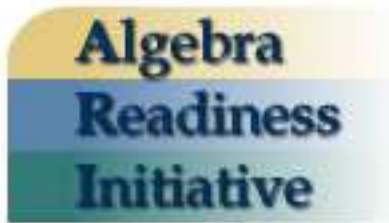




Improving the Transition from Middle Grades to High Schools: Promising State Initiatives in Literacy and Mathematics

April 11, 2008



Virginia's Algebra Readiness Initiative

Dr. Linda Wallinger
Assistant Superintendent for Instruction
Virginia Department of Education
(804) 225-2034

Linda.Wallinger@doe.virginia.gov

<http://www.doe.virginia.gov/VDOE/Instruction/Math/ARI/ari-or.shtml>



Increasing Expectations in Mathematics

- 1997 - Virginia established new graduation requirements for a Standard Diploma that required all students to complete Algebra I or above in mathematics
 - 9th grade class of 1998 (Graduating Class of 2004)
 - Students had to earn at least 3 standard credits in mathematics to earn a Standard Diploma in Virginia
 - Courses had to be at the level of Algebra I or above
 - 9th grade class of 2003-2004 (Graduating Class of 2007)
 - Students had to pass at least 6 prescribed end-of-course assessments, including 1 in mathematics
 - Most students needed to pass the Algebra I end-of-course test to graduate from high school

Purpose of the Algebra Readiness Initiative

- To provide mathematics intervention services
- To students in grades 6, 7, 8 and 9
 - Who are in danger of failing the Algebra I end-of-course test
 - As demonstrated by their individual performance on diagnostic tests that have been approved by the Department of Education

Students Targeted for the Algebra Readiness Initiative

- Students in grades 6 through 9 who:
 - Have been unsuccessful in previous intervention and/or remediation programs; and/or
 - Have had below average performance in the previous year's mathematics program; and/or
 - Did not pass the Standards of Learning mathematics assessment test

Components of the Algebra Readiness Initiative

Diagnostic Testing
Instructional Intervention

Algebra Readiness Diagnostic Test (ARDT)

- Participating school divisions must use a diagnostic test
 - Either the ARDT, which is provided free to localities, or
 - A locally-developed or locally-selected diagnostic test that has been approved by the Department of Education
- Assesses the knowledge and skills of the Mathematics Standards of Learning ranging from grade 3 through grade 8 and Algebra I
- Computer-adaptive test (CAT)
 - The next test item is determined by the student's response to the previous test item
 - Each student taking the CAT test is delivered a unique diagnostic test based upon his individual abilities

Instructional Intervention

- Funding provided to local school divisions
 - To provide locally-determined mathematics intervention services to middle school students who demonstrate mathematics deficiencies, based upon their individual performance on diagnostic tests
 - Based on the state's share of the cost of providing 2 1/2 hours of additional instruction each week at a student-to-teacher ratio of ten to one
- Funding formula determined by the percent of 7th- and 8th-grade students who qualify for federal free lunch
- Localities are required to match funds based upon the composite index of local ability-to-pay

Statewide Participation

- 95% of the school divisions in Virginia participate in the ARI
- Usage of the state-provided diagnostic test (ARDT) has increased from 65% of participating divisions in 2001-2002 to 96% in 2006-2007

Program Success

- The Mathematics Standards of Learning test pass rates:
 - Have shown statewide gains at the targeted grade levels
 - 8th-grade test
 - 2000-2001 (pre-ARI) – 68% passing
 - 2004-2005 – 81% passing
 - Algebra I test
 - 2000-2001 (pre-ARI) – 74% passing
 - 2006-2007 – 92% passing
- New baseline for scores established in 2005-2006
 - Virginia began testing students in mathematics in every grade, 3 through 8, and in high school, as required by the *No Child Left Behind Act of 2001*.
 - Established a baseline for further measuring the success of the Algebra Readiness Initiative

Program Success

- Students with disabilities and black students have shown the greatest gains in the Algebra I end-of-course pass rates
- Since 2001-2002,
 - Students with disabilities - Pass rate has increased by 30 points in Algebra I
 - Black students - Pass rate has increased by 26 points in Algebra I

Program Success

- Since 2001-2002, when the Algebra Readiness Initiative was first implemented, the gains in Algebra I scores have been the third highest in the state for any single end-of-course assessment, with the exceptions of U.S. and Virginia History and Earth Science

Funding for the Algebra Readiness Initiative

- Supported by a state appropriation from the General Assembly
 - First approved for implementation during the second year of the 2001-2002 biennium
- Incentive funding to school divisions to provide instructional intervention
 - FY 02 \$8.9 million
 - FY 03 \$8.9 million
 - FY 04 \$7.5 million
 - FY 05 \$7.3 million
 - FY 06 \$8.4 million
 - FY 07 \$8.2 million
 - FY 08 \$8.2 million
 - FY 09 \$8.9 million (proposed)
- Funding for ARDT contract administration - \$425,000

