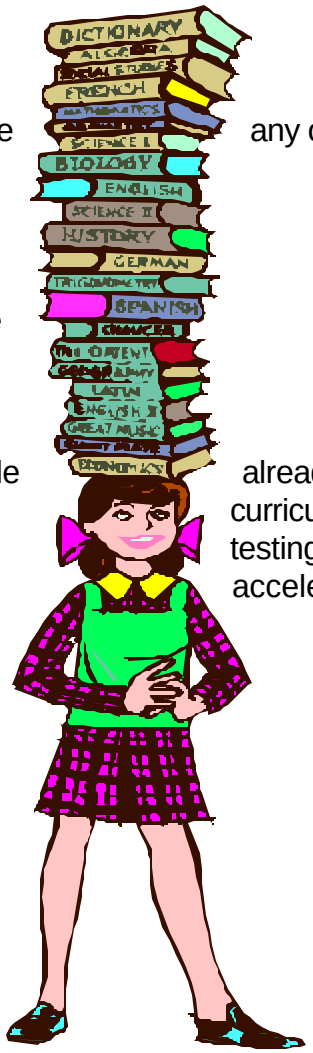
A. Acceleration

The practice of acceleration advances a student either within a particular curricular area or for an entire grade level.

Curricular Content

A student may show mastery and the need for acceleration through the following:

- "end of year" testing at the beginning of the year in a particular subject area (i.e. mathematics)
- pre-testing in a chapter or unit in a given subject area
- achievement testing
- New Hampshire Assessments
- Johns Hopkins Talent Search



Acceleration in this type of instance may take any of the following forms:

- Bringing the curriculum for that subject into the classroom for the student to use
- Sending the student to a higher grade for instruction in that subject area
- Sending the student for part of the day to another school (appropriate grade level) for instruction in that subject

Grade Level

In some instances a student will enter a grade already having mastered what will be taught that year in all areas of the curriculum. This may be indicated by achievement testing and "end of year" testing at the start of the school year. In this instance "whole grade level" acceleration may be indicated.

Considerations

When considering "whole grade level" acceleration the following should be considered:

- Age
- Emotional development
- Physical development
- Parental support
- Educational support
- Student interest

A. Acceleration

Novice	Basic	Proficient	Advanced
Teacher notices students with advanced ability and provides additional work to them.	Teacher determines student ability through assessment and provides advanced content or enrichment activities for high achieving students.	Assessment results indicate that student has mastered much of grade level content and teacher works with colleagues to provide appropriate levels of instruction.	The teacher works with all school support personnel and parents to analyze the possibility of acceleration to a higher grade level for some or all instruction.

In the first grade Samantha excelled in all academic areas. Nearing the end of the school year, her parents requested a conference with the teacher to discuss ways in which to challenge their daughter. She was happy at school, but certainly not challenged. Samantha's teacher, seeing a child who not only showed mastery of first grade material, but mastery of all second grade material approached the principal. Although the school had never done so in all of its ten years, the principal recommended that Samantha be accelerated to third grade in the fall. Considerations were made for her small size, and to the fact that she would need to make new friends. As a team, Samantha, her parents, teacher, school guidance counselor, and principal chose acceleration, and the accommodations necessary to make it a success. Now in grade six Samantha continues to be accelerated in subject content working several grade levels ahead in mathematics and language arts. Everyone involved agrees that the decision was crucial in Samantha's education. She is happy, well adjusted, and she continues to excel in her studies. All the adults in her life are aware that once she is a teenager special considerations will have to be made for her to move within the social circles available to her, and they are prepared to deal with these.

B. Cluster Grouping

Cluster Grouping is the practice of assigning the identified gifted students to the same classroom, teacher, or team of teachers to provide academic challenge and affective support. The rest of the class or team is made up of a heterogeneous mix of students.

While clustered in this way, the gifted students are regularly given assignments that will allow them to challenge themselves and each other. At other times they may work in heterogeneous groups, or in pairs with another gifted student.

Since gifted students have talents in different domains (i.e. verbal/linguistic or visual/spatial) it is conceivable that this cluster will not have students of equal strength in the same domains and therefore will be a heterogeneous cluster of gifted students.

Considerations

Teachers assigned to this cluster group should feel comfortable working with students who will, at times, know more about a particular subject, or be better able to execute a particular skill than the teacher him/herself. The teacher will have to know how to both compact curriculum and to differentiate the existing curriculum.

B. Cluster Grouping

Novice	Basic	Proficient	Advanced
Students are grouped, but rationale is not apparent.	Students are grouped with specific goals or objectives apparent.	Students are grouped by similar ability with a specific goal/objective identified.	Students are grouped by ability/learning style/interest and grouping is content/process specific.
Instruction is not differentiated.	Access to enrichment or advanced level material is evident.	Instruction is varied and focused on student ability and interests.	Instruction is designed to match ability/interest or learning style.

Mrs. Prempas, a third grade teacher in a heterogeneous classroom, noticed advanced mathematical ability in a half dozen students. While the rest of the class worked on mastering math facts, the teacher set up interesting learning centers for these students and gave them the opportunity to explore fractions and decimals, and other new math principles. At the end of the year when teachers met to place students for the following year, this teacher spoke in favor of keeping this group of children together. They had made great advances, and worked well together as a group. Previously in this school district, students with above average ability would be spread out among the eight teachers of the next grade. Half the class would be male and half female. Using Mrs. Prempas' innovative suggestion, these students were allowed to stay together and were placed in a classroom where their teacher was eager to work with them. The fourth grade teacher reported that the group benefited greatly from having peers with whom to work. This cluster group shows continued above grade level mastery on standardized tests

B. Cluster Grouping – District Wide

In one school district where the gifted and talented were identified in Kindergarten through grade twelve, the district decided to designate a teacher at each grade level K-6 and a team of teachers in grades 7-12 as Gifted and Talented Cluster Group Teachers. These teachers would attend a special summer institute to familiarize them with strategies like curriculum compacting, flexible grouping, etc., and how to align the curriculum according to the frameworks and to the needs of these special students.

Each teacher would then have the G&T students identified at that grade level assigned to their classes. This would mean that the teachers would be able to better use their time and plan for their students. Each school could better plan the continuity of education for the identified students. Transitions from grade to grade and school to school would be expedited. The gifted and talented students themselves would have the benefit of being, not only with their intellectual peers, but also with teachers who were best trained and who truly wanted to be teaching these students.

C. Compacting Curriculum

The term curriculum compacting refers to a process in which a teacher pre-assesses above-average-ability students' skills or knowledge about content prior to instruction and uses this information to modify curriculum. It is an eight-part process in which the teacher will do the following:

1. Identify relevant learning objectives in a subject area or grade level.
2. Find or develop a means of pre-assessing students on one or more of these objectives prior to instruction.
3. Identify students who may benefit from curriculum compacting and should be pre-assessed.
4. Pre-assess students to determine mastery levels of the chosen objectives.
5. Eliminate practice, drill or instructional time for students who have demonstrated prior mastery of these objectives.
6. Streamline instruction of those objectives students have not yet mastered but are capable of mastering more quickly than their classmates.
7. Offer enrichment or acceleration options to students for whom curriculum has been compacted.
8. Keep records of this process and the instructional options available to "compacted" students.

As defined by Reis, Burns, and Renzulli in *Curriculum Compacting*, Creative Learning Press, Inc., 1992.

C. Compacting Curriculum

Novice	Basic	Proficient	Advanced
Teacher notices the variation in student ability.	Teacher does some pre-testing to determine individual proficiency prior to developing a new unit of study.	Teacher generally assesses student understanding prior to developing a unit or course of study.	Teacher always assesses student understanding prior to developing the unit or course.
Some modification is made acknowledging different levels and learning styles.	Assessment data is used to develop different activities for students who have demonstrated proficiency.	Teacher has a working knowledge of which students are proficient in specific content areas and uses flexible groups keyed to student strengths.	Teacher uses this information to establish individual and small group instructional plans that include individual learning styles, pacing and mastery.
This modification used during direct instruction.	There is time for students to work on specific projects during regularly scheduled classes.	There is time for students to work on projects designed into the instructional format. Practice work in areas of mastery is eliminated.	There is no practice work in areas of demonstrated mastery.
Students work with teacher.	Students generally work with the teacher or are self-directed.	Mentorships are encouraged.	Individual research, interests, mentorships, and real-life applications are part of the study and assessment.

C. Compacting Curriculum

Along with three other students, David entered sixth grade identified as a gifted student in mathematics. His teacher believed that giving David advanced pre-algebra work once he had finished the regular work would satisfy the need for challenge expressed on David's Individual Action Plan (IAP – see page 53) for Gifted Students.

By the second month of school David, was complaining about the slow pace in math and the fact that he was doing twice as much work as other students in less than the same amount of time. His teacher met with the Gifted and Talented Resource Specialist to discuss the situation.

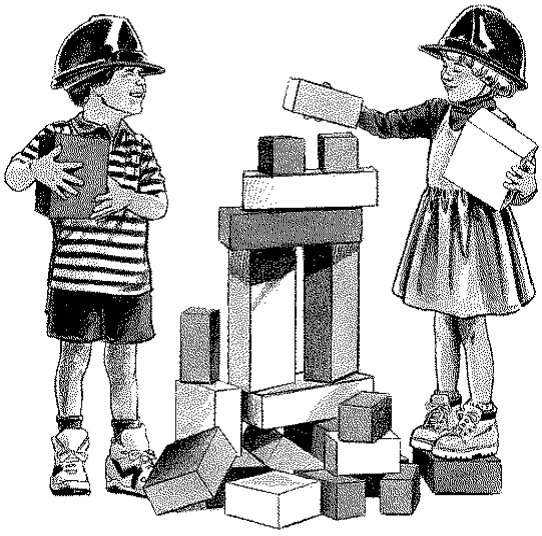
The G&T Specialist did both a comprehensive math test for basic skills (Shaw-Healey) and an Algebra Prognosis Test (Orleans-Hanna). David earned perfect scores on both tests and his three advanced classmates did almost as well. The only areas that indicated additional practice might be necessary were in the areas of higher level geometric problem solving.

