Exhibit II

BALTIMORE COUNTY PUBLIC SCHOOLS

DATE: July 14, 2009

TO: **BOARD OF EDUCATION**

FROM: Dr. Joe A. Hairston, Superintendent

SUBJECT: **CONSIDERATION OF CURRICULUM**

ORIGINATOR: Dr. Joe A. Hairston, Superintendent

**RESOURCE
PERSON(S):**   Patricia Baltzley, Director, Mathematics, PreK-12
George Newberry, Director, Science, PreK-12
Rex Shepard, Coordinator, Secondary Social Studies

RECOMMENDATION

That the Board of Education reviews and approves the following new/ revised curriculum:

Mathematics
Mathematics Grade 6
College Algebra
Trigonometry with Analytic Geometry

Science
High School Physics

Social Studies
AP World History

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Curriculum Board Approval

Course Description	Course	BCPS Rating
MATHEMATICS PREK-12		
MATH 6	2006000	15
COLLEGE ALGEBRA: GT	2028205	15
COLLEGE ALGEBRA: HONORS	2028004	15
COLL READI MATH	2025000	15
TRIG W/AN GEOM. GT	2040105	15
TRIG W/AN GEOM. HON	2040104	15
TRIGONOMETRY : HONORS	2040004	15
SCIENCE PREK-12		
PHYSICS	2512000	15
PHYSICS: HONORS	2512004	15
PHYSICS: REV	2512009	15
SOCIAL STUDIES, SECONDARY		
AP WORLD HISTORY	151006	15
AP WORLD HISTORY (4 PD DAY)	1510606	15

Baltimore County Public Schools

This exhibit contains courses in mathematics, science, and social studies that were written for the 2009-2010 school year and are submitted to the Board of Education for approval.

In order to develop and produce these new curriculum guides, staff from the Division of Curriculum and Instruction worked with content area study committees and curriculum writers to carefully develop and review each document to determine the areas that needed to be strengthened and/or supplemented. In all cases, the focus was on increasing rigor in all courses and providing effective support so that all students could achieve at higher levels of performance and attain the outcomes proffered by the Superintendent as enumerated in the *Blueprint for Progress.*

These new curricula were developed to ensure alignment with the Voluntary State curriculum (VSC) for students in courses from pre-kindergarten to Grade 8, or the Core Learning Goals (CLGs) for students who are taking courses at the high school level.

Prior to writing these curricula, all curriculum writers received two days of professional development in order to understand how to write the curriculum. They studied the *Curriculum Development Handbook* which includes a recommended Curriculum Guide Framework, a Required Curriculum Guide Format, and those steps involved in writing, editing, and printing a curriculum. This handbook includes resources for curriculum writers including the following: assessments, strategies for instruction, outcomes for instruction, questioning/thinking models, integrating technology, and professional development. These guides contain unit/lesson plan overviews and are contained in the appendices of this handbook.

Curriculum writers also received professional development in order to use the Articulated Instruction Module (AIM), the web-based integrated curriculum, instruction, and assessment module. Accordingly, the curriculum writers input all course objectives and knowledge or skill indicators into AIM for each curriculum based upon the identified state and/or national or international standards. The Articulated Instruction Module was used to clearly indicate as well as reinforce the alignment of the written curriculum, the taught curriculum, and the tested curriculum.

Curriculum writers were taught to match the identification of objectives based upon content standards; to verify the congruity of the taught curriculum to the assessment used to measure student performance in the curriculum; to identify prerequisite skills and knowledge taught in the previous grade/course as well as those skills and knowledge taught in the subsequent grade/course (i.e., the scope and sequence); to identify major instructional resources that teachers could use when teaching the subject; and to use differentiated strategies in the classroom.

Following this Executive Summary is the section, *The Learning Preferences in Brief, A Description*, by Dr. Barbara Dezmon. This reference is included in each curriculum guide. As the curriculum is written, references to these learning preferences are indicated and suggestions provided for effective instruction.

Each curriculum provides additional recommendations for differentiation of instruction for all learners, particularly as they apply to different content areas. This differentiation includes built-in recommendations for both review and acceleration/ enrichment activities as well as recommendations for teaching students who have different learning modalities. There are recommendations to help different student groups, such as English Language Learners or students with special needs, at specific times in the curriculum where such strategies could be most effective.

