

Transforming East Alabama Mathematics

The East Alabama Partnership for the Improvement of Mathematics Education

Recommendations for the 2004 Alabama Mathematics Textbook Adoption

**TEAM-Math
Textbook Review Team**

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Purpose and Intent

Transforming East Alabama Mathematics or TEAM-Math (officially known as the East Alabama Partnership for the Improvement of Mathematics Education) is a partnership of twelve school districts, along with two universities and other organizations, which has the following mission:

To enable all students to understand, utilize, communicate, and appreciate mathematics as a tool in everyday situations in order to become life-long learners and productive citizens by Transforming East Alabama Mathematics (TEAM). The mission will be met by:

- Aligning the curriculum K-12
- Ensuring consistency in teaching
- Providing professional development
- Improving the preparation of new teachers

The first bullet, “aligning the curriculum K-12,” is an important step, as it ensures that students are experiencing a curriculum that carefully builds mathematical knowledge across the grades without gaps and overlaps. TEAM-Math has been working on this goal over the past eight months. The first step in the process was to develop a draft curriculum guide that sets forth goals for instruction in the districts of east Alabama that are in alignment with the Alabama Course of Study, *Principles and Standards for School Mathematics*—the national standards for mathematics education, the SAT-10, the Alabama High School Graduation Examination, and the National Assessment of Educational Progress. The curriculum guide is available online at <http://TEAM-Math.net>

The second step in that process consisted of reviewing and recommending textbooks that are aligned with the goals established in the curriculum guide and the overall philosophy of TEAM-Math as stated in its mission. The remainder of this document is devoted to describing that process and its results. The final step in the process will be to produce an updated curriculum guide that incorporates references to the recommended textbooks.

This document is designed to inform districts’ textbook adoption processes. A team of nearly 60 teachers came together from across the twelve school districts from September 2003 to January 2004. They carefully reviewed all the textbooks on the Alabama State Adoption list and made decisions about which textbooks best promote student learning. Clearly most school districts in the area will not have the breadth of expertise or the time to carry out such a careful process. By collaborating in this effort, the school districts accomplished much more than any of them could have individually. Such “TEAM”-work is one of the key features of TEAM-Math!

A common textbook selection is also necessary to support the continued work of TEAM-Math. It provides a common baseline for the project’s activities. As mentioned above, the curriculum guide will be updated to incorporate specific references to the recommended textbooks. In addition, the professional development provided by the project can incorporate examples from the recommended textbooks, providing specific ideas to improve students’ learning of mathematics. In general, priority will be given to districts that adopt the recommended textbooks, whether or not they have funding to purchase them, since their priorities are more likely to be aligned with the project’s activities. Likewise, TEAM-Math will provide initial staff development for all teachers on the recommended textbooks, including those who are not a part of the first cohort of schools to begin intensive professional development during the summer of 2004.

Procedure

The Textbook Review Team was charged to conduct a thorough review of textbooks and, if possible, select at most two textbooks that are consistent with the TEAM-Math curriculum guide and support the goals of the project. One of the textbooks should be a “research-based” textbook that fully supports inquiry-based learning and the project goals. The second textbook should be a more traditional textbook that could be augmented to support the TEAM-Math goals.

The Textbook Review Team consisted of approximately 60 teachers from the twelve TEAM-Math districts. They primarily worked in subgroups by grade-levels—K-2, 3-5, 6-8, and 9-12—which is consistent with the Alabama Course of Study and the national standards. This also allowed the committee members to focus on the particular needs of students in that gradeband. However, steps were taken to ensure that the subgroups continued to interact with one another in full-group settings. In addition, cross-group meetings were set up throughout the process to ensure that the recommendations for K-2 and 3-5 would be consistent and, to a lesser degree, to ensure that the recommendations for 3-5 and 6-8 would be consistent. If the recommendations for K-2 and 3-5 were at odds, more comprehensive elementary schools might experience difficulties.

The Textbook Review Team met approximately monthly between the end of September and the middle of January, as follows:

- Meeting 1: September 26, 2003
- Meeting 2: October 20, 2003
- Meeting 3: November 18, 2003
- Meeting 4: December 13, 2003
- Meeting 5: January 10, 2004

In addition, a subgroup of teachers piloted some of the materials from inquiry-based textbook series, as few had any substantive experiences working with the different approach to teaching mathematics they embody. A one-day pilot testing meeting was held on October 25, which was required for piloting.

The textbook committee considered all textbooks approved by the state of Alabama that could be considered a comprehensive curriculum. Supplementary programs were not reviewed, nor were programs that depended on computer delivery since few schools have the necessary technology for those programs.

The textbook review took part in two phases. In Phase I, all textbooks were reviewed according to their overall effectiveness in promoting student learning and supporting effective instructional methods. A form consisting of 23 questions was devised, based on a draft form produced by Cale Ebert of Baldwin County. This form included ratings of how well the textbook promoted student learning, what resources are provided to teachers to support student learning, as well as the overall accuracy and format. In addition to providing a ranking for each question, committee members provided a holistic rating of each textbook’s overall effectiveness. A sample form for Grade 2 is given in Appendix B; all forms are available on the TEAM-Math web site. The committee members were asked to focus on a set of “big ideas” that was drawn from the TEAM-Math curriculum guide. Other than incorporating the appropriate “big ideas”, the form was identical across the gradebands. The subgroups then made an initial ordering of the textbooks and made decisions about which books warranted further review.

Based on those decisions, the subgroups began Phase II: subcommittees reviewed the specific content covered by the books to ensure that the TEAM-Math objectives and the standards in the Alabama Course of Study were met. In many cases, nearly all of the potential textbooks were eventually included in Phase II. Again, checklists based on the forms developed by Cale Ebert were set up for each grade level, listing

the TEAM-Math objectives beside those from the Alabama Course of Study. The subgroups rated the effectiveness of the textbook in meeting each adjective; they also provided a holistic rating of its effectiveness in covering the objectives of TEAM-Math and the Alabama Course of Study. A sample form for Grade 2 is given in Appendix B. Other grade levels had a similar form, substituting the appropriate objectives and standards.