It was decided that all four students (flexible group) would work on a daily basis in algebra with the G&T specialist (directed study) which would replace the regular mathematics curriculum. However, whenever the classroom teacher was introducing and practicing geometry concepts, the group would attend the instructional sessions and do a minimum of activities to insure comprehension (compacting).

D. Cooperative Learning

Gifted students need to be with their intellectual peers during some cooperative learning experiences. They cannot be expected to always "carry" the cooperative learning group through the learning experience to a successful conclusion. It is essential that group learning experiences for the gifted provide academic and intellectual growth as well as opportunities in leadership and interpersonal development.

The Cooperative Learning Model is an instructional strategy that employs small groups (3-5 students) to promote peer interaction and cooperation in the learning process. Students use a variety of learning activities to improve their understanding of a subject or area of interest. Team members are responsible for creating an atmosphere of collective success and achievement (Balkcom, 1992). These groups emphasize not only academic content, but also social/interpersonal skills.



To be effective for gifted students, Cooperative Learning must go beyond the usual format. The tasks and projects of these groups must include materials and curricular content that is challenging to each individual student. These may include, for example: more instructional models that emphasize the upper three levels of ***Bloom's Taxonomy of Educational Objectives (1956)*** (see Appendix -Page 68), that is: analysis, synthesis, and evaluation. The pace of the instruction must also be individualized for the gifted students and their tasks; pieces of the overall projects must be differentiated from other student assignments within the group in order to challenge each student at the appropriate level.

When planning cooperative learning experiences, the teacher should consider whether it would be more appropriate to assign activities to individuals, dyads, triads, or the entire small group (3 to 5 students).

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D. Cooperative Learning

Novice

The teacher arranges students for cooperative learning in groups of mixed abilities.

Basic

The Teacher has different roles and different goals for students based on their knowledge of subject and ability with the tasks.

Proficient

The teacher mixes groups on a regular basis and may put all high ability children together on occasion. Specific roles and goals focus on students' skills and abilities.

Advanced

Cooperative groups are formed in a variety of ways. Projects are designed so that each student's unique contribution is successful, recognized, and welcomed.

Mr. Carey teaches an eleventh grade, second year, Japanese language course. After assessing his students' interests and strengths he selects four topics for the students to pursue during their study of Japanese culture. These topics include music, technology, architecture, and food. Each student will become an expert in his/her area of interest. Then, working as a team, the students will prepare a rationale, which demonstrates how two of the topics influence the remaining pair. They will present a product, which clearly illustrates their proposal.

E. Differentiated Instruction

Specific attributes of Differentiated Instruction start with teachers having a very clear idea of the essential concepts, principles, or skills they want to teach. Like other aspects of meeting the needs of gifted students, assessment is on going and diagnostic, coming from small group discussion, journal entry, homework assignment or an interest survey. After reflecting on information from the assessments, the teacher modifies content, process, or products for students, adapting the curricular element based on student characteristics. Students participate in respectful work and collaborate in learning with the teacher. Goals of the differentiated classroom are maximum growth and individual success with flexibility as a hallmark.

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E. Differentiated Instruction

Novice	Basic	Proficient	Advanced
The teacher notices there are a variety of learning abilities and styles in the class.	The teacher initially assesses the students' ability and develops a profile of individual learning needs and strengths.	The teacher assesses both prior to and during the instructional time and the focus on individuals is evident through the responsiveness of the instruction.	In evidence is 1. the teacher's knowledge and understanding of the students' skills, interests, knowledge, and cultural heritage, and 2. the teacher's ability to demonstrate caring and respect for individuals.
Different levels of reading material are used on occasion.	The teacher varies much of the instructional material according to student ability and/or interest.	There is a wide range of instructional practices, use of varied materials, and grouping strategies during the unit of study.	The teacher uses 1. a wide range of instructional strategies, 2. varied texts and supporting materials 3. grouping strategies, and 4. student choice throughout the unit of study.
Clarity of learning goals and concepts are not evident.	The concepts to be learned are well defined and instruction is generally focused on students' achieving specific goals.	The teacher's plans and practices often reflect knowledge and understanding of the goals to be achieved, and interrelationships with other areas.	The teacher's plans and practices always reflect knowledge and understanding of goals to be achieved, and interrelationships with other curricular areas.

E. Differentiated Instruction

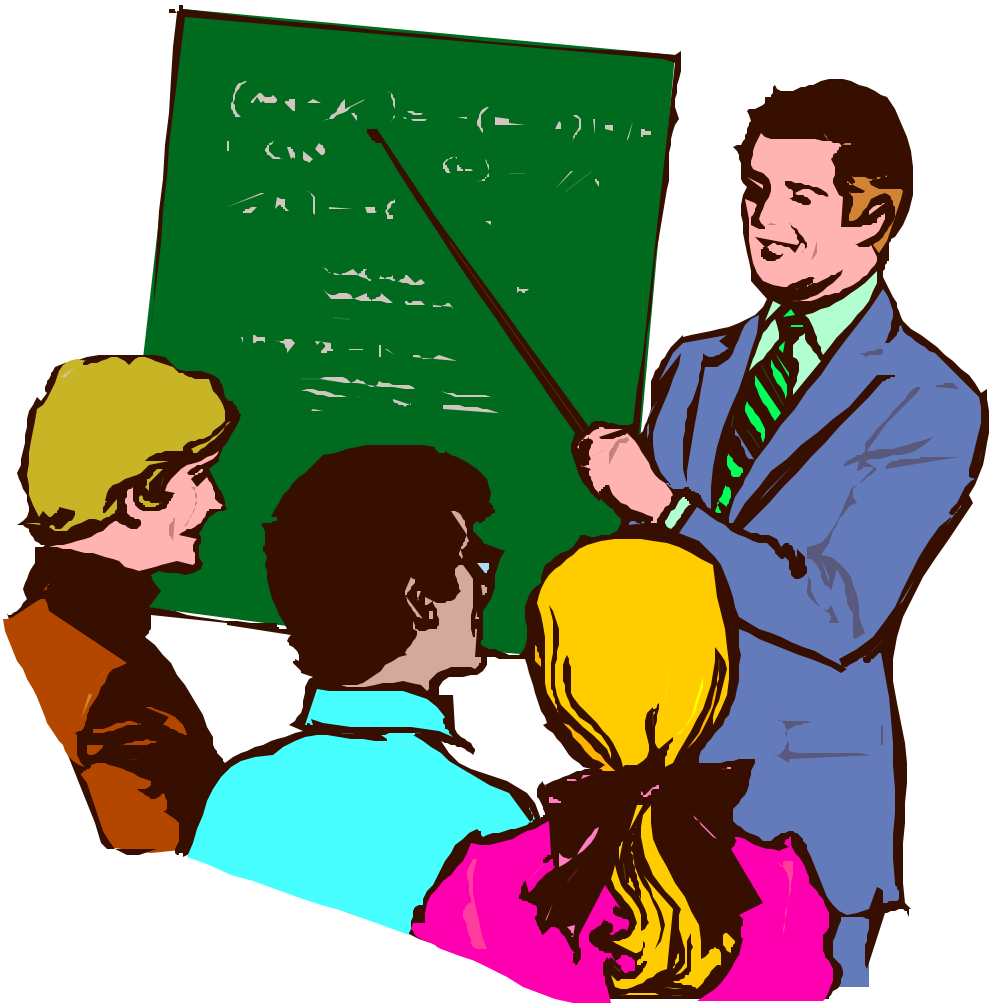
Mrs. Gottit teaches a seventh grade geography unit that is concept based, focuses on student commonalties as well as their differences in readiness, interest, and learning profile. She has determined that the unit is based on the influence that geography has on culture, economic growth, and the history of an area. Mrs. Gottit makes decisions about assignments, activities, and assessments based on her students' understanding of the interdependence of nature and humans.

The unit of study takes into account varied reading abilities. Readings are assigned that support the essential goals, but are at different levels. Activities involve many different pairings and groupings of students, as well as a variety of media and resources to support instruction. Mrs. Gottit provides opportunity for students to work directly with her and does informal assessments before assigning tasks. She provides information to students regarding the goals of the learning experience through graphic organizers. She also varies instructional times and uses discussion to highlight key areas. Students are given a variety of options for demonstrating learning: research through papers, creative writing, drama, music or other formats. She works with students to devise rubrics relevant to their specific topic.

F. Direct Instruction

Although gifted and talented children are often able to work independently on projects, they benefit greatly from having the opportunity to work one on one, or in small groups, with their teachers or other professionals.

When time is set aside for direct instruction at an appropriate level, the students are able to get immediate feedback to their questions, and they can fulfill their rage to master as they work at their own pace in any given instruction. There may be times when the classroom teacher is unable to offer the time needed for direct and specific instruction at an advanced level. Outside professionals can be utilized to support advanced Direct Instruction.



