GREEN COUNTY SCHOOL DISTRICT

E-RATE DEPLOYED UBIQUITOUSLY
(EDU) 2011 PILOT PROGRAM

WC Docket No. 10-222

Program for the Creation of a Mobile Learning Environment

GREENSBURG, KENTUCKY

http://www.green.k12.ky.us/

Table of Contents

Part I: Proposal Narrative

Needs Assessment and Standards

There are 1539 students currently enrolled in grades kindergarten through twelfth grade in Green County Schools. According to the most recent GMADE (Group Mathematics Assessment and Diagnostic Evaluation) 57.3% of the exiting 8th grade students were at a "4" stanine or higher and 44% of the same 8th grade students were performing at grade level. In the analysis of our most recent Kentucky Core Content Test (KCCT), 67.7% of our middle school students met state proficiency standards in math and, as evidenced by our most recent MAP assessment (Measures of Academic Progress), 49.1% of our middle school students met benchmarks in math. The most startling piece of data, however, is that only 19.9% of students who took the most recent EXPLORE test met the national benchmark in math. This means that a little over 80% of the 8th grade students who left the middle school last year are not on target to reach the national benchmark for math on the PLAN or the ACT, which indicates college readiness. In other words, according to all of this data, not enough students are leaving our middle school ready for higher level mathematics. What should also be noted is that while 87 percent of the students have a computer at home, only 60 percent of these computers are up-to-date (newer than 5 years old). Furthermore, 63 percent of the students have internet access at home and while 80 percent of those connections are considered high speed, overall 50 percent of our students do not have an internet connection conducive to online learning.

In January 2009, Green County Schools established a concrete action plan to close the gap in student proficiency in math by creating flexible math groups based on specific math skill deficiencies. These groups started in the 6th grade only (from January 2009 to May 2009) and the short-term successes of the groups led to a school-wide initiative of developing flexible math groups across all grade levels as a facet of our Response to Intervention process. The groups were developed by using GMADE and MAP scores so that skill levels were similar in each group. Instruction for the flexible math groups is remedial in order to narrow the gap in grade level deficiencies. The district has shown their commitment to this initiative by purchasing research-based software such as Carnegie Learning's Cognitive Tutor for the 8th grade, Accelerated Math for 6th and 7th grade, Math Facts in a Flash for 3rd through 5th grades, and A+LS (The Anywhere Learning System) Math for remedial instruction in all twelve grades. These applications are web based and can benefit greatly from being utilized on mobile devices.

Carnegie Learning's Cognitive Tutor was designed after over twenty years of research on the way students successfully learn and apply mathematic concepts. The company itself is committed to continually evaluating the effectiveness of their curricula through multiple research programs and studies. They have been and continue to prove the success of their program through studies conducted by the Reliability Group, the International Journal of Artificial Intelligence in Education, and the RAND Corporation in states all over the

country including Kentucky. The Cognitive Tutor allows students to work at their own pace as it is built with an artificial intelligence that assesses each student response in order to prescribe curricula based on their individual needs. The Cognitive Tutor is already being used in all 8th grade mathematics classrooms sporadically throughout the year. This program will provide for additional at school and at home availability for mathematics related use of this application which will ensure that each 8th grader will be able to use the Cognitive Tutor at least twice a week every week.

The American Education Corporation, who provides a variety of research-based software, including A+LS, is also committed to ensuring that its programs are improving outcomes in education. They have been involved in 14 published and independent, scientifically-based research studies including outcome studies on computer-assisted mathematics remediation intervention and computer-aided instruction in mathematics. The A+LS software is also self-paced and standards based and is already being used by students in all grades in our flexible math groups through our intervention period. This program will provide up to 800 more spaces for individual students to work on a daily basis on bridging the gaps in their mathematical knowledge.

Renaissance Learning's Accelerated Math (AM) and Math Fact in a Flash (MFiF) has 82 research studies and reviews to support its effectiveness; 72 of those were led independently, 29 were experimental and 17 have been published in peer-reviewed journals. Accelerated Math is the only mastery measurement tool for monitoring reviewed by the National Center for Response Intervention. Accelerated math and Math Facts in a Flash creates tailored assignments for each individual student based on their current level. They automatically score student response and provide immediate feedback. This software provides an easy, automatic way to differentiate instruction for students on all different levels of mathematical ability. This program is available for use in any classroom, but usage is limited due to lack of teacher knowledge on how to use the software as well as a lack of AM scanners and printers and lack of available computers in each room. This program will increase the use of the programs by providing up to 800 additional devices for use in flexible math groups (who are not using A+LS) as well as K through 12th grade classrooms.

