

# **GIFTED EDUCATION CURRICULUM AND INSTRUCTION**

## **2.2**

### **DoDEA Gifted Education Program Standards for Curriculum and Instruction**

1. Teachers differentiate, supplement, or modify instruction based upon DoDEA curriculum content standards (<http://www.dodea.edu>) to ensure advanced content and process goals.
2. Instructional strategies facilitate the integration of content by key ideas, issues, and themes.
3. Students are provided opportunities for inquiry, project-based learning, problem solving, and research.
4. Process goals, including critical thinking, creative problem solving, ethical decision making, moral judgment, and leadership, are incorporated into curriculum differentiation.
5. Instructional pacing is flexible, allowing for acceleration and compression of content, as appropriate.
6. Gifted learners are provided alternative, challenging educational opportunities when they demonstrate proficiency in essential core curriculum concepts and skills.
7. Specific instructional arrangements are used to facilitate optimal learning experiences for identified students.
8. The unique social and emotional needs of gifted learners are strongly considered in planning for instruction.

National standards established for curriculum and instruction and program design are outlined in Figures 2 and 3.

**Figure 2. Gifted Education Programming Criterion: Curriculum and Instruction**

1. Differentiated curriculum for the gifted learner must span grades K–12.
2. Regular classroom curricula and instruction must be adapted, modified, or replaced to meet the unique needs of gifted learners.
3. Instructional pace must be flexible to allow for the accelerated learning of gifted learners as appropriate.
4. Educational opportunities for subject and grade skipping must be provided to gifted learners.
5. Learning opportunities for gifted learners must consist of continuum of differentiated curricular options, instructional approaches, and resource materials.

(National Association for Gifted Children, 1998)

**Figure 3. Gifted Education Programming Criterion: Socio-Emotional Guidance and Counseling**

1. Gifted learners must be provided with differentiated guidance efforts to meet their unique socio-emotional development.
2. Gifted learners must be provided with career guidance services especially designed for their unique needs.
3. Gifted at-risk students must be provided with guidance and counseling to help them reach their potential.
4. Gifted learners must be provided with affective curriculum in addition to differentiated guidance and counseling services.
5. Underachieving gifted learners must be served rather than omitted from differentiated services.

(National Association for Gifted Children, 1998)

## Matching Differentiation to the Needs of Gifted Learners

Differentiation refers to a variety of instructional strategies used to meet the needs of students with diverse academic strengths and learning styles. Students identified for gifted education have revealed specific learning characteristics and patterns of accomplishment that should guide instructional planning. Gifted learners differ in four broad areas:

- **Precocity** — Gifted learners give evidence of unusual advancement in particular areas. The learning is rapid and is often independent of formal instruction.
- **Intensity** — Gifted learners show deep personal interest in some area(s). They are often motivated to pursue such interests with urgency.
- **Complexity** — Gifted learners see multiple possibilities. The students grasp big ideas and see connections to other areas of study. They are particularly interested in how things connect to the real world.
- **Social Factors** — Gifted learners are often “out of sync” with their age peers. Classmates may see them as over-controlling or manipulative. Gifted learners may demonstrate frustrations with their own uneven learning patterns as well as with the readiness of their age peers for some intellectual activities.

Strategies for differentiation matched to gifted learner differences are presented in Figure 4. Within these broad areas many options exist for modifying content, process, and product. The most important factor is the essential purpose of differentiation: to make curriculum and instruction a more effective fit for gifted learners.

**Figure 4. Matching Differentiated Instruction to Student Differences**

<b>GIFTED LEARNERS</b>	<b>DIFFERENTIATED INSTRUCTION</b>
<b>Readiness (Precocity)</b> Predisposition Competencies Connectors Developmental age/stage	Assessment Specific learning goals Advanced content, process, product Rapid pacing
<b>Motivation (Intensity)</b> Interest Expectations for self Relevance	Expanded resources Problem-based activities In-depth experiences Independent study Use of discussion
<b>Learning Patterns (Complexity)</b> Skills Style	Issues, concepts/themes Choices Multiple perspectives
<b>Social Factors (Intellectual vs. Age/Developmental Stage)</b> Peers School Home	Community Flexible grouping Appropriate audiences Supportive peers and adults

VanTassel-Baska, 1994. Reprinted with permission. Center for Gifted Education, The College of William & Mary

Wherever and whenever differentiation occurs in the school setting, the Gifted Differentiation Checklist shown in Figure 5 can be used to determine whether planned activities are an effective match to the overall needs of advanced learners. For any given learning activity, the educator should select the features of differentiation to be employed. When using this checklist, educators should not attempt to cover all areas.