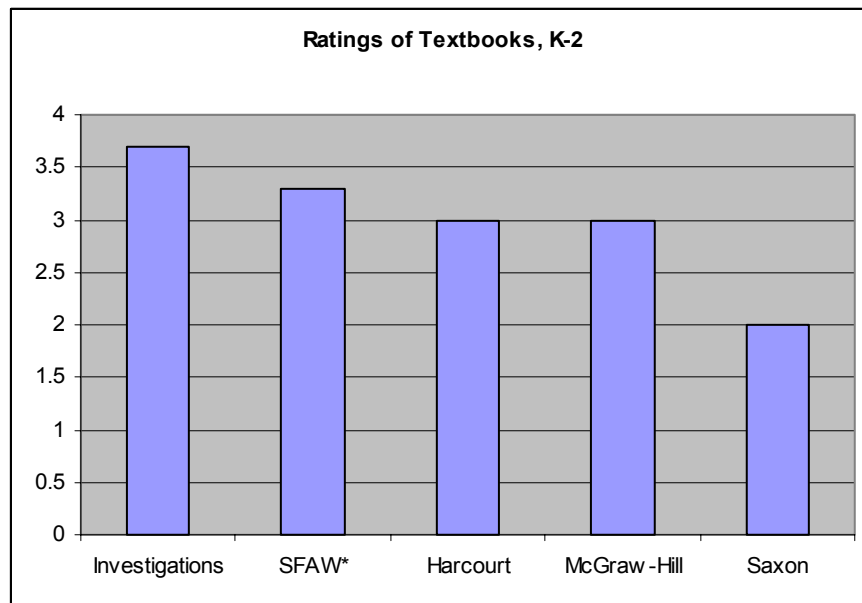
Throughout Phases I and II the subgroups were encouraged to focus only on the teacher and student editions, not on the supporting materials offered by the publishers. In the final phase of deliberations in which textbooks recommendations were made, many of the subgroups elected to look at the broader package of support materials to see what was included and what might be most helpful to teachers.

Based on five months' worth of work, the committee came to a final consensus on January 10, 2004. Subcommittees prepared reports of their finding which are given in the following section.

A list of the members of the TEAM-Math Textbook Review Team is given in Appendix A.

Results for Grades K-2

The Grades K-2 subcommittee produced the following chart, which summarizes its ratings for the textbooks on the state adoption list. A summary review for each textbook series follows.



**Average is based on supplementing with the *Investigations* text.

Investigations in Number, Data, and Space

Investigations in Number, Data, and Space is a research-based curriculum developed with funding from the National Science Foundation. *Investigations* provides teachers with direction in how to develop a strong mathematical foundation for K-2 students. The curriculum provides teachers with concrete examples of how to implement the curriculum in a classroom setting. The lessons provide teachers with investigations designed to stimulate children's mathematical growth directly related to K-2 mathematical standards. The format provides teachers with guidance regarding questioning strategies and includes typical student reactions and responses related to each lesson. *Investigations* provides assistance for struggling students by reflecting on children's responses as a window to their reasoning. *Investigations* has been extensively evaluated by independent researchers and has been proven to promote student achievement in mathematics. The program promotes active engagement in mathematical reasoning, representation, and communication that correlates with the conceptual frameworks of NCTM's *Principles and Standards for School Mathematics*, Alabama Mathematics Course of Study, and NAEP. It is also being used as part of the Alabama Mathematics, Science, and Technology Initiative. This program embodies all of the TEAM-Math beliefs, and we highly recommend *Investigations* as a total program for textbook adoption for every teacher.

Scott Foresman/Addison Wesley (SFAW)

SFAW has a good integration link with literature, promotes journal writing in mathematics, and provides ties with many social studies skills such as map skills and data collection. SFAW encourages the instruction of mathematical concepts quickly, instead of providing the in-depth development needed to build a strong foundation in mathematical thinking, understanding, reasoning, and communication. Although the SFAW is not an inquiry-based program, if it is combined with the supplementary *Investigations* text, TEAM-Math would recommend it for textbook adoption.

Harcourt

Harcourt is a basic, traditional mathematics program that provides the introduction of concepts but lacks the in-depth study needed for understanding. Research has shown that an investigative approach is the best way for students to develop mathematical thinking skills. A majority of instructional time in the Harcourt program at the K-2 level is devoted to addition and subtraction facts, leaving little time for other mathematical skill strands. Harcourt is a skills-based program that emphasizes procedural skill at the expense of developing depth of conceptual understanding. This instructional approach does not correlate with the mission and goals of TEAM-Math, and we do not recommend this program for textbook adoption.

McGraw Hill

McGraw Hill is a skills-based, traditional mathematics program. McGraw Hill provides strong emphasis on place value, computation, number concepts, graphs, and a solid approach to geometry and patterns. This program encourages children to write and explain their reasoning, but little emphasis is given to the in-depth study of mathematical topics. Research has proven the investigative approach is the best way for students to develop mathematical understanding. McGraw Hill is a skill based program that emphasizes procedural skills at the expense of the development of a depth of conceptual understanding. This instructional approach does not correlate with the mission and goals of TEAM-Math, and we do not recommend this program for textbook adoption.

Houghton-Mifflin

Houghton Mifflin is a skill-based, traditional mathematics program that emphasizes procedural skills rather than conceptual development. The instructional approach of this program does not correlate with the TEAM-Math belief that the investigative approach is the best way for students to develop deep mathematical thinking. Therefore, we do not recommend this program for textbook adoption.

Saxon

Saxon is strictly a skill based, teacher scripted mathematics program. It offers daily repetition of taught skills. Although research has shown that an investigative approach is the most effective way for students to develop mathematical understanding, Saxon focuses on a limited range of procedural skills. The program emphasizes basic facts and practices at the expense of building conceptual understanding. The program does not promote communication of mathematical thinking, application to real-life problems, or application of mathematical ideas to unique situations. This instructional approach does not correlate with the mission and goals of TEAM-Math. This program is not recommended for textbook adoption.

Final Recommendations:

1. We highly recommend *Investigations in Number, Space, and Data* as a total program for textbook adoption for every teacher at grades K-2. This program best meets the goals of the TEAM-Math project at this level.
2. Although the Scott Foresman-Addison Wesley program is not an inquiry-based program, if it is combined with the supplementary Investigations text, TEAM-Math would recommend its adoption by the districts. This might be particularly useful for districts that are not ready to commit to full implementation of Investigations. Note that the same company publishes both series. Thus, for those schools and districts adopting Scott Foresman Addison Wesley, the publisher has agreed to supplement that series with free units from Investigations.

Results for Grades 3-5

Based on its review process from Phase I and Phase II, the Grades 3-5 subcommittee produced the following summary reviews of the textbook series approved by the Alabama textbook committee for grades 3-5.

Everyday Math

The third and fourth grade found that the textbook does a good job of integrating other subject areas and adequately explains answers. The reviewers also found the daily routine of weather, calendar, and number of the day to reinforce skills being learned. Fifth grade found the textbook supports students' development of mathematical skills. The textbook also promotes writing, thinking, and reflecting through additional activities.

The subcommittee also found many weaknesses within the text. The reviewers found the teacher's text as well as the student textbook to be difficult to follow. Also the text is not user-friendly for parents or students to use at home. There is no true student textbook available. There were also too many books and references, which would be difficult to coordinate on a daily basis. The texts did not contain the appropriate amount of practice consistently across the grade bands. The student book required too much technical reading about the concepts rather than concrete examples of the concepts. The teacher's editions were difficult to decipher with cluttered pages that did not allow for easy use.

It is our opinion that this textbook would be inappropriate in supporting the TEAM-Math mission and goals. Therefore, we do not recommend this text.

