

Designing Curricular Frameworks and Scope and Sequence for Advanced Learners

As part of the recommendations following the Accelerated Progress Program (APP) Review completed in June of 2007, the program evaluation team from the University of Virginia recommended that Seattle Public Schools Advanced Learning Programs “develop an overall curricular vision and a high-level scope and sequence as well resources to implement”. In addition, it was recommended that we “provide APP teachers with substantial time together and the leadership and training needed to develop a curriculum framework, share learning activities, and communicate about student needs across grade levels”. While some work was already underway, particularly in the area of mathematics, these recommendations highlighted the need to move forward at a significantly faster pace. The importance of aligning the curricular objectives at and across grade levels in all content areas was becoming increasingly urgent because the District was considering offering the program at more than one site for both the elementary and middle grades.

One of the first charges for Dr. Robert Vaughan, the new Manager of advanced Learning Programs as of July of 2007, was to form an ad-hoc committee representing a broad range of stakeholders to respond to the recommendations of the program review. The sub-committee for responding to recommendations for curriculum and instruction was asked to develop an over-all curricular vision and guiding principals for each of the core content areas; science, mathematics, social studies, and language arts.

The committee reviewed the recommendations from the University of Virginia team and began a review of the literature on curriculum for high-ability learners. Some of the key references reviewed were: *Aiming for Excellence: Annotations to the NAGC Pre-K-Grade 12 Gifted Program Standards*, Edited by Mary Landrum, Carolyn Callahan, and Beverlee Shaklee; *Best Practices in Gifted Education: An Evidence Based Guide*, edited by Ann Robinson, Bruce Shore, and Donna Enerson; *Content-Based Curriculum for High-Ability Learners*, edited by Joyce Van Tassel-Baska and Catherine Little; *Curriculum for Gifted and Talented Students*, edited by Joyce Van Tassel-Baska; *Designing Services and Programs for High-Ability Learners: A Guidebook for Gifted Learners*, edited by Jeanne Purcell and Rebecca Eckert; *Handbook of Gifted Education*, edited by Nicholas Colangelo and Gary Davis; and *The Parallel Curriculum: A Design to Develop High Potential and Challenge High Ability Learners*, by Carol Tomlinson, Sandra Kaplan, Joseph Renzulli, Jeanne Purcell, Jann Leppien, and Deborah Burns. Summaries of key points regarding comprehensive curriculum for gifted learners were compiled from each of the resources and then combined into a single list of key considerations. After a few rounds of editing, the committee agreed to adopt the following document as the guiding philosophical framework for all curricula for advanced learners:

Key Considerations for Development of a Comprehensive Curriculum for Advanced Learners

Assumptions and Beliefs:

- All learners must be provided with a rigorous curriculum.
- Advanced learners have different needs compared with typical learners. Therefore, curriculum must be paced and adapted, modified, or designed to accommodate their cognitive, academic, and affective needs.
- Learning opportunities for the advanced learner must consist of differentiated curricular options, instructional approaches, and resource materials across all grade levels.
- Curricular goals should be aligned and assessed within grade levels.
- Diagnostic assessment of student ability, interest, and knowledge must be ongoing and should inform instruction and curriculum development.
- Curriculum should reflect a multicultural perspective and develop global citizenship skills.
- Advanced learners are best served by a confluent approach that allows for both accelerated and enriched learning.
- The curriculum should emphasize both intra- and interdisciplinary connections through studies organized around overarching concepts, issues, and themes.
- The curriculum should incorporate higher level thinking in all content areas.
- The curriculum should promote active learning and problem solving, developing the skills necessary to become life-long learners and should develop “habits of mind” through cultivating modes of thinking that resemble those required by professionals in their respective disciplines.

Our ad hoc committee then broke into subcommittees for each of the primary content areas and added content specialists and classroom teacher input for each discipline. A similar review of the literature as it pertains to each content area was undertaken. Summaries were again compiled, combined, and modified for each content area. The documents that follow provide the philosophical frameworks for designing curricula for the content areas of mathematics, science, language arts, and social studies.

Key Considerations for Development of a Mathematics Curriculum for Advanced Learners

Assumptions and Beliefs:

- Treating mathematics as conceptual, rather than topical, raises the level of thinking for high ability learners.
- Emphasis on problems that are non-algorithmic enhances mathematical challenge.
- Asking students to explain concepts and procedures to each other, the teacher, and visitors should be part of classroom activity.
- A key classroom activity is helping students to master the transformation at the heart of mathematical thinking, such as changing words into formulae, expressing visual patterns in words, and solving a problem using different techniques.
- The use of technology provides powerful learning enhancements for the gifted.
- Use of math manipulatives deepens the understanding of mathematics concepts for all learners, including advanced learners.
- Mathematics curricula can be diversified through effective use of puzzles, games, challenging problems, and modeling experiences.

Key Considerations for Development of a Science Curriculum for Advanced Learners

Assumptions and Beliefs:

- The science curriculum is *meaning-based* in that it emphasizes depth over breadth and promotes concept development and generalization from facts and data.
- The curriculum provides opportunities for *metacognition*, student reflection on learning processes.
- The curriculum develops *habits of mind* through cultivating modes of thinking that resemble those of scientists.
- The science curriculum promotes *active learning* and *problem solving* by putting students in charge of their own learning.

