

BALTIMORE COUNTY PUBLIC SCHOOLS

DATE: July 13, 2010

TO: **BOARD OF EDUCATION**

FROM: Dr. Joe A. Hairston, Superintendent

SUBJECT: **CONSIDERATION OF THE PRE-KINDERGARTEN MATHEMATICS CURRICULUM**

ORIGINATOR: Mary Cary, Associate Superintendent, Curriculum and Instruction

RESOURCE PERSON(S) John Quinn, Executive Director, Department of STEM
Patricia Baltzley, Director, Office of Mathematics PreK-12
Cindy Dennis, Elementary Coordinator, Office of Mathematics PreK-12

RECOMMENDATION

That the Board of Education approves the Prekindergarten Mathematics Curriculum Guide as presented to the Curriculum Committee and as directed by Policy 8130 and Policy 6000.

Attachment I – Executive Summary Packet for Prekindergarten Mathematics curriculum guide

Executive Summary
Prekindergarten Mathematics Curriculum Guide
July 13, 2010

Using the curriculum development process formalized by ISO 9000, the Office of Mathematics Pre-K-12 developed a new prekindergarten curriculum guide over the past two years. At this time, the Office of Mathematics PreK-12 is seeking approval for the Prekindergarten Mathematics Curriculum Guide with the understanding that the development of this guide reflects an alignment of the written, taught, and assessed curriculum, an expectation that leads to a high-quality mathematics program for all students.

The current Prekindergarten mathematics program, *McGraw Hill Mathematics* was adopted systemwide in 2002. The rationale for the adoption at that time included the need to implement a consistent Baltimore County Public Schools' (BCPS) mathematics curriculum in Prekindergarten in order to address Maryland Content Standards and Maryland Learning Outcomes, which were in place ten years ago. The intent of this 2002 mathematics program was to improve Prekindergarten student achievement and to positively impact student achievement in kindergarten. One of the goals of the 2002 BCPS Prekindergarten program was to help prepare students for kindergarten, particularly in the area of language development. This program is an integrated program that addresses mathematical concepts in the world of the four-year old using language, literature, and art. There was not a formal curriculum guide, and mathematics was not as transparent as needed for the twenty-minutes allotted for mathematics during the prekindergarten daily schedule.

During the Phi Delta Kappa Curriculum Management Services (PDK) curriculum review for Mathematics PreK-12, the current Prekindergarten mathematics program was evaluated by the auditors. Based on the PDK's criteria, the current Prekindergarten mathematics program received a total of 2 out of 15 points. In response to the audit, the Office of Mathematics PreK-12 is committed to revising the current Prekindergarten mathematics program by working collaboratively with the Office of Early Childhood to identify potential mathematics programs which may be considered for piloting and possible adoption by BCPS and to develop a BCPS Prekindergarten Mathematics Guide.

In addition to the audit findings, the need to develop a BCPS Prekindergarten Mathematics Curriculum Guide aligned to the current state standards and the maintenance and replacement issues arising with the current 2002 copyrighted product, there have been many advances in recent research validating the significant positive impact of a high-quality mathematics program on young learners as well as recent research-based best practices for the effective teaching and learning of mathematics. The National Council of Teachers of Mathematics (NCTM) affirms that a high-quality, challenging, and accessible mathematics education provides early childhood learners with a vital foundation for future understanding of mathematics. Young children in every setting should experience effective, research-based curricula, and teaching practices. Such practices in turn require policies, organization support, and resources that enable teachers to do this challenging and important work.

The Office of Mathematics PreK-12 developed a detailed action plan for the development of a BCPS Prekindergarten Mathematics Curriculum Guide and the piloting of potential textbook resources. Working in collaboration with the Office of Early Childhood, the Office of Mathematics PreK-12 researched the prekindergarten mathematics programs used in other Maryland counties, evaluated a variety of prekindergarten products for alignment to the State Curriculum and feasibility of use within the specific BCPS time allotments, facilitated prekindergarten focus group meetings, developed and piloted the BCPS Prekindergarten Mathematics Curriculum Guide in conjunction with the approved textbook resources, gathered pilot teachers' feedback, facilitated pilot meetings, and visited the eleven pilot teachers' prekindergarten mathematics classes. Revisions were made to the draft curriculum guide based on the feedback provided during the pilot phase. Approval was sought and provided by the Curriculum Evaluation Committee, the area assistant superintendents, and the Executive Leadership team. The Prekindergarten Mathematics Curriculum Guide was presented to the Board of Education Curriculum Committee and was approved to move forward to the full Board for final review and approval.

Alignment of the Prekindergarten Mathematics Curriculum Guide to the Maryland State Curriculum (SC), and National Council of Teachers of Mathematics Standards has been carefully checked and confirmed. This guide fully and completely incorporates the elements described in the Board of Education Curriculum Approval Form – Clarity and Specificity of Objectives; Congruity of the Curriculum to the Assessment Process; Delineation of Prerequisite Essential Skills, Knowledge, and Attitudes; Delineation of the Major Instructional Resources; and Clear Approaches for Classroom Use (Strategies). Following this criteria, the guide presents a cumulative score of 15 out of a possible 15 points.

In general, to meet the criteria of the evaluation rubric, Articulated Instruction Module (A.I.M.) objectives have been created which correlate to the BCPS mathematics program for prekindergarten, the SC, and the National Council of Teachers of Mathematics Standards and include knowledge skill indicators for each objective. A scope and sequence has been developed for PreK-12 mathematics and the portion that identifies the skill development for prekindergarten as well as for kindergarten, the grade immediately following prekindergarten, has been included with the Board of Education Curriculum Approval Form. In addition, an alignment document has been created for every unit in the curriculum guide which correlates the skills to the Maryland State Curriculum. Resources and strategies are included in the curriculum guide as part of the unit or lesson outline.

Professional development has been provided for teachers on the instructional materials that were approved for use with the prekindergarten mathematics program. Additional professional development has been planned for the elementary principals and assistant principals in July and for the prekindergarten teachers on the August 2010 Professional Study Day. Teachers will be introduced to the mechanics and pacing of the curriculum guides. Follow-up workshop sessions will be ongoing throughout the school year to continue to support the teacher in implementing the written curriculum. The curriculum guide describes the instructional path needed to progress from the standards and objectives of the course towards the target mastery of academic mathematics skills created as part of the curriculum guide. This curriculum is designed to be an integral part of the PreK-12 mathematics program to help students meet Baltimore County

standards and performance goals as outlined in the BCPS *Blueprint for Progress*. This curriculum is designed to help students become confident mathematicians who understand mathematics, are effective problem-solvers, can reason mathematically, and can communicate their understanding of mathematical concepts.