Harcourt

We found that the student edition contained student practice coordinated with SAT-10. It contains many references to real life situations, age-appropriate activities, and targets all types of learners. It is also user friendly for students and parents.

However, the textbook also contained many weaknesses. The text did not contain enough hands-on, higher level thinking skills and activities, and did not adequately build new mathematical knowledge from prior knowledge. Assessments do not focus on students' understanding of conceptual ideas, but rather are procedurally based. There is also too much practice in the student's edition which seems aimed to prepare students to take a test rather than develop and understand mathematical concepts for everyday living.

The reviewers liked this book, and it did meet the standards of the course of study, but it did not develop conceptual development. Therefore, this text does not correlate as well with the mission and goals of TEAM-Math.

Houghton Mifflin

The text contains problem solving with the aid of additional resources, it encourages adequate practice, and it has useful materials for teachers. The text is user friendly, builds on students' prior knowledge, and includes various forms of assessment. However, the text contains many weaknesses. It is a traditional text. It needs to encourage more than practice, such as problems that develop conceptual development. It does not have enough problem solving, oral and written practice, or effective questioning. It does not develop lessons well, and it needs more background development for teachers. Overall, the reviewers found this to be a traditional text and lacking in conceptual development. Therefore, we do not recommend this text.

McGraw-Hill

The text follows NCTM standards, has practice exercises, connects and builds on prior knowledge, contains writing skills, and individualizes student's needs. The text contains many weaknesses. It is very traditional. It lacks ESL materials. It is not user friendly for teachers and it lacks continuity. It also lacks adequate attention to conceptual development and the use of charts and graphs. Self-assessments for students are missing. There is little development of higher-level thinking and few open-ended questions. Overall, the committee found this book to be very traditional, and it is not recommended.

Saxon

The text is user friendly and contains daily repetition of skills being taught. It contains traditional assessments every fifth lesson and daily timed self-assessments for students. The text also contains several weaknesses. The text contains limited inquiry-based problem solving. There is limited challenge for higher-achieving students, no open-ended assessment, no individualized practice, no pictures, and no background materials for teachers. Overall, the text strictly focuses on skills, with little emphasis on computational fluency. There is also no integration of technology. Ninety percent of the committee members at these grade levels currently use *Saxon* alone or integrated with other texts, but the reviewers feel the text alone does not support inquiry based learning or support conceptual development of mathematical ideas for the real world.

Investigations in Number, Space, and Data

This series has good activities, effective questioning, and promotes conceptual development. The given activities require both written and oral assessments of student learning. The assessments are built into the lessons with extra assessments if needed. The series is very teacher friendly; although for self-contained classroom teachers the preparation needed to teach the lessons could be time consuming. It is hands on and promotes higher order thinking. The teacher books are very concise and easy to transport. This program has been thoroughly researched on a national level and has been found to be effective. It is being used as a part of the Alabama Mathematics, Science, and Technology Initiative.

There are also a few weaknesses. The drawbacks include the observation that it is not user-friendly for parents because a standard textbook for students is not included. The book also does not contain rubrics for the assessments included.

In conclusion, this series would be more appropriate for grades 3-5 as a supplement. While it requires a greater amount of time in teacher preparation, it challenges students to think and perform mathematically beyond the traditional textbook. The activities are fun and enjoyable for the students and the teachers. It promotes the teacher as a facilitator of knowledge. Overall, the program is a wonderful asset and would work well in any classroom. We recommend this book as a final selection that correlates well with the Scott-Foresman Addison Wesley.

Scott-Foresman Addison-Wesley

The strengths include assessments, journal writing, and the amount of resources in the teacher's edition for students with special needs. Vocabulary for each lesson and chapter is easily found and explained. The amount of practice provided and the lesson content are appropriate. It coordinates with activities found in Investigations. It also includes an inquiry based activity for every lesson. It correlates with the SAT 10 and NCTM Standards. Each chapter contains a diagnostic assessment with multiple choice and free response questions and a corresponding scoring rubric. There are also online resources for each chapter as well.

The text contains some weaknesses. There are limited opportunities for problem solving through investigations. There is also a limited amount of teacher help for those needing a refreshment of their

mathematical knowledge. There are limited amount of self-assessments with the exceptions of journals. The problem-solving book is separate rather than integrated within the student text.

Overall, we recommend this book as one of the final two that meets the criteria as determined by the goals and mission of TEAM-Math.

Final Recommendations and Rationale

Our final selections include the Investigations series and the Scott Foresman Addison Wesley series. It is the recommendation of the 3-5-subgroup that the two texts would be better used together. The Scott-Foresman Addison Wesley series and Investigations are owned by the same parent company, which has derived a correlation between the two texts. In fact, schools and districts that adopt Scott Foresman Addison Wesley will be provided with free units from the Investigations series to supplement the text. These two texts together meet the requirements for TEAM-Math's mission and goals and are aligned with the NCTM standards and the Alabama Course of Study.

We found that most of the other texts we reviewed were very much like the traditional texts that have been used for the past fifty years or longer. The group did not find those texts to promote inquiry based learning. Moreover, the other texts contained the traditional format of review, teach, practice and assess. Some of the texts included one journal writing response for each lesson as well as two or three problem solving questions. This is not adequate support for students to truly integrate mathematics within the real world and their everyday lives. The traditional texts promote the same teaching and learning environment that has produced generations of people who think procedurally in regard to mathematics rather than conceptually.

The Addison Wesley Scott Foresman and the Investigations texts are the only two that seemed to stand out from the others. Even though the Scott Foresman Addison Wesley is a traditional textbook format, it has elements that promote conceptual development. The Investigations uniquely promotes the inquiry based learning in each unit. The units also spiral to higher-grade levels to support the standards of the next grade level.

The strengths for the Addison Wesley Scott Foresman include assessments, journal writing, and the resources in the teacher's edition for students with special needs. The vocabulary for each lesson and chapter is also easily found and explained well. Practice exercises and lesson content are appropriate. It coordinates with activities found in Investigations. It does contain an inquiry activity for every lesson as well. It also correlates with the SAT 10 and NCTM. Each chapter contains a diagnostic assessment with multiple choice and free response questions and a corresponding scoring rubric. There are also online resources for each chapter as well.

The *Investigation* series has mathematically effective activities, effective questioning, and concept development. The given activities require both written and oral assessments of student learning. The assessments are built into the lessons with extra assessments if needed. The series is very teacher friendly. It is hands on and promotes higher order thinking. The teacher's books are very concise and easy to transport. It is fun and enjoyable not only for the students but the teacher as well.

In conclusion, we found that Investigations and Scott Foresman Addison Wesley support the goals and mission of TEAM-Math. They also correlate with the Alabama Course of Study and the NCTM standards. These texts provide an avenue for learning that allows the students to be involved in the learning process, allows the teacher to act as a facilitator rather than a fount of knowledge, and promotes the conceptual development of mathematics that can be carried on and continued in later grades.