- The curriculum employs *authentic assessment* by tapping into what students know as a result of meaningful instruction.
- The science curriculum for advanced learners will culminate in opportunities for participating in expanded Advanced Placement science course offerings at the high school level.
- The science curriculum will include opportunities for students to participate in mentorships, internships, and extracurricular experiences as appropriate.

Key Considerations for Development of a Language Arts Curriculum for Advanced Learners

Assumptions and Beliefs:

- Curriculum and instruction for advanced learners requires differentiation in all the major strands: reading skills, literature, writing, language study, and oral communication.
- Diversity in types of activity and instruction, as well as depth and complexity, characterizes a well-differentiated language arts curriculum for advanced learners.
- In an effective language arts curriculum for high-ability learners, students at all grade levels must read, discuss, and write about works that introduce complex topics, problems, and issues.
- Literature selections should reflect a multicultural perspective in the language arts curriculum and in some instances be linked to interdisciplinary content.
- The reading curriculum for advanced learners should provide opportunities to read a wide variety of genres through student-chosen and teacher-selected focused readings.
- Processed-based writing models and instruction in all genres, such as narrative, expository, poetry, persuasive, and performance pieces, allows for greater student growth by shifting the focus from the formulaic to exploration of voice and purpose.
- Grammar, spelling, and syntax should be taught in the context of real writing.
- Reading, writing, and oral presentations should be integrated across the curriculum.

Key Considerations for Development of a Social Studies Curriculum for Advanced Learners

Assumptions and Beliefs:

- Engaging students in active learning and critical inquiry introduces advanced students to the nature of social science as a field.
- The consistent use of specific thinking models (such as Taba’s “Concept Development” or Paul’s “Elements of Reasoning”) across content areas and grade levels can enhance student understanding of important aspects of social studies learning.
- Emphasizing universal concepts such as *Time, Systems, and Change*, integrates disparate strands of the social studies curriculum and encourages high-level inquiry.
- Advanced students should learn to understand the world in terms of broad themes and concepts, such as interdependence within systems, and narrower themes and concepts, such as leadership and tyranny.
- Students should read, discuss, and write about complex open-ended problems as part of the history curriculum and should be encouraged to form and defend their explanations.
- Students should analyze, synthesize, and evaluate primary source materials to develop their ability to form their own theories and judgments.
- Exposing students to multicultural perspectives on historical events, problems, and trends is essential to a broader understanding of significant events and eras.
- Students must learn to use technology to gather information but also how to evaluate the biases and different sources of information.
- Students need specific instruction in reconciling apparently conflicting viewpoints and to recognize the difference between fact and opinion.

As we developed the key considerations for each the core disciplines, several common themes were apparent; the call for connections among and between disciplines, integration of themes and concepts across disciplines, and *metacognition*. Consequently, the committee recommended that a humanities approach be incorporated in the guiding framework across the disciplines. The following key points summary is taken from *Comprehensive Curriculum for Gifted Learners*, by Joyce Van Tassel-Baska.

Humanities Curriculum: Key Points Summary (Van Tassel-Baska)

- At the most abstract level of Phenix's "Acts of Man", the humanities provide an integration of all domains of study.
- Humanities approaches need to be incorporated at all stages of development and levels of k-12 schooling.
- Important characteristics of humanities study are that it is value focused, interdisciplinary, topical, student centered, intellectual, and creative.
- Humanities curriculum exemplifies the best of concept curriculum in its orientation to interdisciplinary work that is organized around important ideas.
- The program models for integrating humanities curriculum include school-with-school programs, seminars, separate courses, the teaching of philosophy, and individual thematic units of study.
- Humanities teaching and learning is concerned about drawing out the learner to recognize multiple and relative perspectives on issues, themes, and problems.
- The humanities provide an appropriate context to teach heuristics of creativity and to practice the construction of personal meaning through product generation.

Using these philosophical frameworks as our guiding principals, Advanced Learning Programs has been working on developing curricular frameworks and scope and sequence in all core content areas for the Accelerated Progress Program.

The mathematics curriculum was already fairly well articulated so has primarily undergone some "fine tuning", We are analyzing adjustments that will be necessary as we respond to a new District high school mathematics materials adoption.

The science curriculum has already begun to be implemented at the elementary level and is in final stages of development at the middle school. Necessary adjustments at the high school level are currently being discussed. We expect to have a completed 1-12 scope and sequence and a plan for its implementation before the end of the year.

Much progress has been made this year in analyzing current practices in APP 1-12 language arts and social studies. We expect to have identified some of the key components of a comprehensive humanities curriculum and core materials and programs for specific strands within language arts and social studies by the end of this academic year and will be developing an integrated grades1-12 humanities-based curriculum and a plan for its implementation over the next couple of years.

Key next steps include developing integrated units of study for the new APP humanities curriculum, further enhancing the existing units of study in science and mathematics for APP, and developing an equally comprehensive curriculum for grades 1-8 for the Spectrum Program.