Report by the
Department of Education and
Virginia Information Technologies Agency

A Statewide Web-based Standards of Learning Technology Initiative

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To the Chairmen of the Senate Finance and
House Appropriations Committee

COMMONWEALTH OF VIRGINIA
RICHMOND
SEPTEMBER 1, 2005

Annual Report
September 2005

Executive Summary

Web-based Standards of Learning Technology Initiative

Executive Summary

Virginia's Web-based Standards of Learning (SOL) Technology Initiative is beginning its sixth year of implementation. The goal of the initiative is to have school divisions use Web-based systems to improve the SOL instructional, remedial, and testing capabilities of schools beginning with high schools and continuing into middle schools and then elementary schools. Four objectives of the initiative are as follows:

1. Provide student access to computers at a ratio of one computer for every five students;
2. Create Internet-ready local area network capability in every school;
3. Assure adequate high-speed, high-bandwidth capability for instructional, remedial, and testing needs; and
4. Establish a statewide Web-based SOL test delivery system.

As detailed in previous annual reports, the Virginia Department of Education (DOE), with assistance from the Virginia Information Technologies Agency (VITA), implemented a formal project management structure at the outset of the initiative to ensure successful project completion. The DOE utilizes that structure and continues to guide school divisions toward completing the four objectives.

Financial Support for the Initiative

Financial support for Virginia's Web-based SOL Technology Initiative continued for a fifth year in the form of proceeds generated by the sale of technology equipment notes. At the direction of the General Assembly, the Virginia Public School Authority (VPSA) conducted the sale of Series V Technology Equipment Notes in May 2005. The proceeds from Series V notes resulted in approximately $59,000,000 being available to school divisions to improve their technology infrastructure. These additional funds increased the total statewide investment in technology infrastructure for the Web-based SOL Technology Initiative to more than $289,000,000.

Table 1 shows a summary of the annual investments occurring to date. The annual investment is based on an allocation of $26,000 per school and $50,000 per school division. This formula has remained constant since the start of the initiative.

Table 1

Series #	Date of Issuance	Total Dollars Available to School Divisions	Percent Expended by School Divisions (as of August 2005)
I	May 2001	$57,248,000	100%
II	May 2002	$58,286,000	100%
III	May 2003	$58,390,000	99.7%
IV	May 2004	$58,728,000	80.1%
V	May 2005	$58,330,000	32.1%

Achieving Readiness for the Web-Based SOL Technology Initiative

Since the start of Virginia's Web-based Technology Initiative in July 2000 and the introduction of the Architectural Guidelines for High School Readiness, all Virginia school divisions have responded by completing one or more levels of School Readiness Certification. One hundred percent of the 132 school divisions have achieved High School Stage 1 Readiness Certification. As of August 8, 2005, all 132 school divisions have achieved Stage 2 High School Readiness Certification.

During 2004, the High School Readiness Certification procedures were updated to reflect the need to certify middle and elementary schools. The revised School Readiness Certification process includes higher minimum technology specifications, a more manageable process for determining a school division's technical capacity to administer online SOL tests, and the flexibility to certify multiple levels of schools simultaneously.

Since the publication of the revised certification process in 2004, 79 school divisions (59%) have achieved Middle School Readiness Certification. 32 of those school divisions (24%) have achieved Elementary School Readiness Certification. The specific divisions with Middle School and Elementary School Readiness Certifications are listed in Chapter 2 of this report.

School Division Participation

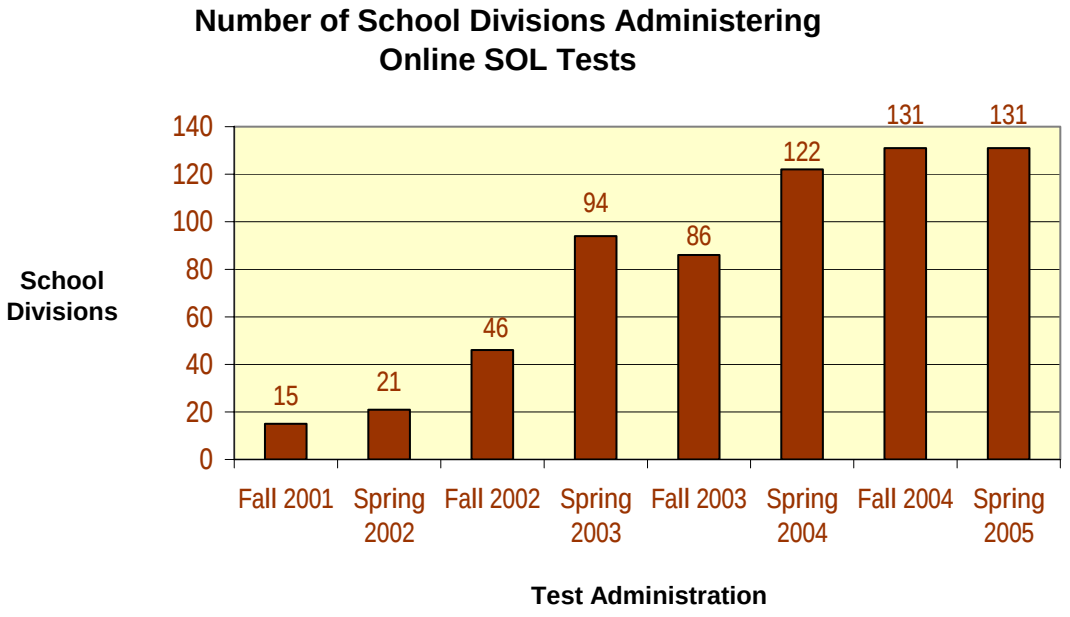
All school divisions continue to use state funding to upgrade their technical infrastructure, to improve their students-to-computer ratio, and to achieve School Readiness Certification for their schools in preparation for administering online SOL tests. During the spring 2005 SOL online test administration, 131 of the 132 school divisions (99 %) participated in online testing. Table 2 shows the school division that has not participated in online testing.