Though the district has supported all grade levels with these programs, the number of students using them on a continual basis is very limited, as you will read about in the technology need portion below. With program funds, the schools will seek to help serve a greater number of students who are below benchmarks in math with the software that we already have. The mobile devices will be used by the school's Response to Intervention Program (flexible math groups both in school and at home) as well as by individual math classes and allow for at home use with greater parent involvement. Using the devices for mathematics remediation and instruction will enhance the ability of teachers to differentiate instruction in order to target specific areas of weakness (e.g. geometry, orders of operations, data analysis) for each student.

Using these four research-based programs will allow small group students to receive individualized remedial instruction in a nonthreatening, "non-graded" environment as well as allow small group teachers to formatively assess students' progress and mastery of skills on a daily basis. Through our ongoing efforts and the integration of additional technology, our goal is to increase the number of students who meet or exceed proficiency on formative and summative assessments (e.g. GMADE, MAP, KCCT) by 10% per year until all students have reached proficiency.

Technology Need

The district supports learning through technology. Green County Schools currently has 8 computer labs containing a total of 240 computers. While one lab is used for math remediation and math instruction, the remaining labs are used for keyboarding instruction and other computer applications on a daily basis. Grade-level classes rotate through these labs and are scheduled by teachers. On average, students only get about 35-40 class periods per year in these labs.

These eight labs are shared by 131 content teachers, 30 collaborative teachers, and 1539 students. Teachers are required to sign-up in order to have access to these computer labs. It is hard for every teacher to gain access at the point necessary in their instruction when others have made their schedule for the whole year. These labs are also used for MAP testing twice per year (for three weeks each time). During MAP testing no one has access to the lab for instructional use. In order to meet the instructional needs of the students identified access to and use of technology must be increased. The deployment of mobile devices to students would allow us to more consistently implement the research-based software already purchased by the district and to formatively assess the students' progress on a regular basis. All three research-based software programs allow for differentiation of instruction for each individual student. Students are able to work independently at their current level of performance as identified during the pre-assessment portion of the software. Creating this "Learning on the Go" environment would allow content teachers and collaborative teachers (who teach mathematics and/or a flexible math group) to more readily and frequently have access to student assessment information and to monitor student progress. The students will be able to work closely with their teachers to improve specific math skills based on the ongoing assessments being given.

Academic Needs

According to our test scores (see table 1), it is evident that mathematics is an issue in Green County Schools. Around 40% of our students are not meeting proficiency standards on district, state and national assessments.

Percent of Students Below Proficiency in Math (Table 1)

Assessment	2006-2007	2007-2008	2008-2009
EXPLORE*	76.9%	73.3%	81.5%
GMADE**	39.7%	45.7%	42.7%
KCCT	56.3%	43.9%	32.3%
MAP***	data not available	41.5%	30.4%

**Test assesses college readiness in students in the 8th grade*
***Data is exiting 8th grade students only*
****Only 6th grade students were tested. This is end-of-year data.*

As you can see, there is a slight drop in the percentage of students below proficiency on the MAP test between 2007-2008 and 2008-2009. Flexible math groups began in January 2009, so by the end of that year students tested had received skill-specific intervention for an entire semester. Use of Carnegie Learning's Cognitive Tutor in the 8th grade began in August of 2007 and although the GMADE test shows an increase in the percentage of students below proficiency from 2006-2007 to 2007-2008, there is a significant decrease in the percentage of students below grade level on that same test every year; 62% in 2006-2007, 60% in 2007-2008 and 56% in 2008-2009. We are confident that our test scores will continue to improve with the addition of a mobile learning environment by providing more consistent student use of the software programs that are already causing some of our scores to improve. Creating this mobile learning environment will allow students more time and access to the technology resources we have. It will also allow more opportunities for teachers to improve specific math skills in individual students based on the ongoing assessments listed above as well as the formative assessments built in the software programs themselves.