Results for Grades 6-8

The process of reviewing textbooks was broken into two phases. During the Phase I, we rated each textbook series with respect to the “big ideas”:

1. Represent numbers in a variety of ways.
2. Apply proportional reasoning in a variety of contexts including unit rates and slope.
3. Solve linear and nonlinear equations.
4. Recognize and classify geometric figures.
5. Interpret, analyze, compare, and represent data using probability and statistics.

Our specific task was to recommend a reform textbook and then a “middle of the road” textbook to be utilized along with the reform textbook as some school systems are comfortable with reform while other school systems are not. The “middle of the road” textbook would be a transition into a reform textbook as research indicates that student achievement increases with reform textbooks and stays the same with traditional textbooks. Additionally, the purpose of TEAM-Math is to Transform East Alabama Mathematics from traditional teaching, which is not meeting the needs of our students as our Stanford Achievement Test scores indicate, to a reform approach. A traditional textbook would encourage traditional teaching. A reform textbook would encourage reform teaching. Thus, in order to make the transition, a reform textbook would be utilized along with the “middle of the road” textbook.

The two reform textbooks we considered with respect to the big ideas during Phase I were Connected Mathematics and Math Thematics. The rating that Connected Mathematics received was significantly higher than the rating that Math Thematics received. Thus, Connected Mathematics was the reform curriculum that we considered for Phase II.

We considered publications from Glencoe, Prentice Hall, and Saxon for our “middle of the road” textbook selection. Glencoe and Prentice Hall received comparable ratings whereas Saxon received a much lower rating. As Glencoe and Prentice Hall were comparable, both were considered for Phase II. Saxon was not considered for Phase II.

During Phase II, we examined each textbook for its agreement with the TEAM-Math objectives which were previously correlated with the Alabama Course of Study. Connected Mathematics most closely met the listed objectives. As the “middle of the road” textbooks, Glencoe and Prentice Hall met the objectives similarly although not as well as Connected Mathematics. The Glencoe textbook representative also asked us to consider their reform textbook, MathScape, even though it was not on the state adoption list. We completed Phase II only for that book. We found that MathScape did not meet the listed objectives as well as the middle of the road textbooks that we had considered and therefore, it could not be used alone.

As we made our recommendations, we considered the following:

1. Several teachers currently have Saxon as their textbook. Thus, they could give specific examples of how Saxon met or did not meet the TEAM-Math and the Alabama Course of Study objectives as well as the Standards from the National Council of Teachers of Mathematics.
2. Several teachers were familiar with the research on the reform curriculums and were able to share those results with members of the TEAM-Math Textbook Review committee. Research has been done on Connected Mathematics related to student achievement. Particularly, based on the Third International Mathematics and Science Study Repeat (TIMSS-R), the Michigan Invitational Group, which uses Connected Mathematics at the middle school level, scored as high as students from Japan, Korea, and China, whereas the U.S. as a whole scored much lower (www.mathematicallysane.com/evidence/mig.asp).

We recommend Connected Mathematics as our reform textbook since it is the textbook that most increases student achievement. Our “middle of the road” textbook, which would be utilized along with Connected Mathematics, is Prentice Hall.

The textbook review committee summarized each textbook as follows:

Connected Mathematics is a reform textbook that actively involves students in exploring and discovering mathematical concepts. Students have many opportunities to write and communicate mathematically. The main strength of the series is the quality of the investigations which are used to teach the content. This textbook incorporates all of the “big ideas” from Phase I. The teacher is a facilitator guiding students to explore, apply, and summarize real-world, problem-solving situations. It is student centered and is accessible by all students. Solid mathematical concepts and background information is provided for those teachers who may be weak in certain areas. Assessments, such as group work, hands-on activities, written and verbal explanations, are varied. However, there are a few objectives like converting, between units, from Phase II that are not included and would need to be supplemented. Connected Mathematics was piloted by several members of the textbook review committee and achieved much success with students and administrators. It is also being used by the Alabama Mathematics, Science, and Technology Initiative.

Prentice Hall is strong in most content areas except measurement, converting among units, circumference, and area. This is a traditional text which incorporates references to Connected Mathematics. This traditional textbook is teacher friendly and has real world applications. A particular strength of this textbook is that Connected Mathematics can be easily integrated with it, which will enable those schools less comfortable with reform to begin to make a transition to more reform-oriented practices.

Glencoe tries to support many of the National Council of Teachers of Mathematics standards although we think most teachers will tend to continue teaching traditionally. Overall, this textbook is adequate. It gives students all of the information they need. However, students are not able to formulate their own knowledge or discover ideas. There is a lot of extra practice in the back. Some objectives such as converting from metrics to customary units are not included. This text lacks open-ended investigations and does not encourage discussion among students.

MathScope is a reform curriculum that is not in-depth enough to be utilized as a stand alone curriculum. Many Phase II objectives such as geometry, properties, angles, measurements, and probability are not included. In other words, this text does not adequately cover all content and would need to be supplemented extensively. This textbook is not teacher friendly and provides little background knowledge for teachers who may need it.

Math Thematics is a reform curriculum that does not provide the background information which some teachers may need. The content is not as rigorous as Connected Mathematics. This could not be a stand alone text. Much support would be required in order for teachers to utilize this text.

Saxon primarily focuses on drill and practice. There are no open-ended investigations or real world activities. Technology is not included. Critical thinking is nonexistent.

McDougal, Littell is a traditional text that does not meet the standards set forth by the National Council of Teachers of Mathematics. For example, there are minimal writing prompts with lots of drill and practice. Students are given little opportunity to formulate their own ideas or conjectures about the topics they are learning.

Holt is very similar to McDougal, Littell. That is, it is a traditional text with minimal writing and even less critical thinking opportunities.

Results for Grades 9-12

After a thorough review of the state-approved textbooks, the recommendation of the 9-12 subcommittee is that participating school systems adopt the Glencoe Mathematics series for Algebra I, Geometry, and Algebra II with Trigonometry. To arrive at this decision, committee members assessed each book's compliance with a list of TEAM-Math and Alabama Course of Study objectives. The textbooks and resources were also reviewed for their inquiry-based approach, inclusion of technology, and consideration of various learning levels and styles. The table on the following page shows the committee's assessment of strengths and weaknesses for each textbook. Brief summaries of each follow.

Glencoe. As the attached table shows, the Glencoe series represented the best comprehensive group of books and resources. This set of books consistently included all of the Alabama Course of Study and TEAM-Math content objectives. In addition, the same company publishes the Core-Plus Mathematics Project, an inquiry-based series. The publisher has agreed to provide Core-Plus to districts that adopt the Glencoe series as a supplement to the series.

McDougal Littell. The McDougal Littell series was very similar to the Glencoe. However, McDougal Littell texts did not include all of the statistics objectives listed in the Alabama Course of Study for Algebra I.