Table 2

Divisions Not Participating in Online SOL Testing (as of August 2005)
Madison County

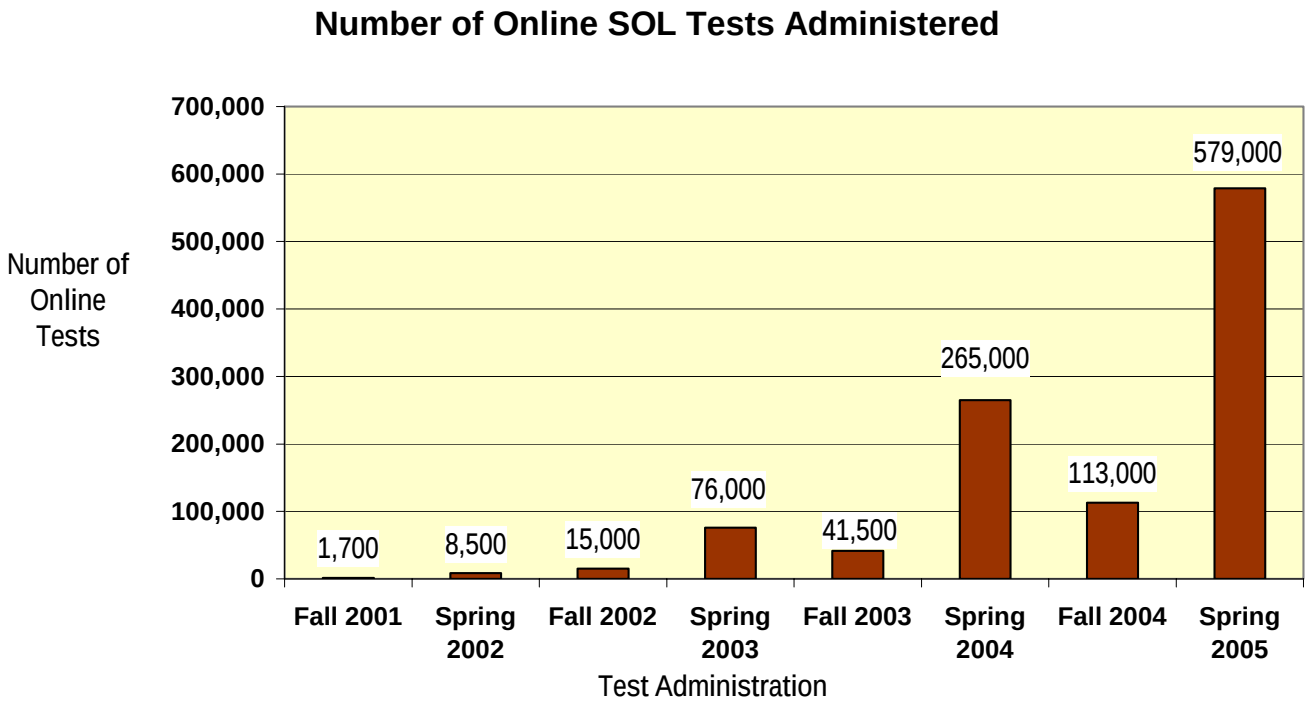
Since the first online test administration in fall 2001, the number of school divisions participating in End-of-Course (EOC) online SOL testing has increased. Figure 1 shows the number of school divisions that participated in online testing during the fall and spring SOL test administrations.

Figure 1



In the spring 2005 test administration, many divisions also significantly increased the volume of online SOL tests they administered. Figure 2 shows the approximate number of individual online SOL tests administered by school divisions beginning with the fall 2001 test administration. School divisions continued to have the option of administering their SOL tests as paper/pencil tests or as online tests, but the DOE encouraged divisions to attempt administering even a small number of tests online. Historically, divisions that attempted online SOL testing have expressed their desire to administer additional online tests.

Figure 2



Increases in the Availability of Online Testing

With the planned growth of the Web-based SOL Technology Initiative, the various tests available online to school divisions continued to increase. By spring 2006, all middle school tests are to be available online and the activities during the past year focused on preparing for that milestone by introducing four tests at the middle school level for the spring 2005 SOL Test Administration. Table 3 indicates the schedule of online test implementation.