F. Direct Instruction

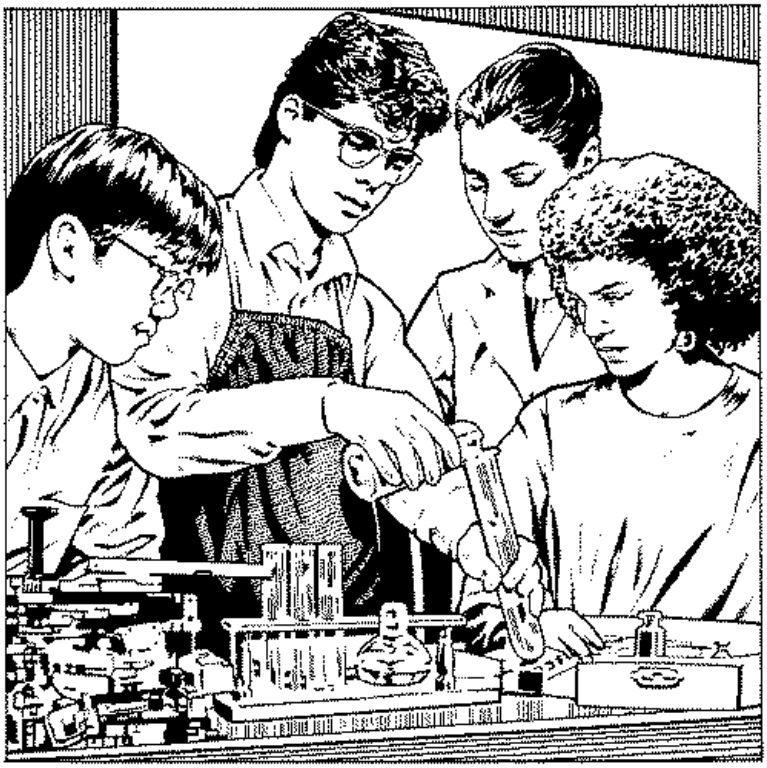
Novice	Basic	Proficient	Advanced
The teacher notices that students have varied abilities.	The teacher identifies students with advanced ability.	The teacher regularly provides advanced levels of instruction to high ability students.	All instruction for advanced students is focused on their ability.
The teacher occasionally provides these students with additional related material.	The teacher provides direct instruction to these students on a regular basis. It focuses on specific student ability and interests.	Practicing professionals are found to work with these high achieving students during instructional time.	Instruction is either teacher driven or provided by an expert in the field.

Elana is a fifth grade student who has always excelled in science. She had been allowed to do a few independent studies on topics of her choice relating to the current units of study. Although she is an independent learner and self-motivated, her teacher sensed that she needed immediate feedback on her work, and would benefit from direct instruction at an advanced level.
The class was doing a unit on the human body. Elana was particularly interested in exploring diseases and their causes. Her teacher arranged for her to spend an hour each week at the local university. A teaching assistant in the Pathobiology Department worked directly with her preparing and evaluating tissue samples of healthy and diseased specimens. Elana did an oral presentation for her class utilizing visual materials she had helped produce.

G. Directed Study Group

When a small group of gifted students share the same area of strength and interest (i.e. language: writing and reading) forming them into a Directed Study Group is a most effective way to encourage the development of their talent. The D.S.G. offers an accelerated pace of learning and producing, often presenting material and setting expectations years ahead of the chronology of the students.

The D.S.G. most closely resembles a small, college-level, seminar class. The facilitator (teacher) acts to guide the students through the process of self-discovery, interaction between the students themselves, and through the challenge and diversity they present to each other. The appropriate atmosphere for gifted children's optimum learning is provided by this educational format.



This D.S.G. can be a part of a regular curricular program, embedded into the daily structure of a classroom. Or it can actually replace a subject class (i.e. English, grade eight) entirely.

Most often, at the middle school level a D.S.G. is used to replace English and Social Studies for the gifted in the verbal/linguistic and naturalistic domains. Schools often call this class "Humanities" and it is scheduled so that it replaces these two subject areas for gifted students.

G. Directed Study Group

Novice

The teacher groups students with similar abilities for instruction for part of instructional time.

Basic

The teacher gives instruction based on mastery level to grouped students with additional material to enhance the learning of the group.

Proficient

The teacher supplants most of the curriculum with advanced material, providing student choice, accelerated pacing, and Socratic questioning.

Advanced

The teacher totally supplants curriculum with differentiated materials based on the group's mastery level. Students set individual goals. Research and Socratic questioning dominate instruction with pace as fast as students can tolerate.

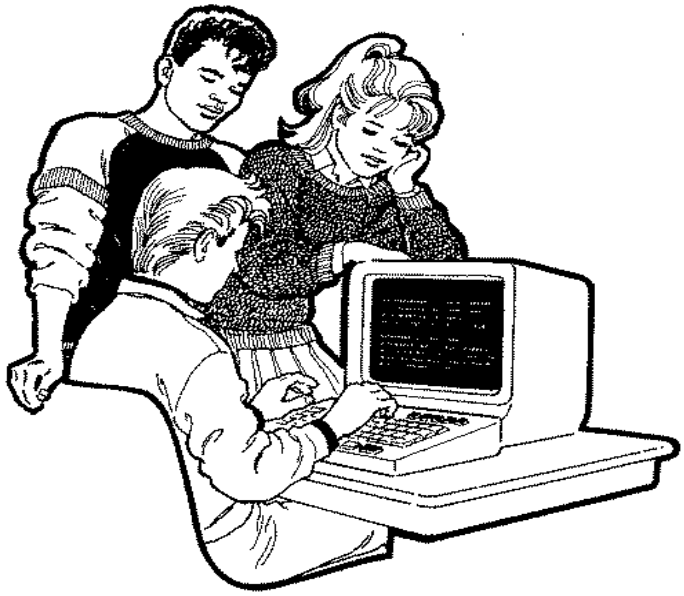
G. Directed Study Group

Cathy, Mary, Ruth, Sam, Zeke, Ted, and James were all identified as verbally/linguistically talented and were in the gifted and talented program in their junior high school. As seventh graders, they had a teacher who stretched their abilities, challenged them to new heights, and nurtured their creativity. In the beginning of grade eight it was apparent that they would need more than was going to be offered to them in the area of English. Several of their parents approached the teacher and principal in an attempt to advocate for more rigor and creativity in the educational environment.

After careful consultation and assessment of available resources, it was decided that the Gifted and Talented Resource Specialist would establish an English course called a Directed Study and become the 'teacher of record' for these seven gifted students.

The curriculum was aligned with the frameworks for English, but the content and pace were accelerated to meet the needs of the students. College level reading material was used and the opportunities for writing and assessment were dramatically increased.

The seven students themselves acted as do most college students: assessing each other's work, analyzing literature, extrapolating concepts from other pedagogy and paralleling them with literature.



Their writing was assessed using the traditional state criteria, but far exceeded expectations for that grade level. The literature comprised a wide variety of genre but all was sophisticated and reflected issues of importance to the students who selected the titles with guidance from the specialist.

Each student set her/his own goals for the yearlong course and assessed his/her progress in writing on a quarterly basis. The participants, being highly self-motivated and self-directed, raised the level of challenge and pace of learning beyond expectations.

Plans were made the following year to free a faculty member in the English department to continue this directed study.

H. Flexible Achievement Grouping

It is important to determine if a gifted student has already mastered a particular unit of study before it is taught. If a gifted student has mastered the entire year's curriculum in a particular subject area then acceleration should be considered. (See page 26) When a gifted student has mastered part of the curriculum but still needs instruction and practice on other parts, then achievement and flexible grouping is appropriate.

The terms achievement and flexible grouping refer to temporary groups which are formed to meet the needs of students in a particular subject area. Before a group is formed, the students need to be pre-tested. The group can be large or small and can last for a few days or up to many months. The following scenarios are examples of achievement or flexible groups.

After pre-testing, it is determined that five fifth grade students need instruction on fractions for one week because they already know most of the material. While the rest of the class continues to work on fractions, the achievement or flexible group moves on to enrichment activities with fractions or accelerates into sixth, seventh, or eighth grade fraction concepts.

After pre-testing, it is determined that three students know everything in the second grade unit on dinosaurs. They might even know more than the teacher! For the four weeks of the dinosaur unit, they study plate tectonics instead. The media specialist helps them with research and at the end they present what they have learned to the class.

After pre-testing, it is determined that eight sixth grade students have superior research skills and do not need instruction in note taking, outlining, etc. This group meets with the teacher and they decide to research the history of political parties in this country. This will prepare them for the next unit on the presidential election. It will also enrich the material that will be presented during this next unit.

After pre-testing, it is determined that two ninth grade English students have mastered the grammar rules to be covered during the next month of English class. They instead decide to read two of Shakespeare's plays. The teacher meets daily with this flexible or achievement group and they often decide to continue their discussions over lunch.

Considerations:

Long-range Planning:
Vertical acceleration versus horizontal (breadth and depth in a topic) requires long range planning for students. Consultation with teachers and administrators is necessary in order to plan for subsequent years.

Size of Group:
Small numbers and good matches of ability and personality ensure that the needs of the learners are addressed and education is maximized.

Parent Understanding:
It is essential to inform parents of why the groups exist and the purpose of the work. It is also vital to have them involved in any long-range planning.

Teaching Assistance:
Mentors can help with an achievement or flexible group. Also parents and volunteers are good resources to assist the learning process.

Responsibility:
The groups of students formed in this manner are entitled to the teacher's time and expertise. Although these students are usually self-motivated and independent workers they do need the guidance and instruction provided by the teacher.

Audience:
Achievement or flexible groups usually create a performance and/or product which needs an audience in order for the work to be meaningful for the students involved. Classmates, parents, other classes and grades, as well as extended community members, make excellent audiences.

H. Flexible Achievement Grouping

Novice

The teacher assesses student ability and occasionally provides students with varied assignments based on the assessed ability.

Basic

Teacher uses the data from student assessment to group students based on their ability for specific assignments.

Proficient

Teacher regularly assigns students to a variety of instructional groups based on their ability and interests.