Prentice Hall. The Prentice Hall series was weak in the Algebra II course, failing to address all Alabama Course of Study objectives. It also did not provide inquiry-based activities.

Discovering Series. While the Discovering series provided the best inquiry-based approach, it does not align well with the Alabama Course of Study nor does it provide enough practice.

Holt. The Holt series did not include all of the Alabama Course of Study objectives in geometry. The activities in the book were not inquiry based, but stressed reinforcement of skills. The reviewers did not like the organization of the book.

Saxon. Although the Saxon texts met the Alabama Course of Study objectives and provided daily review of concepts, they do not provide adequate instructional resources and do not include inquiry-based lessons.

Interactive Mathematics Project (IMP). Although the Interactive Mathematics Project text is not on the Alabama State Approved Textbook list, TEAM-Math did review and pilot some of these materials, as they are used by the Alabama Mathematics, Science, and Technology Initiative. TEAM-Math found the following:

- IMP meets the mission and goals of TEAM-Math.
- IMP is packed with high-order critical thinking skills.
- IMP is an integrated program in which each course incorporates topics from algebra, geometry, and statistics. As a result, it does not correlate well with the structure of the Alabama Course of Study, which is set up following the traditional sequence of Algebra I, Geometry, and Algebra II.
- These units could be effectively used to supplement the primary textbook series recommended by the subgroup.

	Glencoe	McDougal Littell	Saxon	Prentice Hall	Discovering Series	Holt
Strengths	<ul style="list-style-type: none"> • Core-Plus Included (inquiry based resources) provided as a supplement • Meets both Alabama Course of Study and TEAM-Math objectives • Resources (worksheets, investigations, text on CD, PowerPoint slides, online resources, ELL Resources, remediation-intervention resources, AHSGE resources, test generator) • Technology investigations (Geometers Sketchpad, graphing calculator resources, internet booklet) • Integrates reading objectives to learn mathematics • Teacher Works CD catalogs all resources available for each lesson 	<ul style="list-style-type: none"> • New teacher support • Addresses most Alabama Course of Study and TEAM-Math objectives (omissions in statistics) • Resources (ELL Resources, worksheets, help guide, Personal Student Tutor, test generator, AHSGE resources, PowerPoint slides) • Technology investigations (Geometers Sketchpad, calculator resources, internet resources) • Geometers Sketchpad for most sections in geometry 	<ul style="list-style-type: none"> • Includes Alabama High School Course of Study • Spiraling of objectives 	<ul style="list-style-type: none"> • Algebra I and Geometry texts good 	<ul style="list-style-type: none"> • Inquiry based textbook 	<ul style="list-style-type: none"> • Applications based activities • Good technology resources • Good project resources
Weaknesses	<ul style="list-style-type: none"> • Must use resources included in kit to supplement textbook • Geometers Sketchpad activities could be stronger in geometry text • Must use resources for full use of inquiry based lessons 	<ul style="list-style-type: none"> • Textbook not on CD • Limited Alabama Course of Study statistics objectives in Algebra I • Must use resources included in kit to supplement textbook • Although inquiry based resources are available, the Glencoe text and resources are stronger 	<ul style="list-style-type: none"> • Lacks alternative forms of assessment and applications • No inquiry based lessons • Although spiraling of concepts is good, not enough time is spent on new concepts • Does not integrate technology 	<ul style="list-style-type: none"> • Does not meet all Alabama Course of Study objectives in Algebra II • Lack of inquiry based lessons in Algebra II • Lacks Geometers Sketchpad activities 	<ul style="list-style-type: none"> • Not aligned with Alabama Course of Study objectives • Not enough practice in textbook 	<ul style="list-style-type: none"> • Not all Alabama Course of Study objectives addressed (geometry) • Organization of book could be better - Transitions are not smooth between chapters • Needs more inquiry-based activities

Final Recommendations

Upon completion of the review process, the gradeband subcommittees recommend the following textbook series for use in the TEAM-Math partner districts.

Grades K-2

First Choice: Investigations in Number, Data, and Space.

Second Choice: Scott Foresman-Addison Wesley, supplemented with Investigations in Number, Data, and Space. This might be appropriate for districts that are not ready to take the full step up to Investigations.

Grade 3-5

Scott Foresman-Addison Wesley, supplemented with Investigations in Number, Data, and Space.

Grades 6-8

First Choice: Connected Mathematics Project.

Second Choice: Prentice Hall, supplemented with the Connected Mathematics Project.

Grades 9-12

Glencoe series for Algebra I, Geometry, and Algebra II with Trigonometry. This will need to be supplemented with other resources to fully meet the TEAM-Math objectives.

Benefits of following the TEAM-Math recommendations

While each school district must make its own decisions regarding textbook adoption, it is strongly recommended that the TEAM-Math districts follow the advice of the Textbook Review Committee. Benefits of following this decision include:

1. The activities of TEAM-Math will be directly correlated to the recommended textbooks.
 - The curriculum guide will be updated to include specific references to the recommended textbooks.
 - The professional development provided during the summer, as well as the quarterly follow-up meetings, will include specific ideas for how to use the recommended textbooks to improve mathematics teaching.
2. Priority will be given to districts that adopt the recommended textbooks in selection to the cohorts. This does not mean, however, that districts will be omitted from TEAM-Math if they adopt a different series, only that they will receive a lower priority in receiving services. Likewise, districts that do not have the financial resources to purchase textbooks will not be penalized.
3. Additional services will be offered to districts adopting the recommended textbooks. For example, 2-3 days of inservice will be offered to *all* school districts that choose the recommended textbooks prior to the start of the 2004-2005 school year, whether or not they are included in the first cohort. This will include an overview of TEAM-Math and an introduction to the textbook materials that were selected.
4. Publishers of the recommended textbook series may offer additional benefits to TEAM-Math districts that select those series. Each of the publishers has an established list of free materials that

can be selected along with the textbooks. Additional needs that schools have may also be addressed by the publisher. For example, elementary schools needing additional manipulatives can discuss how these could be obtained as a part of their free materials with the Scott Foresman representative. TEAM-Math will work with the publishers to optimize the use of free resources to support involvement of its partners in the project.

ADDENDUM: Facts About the Research-based Curricula

Since the beginning of the textbook review process, it was the intent of TEAM-Math to explore the appropriateness of research-based curriculum for East Alabama. These series are referred to as “research-based,” “inquiry-based,” “reform curricula,” or “NSF curricula” since their development was funded by the National Science Foundation (NSF). Indeed, the subgroups for K-2, 3-5, and 6-8 did include one of these research-based curricula in their recommendations—Investigations in Number, Space, and Data for K-2 and 3-5, and the Connected Mathematics Project for grades 6-8. The 9-12 subgroup did not select one of these programs due to the incompatibility of their integrated organization with the Alabama Course of Study. However, the publisher of their recommended series has agreed to provide Core-Plus, a reform series, as a supplement to districts selecting that series. In addition, they recommended that the Interactive Mathematics Project be considered as a resource for their gradeband.