Each curriculum guide includes the following elements and samples are included for each curriculum proposed for approval by the Board of Education:

1 *Board of Education Curriculum Approval Form*—This form is the one that is completed by staff members and reflects the scores in the various categories listed that were initially used in the PDK process and the current scores that reflect enhancement of each curriculum.
2 *Executive Summary*—This summary includes details from the head of each office regarding what has been accomplished in the content area and specifically what has been done to develop the current curriculum documents.
3 *AIM documents*—These AIM pages reflect the objectives of each course along with the knowledge and skill indicators (KSIs) that are included in AIM, the web-based instructional module. They also indicate alignment to the state and national standards.
4 *Scope and Sequence*—These scope and sequence tables include the knowledge and skills that students were taught in previous grades/courses and will be taught in subsequent grades/courses. Teachers use this information as they plan their lessons so they understand what skills are being introduced and what and when other skills have been introduced or will be taught in the future.
5 *Professional Development Plan*—This plan includes the many action steps that provide teachers with initial professional development about the revised curriculum as well as follow-up supports for teachers for effective implementation. These were developed as part of the Planning Protocols in spring 2008 and have been implemented.
6 *Curriculum Document*—This document includes the entire curriculum for each course submitted for approval. It includes all the elements indicated in the Table of Contents.

These following curricula listed below are presented to the Board of Education for approval since they have followed the Baltimore County curriculum development process that applies the detailed elements mentioned above. Greater details about the processes used for development of these curricula are found in the Executive Summary in Mathematics, Science, and Social Studies that accompanies each curriculum.

Mathematics
The curriculum guide for *Mathematics Grade 6*, *College Algebra*, and *Trigonometry with Analytic Geometry* were completely rewritten to reflect the new Baltimore County Public Schools template for curriculum units and lessons, and to reflect a new textbook resource support for each of these guides. The *Mathematics Grade 6* is differentiated for use by the teacher to support students who are ready to go beyond the curriculum, who are in need of re-teaching, or

who struggle with understanding the mathematics concepts. Similarly, the curriculum guide for *College Algebra* is differentiated for use in two courses – *Honors College Algebra* and *GT College Algebra*. The curriculum guide for *Trigonometry with analytic Geometry* is differentiated for use in three courses, *Honors Trigonometry with Analytic Geometry*, *GT T5rigonometry with Analytic Geometry*, and *Honors Trigonometry*.

Science
Office of Science PreK-12 is seeking approval by the Board of Education for the revised curriculum guide, *High School Physics* with the understanding that all future revision of this guide will continue to reflect alignment of the written, taught, and assessed curriculum, an expectation of Baltimore County schools that leads to a high-quality program for all students.

Curriculum personnel from the Office of Science PreK-12 worked with content area study committees and curriculum writers to carefully review each curriculum guide to determine the areas that need to be strengthened and/or supplemented. Those findings guided the curriculum revisions and improvements to the guide being submitted for approval. Alignment of this curriculum guide to the Maryland Voluntary State Curriculum or High School Core Learning Goals and National Science Education Standards has been carefully checked and reconfirmed. The curriculum guide for *High School Physics* is differentiated for use in standard physics, honors physics, and physics review.

Social Studies
The Office of Secondary Social Studies is seeking approval for the *Advanced Placement World History* guide to ensure alignment of the written, taught, and assessed curriculum, and to provide support for a high-quality social studies program for all students in Baltimore County Public Schools.

The revision of Advanced Placement World History has been completed and all recommendations of the PDK Audit have been addressed. Issues related to objectives, assessments, prerequisite skills, resources, and strategies have been resolved. The course content was identified by drawing upon the College Board's course description and sequenced by experiences, successful *Advanced Placement World History* teachers.

All curricula will be evaluated annually to ensure that they provide the most effective and challenging learning opportunity for students and support for teachers in meeting differentiated student needs.

Respectfully, these curricula are submitted to the Board of Education for approval.

The Learning Preferences in Brief – A Description

by
Dr. Barbara Dezmon

The following is an excerpt from the *Style to Content Learning Preferences Inventory Technical Manual*.

The *Style to Content Learning Preferences Inventory* focuses on ten preferences. These were selected because they encompass a wide range of learning approaches cited in the literature as exhibited by students. The terms "preferences" and "styles" are often used synonymously. The term selected for the *Style to Content* protocols is "preferences."