Advanced

Teacher works with colleagues in adjacent grade levels to assess and group students for instruction, based on interests, abilities, and specific goals of instruction.

H. Flexible Achievement Grouping

Scott and Andrea are in the third grade. Their math work is excellent when it comes to reasoning and concepts but their computation work is sometimes careless.

After doing some testing, Mr. Fredericson determines that they are at a sixth to seventh grade math level with a few gaps in geometry and multiplication facts.

He requests a parent conference where he learns that both students love working on math at home and each has taken enrichment courses at the local university.

Mr. Fredericson starts an achievement or flexible group for these two students. He does require Scott and Andrea to participate in lessons on geometry and multiplication facts practice, but most days they are in a separate group. He is amazed at what these two students can handle. They explore prime and composite numbers and try to come up with divisibility tests. They also write algebraic equations to solve word problems. Mr. Fredericson is very excited to work with these students.

I. Higher Order Thinking Skills

Bloom's (1974) Taxonomy of Educational Objectives (see Appendix – Page 68): Cognitive Domain lists six categories of thinking skills: knowledge, comprehension, application, analysis, synthesis, and evaluation. The skills of analysis, synthesis, and evaluation are considered the higher level thinking skills. Analysis skills ask students to make inferences, find generalizations, identify causes, etc. Synthesis skills ask students to derive relationships, produce products, organize theories, etc. Evaluation skills ask students to give opinions, defend choices, judge merit, etc.

Use

Higher order thinking skills should be continuous for students throughout the school day. It is particularly important to demand higher level thinking skill of the gifted students. Gifted students can quickly master knowledge, comprehension, and application. Their time is better spent focusing on the higher order skills. They should be encouraged to analyze, synthesize, and evaluate all information they encounter. The true nature of the gifted is to do these as a natural part of the behavior.

No matter how young the gifted student, the higher order thinking skills need to be incorporated into all assignments. For instance, in grade one a project on cats could include an analysis of the "good" and "bad" things about cats presented to the class on a chart. In a secondary school unit on pesticides, a gifted student could be asked to create guidelines for the use and regulation of these chemicals, considering the needs of all parties involved from farmer to pesticide manufacturer, as well as the innocent by-standers.

Considerations

The gifted are often hungry for more information on a topic that interests them. Because many gifted read on their own, research, and retain vast amounts of information, they often prefer to go into depth and breadth when dealing with certain subject areas. Analysis, synthesis, and evaluation are a natural part of this process for them.

Advanced research and Internet access skills are important to the gifted, as well as the time available to do them. Teachers who are most successful in teaching the gifted the higher order thinking skills show

- A skill with the use of higher level material
- Flexibility in allowing differentiated assignments and projects within one subject area
- The skill to ask higher level questions and to provoke thought and discussion
- Refer to Resource section for WEB sites

I. Higher Order Thinking Skills

Novice	Basic	Proficient	Advanced
The teacher tailors questions or products to Bloom's Taxonomy.	The teacher often asks questions or provides opportunity for students to engage in analysis, synthesis, and evaluation, accepting unexpected answers to questions.	The teacher consistently provides opportunity for students to engage in activities that require analysis, synthesis, and evaluation, encouraging unexpected answers, questions, and in-depth discussion of topics.	The teacher continuously requires students to use analysis, synthesis, and evaluation in all activities, demanding unexpected answers, questions, and in depth discussions, and fostering metacognitive strategies.

Higher Order Thinking Skills

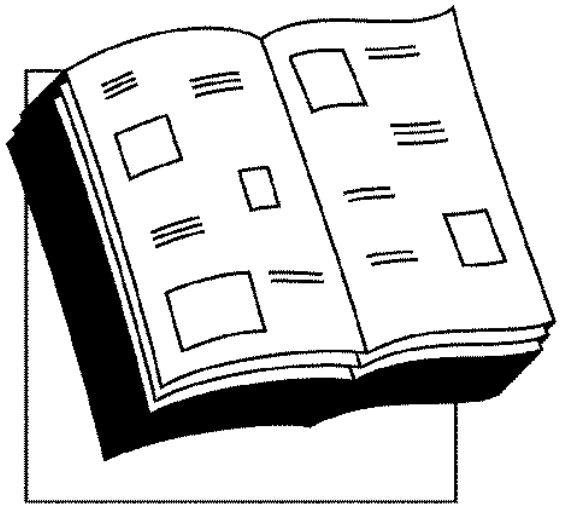
Suzanne is a sixth grade student who has a passion for Ancient Egypt. When she was three, her uncle took her to the Museum of Natural History, where there was a special exhibit on Ancient Egypt. Since that time she has devoured anything she can get her hands on related to the subject. When it was time for the sixth grade unit on Ancient Egypt, Suzanne's teacher gave her the end of the unit test and realized that she already knew more than was actually going to be taught, and more than the teacher herself knew regarding the topic. The teacher allowed Suzanne to share some of her knowledge with the class at the beginning of the unit and then the teacher and student created an interesting and motivating project. They decided that Suzanne would research the governments of three countries in the present time, and then compare and contrast them to the government of Ancient Egypt. Finally, Suzanne was to combine all four to create a new, ideal government. She then came up with an original presentation to share this new paradigm with her class.

J. Independent Study

Independent Study is a strategy that is used when a student has demonstrated both an interest in and a base knowledge of a particular subject. It is most often employed when pre-testing has shown mastery over material intended for instruction. However, it is also used when a student has rapidly learned new material and wants to further explore a topic.

Rather than being instructed on material already mastered, a student and his/her teacher develop a plan outlining what will be researched and the exact nature of the product and/or performance which will be the result of the study. The teacher, in turn, will establish the method of assessment to be employed. Often a signed contract is used.

There are two primary goals of independent study. The first is to help students develop their particular talent and interests. The second goal is to increase student knowledge of a content and/or skill area. Additional benefits to independent study include increased independence and self-reliance, appropriately paced learning, opportunities to learn in depth and breadth, and decision-making skill development.



Often independent projects are reflective of dominant learning and thinking styles as exemplified through Howard Gardner's Theory of Multiple Intelligences (see Appendix – Page 70). This can be a wonderful opportunity for a student to learn through the manner that suits her/him best. Having the opportunity to choose a specific interest area helps ensure the success of a study and challenges the student to learn new material.

J. Independent Study

Novice

The teacher notices students who finish work early and occasionally gives those students the opportunity to work alone on some additional practice material.

Basic

The teacher keeps track of those students who regularly finish work early and plans additional curriculum-based assignments for students to complete independently.

Proficient

The teacher plans lessons with opportunities for students who have demonstrated advanced learning to do further research and to share their learning. The teacher often seeks volunteers to assist students with accessing materials.

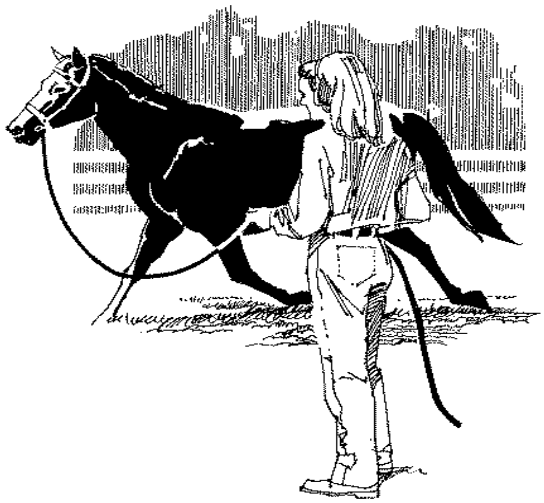
Advanced

The teacher incorporates pre-testing as an integral part of lesson planning and provides options for researching mastered topics, writing contracts, outlining goals, methods of research, product/performance, and audience. The teacher also establishes a partnership with colleagues or mentors to assist the student.

J. Independent Study

Despite the fact that Kate was in a ninth grade level one English class, her teacher noted early in the year that she always seemed to do her work more quickly than most of the other students. She needed little instruction in grammar, her writing was of publication quality, and her creativity was outstanding.

Kate had a fascination with horses and seemed to be able to weave her love for these animals into whatever writing she was doing. Her teacher inquired and was informed that Kate's goal was to become an equestrian veterinarian. In fact, Kate had researched the outstanding veterinary universities and had already contacted them regarding her candidacy.



Kate's teacher decided that Kate would benefit from a long-term research project focusing on both literature and horses. She took some time to brainstorm ideas with Kate, who soon had a contract for an independent study which included reading a selection of literature with common horse related themes. Kate would use the Internet to study what various authors and critics had to say about the literature and she would develop an historical perspective on the theme of horses in literature.

Since Kate was also an outstanding artist, she decided that she would create a visual presentation to be displayed in the school's media center. The display would synopsize the literature she had read, the critics' thoughts and analysis, common and contrasting threads throughout the selections, and diagrams and spreadsheets to support her conclusions.

