To:    Board of Directors  
From:  Dr. O’Donnell, Mr. Vernon Bock and Ms. Deirdre Bauer  
Date:  February 23, 2018  
Re:    Recommended Math Resource: Bridges in Mathematics  

As discussed on January 22nd, we are proposing the adoption of a new K-5 math resources. To arrive at this recommendation, the district elementary math committee engaged in a comprehensive and systematic review and comparison of several different math resources.

The process that was presented to the Board on January 22nd included a review of math resources used by other high performing districts in Pennsylvania, along with a review of their ratings on Edreports.org, which is an independent nonprofit focused on improving K-12 education. Using this information, the committee identified and reviewed seven core math programs using a rubric which examined the following areas: content and instruction, assessment, teacher support, and home school connections.

Based on this work, the committee narrowed the field of resources down to two resources to participate in an overview with the publisher: 1.) Bridges in Mathematics, published by the Math Learning Center 2.) PA Ready Math, published by Curriculum Associates. Based on the overview with the publishers, the committee recommended Bridges in Mathematics for further consideration.

As the final phase of this process, members of the committee conducted two site visits to observe the implementation of Bridges in Mathematics. Although the first visit provided some information for the committee to consider, the district was only in its first year of implementation. The second school district we visited was in its fourth year of implementation and proved to be valuable for the committee. Based on this site visit, the committee unanimously supported the recommendation of Bridges in Mathematics as our core math program.

The initial purchase cost of Bridges in Mathematics is not to exceed $290,000, including shipping and handling of materials. Subsequent yearly recurring cost of consumables and other materials would not exceed $60,000.

The memo from January 22, 2018 Board meeting is attached.
TO: Dr. Robert O’Donnell  
FROM: Mr. Vernon Bock and Ms. Deirdre Bauer  
DATE: January 15, 2018  
RE: Recommendation of Elementary Math Resource

Policy 106 Process

In accordance with Policy 108, we are bringing forward an elementary math resource recommendation for your consideration. During the 2014-15 school year, we engaged in a K-12 math research year process, which included Penn State faculty to support our review of the research and create our vision for our work. Dr. Gwen Lloyd, Professor of Math Education and Henry J. Hermanowicz Professor of Teacher Education and Dr. Andrew Baxter, Math Department Lecturer and Director of the Pennsylvania Math Initiative collaborated with our K-12 research team. In July of 2017, the K-12 math curriculum was approved by the Board. Using this curriculum framework, the elementary math committee reviewed and identified resources that aligned with and supported the SCASD math curriculum and instructional practices outlined by the National Council for Teachers of Mathematics (NCTM). This memo outlines this process and summarizes the committee’s recommendation.

Establishment of Need

Following the curriculum process, the math committee reviewed several core math resources to support the math curriculum. In addition to the needs that emerged with the math curriculum process, a review of our assessment data (MAP, PSSA, and PVAAS) suggests the need to consider a different math resource. Teachers have shared areas of need about the current program as well as the need to supplement beyond what is provided in Math Expressions to address the PA Academic Standards and the Standards for Mathematical Practice. In addition to utilizing a rubric process for each potential resource, the math committee applied the same rubric to Math Expressions. All of these processes led us to the current recommendation.

Resource Recommendation Process

An elementary math committee was created by enlisting volunteers from each grade across schools, along with special education and gifted/LE teachers. The committee worked during the school year, as well as over the summer, to complete the curriculum and evaluate resources.

As part of the research review process, the committee examined math resources used by other high performing districts in Pennsylvania and read their corresponding reviews on Edreports.org, “an independent nonprofit focused on improving K-12 education. EdReports.org increases the capacity of teachers and administrators to seek, identify, and demand the highest-quality
instructional materials. Drawing upon expert educators, EdReports.org's evidence-based reviews of instructional materials and support of smart adoption processes will equip teachers with excellent materials nationwide” (Retrieved from https://www.edreports.org/about/index.html) to determine which resources to review.

Using this information, the committee identified and reviewed seven core math programs using a rubric which examined the following areas: content and instruction, assessment, teacher support, and home school connections. Based on this work, the committee narrowed the field of resources down to two resources to participate in an overview with the publisher:

1. Bridges in Mathematics, published by the Math Learning Center
2. PA Ready Math, published by Curriculum Associates

Based on the overview with the publishers, the committee recommended Bridges in Mathematics for further consideration.

As the final phase of this process, members of the committee conducted two site visits to observe the implementation of Bridges in Mathematics. Although the first visit provided some information for the committee to consider, the district was only in its first year of implementation. The second school district we visited was in its fourth year of implementation and proved to be valuable for the committee. Based on this site visit, the committee unanimously supported the recommendation of Bridges in Mathematics as our core math program for the following reasons:

- Alignment to PA Academic Standards and the Standards for Mathematical Practices (from NCTM - National Council for Teachers of Mathematics)
- Most positively reviewed resource from our committee
- Program has two components - Bridges which is the core program and Number Corners which is like Calendar Math - a daily spiral of skills to support an embedded preview and review process
- Observed K-5 articulation of content and skills - could see how grade level instruction scaffolded from year to year
- Observed engaging whole group instruction and small group instructional activities
- Observed students and teachers who liked math and liked teaching math
- Supports flexible thinking
- Strong intervention component
- Support of students who struggle in math to have access to on grade level content and support them as they grow towards grade level standards
- Pre-assessment, formative, and summative assessments
- Planned out and will help report cards based on standards
- Excellent teacher support
- Rigorous program that extends learning
- Online blog that allows users to share ideas, manipulatives, and online math games
- Math Learning Center online manipulatives that we are currently using in K-5 on iPads and tablets, this includes games that serve as virtual math manipulatives
- Includes STEM components in the last unit
- Homework is integrated occasionally, but not for every day

A summary of this complete process is included in this document.
If this resource is approved, we will develop a comprehensive implementation plan that includes professional development provided by The Math Learning Center, along with parallel professional development by district instructional coaches. This will also include ongoing collaboration with Penn State and the PA Math Initiative.

**Outreach and Communication**

Throughout the entire math curriculum writing and resource review process, we have kept teachers informed by sharing updates in the monthly curriculum newsletter, as well as through principals’ beginning of the year updates. In addition, Ms. Bauer shared a curriculum update, with a focus on math, during a PTO meeting at each elementary school. During these presentations, she solicited feedback from parents about their children’s experiences with our curriculum. Finally, Mr. Bock and Ms. Bauer have scheduled math update conversations with each elementary faculty that includes information about the recommended resource, the process we used, and plans to support our implementation and professional learning. As we did with English Language Arts, we will ask for a teacher at each grade level from each school to serve as a math representative through our implementation process.