During various instructional situations, students are exposed to an abundance of stimuli and information. There are numerous ways in which students perceive and process content. As well as being curious, students come to school of a mind as to what they want to learn as well as how they want to learn it. Students' predispositions to learning may reflect background factors such as culture, age, experiences, gender, etc. It becomes the role of school to motivate students to learn new content and in ways that may not be within the realm of their entering preferences or experiences. Just as important, it is essential that educators adjust the learning situation to use the students' entering behaviors, including interests and attitudes related to learning, and expand them to include other modalities or preferences for acquiring new knowledge. The ultimate aim is to optimize students' approaches to learning by providing them options. Then students may select from among a repertoire of learning preferences to make both the content and learning process more personally meaningful.

The *Style to Content Learning Preferences Inventory* provides students an opportunity to express how they like to learn. When in learning situations that match their preferences, students are expected to be more comfortable. In their turn, teachers should use these situations to segue into other preferences to better equip students for future learning. Teachers can accomplish this by structuring lesson activities that first meet students' demonstrated preferences and then transitioning into one or more other preferences. Teachers may also construct lessons that feature activities that take in multiple preferences and utilize grouping and individualization to address varied students' learning modes.

Learning preferences should not be viewed as deficits, rather teachers should consider them assets, build on them, and use them as links to help students expand into other preferences. For example, visual learning is a preference in which most students participate throughout their school careers. The visual modality is a vital process. However, there are tasks that require complicated organization of concepts and may require a more "sequential" approach. This does not diminish the role of "visual" approach, but that approach will interact with and be complemented by another preference. It is important that students are familiar with aspects of multiple preferences in order to select among them to perform tasks ranging from comprehension to synthesis, from the simplistic to the complex.

Learning involves the intake, processing, and retention of knowledge, basically building new knowledge and skills on those that already exist. Learning preferences are the ways students choose or prefer to learn. Sometimes these choices are not conscious ones. The choices may be predetermined by culture and upbringing, among other factors. Learning preferences are influenced by social, psychological, and physiological factors. It is just as important to recognize that learning preferences do not exist in isolation within students. Thus, teachers should be prepared to use a combination of preferences during instruction to reach as many students as possible. Also critical, preferences should not be viewed as static. As students mature during their educational careers and increase their knowledge banks, their preferences or approaches to learning should also expand.

The following section, "Learning Preferences in Brief," provides the *Style to Content* list of learning preferences and their key characteristics.

Learning Preferences in Brief

The terms learning styles and preferences **are frequently used interchangeably.** Learning preferences refer to the conditions in which students prefer to work and learn, such as the classroom situation, grouping, and whether the lesson is more or less teacher driven. Preferences also signify how students mentally receive, perceive, process, understand, and internalize new knowledge. The following chart features characteristics of various preferences and suggestions for activities to assist teachers in accommodating students.

Field Dependent (or Field Sensitive): tends toward concrete—more teacher and group interaction
Field Independent: tends toward abstract
Field Dependent Preference Learner
- Experiences in a global fashion, adheres to structures.
- Learns material with social content best.
- Attends best to material relevant to own experience.
- Requires externally defined goals and reinforcements.
- Needs organization provided.
- More affected by criticism.
- Uses observational approach for concept attainment [learns best by using examples].
- Likes group projects, sharing, discussions.
- Likes personal examples, anecdotes, stories.
- Likes praise and assurance.
- Prefers frequent interaction with teacher.

Field Dependent Teaching Approaches
- Prefers teaching situations that allow interaction and discussion with students.
- Uses questions to check on student learning, following instruction.
- Uses student-centered activities.
- Viewed by students as teaching facts.
- Provides more feedback, especially positive feedback.
- Strong in establishing a warm and personal learning environment.
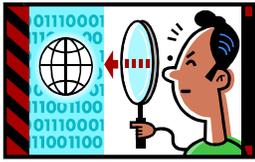
Field Independent Preference Learner
- May tend to perceive analytically.
- Makes specific concept distinctions, little overlap.
- Impersonal orientation.
- May need explicit training in social skills.
- Interested in new concepts for their own sake.
- Has self-defined goals and reinforcement.
- Can self-structure situations.
- Less affected by criticism.
- Uses hypothesis-testing approach to attain concepts.
- Prefers clear grading criteria with specific feedback.
- Requires less interaction with teacher.