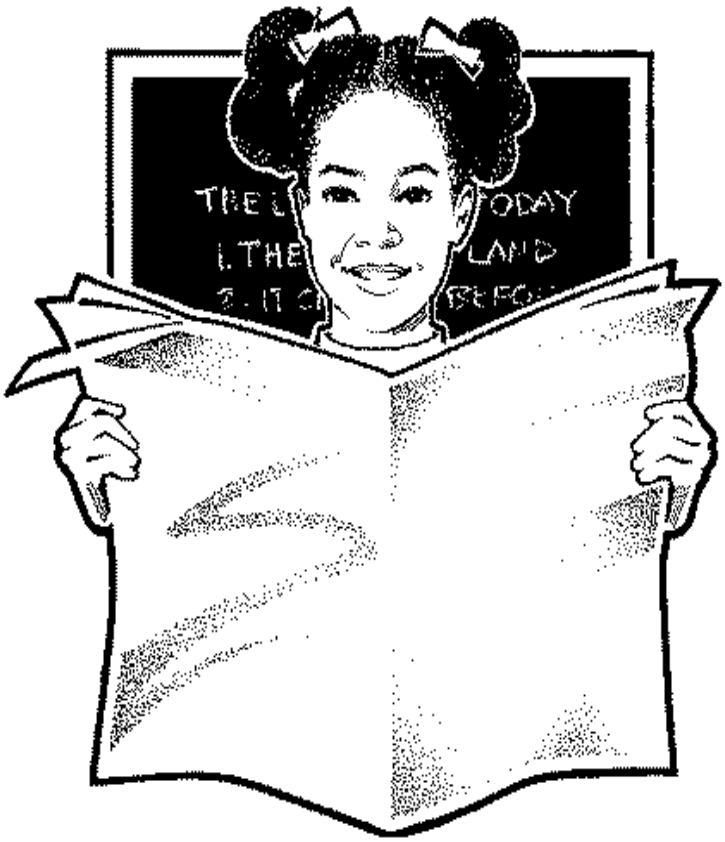
Although she and her teacher had discussed forming an hypothesis for the research, they both decided that would limit Kate's exploration, and she preferred to be flexible in drawing conclusions from her study.

K. Individual Action Plan

Special education students have Individual Education Plans known as IEPs. There are many states (approximately seventeen, at this time) that include the gifted and talented under the special education umbrella and IEPs are written for this specific population as well.

In states where this practice is not used, many school districts find it helpful to support the gifted and talented through Individual Action Plans, known as IAPs. These are documents that are drawn when the identification of the child's abilities is first noted and then reviewed and updated on an annual basis.

The IAP starts by noting the domain(s) of intelligence in which the child has a gift or talent. It then notes the needs that the child has because of this gift. The IAP lists what is already being done for the child to address the needs both within the classroom and the school community, and in the home and extended community. The IAP then goes on to suggest other accommodations which should be made for the student.



Because each child is unique, each IAP is also unique. Where one child might need to be part of a cluster group of gifted children for mathematics, another child might need to be sent to a higher level grade or bused to the next higher school for mathematics. Where a child shows giftedness in all areas, his/her IAP may indicate whole-grade acceleration.

IAPs may change from year to year as needs are met and new needs are identified.

K. Individual Action Plan

Novice

The teacher notices that some students learn more rapidly, more abstractly, and more complexly than others in the class and may provide separate assignments for those students.

Basic

The teacher offers students materials adapted to their learning style to be used after other work is completed, often grouping students for challenge and stimulation.

Proficient

The teacher actively tracks and records student performances, products and behaviors seeking counsel with colleagues in the area of gifted education for guidance in establishing individualized lessons and child specific strategies in many areas of instruction.

Advanced

The teacher confers with parents, specialists, and administrators to develop a child-specific educational plan that is updated annually, including all areas of strength, learning style, multiple intelligences, as well as specific social and emotional needs.

K. Individual Action Plan

Peter transferred from a pre-school program for special needs children in one state to a similar program in another state. The new placement was with a teacher who immediately suspected that Peter did not have a speech problem as was initially diagnosed, but perhaps had created a language that was his own.

She called in the Gifted and Talented Resource Specialist who observed and interacted with Peter for a day, then conferred with both the parents and teacher. Through observation it was ascertained that Peter, whose mother was French and whose father was American, had not only learned both languages but had taken them and created for himself and his younger sister, age 2, a third language. He could not only speak this language but also could write and read it as well.

In addition, Peter had taught himself how to read in both languages. During the specialist's visit, he read her a book on physics for children and explained why the index was not in "numerical" order, but rather in "alphabetical" order. He further explained why helium was a preferable gas to use in balloons than "regular" oxygen, and what gravity was. Peter then drew the specialist a map of the earth's solar system with all the planets in perfect proportion and distance in relationship to each other.

Peter also demonstrated an extraordinary interest in societies and cultures, discussing with the specialist both the Mayan and the American Indian civilizations.

The results of the assessment were that Peter would have an Individual Action Plan written describing his extraordinary abilities, his needs, accommodations that were being used, and any additional accommodations to be made in the next year (kindergarten).

The IAP outlined the specific teacher with whom he would be placed and the G&T specialist began working with her to prepare materials and opportunities for Peter. Plans included

- A teaching assistant from a local college two days a week to do research in the school media center
- Opportunity three times a week with computer software to maintain precocity in mathematics and language
- Visits twice a week to third grade for science
- Visits once a week to fourth grade for social studies projects

L. Interdisciplinary Activities

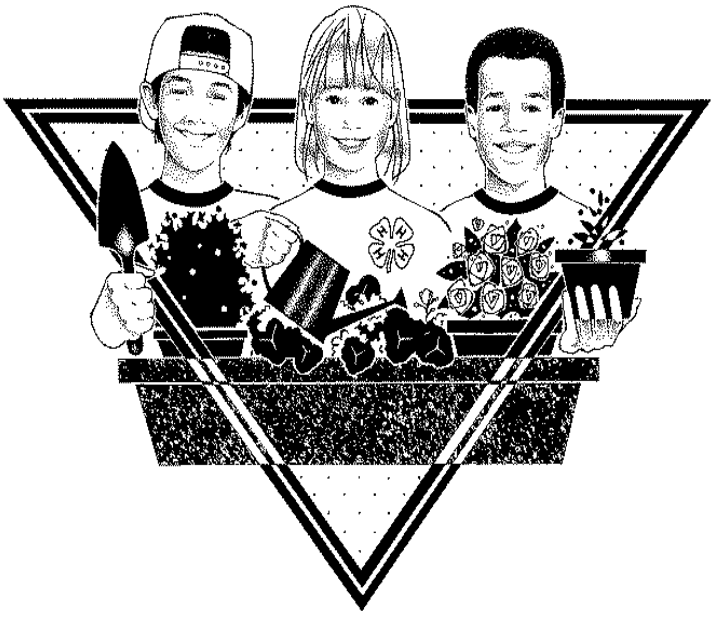
Activities, which have a multi-faceted focus, crossing and interweaving with more than one discipline or course of study, are considered to be interdisciplinary in nature.

A writing assignment that focuses on an area of science recently studied while comparing and/or contrasting a pertinent political situation would be considered interdisciplinary in nature. This assignment incorporates language arts, science, and social studies (current events) in one educational experience (i.e., an essay on genetic engineering with a focus on pending legislation to allow fetal tissue research).

Although most gifted people are exceptional in only one or two particular areas of endeavor, their interests are usually quite eclectic rather than esoteric. For instance, a child with an extraordinary ability in mathematics could also be very concerned about the local school board elections and how they will effect the gifted program in his school.

In addition, the heightened awareness that the gifted possess almost requires that they have a global view of concern, and are therefore interested in all aspects of the world around them. They develop this at a very young age; in fact, the more gifted they are, the younger they will manifest this passionate global concern.

Therefore, interdisciplinary topics not only make lessons more complex, and therefore more interesting for the gifted, they also satisfy the thirst they have to examine and project their ideas.



L. Interdisciplinary Activities

Novice	Basic	Proficient	Advanced
Content areas are divided into different and specific time slots.	Content areas are generally distinct with some multiple content themes.	Broad topics and themes are apparent in the classroom with individual, content-specific material imbedded.	Broad topics with multiple themes, noting essential connections between and among various content areas, are embedded.
Bells or clock dictate curricular changes.	Scheduled time plays a large role in defining activities.	Flexible time periods exist in response to student needs and/or interests.	Flexible time periods predominate.
Materials support study in content specific ways.	Some supplemental reading material is available.	Additional related reading or research is encouraged with real-life experts from the community included as part of the study.	Community experts and/or mentors are incorporated into project design.
Projects or products are limited specific areas of study.	Some theme related project or products are possible.	Products and presentations that emanate from student drawn relationships are encouraged.	Interdisciplinary products and presentations are required.

L. Interdisciplinary Activities

Amy was part of a middle school gifted program and each year she was required to develop an individual project. It was to include an area of both strength and weakness for her, something new to be researched, and a product or performance at the end of her work.

Amy loved to read. In fact, she would rather read than do almost anything else. Her favorite author at this time was Louisa May Alcott. Not only had she read every book Alcott had written, but Amy had also read every article, review, or critique she could find on the author.

Her area of weakness (if it could be called a weakness) was in mathematics. Amy hated calculating, measuring, documenting, and detailing, although she was extremely competent doing all of it.

With help from the Gifted and Talented Resource Specialist, Amy decided on her project, which was truly interdisciplinary in nature. It was going to include literature (of course! – area of strength), mathematics (area of weakness), and culinary arts (new research). Her product would be a Louisa May Alcott Cookbook.

The project lasted longer than a year. In fact when finally published and on the bookstore shelves, it had been more than two years in the making.

Amy went through all of Alcott's books and recorded all the food and meals ever served. She then researched the actual ingredients available at the time (mid-nineteenth century). It was necessary to send to remote locations for some of the ingredients, and Amy really didn't know just how much to use of each. Using her mother's brand new kitchen, a lot of time, and trial and error, she was able to produce the recipes that probably existed at that time, carefully documenting both her failures and successes.

She included the actual scenes from the books in her cookbook, each one describing the food or meal, with the recipe following on the next pages. Her G&T program specialist found a local professional illustrator to work with Amy. Together they submitted the book to Little, Brown, and Company, the original publishers of Alcott's books.

Amy's cookbook can be found on the shelves in any bookstore today and Amy herself has graduated from college funded by the proceeds from her cookbook and the many public appearances on shows like Good Morning, America.