Table 3

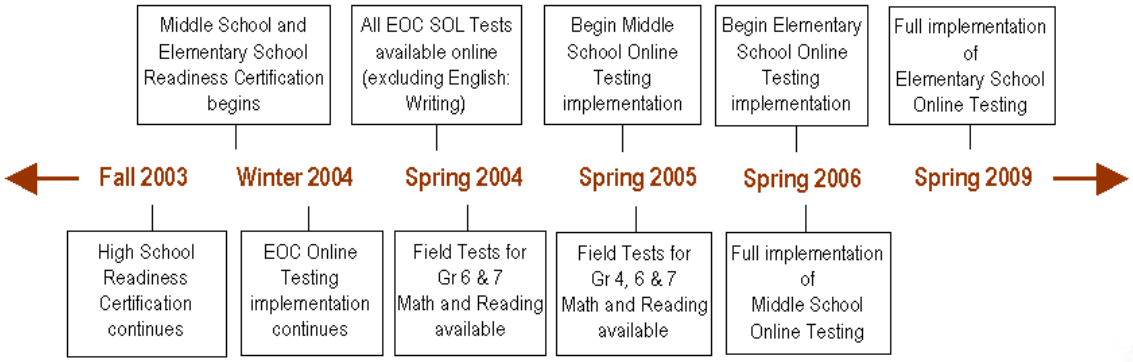
Standards of Learning Test	Online Implementation Date
End-of-Course SOL Tests	
Algebra I	Fall 2001
Earth Science	Fall 2001
English: Reading	Fall 2001
Algebra II	Spring 2002
Biology	Spring 2002
Virginia & U.S. History	Fall 2002
World History I	Fall 2002
World History II	Fall 2002
Chemistry	Spring 2003
World Geography	Spring 2003
Geometry	Spring 2004
Middle School SOL Tests	
Grade 8 Science	Spring 2005
U.S. History to 1877	Spring 2005
U.S. History: 1877 to Present	Spring 2005
Civics & Economics	Spring 2005
Grade 8 Mathematics	Planned for Spring 2006
Grade 8 Reading	Planned for Spring 2006
Grade 7 Mathematics	Planned for Spring 2006
Grade 7 Reading	Planned for Spring 2006
Grade 6 Mathematics	Planned for Spring 2006
Grade 6 Reading	Planned for Spring 2006

In spring 2005 the DOE continued its process of developing new tests to meet the requirements of the federal No Child Left Behind Act (NCLB) mandating that students in grades 3 through 8 be assessed annually in reading and mathematics. For the second year, a field test was conducted in grades 4, 6, and 7 for the newly developed Reading and Mathematics tests. Expanding on last year's online test offerings during the field test, the DOE made each of the assessments available in the online environment in spring 2005. School divisions could volunteer to administer the field tests online in their middle schools and elementary schools in a no-risk environment while also providing the DOE with valuable field test data for the development of the new reading and mathematics tests.

Future Activities

Implementation of the Web-based SOL Technology Initiative continues to progress as initially planned. Figure 3 below shows a high-level timeline of the initiative as planned through spring 2009.

Figure 3



Feedback from school division personnel indicates the volume of online SOL tests will continue to increase in the coming year. The DOE will continue to support the efforts of all school divisions as they implement online testing, and the DOE will continue to monitor the School Readiness Certification process as divisions continue to prepare their middle schools and begin to prepare their elementary schools for technical certification.

Report Format:

The remainder of this report is presented so that each chapter addresses an element in the implementation of the initiative. The individual chapters provide details in addition to information presented in the Executive Summary.

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Chapter 1
Finance

CHAPTER 1

FINANCE

Financial support for Virginia's Web-based SOL Technology Initiative continued for a fifth year in the form of proceeds generated by the sale of technology equipment notes. At the direction of the General Assembly, the Virginia Public School Authority (VPSA) conducted the sale of Series V Technology Equipment Notes in May 2005. The proceeds from Series V resulted in approximately $59,000,000 being available to school divisions to improve their technology infrastructure. These additional funds increased the total statewide investment in technology infrastructure for the Web-based SOL Technology Initiative to more than $289,000,000.

Table 4 below, presents a summary of the annual investments occurring to date. The annual investment is based on an allocation of $26,000 per school and $50,000 per school division. This formula has remained constant since the start of the initiative.

Table 4

Series #	Date of Issuance	Total Dollars Available to School Divisions	Percent Expended by School Divisions (as of August 2004)
I	May 2001	$57,248,000	100%
II	May 2002	$58,286,000	100%
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IV	May 2004	$58,728,000	80.1%
V	May 2005	$58,330,000	32.1%

All Web-based SOL Technology Initiative funds awarded to school divisions are disbursed in the form of reimbursements for eligible technology expenditures. To be eligible for reimbursement, a school division's expenditures must fall within one of the four categories described in Table 5 on the following page. When a school division requests reimbursement, the appropriate school division personnel must certify to the Department of Education that all expenditures meet the criteria of one or more of the four categories. This certification of expenditures is included as part of the Request for Reimbursement forms completed by the school divisions.

Table 5

Category	Definition of Category
1. Classroom Multimedia Network Computers	Requests in this category include only the cost of the new computer system itself (e.g., monitor, CPU, keyboard, mouse, operating system software).
2. Internet-Ready Local Area Network (LAN) Capability	Requests in this category include costs related to networking, retrofitting, upgrading school buildings, and operating software related to Internet-ready local area network capability (e.g., wiring, servers, power upgrade, etc.).
3. High Speed Access to the Internet	Requests in this category include costs related to networking, retrofitting, upgrading school buildings, and operating software related to providing high speed access to the Internet (e.g., wiring, servers, power upgrade, etc.).
4. Instructional Software	Requests in this category shall not exceed 1/13th of the amount spent on hardware in categories 1 through 3. Software purchased must have a useful life of at least one year and be included in the division's approved technology plan (Software such as student information systems, network operating systems, and desktop operating system upgrades are not included).

From the time the technology equipment notes are issued, school divisions have approximately 18 months to complete eligible purchases and apply for reimbursement to receive their allocation of funds. Within that same time period, localities are required to appropriate and utilize local matching funds for technology that total 20 percent of their annual allocation from the General Assembly. In addition, one quarter of that 20 percent match must be used to provide instructional technology training to school division teachers.