**Figure 5. Gifted Differentiation Checklist**

1. Acceleration
  - a. Fewer tasks assigned to master standards
  - b. Assessed earlier or prior to teaching
  - c. Clustered by higher order thinking skills
  
2. Complexity
  - a. Used multiple higher level skills
  - b. Added more variables to study
  - c. Required multiple resources
  
3. Depth
  - a. Studied a concept in multiple applications
  - b. Conducted original research
  - c. Developed a product
  
4. Challenge
  - a. Advanced resources employed
  - b. Sophisticated content stimuli used
  - c. Cross-disciplinary applications made
  - d. Reasoning made explicit
  
5. Creativity
  - a. Designed/constructed a model based on principles or criteria
  - b. Provided alternatives for tasks, products, and assessments
  - c. Emphasized oral and written communication to a real world audience

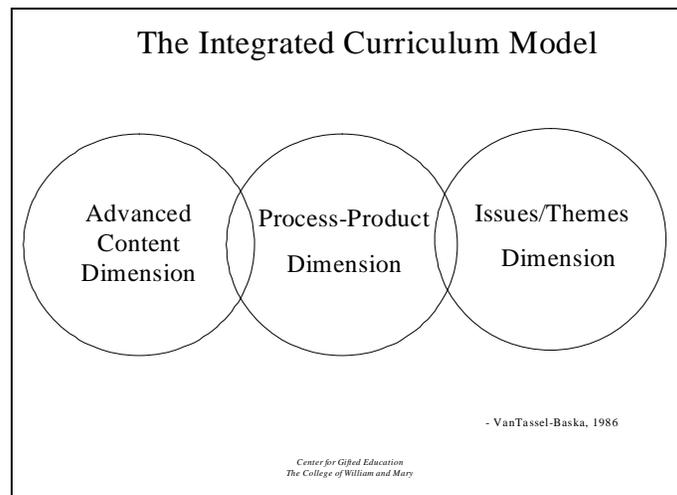
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## The Integrated Curriculum Model

Appropriate curricula for gifted learners have three equally important and integrated dimensions, as indicated in Figure 6 (VanTassel-Baska, et al., 1988):

- An **advanced content-based mastery** dimension allows gifted learners to move more rapidly through the curriculum. This dimension suggests that advanced curriculum should be made available to gifted learners when they demonstrate readiness to engage in it. Mastery of basic knowledge and skills in curriculum should allow students to move on to higher levels through the study of progressively more complex and sophisticated principles.
- A balanced **process/product/research** dimension encourages in-depth small-group and independent learning opportunities. This dimension calls for the engagement of gifted learners in the pursuit of real and meaningful investigations, both collaboratively and independently. Problem solving, research, and experimental design provide strong avenues for investigations that mirror real life.
- An emphasis is placed on the **exploration of issues, themes, and ideas** within and across curriculum areas. This dimension features concepts and ideas as the organizers for educational experiences developed for gifted learners. These ideas, such as systems and change, allow students to see the integrated nature of the disciplines.

**Figure 6. Integrated Curriculum Model**



In summary, gifted learners need a curriculum that is targeted to their strengths and needs, one that is advanced and challenging. They need a curriculum that provides opportunities for original work and investigation. Students need to study important concepts that allow connections within and across areas of study.

## **Differentiation in the Content Areas**

Differentiation within the content areas should be guided by educational research that specifies effective methods in each discipline to challenge gifted learners. Although the disciplines have many elements of differentiation in common, research results highlight the need for gifted students to learn to think and work like writers, scientists, mathematicians, and social scientists. The “habits of mind” within each of these disciplines are critical elements of study for gifted learners.

### **Language Arts/Reading**

#### **Indicators of Verbal/Linguistic Giftedness:**

- Early and extensive reading;
- Excellent memory for poems, lyrics, verse, tongue twisters;
- Metaphorical thinking;
- Love of words, word patterns;
- Use of language to express and appreciate complex meanings; and
- Ability to learn through verbalization.