Algebra I SOL End-of-Course Pass Rates: 2002-2007

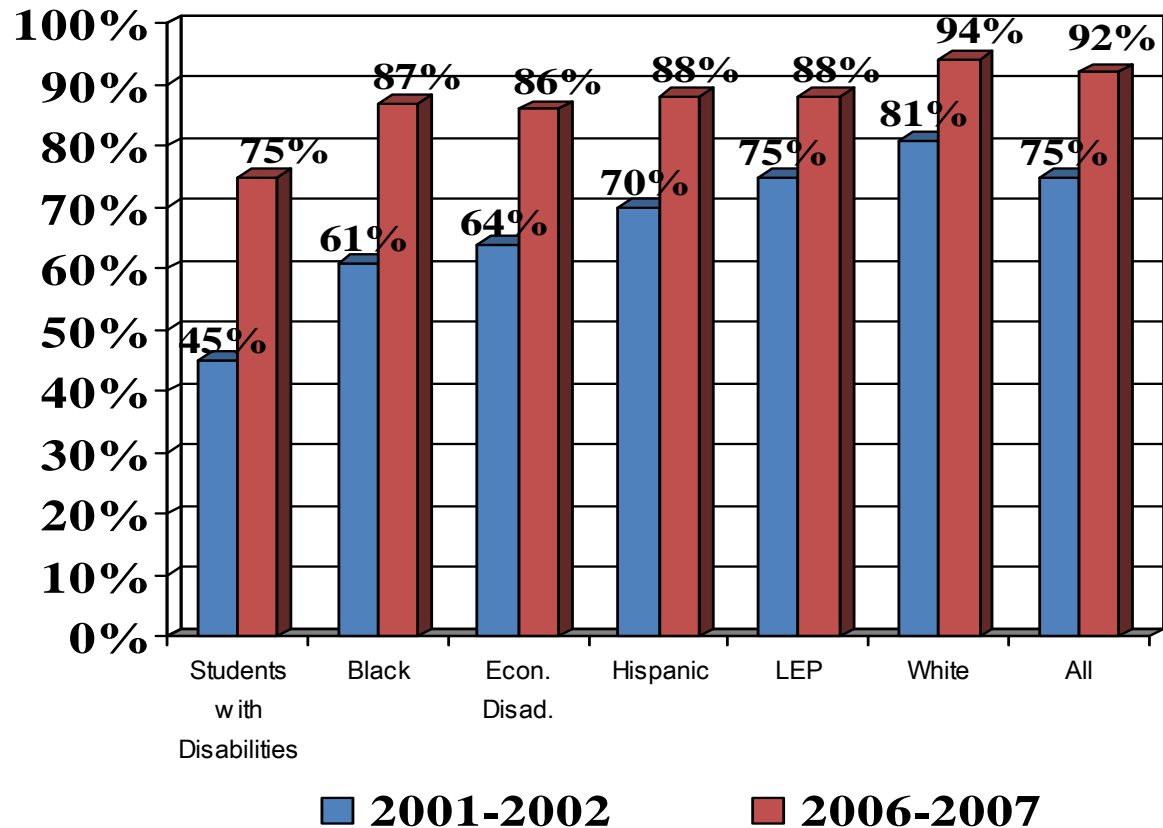
Subgroup	1998	1999	2000	2001	2002 [‡]	2003	2004	2005	2006	2007	Change 2002-2007
All Students	40	56	65	74	75	79	82	86	88	92	+17
Black Students	*	*	*	*	61	66	72	78	81	87	+26
Hispanic Students	*	*	*	*	70	72	73	81	83	88	+18
White Students	*	*	*	*	81	83	86	90	90	94	+13
LEP Students	*	*	*	*	75	74	74	83	84	88	+13
Disadvantaged Students	*	*	*	*	64	69	74	79	81	86	+22
Students with Disabilities	*	*	*	*	45	49	53	63	67	75	+30
Female Students	*	*	*	*	77	81	84	88	89	93	+16
Male Students	*	*	*	*	74	77	80	84	86	90	+16

*Disaggregated data were not available until 2002

‡First year of funding for ARI

Algebra I SOL End-of-Course Pass Rates: 2002-2007

Algebra I Performance by Subgroup



Additional Need for Mathematics Intervention in Middle School

- 2005-2006
 - Mathematics assessment began in *all grades*, 3 through 8
 - Performance in Grades 6 and 7 was noticeably low

	2003-2004	2004-2005	2005-2006	2006-2007
Grade 6	*	*	51	60
Grade 7	*	*	44	56
Grade 8*	80	81	76	77

* The Grade 8 test was a cumulative test for grades 6 through 8 until 2005-2006. Testing in Grades 6 and 7 did not begin until 2005-2006.

Program and Policy Impact

- The Algebra Readiness Initiative has provided support for:
 - Virginia's focus on improving graduation rates and reducing dropout rates
 - Preparation for Virginia students in STEM education
 - A requirement that all middle schools offer Algebra I
 - Project Graduation, a program that supports students who still need verified credits to graduate
 - Increased graduation requirements in mathematics
 - A new high school course called *Algebra, Functions, and Data Analysis* that serves as a transition course to help more students take and succeed in Algebra II
 - More students pursuing higher levels of mathematics, thus enabling them to earn an Advanced Studies Diploma, designation as a Commonwealth Scholar, and entry into postsecondary studies