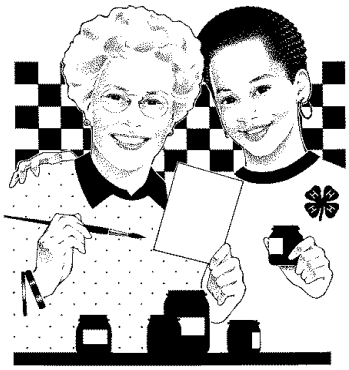
M. Mentors

Mentoring is the pairing of a student with a practicing professional in the area of the student's interest. A mentor may be an architect, an entrepreneur, a poet, a clothing designer, a dancer, or anyone who has a particular interest in common with the student.

Mentor relationships are usually long-term, but agreements can be made for mentorships to have a specific short-term time frame. Some mentorships are for specific projects or tasks. Although it is ideal for the student to visit the mentor in his/her place of business, mentoring can also be done in schools and other locales.

The purpose of mentorships is to help a student focus his/her ideas and to come to some conclusion about their interest in a particular area. The mentor serves to provide first hand information and advice to the student who needs it.

The mentor also serves to assist the student within the affective domain. Often the gifted student has a passion for something, which causes a sense of difference or even isolation from others: i.e., peers and teachers. The mentor can become a confidant, a friend, as well as an expert source.



A mentor models ways of thinking and can serve as a career counselor.

Mentors can be found through surveys, community service organizations, and simple inquiries to specific individuals. Some mentors are staff members of schools, teachers who are willing to share an interest and expertise.

Considerations

Scheduling is often a concern in a mentor relationship. Teachers need to be flexible. Parents often need to get involved to transport students. Both the mentor and the student need to be prepared in order to make use of time most effectively.

These relationships can be both rewarding and life changing for the adult and student. Adults love to share their passions with interested students, and most often retired people, who wish to pass on their passionate interests, have the time to become mentors.

Those setting up mentorships should be concerned with the following:

- School district regulations regarding volunteers in the school community
- The completion of any forms necessary for volunteers, including disclaimer statements
- Time commitments and availability
- Maturity and level of commitment of both parties involved
- Liability in transportation and visitation
- Student safety and parental permission

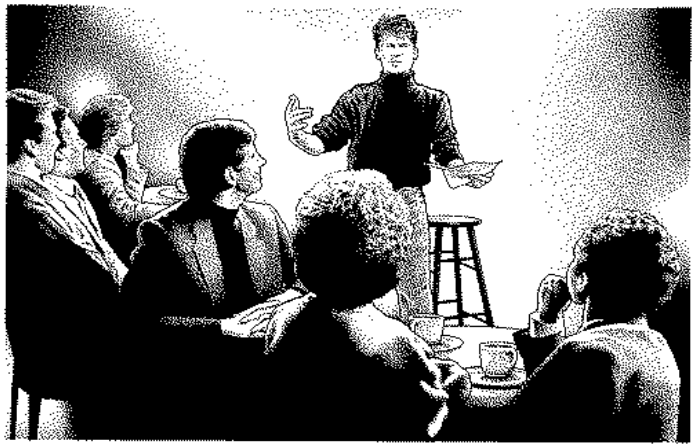
M. Mentors

Novice

The teacher may notice a student's strong interest in a topic.

Basic

The teacher offers additional materials on a topic from his/her own resources.



Proficient

The teacher surveys staff, and others to create a mentor database, which focuses on identified student interests and connects students to mentors during the course of study.

Advanced

The teacher creates and maintains a mentor database from continuous assessment of student interests and abilities and provides time and space for mentor/student interaction and activities.

Lauren is a fourth grade student who loves poetry. During a special workshop she was introduced to Rose, a poet who was working on her fifth book of poetry and a calendar filled with artwork and poetry. When Rose offered to work with a group of students on poems, which might eventually be published in her calendar, Lauren was thrilled to be an active participant in the group. It became obvious that Lauren had talent, advanced interest, and motivation. Rose eventually became her mentor for an extensive investigation. In this case, Lauren wanted to write and publish a book of poems. After many working sessions with her mentor, Lauren decided to also hold a poetry reading. She created a coffeehouse-type atmosphere and invited classmates and parents to her poetry reading, complete with food and carefully chosen background music. She submitted her poems for publication and entered several of her poems in contests.

Professional Development

For Supporting the Needs of Gifted and Talented Students

Confratute – University of Connecticut
- three week summer program in gifted education
- three summers program for master's degree in gifted education

Hollingworth Conference on Highly Gifted Children – Massachusetts
- spring – two/three day conference

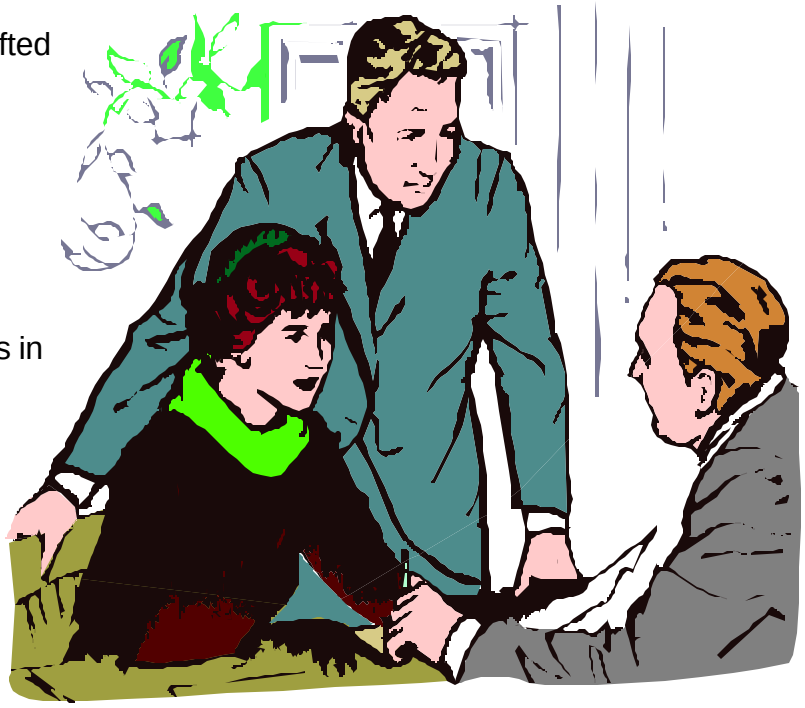
Johnson State College – Vermont
- master degree program in gifted education

National Association for Gifted Children
- annual three-day conference
- various national locations

New England Regional Conference on Gifted and Talented Education – one of six states
- two day conference featuring nationally recognized experts in the field of gifted education

New Hampshire Association for Gifted Education
- yearly workshops and seminars in gifted education

New Hampshire Department of Education
- workshops and seminars in gifted education



Resources

ASSOCIATIONS

AMERICAN ASSOCIATION FOR GIFTED CHILDREN
Wright State University
PO Box 2745
Dayton OH 45401 513 873 4300

GIFTED CHILD SOCIETY, INC.
190 Rock Road
Glen Rock, NJ 07452

NATIONAL ASSOCIATION FOR GIFTED CHILDREN
1155 15th St. NW #1002
Washington DC 20005 202 785 4268

NATIONAL STATE LEADERSHIP TRAINING INSTITUTE FOR GIFTED AND TALENTED
Hilton Center
900 Wilshire Boulevard; Suite 1142
Los Angeles CA 90017 213 489 7470

NEW HAMPSHIRE ASSOCIATION FOR GIFTED EDUCATION
PO Box 1104
Concord NH 03302 603 882 3512

THE COUNCIL FOR EXCEPTIONAL CHILDREN/THE ASSOCIATION FOR THE GIFTED
1920 Association Drive
Reston VA 22091 703 620 3660

THE WORLD COUNCIL FOR THE GIFTED AND TALENTED
Box 218
Teachers College, Columbia University
New York NY 10027 212 678 3877

BOOKS

AFFECTIVE EDUCATION: Self-Concept & The Gifted Student, Elinor Katz, Open Space Communications, Inc., Boulder, CO; 1994.
ISBN: 0-9638228-7-X

A HANDBOOK FOR COUNSELING THE GIFTED & TALENTED, Barbara Kerr, American Association for Counseling and Development, Alexandria, VA, 1991.
ISBN: 1-55620-079-X

(The World Council's) ANNOTATED BIBLIOGRAPHY OF GIFTED EDUCATION, James J. Gallagher, and Richard D. Courtright, Trillium Press, Unionville, NY, 1986.,

BIOGRAPHICAL DICTIONARY OF GIFTED EDUCATION, Theresa Monaco, Trillium Press, Unionville, NY, 1988.
ISBN: 0-89824-183-9

CROSSOVER CHILDREN, A Sourcebook of Helping Children Who Are Gifted and Learning Disabled, Marlene Bireley, Council for Exceptional Children, Reston, VA., 1995.
ISBN: 0-86586-264-8

COUNSELING THE GIFTED AND TALENTED, Linda Silverman, Love Publishing Company, Denver, CO, 1993.
ISBN: 0-89108-227-1

DIVERSE POPULATIONS OF GIFTED CHILDREN, Meeting Their Needs in the Regular Classroom and Beyond, Starr Cline and Diane Schwartz, Merrill, Upper Saddle River, NJ, 1999.
ISBN: 0-13-399908-4

EDUCATION OF THE GIFTED AND TALENTED, Davis and Rimm, Allyn and Bacon, Boston, MA, 1998.
ISBN: 0-205-27000-X

EXCELLENCE IN EDUCATING GIFTED AND TALENTED LEARNERS, Joyce VanTassel-Baska, Love Publishing Company, Denver, CO, 1998.
ISBN: 0-89108-255-7

EXCEPTIONALLY GIFTED CHILDREN, Miraca Gross, Routledge, London, England and New York, NY, 1993.
ISBN: 0-415-06416-3

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ISBN: 0-915793-04-0

GET OFF MY BRAIN: A Survival Guide For Lazy Students, Randall, McCutcheon, Free Spirit Publishing, Minneapolis, MN, 1985.
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ISBN: 0-465-01760-6

GIFTED KIDS SPEAK OUT, James Delisle, Free Spirit Press
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GIRLS AND YOUNG WOMEN: Leading The Way, Frances Karnes, Suzanne Bean, Free Spirit Publishing Co., Minneapolis, MN, 12993.
ISBN: 0-915793-52-0

GROWING UP GIFTED, Barbara Clark, Macmillan Publishing Co., New York, 1992.
ISBN: 0-02-322680-3

GUIDING THE GIFTED CHILD: A Practical Source for Parents and Teachers, James T. Webb, Elizabeth A. Mechstroth, Stephanie Tolan, Ohio Psychology Publishing Co., Columbus, OH, 1982.
ISBN: 0-910707-00-6

HANDBOOK OF GIFTED EDUCATION, Nicholas Colangelo and Gary A. Davis, Allyn and Bacon (Simon and Schuster), Boston, 1991.