#### **Best Practices in Language Arts/Reading and Writing:**

- Encourage extensive reading.
- Use interactive learning.
- Develop sensitivity and understanding of complex concepts and language.
- Provide instruction in strategic reading and writing.
- Inter-relate language arts tasks through use of broad themes or concepts.
- Teach critical reading and writing.
- Emphasize discussion and analysis.
- Expose students to multicultural literature.
- Provide balanced forms of discourse in the reading program.
- Provide assessment based on instructional purposes and modes.
- Encourage students to find real purposes to write.
- Promote student ownership and responsibility in writing.
- Emphasize all steps in the writing process.
- Promote writing for real audiences.
- Connect writing to all areas of the curriculum.
- Use evaluation constructively and efficiently.

(Squire, 1995; Zemelman, Daniels, & Hyde, 1998)

## **Mathematics**

### **Indicators of Mathematical Giftedness:**

- Unusual curiosity about numbers and mathematical information;
- Ability to understand and apply ideas quickly;
- Strong ability to see patterns and think abstractly;
- Use of flexible and creative strategies and solutions;
- Ability to transfer a mathematical concept to an unfamiliar situation;
- Use of analytical, deductive, and inductive reasoning; and
- Persistence in solving difficult and complex problems.

(Holton & Gaffney, 1994; Miller, 1990)

### **Best Practices in Mathematics:**

- Organize content around major mathematical ideas.
- Ensure mathematical concepts are covered in depth.
- Include history of mathematical ideas, concepts, and study of mathematicians.
- Sequence materials from concrete to abstract.
- Make problem solving an integral part of the curriculum.
- Require students to communicate ideas.
- Integrate reasoning into mathematics lessons.
- Connect mathematical concepts to the real world and other areas of mathematics.
- Ask students to make conjectures and attempt to prove them.
- Illustrate “habits of mind” of mathematicians.
- Encourage divergent thinking.
- Provide students opportunities to work together and alone in solving problems.

(Johnson & Sher, 1997)

## **Science**

### **Indicators of Scientific Giftedness:**

- Strong curiosity about objects and environments;
- High interest in investigating scientific phenomena;
- Tendency to make observations and ask questions;
- Ability to make connections between scientific concepts and observed phenomena;
- Unusual ability to generate creative and valid explanations; and
- Interest in collecting, sorting, and classifying objects.

(Yager, 1989)

### **Best Practices in Science:**

- Focus and support inquiries while interacting with students.
- Orchestrate discourse among students about scientific ideas.
- Challenge students to accept and share responsibility for their own learning.
- Recognize and respond to student diversity and encourage all students to participate fully in science learning.
- Encourage and model the skills of scientific inquiry, as well as the curiosity, openness to new ideas and data, and skepticism that characterize science.

(National Research Council, 1996, p. 32)

Ensure that inquiry activities involve students in

- Pondering and posing questions,
- Using tools to make and classify observations,
- Examining sources of information,
- Investigating, analyzing, forming answers, and explanations, and
- Communicating outcomes and conclusions.

(Martin, Sexton, & Gerlovich, 2002, p-8)

### **Social Studies**

The research literature does not suggest specific “giftedness” in social studies. Students who may benefit from differentiation in social studies are those who indicate a keen interest and deep involvement in thinking about history, geography, civics, law, economics, political science, and other social studies areas. Changes in the instructional program for students identified for gifted education services should focus on developing skills that enable a person to resolve genuine problems encountered in life and to support personal contributions to our society.

### **Best Practices in Social Studies:**

- Analyze documents of all sorts to detect bias, weigh evidence, and evaluate arguments.
- Distinguish between fact and conjecture and between the trivial and the consequential.
- View human subjects nonjudgmentally and with empathy instead of present-mindedness.
- Recognize and analyze the interplay of change and continuity.
- Recognize the complexity of causality and avoid easy generalizations and stereotypes while analyzing how change occurs.
- Recognize that not all problems have solutions.
- Understand how people and cultures differ and what they share.
- Analyze how the actions of others, past and present, influence our own lives and society.

(Sandling, M. M., 2003, p. 221)