Technology literacy does not seem to be as great a problem for our school as mathematics. Our teachers are required to use technology to communicate and collaborate on a daily basis as well as to integrate technology into classroom lessons when appropriate. District walkthrough evaluations and annual evaluations include standards for the implementation and regular use of technology. Teachers must also turn in artifacts to demonstrate their proficiency in technology standard indicators set by the district. However, our staff has never been formally assessed on technology literacy according to the International Society for Technology in

Education's National Educational Technology Standards (ISTE's NETS) so we do not have any data on exactly how many of our teachers are proficient in technology usage. As part of the program, we would use an assessment called SimpleAssessment (which assesses the INTE's NETS) with all of our teachers in the winter of 2010 to set baseline data and then again at the end of each school year to monitor the increase in teacher proficiency of technology.

Student proficiency in computer usage is informally evaluated each year by our technology teacher at the beginning and end of the year through two teacher-made assessments. According to the data, only 95% of our students are able to use computers. However, our students have also never been formally evaluated on their proficiency in technology literacy. Our goal, with this program, is to assess our students, as well as our teachers, using the SimpleAssessment to set baseline data and to monitor the increase in our percentages of students and teachers that can and do use technology proficiently.

Program Implementation

The school has chosen to establish a mobile learning environment with 800 district purchased mobile devices and the district will expand those devices capabilities by adding always on internet connections. This mobile learning environment will increase student access to mathematics software as well as enhance the ability to differentiate instruction in order to target specific areas of weakness (e.g. geometry, orders of operations, data analysis) for each student. The mobile learning environment will be used by the school's Response to Intervention program (flexible math groups) as well as individual classes on a daily basis.

As part of our Response to Intervention program, we include all content area teachers and students. Flexible math groups have been established in order to narrow the achievement gap within that content area. Students who have scored below the 20th percentile on the MAP assessment in math and below the "3" stanine on the GMADE assessment will have access to the lab for a thirty minute intervention period daily where they will work with a math teacher on the specific identified area of deficiency. (This includes about 1539 students in grades Kindergarten through 12.) Intervention students will use A+LS as well as other web based manipulatives, formative assessments, and activities to master the specific skills that they are working toward as

well as enhance test taking skills. Teachers will be able to model A+LS and other applications using the InFocus Projector. The student to teacher ratio in these flexible math groups is 10:1 which also allows the teacher availability to work one on one with students on specific mathematics and technology skills.

The students that have scored 20-25 percentile on the MAP assessment and fall at the "3" stanine or below will utilize the Accelerated Math program in the content classrooms during the thirty minute intervention period. Teachers will have access to Accelerated Math scanners and printers. They may also use online manipulatives and other web based activities through the use of InFocus projectors, interactive boards, document cameras, and Turning Point Technology (student clicker systems) which gives immediate feedback of student comprehension of state math standards.

Our math content area teachers as well as special education teachers will have access to the mobile learning environment on a daily basis in order to address specific learning goals through engaging and thought-provoking instruction. These teachers will collaborate to design a schedule for the use of the mobile learning environment so that technology can be used in mathematics instruction across the grade levels on a regular basis.

Carnegie Learning's Cognitive Tutor, which will continue to be used in the 6th, 7th and 8th grade math classes, allows students to actively participate in real-world scenarios in which they utilize previous knowledge and problem solving skills to develop a deeper understanding of math content. Accelerated Math and Math Facts in a Flash, which will be used in the 3rdth through 5th grade classrooms and the A+LS, which will be used in the 1st through 10th grade classrooms, allow students (though monitored by a teacher) to work at their own pace which increases their level of responsibility for their own educational process. Math and special education teachers may also use the multitude of web-based manipulatives and activities available online such as www.freerice.com, the national library of virtual manipulatives, ClassZone, United Streaming, student and teacher blogs, etc as well as the use of Microsoft Excel and other processing software to create spreadsheet and display data through graphs as a supplement to their classroom instruction. The integration of technology into

our daily curriculum will also increase student technology literacy, create 21st century learners (and teachers) and better equip our students for their real world futures which are the underlying goals of this program.