Each year, information is provided to school divisions regarding the amount of their funding allocation and the process to follow to receive reimbursement of eligible expenditures. On April 1, 2005, the DOE published a superintendent's memo with details of the Series IV Series V, and the upcoming Series VI technology equipment notes. The superintendent's memo is available at the following Web address: http://www.doe.virginia.gov/VDOE/suptsmemos/2005/adm015.html

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Chapter 2
Certification

CHAPTER 2

CERTIFICATION

The Virginia legislation founding the Web-based SOL Technology Initiative stated that all public schools in Virginia must become technologically capable of utilizing Web-based systems for instruction, remediation, and assessment. As the state agency responsible for implementing this legislation, the DOE developed a process by which school divisions could certify their schools as having met the minimum technological requirements.

Initially called High School Readiness Certification, the process implemented by the DOE consisted of three levels of certification for school divisions to complete. Stage 1 High School Readiness Certification consisted of a checklist that school divisions used to self-certify that their high schools met the required specifications in the areas of (a) awareness and planning, (b) infrastructure, (c) computers and printers, and (d) wide area networks, local area networks, and network equipment and servers. Stage 2 High School Readiness Certification required school divisions to estimate the maximum volume of online SOL tests they would need to administer. The school division then verified the technical capability of their infrastructure to support that volume of concurrent online tests. To achieve the needed level of technical capability, school divisions utilized the financial resources previously presented in Chapter 1 of this report.

Finally, Stage 3 High School Readiness Certification consisted of a checklist with technology and assessment tasks to be completed prior to all online SOL test administrations. The Stage 3 High School Readiness Certification is more commonly known to school divisions as the 96-Hour Checklist. The DOE strongly encourages school divisions to reference the checklist as a final readiness check at 96 hours (4 days) prior to starting each online SOL test administration. As a result, Stage 3 is the only level of certification not required to be submitted with signatures to the DOE.

All Virginia school divisions have responded by completing one or more levels of High School Readiness Certification. One hundred percent of the 132 school divisions have achieved High School Stage 1 Readiness Certification. As of August 8, 2005, one hundred percent of the 132 school divisions have achieved Stage 2 High School Readiness Certification.

As required by the legislation, school divisions were to certify their high schools first, followed by their middle schools, and finally by their elementary schools. With the majority of school divisions having completed their High School Readiness Certification, the focus of the certification process during the last year shifted to the middle and elementary schools. The DOE revised the High School Readiness Certification process to account for the need to certify middle and elementary schools.

The revised certification process is currently in use by school divisions and is named the School Readiness Certification process. This revised process allows school divisions the opportunity to complete the certification of their high schools, their middle schools, their elementary schools, or an appropriate combination of elementary, middle, and high schools simultaneously. The one restriction is that divisions must follow the priority order of high schools certified before middle schools and middle schools certified before or at the same time as elementary schools.

The School Readiness Certification included most elements of the previously required High School Readiness Certification process; however, the new certification process did include a few significant changes. First, the Stage 1 Readiness Checklist was upgraded to include a higher minimum specification for newly purchased technology equipment. Changes in the minimum required processor speed and workstation memory are two examples of specifications that were increased to reflect a higher, more current level of specification for all new technology purchases.

Another change was the process by which school divisions would verify the technical capacity of their technology infrastructure as required in Stage 2 certification. In previous years to complete Stage 2 certification, school divisions utilized the Load Test™ software application developed by Pearson Educational Measurement to test the capacity of their infrastructure. This application was used to simulate a network load equal to that produced by certain volumes of online testing at their high schools. While this was an effective tool for use in completing Stage 2 certification with a small number of schools, it proved to be unmanageable for testing infrastructure capacity when simulating online testing at multiple school locations simultaneously in a division.

To address this problem in the new School Readiness Certification, the DOE partnered with Pearson Educational Measurement to provide the Stage 2 Bandwidth Estimator Worksheet as a replacement for the Load Test software. The worksheet requires data to be entered about the participating schools in the division such as available bandwidth, bandwidth utilization, and number of computers used simultaneously for testing. These data are combined with the requirements of the TestNav™ online test delivery software, and calculations are made that indicate whether the technical resources exist for conducting the specified level of simultaneous online testing in that environment. Beyond the certification process, divisions use the Stage 2 Bandwidth Estimator Worksheet as a tool to predict how network changes may impact the performance of online SOL testing.

Finally, two procedural changes were implemented in the School Readiness Certification process. First, school divisions now complete their Stage 1 and Stage 2 levels of certification within the same document. This procedure was implemented to streamline the certification process and reduce the amount of required paperwork. Second, school divisions now have the flexibility to certify multiple levels of schools simultaneously. For example, a division with High School Readiness Certification completed now has the option to certify its middle schools and elementary schools simultaneously with the School Readiness Certification process if those schools are prepared. The same division may opt instead to certify only its middle schools and wait until later to certify its elementary schools. This flexibility was incorporated into the certification process in an attempt to meet the varying needs of school divisions more effectively.

Regardless of what levels of schools are being certified, the process still requires collaboration from various school division personnel. The division's director of testing, director of technology, and Web-based SOL Technology Initiative project manager all have roles in providing the information necessary to complete the School Readiness Certification process. The final documentation is approved and signed by the division superintendent before being submitted to the DOE.