These textbooks look somewhat different from the traditional textbooks to which many teachers and parents are accustomed. The reform texts are designed to support a very different approach to teaching, in which students are actively involved in making sense of mathematics, and seeing the connections of what they are doing to the real world.

The reason for taking a bold, new approach is obvious: Alabama continues to rank at the bottom of the nation on the National Assessment of Educational Progress (NAEP). And East Alabama is lagging behind the Alabama state average on the SAT-10 and the Alabama High School Graduation Exam (AHSGE). Clearly, if we keep doing the same old things, we’ll keep getting the same old results. We need a new approach that provides students with the success and enjoyment that will motivate them to continue to study mathematics. Our community deserves no less.

Here are a few facts for you to consider:

1. These textbook series are the most heavily researched in the history of our country. They were rigorously evaluated throughout their development and were proven to work.
2. In subsequent large-scale testing, these curricula have had outstanding results. Students learn more and their test scores go up. You can read some of these articles online:
 - A three-state study of Investigations and two other NSF curricula showed that students performed significantly better than comparison schools; see <http://mathematicallysane.com/evidence/arc.asp> for details.
 - Significant improvements in achievement were found in middle schools in Missouri using Connected Math and another reform series; see <http://mathematicallysane.com/evidence/impactmiddle.asp> for details.
 - In five years of using the Interactive Mathematics project, high schools in Philadelphia have seen significant improvements in SAT-9 scores, PSAT scores, and student attitudes; see <http://mathematicallysane.com/evidence/philadelphia.asp> for details.
 - Additional examples can be found on the www.mathematicallysane.com web site.

3. The three curricula recommended by TEAM-Math are being used by the Alabama Mathematics, Science, and Technology Initiative. They are a key component of the statewide effort to improve mathematics teaching and learning. A committee of teachers from across the state reviewed them and found that they have great promise for increasing student achievement.
4. Both Investigations and Connected Mathematics were approved by the Alabama textbook adoption committee. Thus, another panel of teachers statewide endorsed these textbooks. (Note that the Interactive Mathematics Program was not submitted for review by the committee because it narrowly missed the state cutoff for the required copyright date.)
5. Teachers at all levels in East Alabama who have used these materials have found them to be very successful. They report their students have increased understanding of mathematics, and a new enthusiasm for math class. For example, one fifth-grade teacher using Investigations reported that her students were having so much fun doing mathematics that they did not want to go to art class! If you have questions, talk to teachers who have first-hand experience. Contact TEAM-Math, and we will put you in touch with them.
6. The TEAM-Math Textbook Review Team involved over 60 people and more than 36 hours of meetings. They subjected the textbooks to a grueling, objective review, and they found that these textbooks meet the needs of students and teachers in East Alabama.

In conclusion, TEAM-Math encourages teachers, administrators, and parents to carefully consider all the evidence about these reform series in deciding what is best for their district or school. However, also keep in mind that each gradeband has provided a “fall back” position consisting of a more traditional textbook that is supplemented to achieve the TEAM-Math mission and goals. If your district or school is not ready for a reform curriculum, select the recommended traditional textbook. And through the partnership, you will have opportunities to become more familiar with exciting, new ways to teach and learn mathematics.

Appendix A – Membership of the Textbook Review Team

The following teachers attended at least half of the Textbook Review Team’s meetings:

Grades K-2

Karen Brooks	Phenix City	Phenix City Elementary School
Susan Henderson	Auburn City	Ogletree School
Sandy Little	Auburn City	Auburn Early Education Center
Robin McCoy	Russell County	Mount Olive Elementary School
Sharon Minnifield	Macon County	Lewis Adams Early Child Center
Brandy Montroy	Lee County	Smiths Station Primary School
Pam Norris	Opelika City	Jeter Primary School
Barbara Pickard	Tallasse City	Tallasse Elementary School
Becky Scarborough	Auburn City	Wrights Mill Road Elementary School
Melissa Smith	Lanett City	Lanett Central Elementary
Judy Welch	Elmore County	Wetumpka Elementary School

Grades 3-5

Evelyn Boyd	Elmore County	Wetumpka Intermediate School
Shirley Carter	Lanett City	Lanett Central Elementary School
Donna Cunningham	Tallasse City	Tallasse Elementary School
Christie Drury	Lee County	Smiths Station Elementary School
Jerrie Mattox	Alexander City	Jim Pearson Elementary School
Kimberly Nunes-Bufford	Opelika City	West Forest Intermediate School
Theresa Stanford Barnes	Chambers County	Huguley Elementary School
Tracy Teel	Alexander City	Nathaniel H Stephens Elementary School
Teresa Williams	Alexander City	Nathaniel H Stephens Elementary School
Sandi Woods	Alexander City	William L Radney Elementary School

Grades 6-8

Michele Barnes	Chambers County	John P Powell Middle School
Leigh Ann Flemming	Phenix City	Phenix City Intermediate School
Lisa Lishak	Russell County	Russell County Middle School
Kristy Mann	Tallasse City	Southside Middle School
Michele Matin	Opelika City	Opelika Middle School
Donna Nall	Alexander City	Alexander City Middle School
Cheryl Thompson	Macon County	Tuskegee Institute Middle School
Anna Wright	Auburn City	Auburn Junior High School

Grades 9-12

Terrica Carlisle	Tallasse City	Tallasse High School
Tammy Culbertson	Chambers County	Valley High School
Lew Germann	Phenix City	Central High School
Donna Henderson	Lanett City	Lanett Senior High School
Beth Hickman	Lee County	Smiths Station High School
Catherine Jones	Elmore County	Wetumpka High School
Debbie Kielwein	Alexander City	Benjamin Russell High School
Nancee Klaff	Chambers County	Valley High School
Kim Ledbetter	Tallapoosa County	Edward Bell High School
Carol McDaniel	Tallasse City	Tallasse High School
Angelika McGuire	Auburn City	Auburn High School
Jeannie Riddle	Alexander City	Benjamin Russell High School
Greg Sanders	Russell County	Russell County High School
Bertha Walker	Macon County	Booker T Washington High

In addition, the following faculty members, graduate students, and project staff from Auburn University also attended at least half of the meetings:

Joy Black
 Gayle Herrington
 Dr. Gary Martin
 Leslie Sitton
 Dr. Marilyn Strutchens
 Dr. Steve Stuckwish
 Kathy Westbrook

Appendix B – Sample Review Forms

On the following page, sample review forms are given for both Phase I and Phase II. These forms were adapted from drafts produced by Cale Ebert, mathematics supervisor for Baldwin County, Alabama.