In order for this action plan to be most beneficial to students, math and special education teachers will work collaboratively in Professional Learning Communities across grade levels to implement rigorous activities and maximize the effective use of technology in the curriculum. This action plan will also increase the technology literacy of our teachers as they work together to create technology infused, content based lessons. These Professional Learning Communities will also provide time for teachers to examine and redesign curriculum guided by Kentucky Core Content, Program of Studies, Academic Expectations, NCTM (National Council of Teachers of Mathematics) standards, and the National Educational Technology Standards. These standards will drive all of the components of this action plan including lesson planning, delivery of instruction, formative and summative assessment, and analysis of data.

Professional Development

This technology initiative is two-fold. The first purpose is to provide small group instruction to struggling math students with individualized instruction through the use of technology. The second purpose is to build capabilities with all math and intervention teachers by providing a variety of delivery systems that build the foundation for mathematics instruction **(KDE PD Standard 7, 10, 11)**. Our overall goal for professional development is to create a collaborative culture of teachers utilizing tools related to the 21st century learner in order for us to more effectively target gaps in the mathematical knowledge of our students.

The program will provide professional development for all math and intervention classroom teachers to enhance technology focused instruction in mathematics. Professional Development will include whole group training on A+LS during a summer session and job-embedded online webinars (during common planning time) on the use of Turning Point Technologies as well as the Accelerated Math and Math Facts in a Flash programs. We will also offer software training for math teachers and special educators on Carnegie Learning's Cognitive Tutor during the summer. Our Professional Learning Communities will meet monthly and include the entire staff, and we will also participate in on-going weekly peer observations/mentoring (anytime learning). **(KDE**

PD Standard 2, 7, 9). The eleven Kentucky Department of Education Standards of Professional Development will be used to plan and implement all professional development as well as for participants to rate the effectiveness of each training. The standards are embedded throughout the programs proposal and are identified by the use of bold type including **KDE PD Standard**.

To further build capabilities in the school, a Math Intervention Team has been formed. This team in collaboration with the instructional supervisor meets bi-monthly to analyze student achievement data and diagnose specific areas of weakness for targeted students. The team is made up of the three math teachers as well as the four special educators and our school counselor and principal. The team meets with and provides support to the flexible math group teachers on a monthly basis and is always available to problem solve and provide support for all stakeholders involved (including parents) **(KDE PD Standard 5)**. The Math Intervention Team will attend conferences like the Kentucky Society for Technology in Education (KySTE) Conference and the KCTM Annual Conference.

Professional development will be evaluated through several sources of data. One source of data will be the individual growth plans of teachers, as teachers attend PD to improve their instruction. Teachers will also fill out an evaluation form (aligned with KDE's standards for Professional Development) at the end of each professional development activity. The principal will monitor the use of the strategies implemented by the teachers through formal and informal classroom observations. The Math Intervention Team will also evaluate PD and the results according to student achievement as well as plan for continuing professional development **(KDE PD Standard 9)**.

The results of the GMADE, MAP assessment, EXPLORE assessment, and the KCCT report will also be used to provide information. The Math Intervention Team will specifically be looking to see an increase (by at least 10%) in student proficiency in mathematics end of year assessments. Student success will be the greatest indicator of effective professional development **(KDE PD Standard 6, 10)**.

Leadership

The district Instructional Supervisor and Technology Coordinator will work collaboratively to ensure that all district and program funded technology resources are appropriated to the schools and functioning adequately. With the help of the district leaders, we will be able to ensure that all teachers and students have access to technology that they understand and can rely on. These two leaders will also model the appropriate and daily use of technology by communicating with teachers and managing tasks through technology as well as coming into the classrooms and computer labs to collaborate with teachers to increase the effective use of technology in our school.

The principals in Green County Schools will use a district wide and building-wide technology observation instrument (as created by our Technology Committee), formal teacher evaluations (which include specific technology standards), walkthroughs, and other forms of communication to convey the importance of being a technology literate school. The Math Intervention Team will specifically focus on technology in mathematics by modeling the various strategies in which technology can be implemented in their flexible math groups or classrooms. The team will also be available for on-line collaboration, peer observation, and other projects that may arise.