Since the publication of the new School Readiness Certification process during the past year, 79 school divisions (59%) have achieved Middle School Readiness Certification. 32 of those school divisions (24%) have achieved Elementary School Readiness Certification. The timeframe for all middle schools to be certified is Spring 2006, and similarly, all elementary schools are to be certified by Spring 2009. Table 6 and Table 7 below list the divisions having completed the certifications of their middle schools and elementary schools as of August 8, 2005.

Table 6

School Divisions with Middle School Readiness Certification (79)		
Accomack	Fredericksburg	Norfolk
Albemarle	Galax	Page
Alleghany	Giles	Poquoson
Amelia	Montgomery	Powhatan
Amherst	Gloucester	Prince Edward
Appomattox	Goochland	Prince George
Bedford	Greene	Pulaski
Bland	Halifax	Radford
Botetourt	Harrisonburg	Richmond County
Bristol	Henry	Rockingham
Brunswick	Hopewell	Salem
Buckingham	Isle of Wight	Scott
Campbell	King George	Shenandoah
Caroline	King William	Southampton
Carroll	Lancaster	Spotsylvania
Charlotte	Lee	Suffolk
Chesapeake	Louisa	Surry
Colonial Beach	Lynchburg	Tazewell
Colonial Heights	Madison	Virginia Beach
Covington	Manassas	Warren
Culpeper	Manassas Park	Westmoreland
Danville	Martinsville	Williamsburg/James City
Essex	Mathews	Winchester
Fauquier	Mecklenburg	Wise
Floyd	Middlesex	Wythe
Franklin County	New Kent	
Frederick	Newport News	

Table 7

School Divisions with Elementary School Readiness Certification (32)		
Appomatox	Harrisonburg	Radford
Brunswick	Henry	Richmond County
Bland	Lancaster	Scott
Bristol	Lee	Shenandoah
Caroline	Louisa	Spotsylvania
Charlotte	Madison	Suffolk
Fredericksburg	Martinsville	Tazewell
Frederick	Mathews	Warren
Giles	Page	Wise
Goochland	Poquoson	Wythe
Halifax	Prince Edward	

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Chapter 3
Technology

CHAPTER 3

TECHNOLOGY

The goal of the Web-based SOL Technology Initiative is to have school divisions use Web-based systems to improve the SOL instructional, remedial, and testing capabilities in their schools. Much of the technology required for this to occur centers on the infrastructure within the school divisions. The amount of bandwidth available to school networks and the consistency and reliability of those networks are critical to implementing any type of Web-based system.

The 2004-2005 academic year was the second full year in which school divisions had access to the proctor caching software for use with online SOL testing in the eMeasurement System. The DOE continued to emphasize the performance benefits gained by implementing the proctor caching software and urged all school divisions to utilize the software as part of their standard online testing configuration. Most school divisions have realized the network performance benefits available from using proctor caching and are using the software on a regular basis.

Even with full utilization of the proctor caching software, unpredictable network slow downs or complete network failures are possible when administering a statewide Web-based assessment program over the commodity Internet. While it is impossible to implement redundant services in the 132 individual school divisions to protect against data loss during online testing, the Early Warning System has proven to be critical to the success of online testing in the school divisions.

The Early Warning System (EWS) is a safeguard that is built into the TestNav application. If the Internet connection is interrupted on a workstation being used for testing, the EWS alerts the student at the computer of the problem and instructs the student to contact the test administrator. The test administrator is able to display an electronic copy of the student's test answers at the workstation via the EWS along with information about which answers were successfully transmitted and saved. The test administrator has the option to print the students' responses and then attempt to re-establish connection to the Internet. If the problem is localized to one computer, the student may be logged into another computer where he or she can re-enter his answers from the printed page and continue taking the test. If the problem is more widespread, such as a failure of an entire school's Internet connection, the Early Warning System will enable test administrators to print or record students' responses to save their work. In the interim, a decision will be made about how to proceed based on the predicted downtime for the Internet connection. During the spring 2004 test administration, students with a complete set of answers printed from the EWS were able to avoid having to retake an entire test. Instead, the school division was able to complete the entry of the students' answers after the Internet connection was regained.

Pearson Educational Measurement (PEM) and the DOE piloted an upgrade version of the EWS with a number of school divisions in spring 2005. The upgraded version of the application, called Enhanced Early Warning System (EEWS) provided the ability to electronically save a student's answers at the individual's in the event of a network failure. The EEWS kept examiners from having to print students' responses.

Instead, the network failure was acknowledged at the student's workstation, and the responses were logged until the network connection was re-established and the responses could be successfully transmitted to the eMeasurement servers for scoring.
Those divisions piloting EEWS in spring 2005 were pleased with the results and the DOE is considering a larger deployment of EEWS in the coming year.

The spring 2005 online test administration presented the highest volume of concurrent tests administered by any testing program to date within the eMeasurement System. No degradation of system performance was observed during the peak testing times. At the highest volume of online testing, the eMeasurement System delivered more than 44,360 tests in a single day. The highest number of online tests administered in a week was achieved when 191,754 tests were administered during a single week in May 2005. At least 12,000 simultaneous tests were administered on multiple occasions with no observable impact on the system monitoring utilities. The statistics were encouraging and reflected positively the ability of the eMeasurement System to handle the increased volume of online testing expected during the spring 2005 online test administration.