For Phase I, the review form for grade 2 is provided. The review sheets for Kindergarten and Grade 1 are identical. The review sheets for other gradebands follow the same format, but substitute the “big ideas” for that gradeband on the first page of the form. These big ideas are taken from the respective gradebands of the TEAM-Math Curriculum Guide.

For Phase II, the review sheet for grade 2 is provided. The review sheets for other grades were exactly the same, but including the appropriate objectives from the TEAM-Math Curriculum Guide and the Alabama Course of Study: Mathematics.

The complete set of forms can be found on the TEAM-Math web site, <http://TEAM-Math.net>. You may also contact us directly for further information on these forms:

TEAM-MATH
5072 Haley Center
Auburn University, AL 36849
(334) 844-6881
mail@TEAM-Math.net



Transforming East Alabama Mathematics

The East Alabama Partnership for the Improvement of Mathematics Education

TEXTBOOK REVIEW

Grade 2

PHASE I

Reviewer: _____ School/District: _____

Title/Publisher: _____

Copyright Date: _____ Date Reviewed: _____

Rate the items on the following pages with respect to the following “big ideas” from the TEAM-Math Curriculum Guide.

K-2 Big Ideas

1. Develop understanding of the base ten number system including the sequence of counting, composition of number, number relationships, and place value.
2. Develop strategies for whole number computations, problems solving with addition and subtraction, and fluency of basic addition and subtraction facts.
3. Model and explain addition and subtraction of whole numbers using objects, pictures, symbols, and extending patterns.
4. Recognize basic shapes, symmetry, and movement to build a foundation for the development of visualization and spatial reasoning.
5. Compare measurable attributes of objects and use nonstandard and standard units for linear measurements.
6. Collect and represent data in various ways using concrete objects, pictures, and symbols.

Focus on the “Big Math Idea(s)” listed on the cover page to complete Phase I.

By using this program, students learn to:

	Does not meet criteria	Somewhat meets criteria	Meets criteria	Exceeds criteria
1. Learn mathematics through a variety of problem solving opportunities throughout each lesson. Supporting Evidence:	1	2	3	4
2. Develop new mathematical knowledge by connecting and building on their prior knowledge. Supporting Evidence:	1	2	3	4
3. Self-assess their progress frequently through various assessment strategies. Supporting Evidence:	1	2	3	4
4. Communicate mathematical ideas with teachers and students, both oral and written, using age-appropriate terminology and notation. Supporting Evidence:	1	2	3	4
5. Recognize and apply mathematics in contexts outside mathematics, other subject areas, and students’ lives. Supporting Evidence:	1	2	3	4
6. Create and use graphs, tables, manipulatives, and technology to make sense of mathematics. Supporting Evidence:	1	2	3	4
7. Explain their thinking and consider the reasonableness of their answers. Supporting Evidence:	1	2	3	4

The program provides teachers with:

8. Background material for teachers who may need additional information about a particular topic of mathematics. Supporting Evidence:	1	2	3	4
9. Suggestions for initiating mathematical discussions, both oral and written, including effective questioning techniques. Supporting Evidence:	1	2	3	4
10. Background information about student learning, including prior knowledge, effective strategies and ways of thinking, and possible misconceptions. Supporting Evidence:	1	2	3	4
11. Various forms of assessments, including rubrics and student work samples, that are included before, during, and after instruction. Supporting Evidence:	1	2	3	4
12. Support materials to meet the individual needs of students, including second language learners. Supporting Evidence:	1	2	3	4
13. Assessments that focus on students’ understanding (explain their reasoning) as well as procedural skills (practice). Supporting Evidence:	1	2	3	4
14. A lesson structure with support materials that are “user-friendly” for teachers. Supporting Evidence:	1	2	3	4

15.	Assistance with utilizing technology in appropriate situations.	1	2	3	4
Supporting Evidence:					
The program provides:					
16.	Examples and exercises that are mathematically accurate using age-appropriate language.	1	2	3	4
Supporting Evidence:					
17.	Differentiated practice (routine, application, challenging) to meet the individual needs of students.	1	2	3	4
Supporting Evidence:					
18.	A consistent lesson structure that is “user-friendly” for students and parents.	1	2	3	4
Supporting Evidence:					
19.	Sufficient practice for students to develop and retain conceptual and computational fluency.	1	2	3	4
Supporting Evidence:					

Overall holistic score: 1 2 3 4

Rationale for your score, including strengths and weaknesses of the program in relation to student experiences and the teacher’s role:



Transforming East Alabama Mathematics

The East Alabama Partnership for the Improvement of Mathematics Education

TEXTBOOK REVIEW

Grade 2

PHASE II

Reviewer: _____ School/District: _____

Title/Publisher: _____

Copyright Date: _____ Date Reviewed: _____

ONLY REVIEW TEXTBOOKS RECOMMENDED IN PHASE I.

The following sheets include the TEAM-Math objectives correlated with the Alabama Course of Study. Rate each objective on the following scale:

- 1 = Does not address the objective
- 2 = Partially addresses the objective
- 3 = Addresses the objective at an adequate level
- 4 = Addresses the objective at an exemplary level

Also, note the page number(s) on which attention to the objective is included.

NUMBER STRAND – Grade 2

Score	TEAM-Math	Alabama Course of Study
<p>1 2 3 4</p>	<p>1. Extend an understanding of place value/base 10 to:</p> <ul style="list-style-type: none"> a. Develop an understanding and use of expanded notation b. Count by multiples to 100 including 3's c. Know the value of 100 more or 100 less d. Represent whole numbers to 1000 e. Develop an understanding of the relationship between ordinal numbers and cardinal numbers f. Use models to develop and explain the value of a 3-digit number g. Determine the monetary value of sets of coins and bills up to \$5.00 	<p>1. Demonstrate concepts of number sense by using multiple representations of whole numbers up to 1000, counting forward and backward by threes from a given number, identifying a number that is 100 more or 100 less than a given number, and differentiating between odd and even numbers.</p> <ul style="list-style-type: none"> • Identifying position using ordinal numbers to 100th • Determining the value of a digit in the ones, tens, hundreds, and thousands place • Determining the value of a number expressed in expanded notation <p>4. Determine the monetary value of sets of coins and bills up to \$2.00.</p> <ul style="list-style-type: none"> • Exchanging coins of equivalent value • Applying monetary symbols, including dollar (\$), cent (¢), and decimal point (.) • Recognizing the decimal numbers .10, .25, .50, and .75 as related to money
<p>1 2 3 4</p>	<p>2. Extend an understanding of the operations of addition and subtraction to:</p> <ul style="list-style-type: none"> a. Develop computational fluency with sums through 18 and differences with minuends through 18 b. Solve problems using separation (take-away), comparison (finding the difference), and part-whole (missing addends) c. Use two or three digit addition and subtraction to solve problems d. Model and explain multiplication as repeated addition with manipulatives, pictures, and symbols e. Model division as equal groupings with manipulatives, pictures, and symbols f. Solve story problems and distinguish relevant/irrelevant information 	<p>2. Apply the operations of addition and subtraction to solve problems involving two-digit numerals, using multiple strategies with and without regrouping.</p> <ul style="list-style-type: none"> • Demonstrating computational fluency for basic addition and subtraction facts with sums through 18 and differences with minuends through 18, using horizontal and vertical forms • Interpreting multiplication as repeated addition and division as equal groupings • Solving multi-step addition and subtraction problems originating from real-life experiences • Justifying the strategy used to solve addition and subtraction problems • Using an estimate to determine if an answer is reasonable
<p>1 2 3 4</p>	<p>3. Demonstrate an understanding of fractions to:</p> <ul style="list-style-type: none"> a. Label parts of a whole using fraction notation including $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ b. Transfer fraction representation from one form to another c. Identify parts of a set as a fractional ratio(3 parts out of 4) d. Represent parts of a whole as a quotient using real life situations (2 cookies divided among 4 people) 	<p>3. Label equal parts of a whole using $\frac{1}{2}$, $\frac{1}{3}$, and $\frac{1}{4}$.</p>