Coordination of Activities

The Math Intervention Team will coordinate all district and program funded, technology related activities and projects associated with this action plan. As stated earlier, flexible math groups have already been established by the Math Intervention Team according to MAP and GMADE assessment criteria. The flexible math groups that qualified for intervention will have daily access to the mathematics technology lab during the thirty minute intervention period. This consists of seven teachers and no more than sixty students. Our three math content area teachers as well as our four special education teachers will also have access to the math lab on a daily basis. These teachers will work collaboratively on a monthly basis to design the schedule for the lab as stated earlier (see table 2). Our district Instructional Supervisor, Technology Coordinator and Principals will also coordinate the evaluations and data analysis to ensure that program performance goals are being met.

Part II: Evaluation

Program Evaluation

As mentioned earlier, assessments used to monitor school and individual student progress will be formative and summative. The assessments will include but are not limited to GMADE , MAP, KCCT, EXPLORE, SimpleAssessment, and weekly running records. SimpleAssessment and GMADE will be specifically used to monitor teacher and student progress in performance goals; increase student and teacher proficiency in technology as well as increase student proficiency in mathematics (see performance goals). These two assessments, along with teacher and student pre/post surveys on technology usage and confidence, monthly principal walkthroughs and weekly teacher lesson plans will prove that student and teacher technology usage literacy as well as student proficiency in mathematics is increasing in our school. (See performance goals for specific numerical goals.)

All formative and summative assessments (listed above) will be monitored by the Math Intervention Team as well as the principal and Instructional Supervisor to determine if adequate progress is being made in individual intervention students as well. The team will then make decisions based on each individual student concerning the flexible groups they are in. The main goal for all identified intervention students is to increase performance in mathematics. These assessments will indicate levels of success for each student as they move toward their own specific goal. Likewise, the Comprehensive School Improvement Plan will also address the specific performance goals of this program and the improvements made by the math intervention program.

The Math Intervention Team will meet bi-monthly to evaluate the intervention program and to review lab usage as well as building-wide technology usage as seen in principal walkthrough reports and teacher lesson plans. This team will also meet at the end of the year to evaluate the entire program and make changes for the second year of implementation.

Project Sustainability

Green County Schools is committed to seeing that 100% of our students are proficient in math and are technologically literate before exiting the eighth grade. District allocated resources are sufficient to meet this goal. Students already have access to the research based software purchased at the district level (although that

access is currently limited to the amount of time they get to spend in the building-shared lab) and teachers are integrating what technology they have into their classrooms. All of our teachers have teacher workstations with access to the internet, email and other software programs provided by the district to use for instruction. Of our 131 teachers 111 have projectors, sixty of our teachers have interactive boards, 82 have document cameras and 45 sets of Turning Point Technology's clicker system are shared; a ratio of nearly one set to every three teachers. There is evidence in administrative walkthroughs that teachers are using technology in their instruction. Our goal with this program is to provide a sustainable place for students to have access to the technology that will help them master the mathematical and technological skills they are having trouble with. This program would provide students and teachers access to resources on a more consistent and equitable basis which will allow us to obtain our goal of proficiency for every student in a shorter timeframe.

The district will continue to support this action plan after program funds have been depleted. The district currently (and will continue to) fund three technology support personnel which will continue to maintain the efficiency of the proposed math lab and monitor the ongoing goals created by the program. The school also funds a Technology Resource Teacher with Title I monies that will also continue to maintain student use of technology. Math teachers and special educators will continue to use the mathematics software in the math lab and the district will continue to provide support for software updates, tech support, and additional licenses and replace computers and other hardware for the lab as is needed.

Part III: Program Budget

Financial Commitment

The district has already proven their support for the use of technology through the hiring of three technology support personnel and the purchase of research-based software, multiple forms of hardware, and other related technology expenditures. This year alone the district has spent $12,850 for A+LS Math, $10,700 for Accelerated Math, and $13,250 on MAP Assessments each of which are renewed yearly. The amount of

$27,500 has also been invested in Carnegie Learning's Cognitive Tutor and related curriculum on a six year contract for the middle school alone.

Use of Funds

As described in more detail in the Budget Summary, the technology program resources requested will provide 800 student and staff internet access while district funds will provide the hardware to utilize these connections.

Over 25% of program funds will also be used for teacher Professional Development, including teacher stipends for after-school and summer training days, trainer fees, conferences and substitute teachers. This training will continue annually and will adapt to the needs of the teachers as needed and requested.