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Chapter 4
Web-based Assessments

Throughout the 2004-2005 academic year, the DOE continued its phased implementation of online SOL testing as part of the Web-based SOL Technology Initiative. Having gradually increased the number of End-of-Course (EOC) tests available in the online format from fall 2001 through spring 2004, the DOE began introducing online assessments for middle schools in spring 2005. The history of the online SOL test implementation to date is shown in Table 8.

Table 8

Standards of Learning Test	Online Implementation Date
End-of-Course SOL Tests	
Algebra I	Fall 2001
Earth Science	Fall 2001
English: Reading	Fall 2001
Algebra II	Spring 2002
Biology	Spring 2002
Virginia & U.S. History	Fall 2002
World History I	Fall 2002
World History II	Fall 2002
Chemistry	Spring 2003
World Geography	Spring 2003
Geometry	Spring 2004
Middle School SOL Tests	
Grade 8 Science	Spring 2005
U.S. History to 1877	Spring 2005
U.S. History: 1877 to Present	Spring 2005
Civics & Economics	Spring 2005

Participation in Online Testing

While the DOE was implementing additional online SOL tests, the number of school divisions opting to administer online SOL tests continued to increase. The bar graph in Figure 4 on the following page shows the number of school divisions opting to administer online SOL tests since the first online test administration in fall 2001.

The number of divisions participating in online testing increased to 131 of 132 school divisions in the spring 2005 test administration. Also in spring 2005, many divisions significantly increased the volume of online SOL tests they administered. Figure 5 shows the approximate number of individual online SOL tests administered by school divisions beginning with the fall 2001 test administration. School divisions continued to have the option of administering their EOC online SOL tests as paper/pencil tests or as online tests, but the DOE encouraged divisions to attempt administering even a small number of tests online. Historically, divisions that attempted online SOL testing in

an administration would request permission to administer additional online tests at the next opportunity. No school division has attempted online SOL testing and later decided to return to the traditional paper/pencil format.

Figure 4

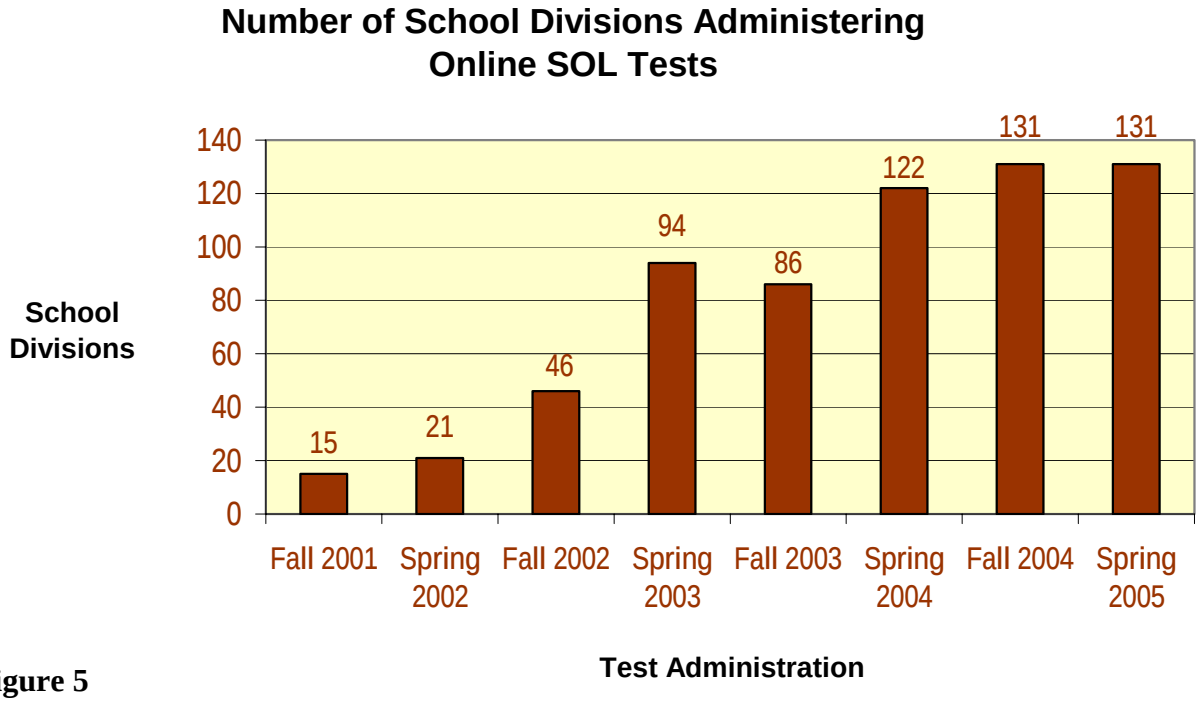
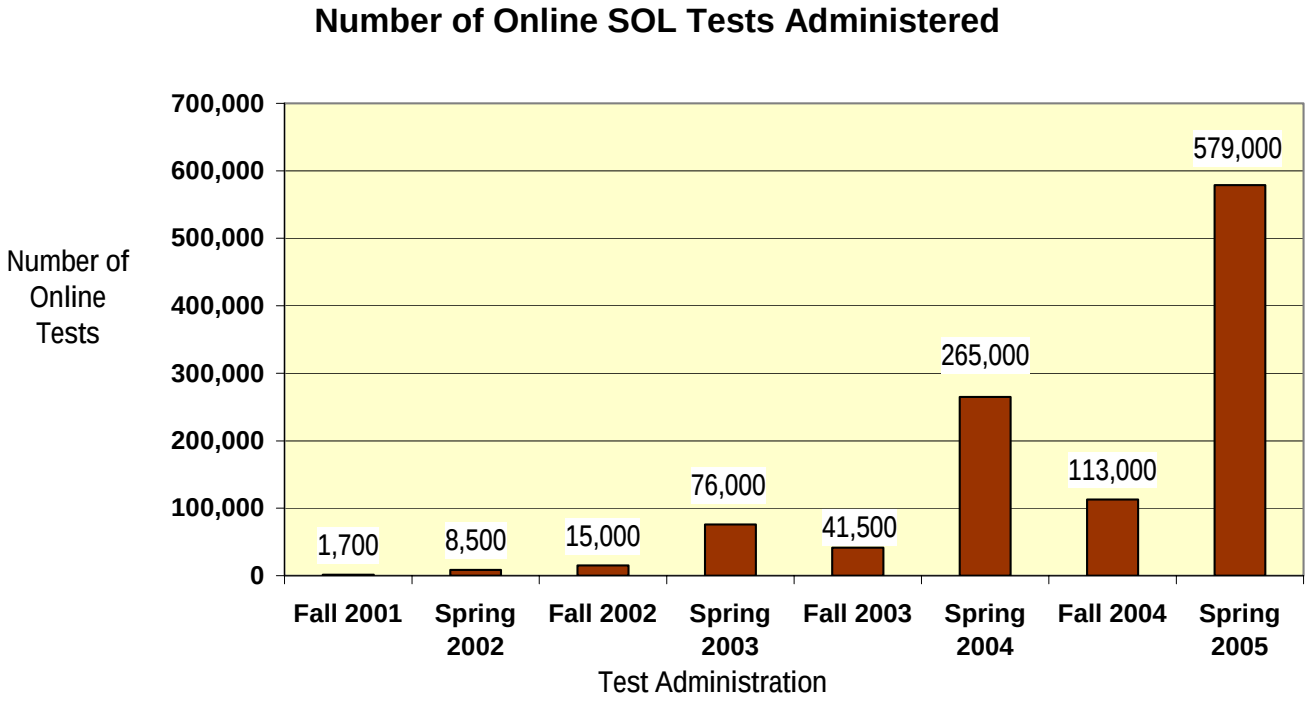