Field Independent Teaching Approaches
- Prefers engaging students by establishing routines in order to work through ideas.
- Uses questions to introduce topics and probe student answers.
- Uses teacher-organized learning situations.
- Viewed by students as encouraging to apply principles.
- Gives corrective feedback, using error analysis.
- Strong in organizing and guiding student learning.

MODALITY	DESCRIPTORS	LEARN BEST THROUGH THE USE OF…
Visual Learners (input)	• Learn by observation. • Can recall what they have seen. • Can follow written or drawn instructions. • Like to read. • Use written notes. • Benefit by visualizing, watching TV/video/films. • Better organized and more conforming to routine. • Learn through images.	• Charts, graphs, diagrams, and flow charts. • Sight words. • Flashcards. • Visual similarities and differences. • Pictures and graphics. • Maps. • Silent reading. • Written instructions. • Computer-assisted learning. • Demonstrations. • Lists.
Auditory Learners (input) Verbal-Linguistic	• Prefer listening and taking notes. • Listen for patterns. • Consult peers to ascertain that they have the correct details. • Can recall what they have heard. • Can follow oral directions. • Repeat words aloud for memorization. • Use oral language effectively.	• Discussion, dialogue, and debate. • Memorization. • Phonics. • Oral reading. • Hearing anecdotes or stories. • Listening to tapes and CDs. • Cooperative learning groups. • Stories with dialogue.
Kinesthetic Learners (input)	• Learn through experience and physical activity. • Benefit from demonstration. • Learn from teaching others what they know. • Are often physically well-coordinated and have athletic ability. • Have difficulty sitting still for long periods. • Prefer the concrete.	• Playing games. • Role playing. • Read body language/gestures. • Mime. • Drama. • Learn or memorize while moving (pacing, exercising, finger or whole body games). • Dance. • Field trips. • Action using large muscles. • Taking frequent breaks. • Engaging in body demonstrations.
Tactile Learners (input)	• Learn by touching and manipulating objects. • Often learn inductively rather than deductively. • Tend toward psychomotor over abstract thinking. • Prefer personal connections to topics. • Follow directions they have written themselves/that they have rehearsed. • Benefit from demonstrations.	• Learning by doing. • **"Hands-on."** • Creating maps. • Building models. • Art projects. • Using manipulatives. • Drawing, designing things. • Writing/tracing.

MODALITY (continued)	DESCRIPTORS (continued)	LEARN BEST THROUGH THE USE OF…
Active Learners	• Can be impulsive. • Risk-takers. • Do not prefer lectures. • Prefer group work. • Tend to be interpersonal. • Not inclined to too much note-taking. • Make sense of experience by immediately using information.	• Prefer "doing, discussing, explaining" vs. listening and watching. • Prefer active experimentation. • Like acting and role playing. • Like team competition.
Reflective Learners	• Prefer to think about concepts quietly before any action. • Learn by thinking. • Like writing. • Tend to be intrapersonal and introspective.	• Tend toward deductive learning. • Prefer reflective observation. • Intrapersonal skills valued. • Journals. • Learning logs.
Global Learners	• Make decisions based on intuition. • Spontaneous and creative; "idea" person. • Often a risk-taker. • Tend to reach conclusions quickly. • Intake information in large chunks rather than details. • Nonlinear thinkers. • "See the forest before they see the trees." • Focuses on big picture—from general to specific; perceive the whole first.	• **Interpersonal connection important to them** • Stories and anecdotes. • Seeing the "whole" rather than in parts. • Highly interesting project and materials. • Functional games and activities • Think-pair-share, praise-question-polish. • Teacher feedback; person-to-person communication. • Working in group or peer learning.
Sequential Learners	• Sequential, linear learners. • Prefer information in small chunks, steps. • Can follow the rules for mathematic equations. • Prefer a logical progression. • "See the trees before they see the forest." • Follow directions step by step. • Self-directed and independent. • Analytical.	• **Intrapersonal skills valued.** • **Journals.** • Learning logs. • Sequentially organized material, timelines, diagrams. • Moving from "part" to the "whole." • Puzzles, logic games. • Working alone or with other person.