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INTELLIGENCE AND GIFTEDNESS, Miles Storfer, Jossey-Bass Publishers, San Francisco, 1990.
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IT'S ABOUT TIME: Inservice Strategies for Curriculum Compacting, Alane Starko, Creative Learning Press, Mansfield Center, CT, 1986.
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KEYS TO PARENTING THE GIFTED CHILD, Sylvia B. Rimm, PhD., Barron's Educational Series, Inc., 1994.
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LIBERATING EVERYDAY GENIUS, Mary-Elaine Jacobsen, PhD., Ballantine Publishing Group, 1999
ISBN: 0-345-42771-8

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ISBN: 0-91579305-9

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ISBN: 0-8027-7138-6

PARENT EDUCATION: Parents As Partners, Dorothy Knopper, Open Space Communications, Inc., Boulder, CO, 1994.
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PARENTING THE GIFTED: Developing The Promise, Sheila Perino, Joseph Perino, R.R. Bowker Co., New York, 1981.
ISBN: 0-8352-1408-7

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ISBN: 0-910707-26-X

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Alice Ann Rowe, PhD, Hara Publishing, Seattle, WA.
ISBN: 1-883697-50-6

WHY GIVE “GIFTS” TO THE GIFTED?, Lita Schwartz, Corwin Press, Inc., Thousand Oaks, CA, 1994.
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ISSN: 1042-2021

GIFTED CHILD TODAY, Prufrock Press, Waco, TX.
ISSN: 76714-8813

JSGE: The Journal of Secondary Gifted Education, Prufrock Press, Waco, TX.
ISSN: 1077-4610

PARENTING FOR POTENTIAL, National Association for Gifted Children, Washington, D.C.

OUR GIFTED CHILDREN, Trillium Press, Unionville, NY.
ISSN: 1055-1336

ROEPER REVIEW: A Journal on Gifted Education, The Roeper School, Bloomfield Hills, MI
ISSN: 0278-3193

UNDERSTANDING OUR GIFTED, Open Space Communications, INC., Boulder, CO.
ISSN: 1040-1350

PROGRAMS

Future Problem Solving – National Contest
1 – 313 – 998 – 7377

Johns Hopkins University Talent Search Program
Institute for the Advancement of Individual Potential
Center for Talented Youth
3400 N. Charles Street
Baltimore, Maryland
www.jhu.edu/gifted

SOURCES for Gifted Education Material

Apple Publishing
1 – 800 – 475 –0 1118

Bright Ideas for the Gifted and Talented – Catalog
1 – 800 – 451 – 7450

Creative Learning Press
1 – 800 – 429 – 8118

Creative Publications
1 – 800 – 624 – 0822

Critical Thinking Books and Software
1-800-458-4849
www.crticalthinking.com

Dandelion Publications
1-800-776-8032

Dale Seymour – Catalog
1 –800 – 872 – 1100

D.O.K. Publishers
1 – 800 – 458 – 7900

Educational Teaching Aids
1 – 800 – 445 – 5985

Engine-Uity, Ltd.
1-800-877-8718
1-602-997-7144

Free Spirit Publishing Inc.
1 – 800 – 735 – 7323
www.freespirit.com

Games Magazine
1 – 800 – 950 – 6339

Good Apple Publishing Company
1-800-421-5565

Mindware
1-800-999-0398
www.mindwareonline.com

Ohio Psychology Press
1 – 513 – 890 – 7312
Philosophy for Children
1 – 201 – 893 – 4277

Prufrock Press
1 – 800 – 998 – 2208
www.prufrock.com

Thinking Caps for the Gifted
1 – 800 – 529 – 5588

Zephyr
1 – 800 – 232 – 2187
www.zephrpress.com

WEB Sites

ERIC: www.ericir.syr.edu

Family Resource Connection:
www.state.nh.us/nhsl/frc

Hoagies: www.hoagiesgifted.org

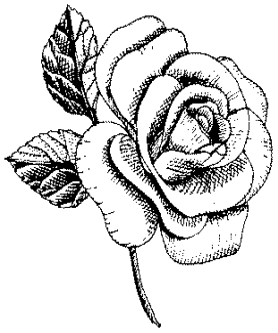
Hollingworth Center for Highly Gifted Children:
www.Hollingworth.org

Kids College:
www.kidscollege.org

Special Education Resources on the Internet (SERI): www.hood.edu/seri

Appendix

BLOOM'S TAXONOMY



KNOWLEDGE – (to know about)
Cue Words: name, tell, define, identify, recite, locate, list

COMPREHENSION – (to understand)
Cue Words: describe, retell, outline, explain

APPLICATION – (to put to use)
Cue Words: produce, solve, apply, make use of, illustrate, design, construct

ANALYSIS – (to break into parts)
Cue Words: differentiate, investigate, examine, contrast, survey, analyze, classify

SYNTHESIS – (to create)
Cue Words: create, compose, hypothesize, improve, imagine, invent, adapt

EVALUATION – (to judge)
Cue Words: decide, judge, prove, predict, evaluate, rate, recommend, assess

A. Sample Assignment: George Washington

Knowledge: Name the first three presidents of the United States.

Comprehension: Explain why George Washington was elected.

Application: Using what you know about the Crossing of the Delaware River, write a diary entry pretending you are a colonial soldier.

Analysis: Compare and contrast the presidencies of Washington and Adams.

Synthesis: Create an alternate first battle of the Revolutionary War. Make a tape of the major events and outcomes.

Evaluation: Which was the deciding battle of the Revolutionary War? Defend your choice.

B. Sample Assignment: The Pharoahs of Egypt

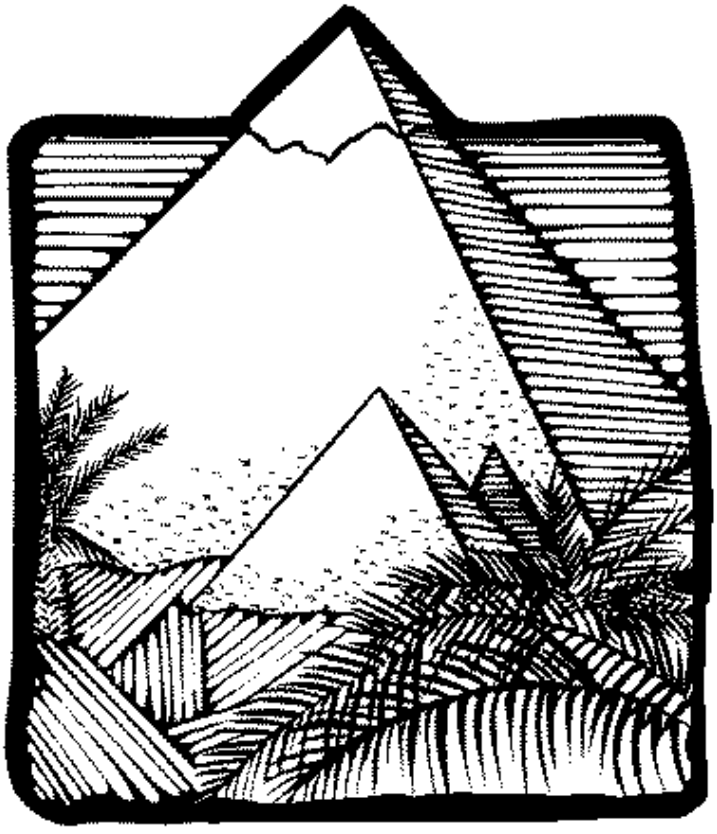
Knowledge: Research and write a report on the responsibilities of a pharoah.

Comprehension: Research the life of King Menes. Make sure to find out what he did for Egypt in 3200 B.C. and why it was important. Present an oral report to the class.

Application: Make a journal belonging to a person in charge of building a pyramid. Include descriptions of the many phases of building a pyramid.

Analysis: Write a dialogue between King Tut and President Clinton. The conversation should be about their jobs and responsibilities and their concerns for their respective countries.

Synthesis: Pretend you are a pharoah in ancient Egypt. What items would be important for you to include in you pyramid. Why? Put this information in a chart.



Evaluation: Become an expert on an Egyptian pharaoh's life. With a group of three students, hold a discussion on the merits of each pharoah. (Each student in the group will be an expert on one pharoah.) As a group, decide on the most effective ruler.

Appendix

THEORY of MULTIPLE INTELLIGENCES – Howard Gardner

Frames of Mind: The Theory of Multiple Intelligences, 1983, New York: Harper and Row

INTERPERSONAL - the ability to work cooperatively with others in a group as well as the ability to communicate, verbally and non-verbally, with other people.