Figure 5



Supporting Online Testing Participants

As the number of divisions participating increased and the volume of online SOL tests being administered increased, the DOE and Pearson Educational Measurement re-evaluated the type of support needed by school divisions. Training in the use of the eMeasurement System and training about online assessment policies and procedures continued to be given high priority. Even the school divisions that previously administered online SOL tests requested to participate in hands-on training sessions offered by the DOE. Over the five years of the Web-based SOL Technology Initiative, additional training for school division personnel has been requested and provided prior to each of the scheduled SOL test administrations (fall, spring, and summer).

Training sessions are conducted by DOE staff regionally throughout the state in various school divisions or community college locations. Each session lasts approximately 3.5 hours and includes a slide presentation followed by an extensive hands-on session where participants use computers and are guided by the trainer and the training workbook. Handouts of the slide presentation and the training workbook are provided to all participants along with an *eMeasurement User's Guide*, an *End-of-Course Web-based Testing Manual* and a comprehensive set of checklists to be accomplished as part of that administration. Other training materials provided by the DOE address various assessment policies and procedures, including documents such as the *Mark Test Complete Guidelines*, *Online Reporting: Getting your Online Test Scores*, and *Online Resources*. All resources, including PowerPoint presentations are available online through the following Web address:
http://etest.ncs.com/Customers/Virginia/vasol/resources.htm

In addition to training sessions for school division assessment staff, the DOE continued to offer a training session specifically for the school division staff responsible for the technical aspects of administering online tests. Training topics in these sessions include hardware and software configurations, bandwidth management, and network configurations. The sessions consist of a slide presentation followed by a brief hands-on session where technology staff members configure workstations for various types of online testing scenarios. The eMeasurement Infrastructure Guidelines and the Proctor Caching Guidelines are provided to participants along with the handouts provided during the assessment training (Training Workbook, *eMeasurement User's Guide*, etc.).

In an attempt to reduce the number of phone calls from school divisions requesting information, the DOE updates all documents for each administration and makes them available to divisions electronically via the Internet. School division personnel, specifically the division director of testing and the director of technology or project manager, are notified of updated information and postings via email sent from a specific DOE email address (esol@doe.virginia.gov).

Increases in the Availability of Online Testing

With the planned growth of the Web-based SOL Technology Initiative, the various tests available online to school divisions continued to increase. By spring 2006,

all middle school tests are to be available online and the activities during the past year will be focused on preparing for that milestone by introducing four tests at the middle school level for the spring 2005 SOL Test Administration. Table 9 indicates the planned 2006 schedule for online test implementation.

Table 9

Standards of Learning Test	Online Implementation Date
Middle School SOL Tests	
Grade 8 Mathematics	Planned for Spring 2006
Grade 8 Reading	Planned for Spring 2006
Grade 7 Mathematics	Planned for Spring 2006
Grade 7 Reading	Planned for Spring 2006
Grade 6 Mathematics	Planned for Spring 2006
Grade 6 Reading	Planned for Spring 2006

In spring 2005 the DOE continued its process of developing new tests to meet the requirements of the federal No Child Left Behind Act (NCLB) mandating that students in grades 3 through 8 be assessed annually in reading and mathematics. For the second year, a field test was conducted in grades 4, 6, and 7 for the newly developed reading and mathematics tests. Expanding on last year's online test offerings during the field test, the DOE made each of the assessments available in the online environment in spring 2005. School divisions could volunteer to administer the field tests online at their middle schools and elementary schools in a no-risk environment while also providing the DOE with valuable field test data for the development of the new reading and mathematics tests.

