Excerpt from VanTassel-Baska, J. (1986). Effective curriculum and instructional models. *Gifted Child Quarterly. 30*(4). 164-169.

The Epistemological Model

The epistemological concept model focuses on talented students' understanding and appreciation of systems of knowledge rather than the individual segments of those systems. It reflects a concern for exposing students to key ideas, themes, and principles within and across domains of knowledge so that schemata are internalized for amplification by new examples in the future. The role of the teacher in this model is as questioner, raising interpretive issues for discussion and debate. Students focus their energies on reading, reflecting, and writing. Aesthetic appreciation of powerful ideas in various representational forms is viewed as an important outcome of this model. The model is very effective with gifted learners for several reasons. First of all, the intellectually gifted child has unusually keen powers to see and understand interrelationships; therefore, conceptual curriculum is useful, for its whole structure is based on constantly interrelating form and content. Concept curriculum is an enrichment tool in the highest sense, for it provides the gifted with an intellectual framework not available in studying only one content
area, but rather exposes them to many not covered in traditional curricula. Furthermore, it provides a basis for students' understanding the creative as well as the intellectual process through critically analyzing creative products, and being actively engaged in the creative process itself. And lastly, it provides a context for integrating cognitive and affective objectives into the curriculum. A discussion of ideas evokes feelings; response to the arts involves aesthetic appreciation, and study of literary archetypes creates a structure for self identity.

Many writers in the field of gifted education have advocated the epistemological approach to curriculum for the gifted (Ward, 1961; Hayes-Jacob, 1981; Maker, 1982; Tannenbaum, 1983). And some extent curriculum has been organized around the model at both elementary and secondary levels.

While the concept-based model of curriculum offers the advantages of a unified view of a field of inquiry often undertaken by scholars in individual disciplines, it requires well-trained teachers to implement it effectively. Teachers need to possess not only in-depth knowledge about one field of inquiry but also must have the capacity to make appropriate connections to other disciplines as well. And there is a need to keep in place a consistent vision around the exploration of concepts.

The concept model for curriculum and instruction differs considerably from the nature of the previous two models (The Content Model and The Process-Product Model). It is organized by ideas and themes, not subject matter or process skills. It is a highly interactive model in its instructional context, which contrasts with the more independent modes of instruction used in the other two models. Concern for the nature and structure of knowledge itself is a major underlying tenet. And evaluation of students engaged in this model typically requires evidence of high level aesthetic perceptions and insights rather than content proficiency or a culminating product of high quality.

Excerpt from VanTassel-Baska, J. & Stambaugh, T. (2008). *What Works: 20 Years of Curriculum Development and Research for Advanced Learners.* Williamsburg, VA: College of William and Mary.

Lesson One
All William and Mary curricula feature the Integrated Curriculum Model (ICM) as the guiding theoretical framework for curriculum design. The Center for Gifted Education units have been piloted in schools nationwide and found to improve student achievement, not only in the specific content areas, but also in critical thinking and understanding overarching concepts. Each unit, regardless of the content focus, features the following blueprint specifications:

- a curriculum framework that identifies learning goals and anticipated outcomes;
- authentic assessments for content, concept, and process as a guide for diagnostic and prescriptive instruction, as well as formal assessment;
- emphasis on higher level thinking and reasoning through questioning and activities;
- inquiry-based meaningful, hands-on, and minds-on experiences;
- use of graphic organizers;
- inclusion of accelerated reading and advanced resources;
- use of a broad-based concept (e.g., systems, cause-effect, change) to elevate understanding of the subject

under study;

- metacognition and reflection components;
- incorporation of interdisciplinary, real-world research;
- use of teaching models to scaffold instruction and to promote higher level thinking skills;
- strong content emphasis that focuses on discipline-specific skills and concepts; and
- use of technology integration tools.

Excerpt from VanTassel-Baska, J. (1998). Planning Science programs for high-ability learners. *ERIC EC Digest #E546*.

What Should a Science Curriculum for Gifted Students Include?

At the Center for Gifted Education at the College of William and Mary, the past six years has been spent addressing issues of appropriate science curriculum and instruction for high ability students as well as melding those ideas to the template of curriculum reform for all students in science. Consequently, the elements essential for high ability learners also have saliency for other learners as well. The most important include the following elements:

- **An Emphasis on Learning Concepts.** By restructuring science curriculum to emphasize those ideas deemed most appropriate for students to know and grounded in the view of the disciplines held by practicing scientists, we allow students to learn at deeper levels the fundamental ideas central to understanding and doing science in the real world. Concepts such as systems, change, reductionism, and scale all provide an important scaffold for learning about the core ideas of science that do not change, although the specific applications taught about them may.
- **An Emphasis on Higher-Level Thinking.** Students need to learn about important science concepts and also to manipulate those concepts in complex ways. Having students analyze the relationship between real world problems, like an acid spill on the highway, and the implications of that incident for understanding science and for seeing the connections between science and society provides opportunities for both critical and creative thinking within a problem-based episode.
- **An Emphasis on Inquiry, Especially Problem-Based Learning.** The more that students can construct their understanding about science for themselves, the better able they will be to encounter new situations and apply appropriate scientific processes to them. Through guided questions by the teacher, collaborative dialogue and discussion with peers, and individual exploration of key questions, students can grow in the development of valuable habits of mind found among scientists, such as skepticism, objectivity, and curiosity (VanTassel-Baska, Gallagher, Bailey, & Sher, 1993).
- **An Emphasis on the Use of Technology as a Learning Tool.** The use of technology to teach science offers some exciting possibilities for connecting students to real world opportunities. Access to the world of scientific papers through CD-ROM databases offers new avenues for exploration. Internet access provides teachers wonderful connections to well-constructed units of study in science as well as ideas for teaching key concepts, and e-mail allows students to communicate directly with scientists and other students around the world on questions related to their research projects.
- **An Emphasis on Learning the Scientific Process, Using Experimental Design Procedures.** One of the realities we have uncovered is how little students know about experimental design and its related processes. Typically, basal texts will offer canned experiments where students follow the steps to a preordained conclusion. Rarely are they encouraged to design their own experiments. Such original work in science would require them to read and discuss a particular topic of interest, come up with a problem about that topic to be tested, and then follow through in a reiterative fashion with appropriate procedures, further discussion, a reanalysis of the problem, and communication of findings to a relevant audience.