Budget Narrative

Green County Schools is committed to seeing that 100% of our students are at grade level or above as well as meeting proficiency goals in mathematics on state and national assessments before exiting our school. We are also committed to providing a learning environment immersed in technology so much so that our students and teachers instinctively become 21st century learners and teachers.

In order to reach those goals, our school will use over 25% of program funds for Professional Development of teachers. Teacher stipends will be provided at the rate of $100 per day (or $50 per half day) for after school or summer training sessions provided by the program. The $5,000 budgeted for that will provide for 50 full days of training including A+LS, Turning Point Technology, Accelerated Reader and Cognitive Tutor. $2,000 is budgeted for bringing in trainers for these trainings. PD funds are also set aside to send the Math Intervention Team conferences like the KySTE Conference and the KCTM Annual Conference ($5,000). The district will match funds by providing substitutes for teachers attending conferences.

The program funds will be used to purchase internet access capabilities for staff and students in order to create a mobile learning environment ($564,273.60). Approximately $347,318 additional funds will be used to purchase devises to provide 800 staff and students the means to begin our move toward anywhere anytime learning.

AMERICAN RECOVERY AND REINVESTMENT ACT
ENHANCING EDUCATION THROUGH TECHNOLOGY
COMPETITIVE PROGRAM
District Name:

Green

BUDGET SUMMARY FORM

MUNIS CODE	Description	E-rate Funds	Match (List source & amount)
0113	Professional Development (teacher stipends)		**5000 Local**
0120	Professional Development (substitute teachers)		**5000 Local**
0320	Professional Development (trainer fees and training expenses)	**15,000**	
0734	Technology (student and staff devices)		**200,000 Local**
0734	Internet Access Rates	**549,273.60**	**137,318.40 Local**
BUDGET TOTAL		**564,273.6**	**347,318.4**

Performance Goals with Indicators

Accountability Measures
Enhancing Education Through Technology

<table>
<tr><td colspan="2">Performance Goal 1: Student achievement, including technology literacy, of all students is improved through the use of technology.</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td colspan="2">Performance Indicator 1.1
The percentage of students by the end of grade 8 that meet or exceed state standards for student literacy in technology.
Performance Indicator 1.2
The percentage of students by the end of grade 8 who are performing at or above grade level in mathematics.</td></tr>
<tr><td></td><td>Performance Target 1.1
The percentage of students by end of grade 8 that meet or exceed state standards for student literacy in technology will increase by ½ from the baseline year 2008-2009 to the year 2009-2010 and by ½ more in the year 2010-2011.
Performance Target 1.2
The percentage of students by the end of grade 8 who are performing at or above grade level in mathematics will increase from 44% in the baseline year 2008-2009 to 50% in the year 2009-2010 and will increase at least 6% more in the year 2010-2011.</td></tr>
<tr><td></td><td>Green County Schools will perform a pre and post assessment using SimpleAssesment with all students to set a baseline measure of student proficiency of literacy in technology in the winter of 2010 and use the same assessment at the end of the year to measure the increase in technology literacy.

Green County Schools will perform a pre and post survey with students on their usage levels and confidence in using technology.

Green County Schools will also continue to use the GMADE assessment at the end of the year to measure the increase in the percentage of students who are performing at or above grade level.</td></tr>
</table>

Performance Goals
Accountability Measures/Evaluation
Enhancing Education Through Technology

Performance Goal 2: Teachers effectively use technology and research-based instructional practices to support student learning.	
Performance Indicator 2.1 The percentage of teachers qualified to use technology for instruction.	
	Performance Target 2.1 The percentage of teachers, in the aggregate and in high poverty schools, who are qualified to use technology for instruction will increase by ½ from the baseline year 2008-2009 to the year 2009-2010 and by ½ more to the year 2010-2011.
	Green County Schools will perform a pre and post assessment using SimpleAssesment with all teachers to set a baseline measure of teacher proficiency of literacy in technology in the winter of 2010 and use the same assessment at the end of the year to measure the increase in technology literacy. ***Green County Schools will measure the integration of technology by teachers through an observation instrument that will be created by our Technology Committee. This instrument will be used on a monthly basis by the principal. Lesson plans and regular walkthrough forms will also be used to measure the integration of technology in our building.*** ***Green County Schools will perform a pre and post survey of teachers to determine the usage levels of technology in the classroom as well as the confidence of teachers to use technology in their classrooms.***