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Chapter 5
Instructional Software

The intent of the Web-based Standards of Learning Technology Initiative is to use Web-enabled systems to improve instruction, remediation, and testing capabilities in Virginia's schools. One of the objectives of the initiative is to have up-to-date instructional and remedial software applications available for teachers and students.

As part of the Web-based SOL Technology Initiative, the DOE continues to provide a Web page with detailed instructional software reviews written by teachers in Virginia's school divisions. The individuals writing the reviews selected the software titles to be purchased by their school divisions as part of the Web-based SOL Technology Initiative. The software reviews are posted at http://www.pen.k12.va.us/VDOE/Technology/softwarereview.html

During the past year, school divisions continued using the Electronic Practice Assessment Tool (ePAT) as part of the Web-based SOL Technology Initiative. ePAT is a stand-alone version of the TestNav™ application into which Pearson Educational Measurement has loaded previously released SOL test items. The benefits of ePAT are two-fold. First, students are given the opportunity to review subject area content by reviewing and answering previously released SOL test items. The second benefit of the ePAT application is that students experience test items in the same environment in which they will experience taking a live SOL test online. The same tools are available in the application so the look and feel of the test-taking environment in ePAT very closely reflects the characteristics of the live SOL testing environment found in the TestNav application.

The released multiple-choice test items are presented in ePAT, and students are encouraged to select the option they believe best answers each question. When answering the question, the student clicks on a tool bar to open an additional browser window that displays all of the answer choices, indicates the correct answer, and presents text explaining why each of the answers is correct or incorrect. The student then proceeds to the next question.

School divisions also use the application as a remediation tool for students needing to retake a recently failed test. The software has been widely used as one of the remediation tools in Governor Warner's Project Graduation program. The application is a free public download available at http://etest.ncs.com/Customers/Virginia/pat_home.htm

The DOE also provides assistance to school divisions with the procurement of educational software. In collaboration with the WHRO Ed Tech Consortium, the DOE is working with MiCTA Service Corporation (MCS)/American TelEd Communication Alliance (ATAlliance) to obtain reduced pricing on purchases of state Board of Education approved software for remediation and instruction.

Several online workshops are planned for presentation during the 2005-06 school year. The sessions will focus on SOL aligned electronic resources and activities for instruction and remediation.

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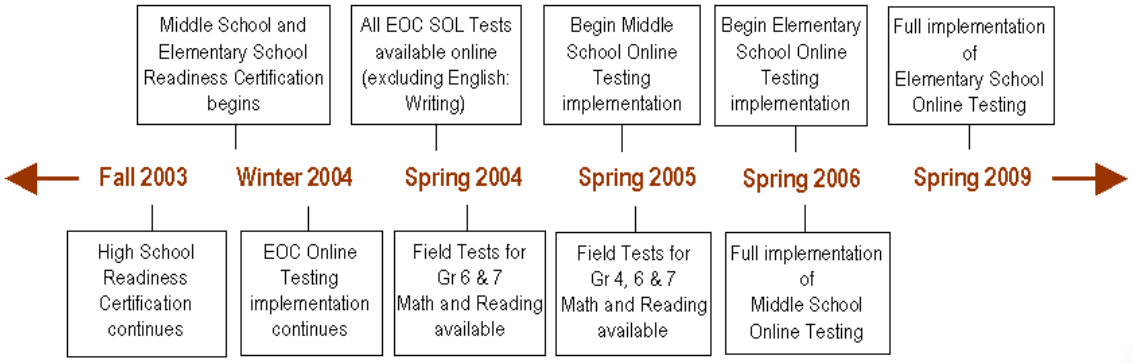
Chapter 6
Future Activities

Implementation of the Web-based SOL Technology Initiative continues to progress as initially planned. Figure 6 below shows a high-level timeline of the initiative through spring 2009.

Figure 6



Spring 2004 was the time frame by which all Virginia high schools were to be capable of conducting online SOL testing and all EOC SOL tests were to be available online. By that time, 100 percent of school divisions had attained their Stage 1 High School Readiness Certification, and 98 percent of divisions had completed their Stage 2 High School Readiness Certification. The 11 EOC SOL tests were available online to school divisions during the spring 2004 test administration.

The next significant milestone of the Web-based SOL Technology Initiative is scheduled to be completed by spring 2006. At that time, all middle schools are to be capable of administering online tests, and all of the middle school tests are to be available online. The DOE offered school divisions their first opportunity to administer live SOL tests at their middle schools in spring 2005 and all middle school SOL tests will be made available for online administration during the spring 2006 test administration.

Members of the Web-based SOL Technology Initiative project team have worked with and will continue to collaborate with project team members responsible for the development and implementation of the Educational Information Management System (EIMS). Joint meetings by the two project teams have benefited both groups in the single effort to establish and deploy standardized data definitions for all student information. The increased awareness between team members of both projects has resulted in a more consistent, unified message being delivered to school divisions by the DOE. As the EIMS project continues including the implementation of unique state testing identifiers, the Web-based SOL Technology Initiative project team will continue to monitor the requirements to insure the testing identifier can be integrated easily into the existing online assessment system. This integration will begin to occur in fall 2005.