ALGEBRA STRAND – Grade 2

Score	TEAM-Math	Alabama Course of Study
1 2 3 4	1. Apply an understanding of patterns, relations, and functions to: <ol style="list-style-type: none"> a. Interpret and explain numeric patterns <ul style="list-style-type: none"> • Sequence addition (If $32+18=50$ and $33+18=51$, what would $35+18$ be?) • Paired subtraction (If $24-15=9$, what is $24-16$?) b. Use mathematical models to represent and understand quantitative relationships c. Identify missing elements in given patterns d. Extend a growing pattern 	5. Create growing patterns. Examples: \square , $\square\square$, $\square\square\square$; a b, a a b, a a a b
1 2 3 4	2. Extend use and understanding of number sentences using algebraic symbols: <ol style="list-style-type: none"> a. Apply concepts of $>$ and $<$ b. Introduce concepts of \times and $/$ c. Solve problems using associative and commutative properties d. Solve missing addend problems 	6. Solve problems using the associative property of addition.
1 2 3 4	3. Describe change over time (qualitative and quantitative)	7. Describe change over time in observable (qualitative) and measurable (quantitative) terms. Examples: recognizing that a plant grew taller (qualitative, requiring observation); recognizing that a plant grew three inches (quantitative, requiring measurement)

GEOMETRY STRAND – Grade 2

Score	TEAM-Math	Alabama Course of Study
1 2 3 4	1. Analyze geometric relationships using 2D and 3D geometric shapes to: <ol style="list-style-type: none"> a. Describe attributes of 2-dimensional (plane) and 3-dimensional (solid) figures using terms: side, surface, edge, vertex, angle b. Categorize 2D and 3D shapes and explain groupings according to the properties c. Predict the results of putting together and taking apart 2D and 3D shapes 	8. Describe attributes of two-dimensional (plane) and three-dimensional (solid) figures using the terms <i>side</i> , <i>surface</i> , <i>edge</i> , <i>vertex</i> , and <i>angle</i> . <ul style="list-style-type: none"> • Identifying quadrilaterals, pentagons, hexagons, or octagons
1 2 3 4	2. Apply concepts of positions, directions, and distance to: <ol style="list-style-type: none"> a. Describe the route from one location to another b. Follow multi-step directions to locate objects c. Create and read simple maps d. Use grids to show movement between intersecting points 	9. Describe the route from one location to another by applying concepts of direction and distance. Examples: direction—left, right, north, south, east, west; distance (nonstandard)—twenty-five steps from the library; distance (standard)—ten feet from the walkway <ul style="list-style-type: none"> • Following multi-step directions to locate objects • Reading maps of the school environment • Using grids for movement between points
1 2 3 4	3. Analyze mathematical situations by applying transformations and using symmetry to: <ol style="list-style-type: none"> a. Apply slides, flips, or turns to create designs that exhibit line symmetry b. Recognize and create lines of symmetry using everyday objects and geometric figures 	<ul style="list-style-type: none"> • Identifying line symmetry in plane geometric figures • Creating designs that exhibit line symmetry • Recognizing the results of changing the position (transformation) of objects or shapes by sliding (translation), turning (rotation), or flipping (reflection)
1 2 3 4	4. Use visualization and spatial reasoning to: <ol style="list-style-type: none"> a. Create mental images of geometric shapes using spatial memory and visualization b. Recognize and represent shapes from a different perspective (puzzles) c. Locate shapes and structures in the environment 	

MEASUREMENT STRAND – Grade 2

Score	TEAM-Math	Alabama Course of Study
1 2 3 4	1. Apply appropriate techniques, tools and formulas in measurement to: <ol style="list-style-type: none"> Measure using nonstandard, standard customary and metric units Understand the comparison of customary units and metric units to familiar objects Demonstrate use of customary and metric units in linear measurement Compare and order objects according to related attributes of weight, area, length and volume 	10. Measure length in customary units, including inches, feet, and yards. <ul style="list-style-type: none"> Using metric units Using appropriate tools, including rulers, yard sticks, meter sticks, or tape measures 11. Estimate weight and capacity by making comparisons with familiar objects. Examples: a desk weighing more than a pencil, a cup holding less than a bucket
1 2 3 4	2. Tell time to the minute using analog and digital clocks <ul style="list-style-type: none"> Hour, half hour, quarter, 5 minutes (intervals) Elapsed time 3. Compare everyday experiences to reinforce concepts of time (Example: It takes about the same amount of time to watch a movie as it does to watch a football game.)	12. Tell time to the minute using analog and digital clocks.

DATA ANALYSIS AND PROBABILITY STRAND – Grade 2

Score	TEAM-Math	Alabama Course of Study
1 2 3 4	1. Collect, organize, and display data in multiple ways from self-generated questions to: <ol style="list-style-type: none"> Use multiple display models (yes/no charts; single, double, and double over-lapping Venn Diagrams; circle graphs; vertical/horizontal bar graphs, frequency tables; tallies; and other models) Organize, plan, collect, and interpret data to answer self-generated questions or to make decisions Recognize patterns in data collected Represent data in multiple ways 	13. Create displays, including appropriate labels, for a given set of data using pictographs, tally charts, bar graphs, or single- or double-loop Venn diagrams. <ul style="list-style-type: none"> Interpreting graphic displays
1 2 3 4	2. Communicate events and outcomes in appropriate probability terminology (certain, likely, equally likely, unlikely, possible, impossible, fair)	14. Determine if one event related to everyday life is more likely or less likely to occur than another event. Example: determining if it is more likely to rain or snow on July 4th in Alabama
1 2 3 4	3. Evaluate and redefine predictions using cognitive benchmarks	

Publisher/Title: _____

Phase II Summary

Overall holistic score: 1 2 3 4

Rationale for your score, including strengths and weaknesses of the content covered by the program.