INTRAPERSONAL - knowledge and understanding of the internal aspects of the self, such as emotions and their responses, self-reflection, and intuition.

LOGICAL - MATHEMATICAL - the capacity to recognize patterns, work with abstract symbols (such as numbers and geometric shapes), and discern relationships and/or see connections between separate and distinct pieces of information.

MUSICAL - RHYTHMIC - the recognition and use of physical and tonal patterns, and sensitivity to sounds from the environment.

NATURALISTIC – the ability to know, understand, and respond to one's environment

PSYCHOMOTOR/ KINESTHETIC - the ability to use one's body to express ideas and feelings.

SPIRITUALISTIC – the ability to recognize, use, and respond to sensory impressions.

VERBAL/LINGUISTIC – the ability to effectively use and understand language. The extraordinary ability in this intelligence is demonstrated by the use of metaphors, similes, abstract reasoning, symbolic thinking, and conceptual patterning.

VISUAL/SPATIAL - the ability to form mental images and pictures based on the sense of sight. Those showing extraordinary ability in this intelligence include architects, graphic designers, cartographers, painters, and sculptors.

Appendix

Growing Up Gifted
Barbara Clark
Fourth Edition, Merrill, 1992

COGNITIVE DOMAIN

The Linear and Spatial Domain

Educational programs for the gifted should provide an array of experiences and encourage analysis, organization and evaluation. Differentiation of curriculum is essential and should include assessment of and planning for each child's unique characteristics.

CHARACTERISTICS	NEEDS	POSSIBLE PROBLEMS
Extraordinary quantity of information Unusual retentiveness	Challenging Information including: culture, aesthetics, economics, politics, society Early mastery of foundation skills	Boredom with regular curriculum Impatience with "waiting for the class"
Advanced comprehension	Challenging curriculum and interaction with intellectual peers	Poor interpersonal relationships Dislike for repetition of previously mastered material. Perception by adults as being "sassy" or "smart aleck"
Unusually varied interests and curiosity	Variety of subjects and experiences Pursuit of individual interests	Difficulty in conforming to group tasks Overextending – in energy and tasks
High level of language development	Encounter uses for vocabulary and language concepts	Perceived as a "show off"
High Level of verbal ability	To share ideas in depth	Dominate discussions with information and questions Use of verbalism to avoid tasks
Unusual capacity for processing information	Exposure to ideas at many levels and in large variety	Resent being interrupted Perceived as "too serious" Dislike for routine work and drill

Accelerated pace of thought	Exposure to ideas at appropriate rates Individual pace of learning	Frustration with inactivity and absence of progress
Flexible thought processes	Problem Solving in diverse ways	Seen as disruptive and disrespectful of authority and tradition
Comprehensive synthesis	Longer incubation time for ideas	Frustration with demands for deadlines and the completion of each stage before new inquiry can begin
Early ability to delay closure	Permission to pursue ideas and integrate new ideas without forced closure or products	Refusal to pursue a subject or line of inquiry
Capacity to see unusual and diverse relationships	Explorations with a variety of materials and ideas	Frustration at being considered “off task” or engaged in an irrelevant pursuit Considered “weird” or odd by peers
Ability to generate ideas and solutions	Acquisition of problem solving skills Engagement in meaningful problems	Difficulty with rigid conformity Penalized for not following directions Rebellion generated by rejection
Differential patterns of thought (alternatives, abstractions, sensing consequences, making generalizations)	Exposure to choices and exploring divergent patterns of thinking	Rejection or omission of detail Questioning others Perceived as disruptive
Ability to use and form conceptual frameworks	Design original frameworks Seek order and consistency Develop a tolerance for ambiguity	Frustration with inability of others for originality of thought Conflict with existing systems or those later taught
Evaluative approach to self and others	Exposure to varying abilities and talents Variety of problem solving Develop skills in data evaluation and decision making Realistic goal setting	Perceived as elitist Discouragement Fear of Failure Lack of tolerance in self and others
Persistent, goal-directed behavior	Pursuit of inquiries beyond usual time constraints Setting and evaluation priorities	Perceived as stubborn, willful, uncooperative

According to the National Research Center on Gifted and Talented, most gifted children waste three quarters of their time in school on repetitious and previously mastered material. Even preschoolers come to the classroom and are asked to repeat, and remain unchallenged. The more gifted a child is the greater the amount of time they waste.

AFFECTIVE DOMAIN

The Emotional and Social Domain

High levels of cognitive development do not necessarily imply high levels of affective development. Gifted children need to learn that their cognitive powers

CHARACTERISTICS	NEEDS	POSSIBLE PROBLEMS
Vast body of information about emotions of which there is no actual awareness	Cognitively process the emotional meaning of experience Identify self's emotions Identify defense systems Expand and clarify awareness of environment Clarify awareness of the needs of others	Misinterpretation of information Negative affect
Unusual sensitivity to expectations and feelings of others	Clarifications of feelings and the expectations of others	Acute vulnerability to criticism Intense need for success and recognition
Keen sense of humor	Acquire knowledge of how behaviors affect others' feelings and behaviors	Critical attack upon others with humor Damage to interpersonal relationships
Heightened self-awareness Feelings of difference	Assertiveness with regard to needs and feelings Self-sharing Self-clarification	Isolation Feelings of rejection Negative perceptions by others (e.g. aloofness) Low self-esteem Inhibited social and emotional growth

Early idealism and sense of justice	Transcendence of negative reactions Commitment to values	Attempts at unrealistic reforms Intense frustration Depression Suicide
Earlier development of inner locus of control and satisfaction	Clarification of personal priorities Understanding of conflicting values Confrontation and interaction with others' value systems	Non-conformity Rejection of external validation Living by personal values are seen as a challenge to authority
Unusual emotional depth and intensity	Personal value system leads to purpose and direction Commitment becomes everyday action	Unusual vulnerability Unrealistic goals
High expectations of self and others High levels of frustration Perfectionism	Setting realistic goals Acceptance of setbacks Risk taking Acknowledgement of others self-acceptance	Discouragement and frustration High levels of self-criticism Poor interpersonal relations Immobilization of action
Need of consistency between abstract values and personal actions	Opportunity for actualization of personal value system Expression of talent	Frustration with self and others Inhibition of self-actualization Inhibition of interpersonal relations
Advanced levels of moral judgement	Validation for nonaverage morality	Intolerance of peer group Rejection Isolation
Need for self-actualization	Opportunities to think divergently Pursuit of strong interests Understanding the demands of selfactualization	Frustration with not being challenged Undeveloped talent
Advanced cognition and affect Conceptualizing and solving societal problems	Encounters with social problems Awareness of societal problems Problem-solving skills	Quick (not best) solutions Lack of age makes others skeptical Not taken seriously
Leadership	Understanding of and development of leadership skills	Lack of opportunity for constructive use of ability Development of negative leadership behaviors

Solutions to social and environmental problems	Meaningful involvement in real problems	Loss to society
Involvement with metaneeds of society (e.g., justice, beauty, truth)	Exploration of the highest levels of human thought	Involvement in obscure groups with narrow, perfectionistic beliefs Application of this knowledge to real problems

It is not being suggested here that societal needs should take precedence over the individual needs of the gifted person. However education of the gifted cannot disregard the importance of their mature social roles.

PHYSICAL / SENSING DOMAIN

The Sensing and Movement Domain

Because their intellectual ability is unusually and highly developed and their physical development may be “normal” there often exists a disparity in gifted children between thinking and being called a “Cartesian Split”.

CHARACTERISTICS	NEEDS	PROBLEMS
Heightened sensory awareness Unusual quantity of input from the environment	Activities that will allow for the integration and assimilation of sensory data	Diffusely moving attention Over-expenditure of energy Appearance of disconnectedness
Discrepancy between physical and intellectual development	Appreciation of physical capacities	Mind/body dichotomy Comfort in mental expression only Limited development both physically and mentally
Low tolerance with the lag between personal standards and athletic skills	Pleasure with physical activities Satisfaction with small improvements Non-competitive, physical activities	Refusal to participate in any physical activity Limited experience and pleasure with physical activity
Neglect of physical well being Avoidance of physical activity	Activities with mind/body integration Commitment to own physical well being Integration into social realm	Inhibition of individual potential Detrimental to physical health

The usual competitive games in which children are often encouraged to participate may seem neither inviting nor satisfying to the gifted child.

INTUITIVE DOMAIN

The Rational, Predictive, and Transformation Domain

The intuitive domain is involved with initiating creativity, its acts and products. It is the least well-defined area of human endeavor. However, it promises the most possibility of the continuance and fulfillment of human kind.

CHARACTERISTICS	NEEDS	PROBLEMS
Early awareness of and concern for intuitive knowledge Interest in metaphysical ideas and phenomena	Opportunities to engage in meaningful dialogue with philosophers and others with this interest Awareness of intuitive energy and ability Guidance in developing and using intuition	Ridicule from peers Ignored by adults Not taken seriously Considered weird or strange
Openness to and awareness of experiences in this area Experimentation with psychic and metaphysical phenomena	Guidance with analyzing and evaluating intuitive phenomena Historical awareness of this area	Narrow focus toward ungrounded beliefs
Creativity apparent in all areas of endeavor	Evaluation of appropriate uses Encouragement for continued development of creativity	Perceived as deviant Boredom with mundane tasks Perceived as a troublemaker
Ability to predict Interest in the future	Exploration of potential (“what if” questions) Activities of probability and prediction	Loss to society of highly valuable human ability

All other domains provide support for the intuitive domain. They in turn are supported by this area of function. As each area in the individual evolves to higher levels, more of the intuitive (creativity) is available