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# Analysis of Christina School District's 2003 DSTP Performance

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**FOOD  
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## **Abstract**

This report summarizes the performance of the Christina School District (CSD) on the 2003 Delaware State Testing Program (DSTP). The 2003 test data represent the final set of results attributable to CSD's former leadership team, which was replaced in July of 2003. The DSTP tests all public school 3<sup>rd</sup>, 5<sup>th</sup>, 8<sup>th</sup> and 10<sup>th</sup> graders in three areas: reading, math and writing. Despite its adequate resources, CSD has generally lagged behind most other school districts in Delaware in student DSTP performance. There is a persistent drop-off in student performance between 3<sup>rd</sup> and 5<sup>th</sup> grades, due in part to a significant exodus of high-performing 5<sup>th</sup> grade students to non-CSD schools, and there is little or no recovery in student performance levels between the 5<sup>th</sup> and 10<sup>th</sup> grade tests. The 2003 results identify schools and curriculum areas in particular need of improvement.

## 2003 Analysis of Christina School District's DSTP Performance

### Introduction

This report summarizes trends and comparisons of Delaware State Testing Program (DSTP) scores for the Christina School District (CSD) versus other Delaware school districts.

Every spring, the DSTP administers tests in reading, mathematics and writing to all 3<sup>rd</sup>, 5<sup>th</sup>, 8<sup>th</sup> and 10<sup>th</sup> graders in public schools in Delaware. This report analyzes CSD's overall performance on the DSTP, and compares CSD's recent test results against results from Delaware's other public school districts. The data used in this analysis were obtained from the Delaware's State Board of Education (BOE) website (<http://www.doe.state.de.us>) or from CSD reports. The DSTP score data can be downloaded in spreadsheet form from <http://dstp.doe.state.de.us/DSTPmart/default.asp>. As of July 2003, CSD has a new superintendent and leadership team. The 2003 data represent the final set of results attributable to the former leadership team.

### District Profile

CSD is widely perceived to have a large proportion of minority (African-American and/or Hispanic) students, and a large proportion of students from low-income households. In fact, CSD's minority and low-income profiles are more or less in line with the rest of the county. In 2001, CSD's student population was 35.4% African-American versus 41.1% in Colonial, 36.0% in Brandywine, 29.4% in Red Clay and 33.9% in all public schools county-wide. CSD was 7.9% Hispanic versus 14.0% in Red Clay, 8.8% in Colonial, 2.7% in Brandywine and 7.8% in all public schools countywide.

CSD's student population is 35.6% low-income (defined as eligible for free or reduced-price lunches) versus 34.0% low-income statewide; 7 of the 18 other school districts in Delaware have higher proportions of students from low-income households

CSD is well supported by a strong tax base. CSD's spends more per pupil (\$8,632 in 2002-2003) than any other K-12 districts in DE except Brandywine, Cape Henlopen and Red Clay. Its average teacher salary (\$50,509 in 2000-2001) is second highest in the state. Its K-12 student-to-teacher ratio (14.8 in 2002) is one of the best in the state: only Indian River, Brandywine and Cape Henlopen have lower student-to-teacher ratios. The University of Delaware is located in the suburban center of CSD, providing supervised student teachers; excellent pedagogy, counseling and child development resources; and diverse cultural opportunities enjoyed by CSD students. With all of these advantages, CSD has the potential to be the top-performing school district in Delaware.

Unfortunately, there is a continuing exodus of students from CSD schools to private, parochial and charter schools, and to home schooling. This exodus is due in large part to negative public perceptions of CSD schools, and these perceptions are reinforced by the district's mediocre performances on the DSTP.

CSD is Delaware's largest public school system. Although population within the District's geographic boundaries continues to grow CSD has had declining overall enrollments since 1999:

<u>Year</u>	<u>Sept. 30 Student Count</u>
1999	20,403
2000	19,824
2001	19,708
2002	19,563
2003	19,410

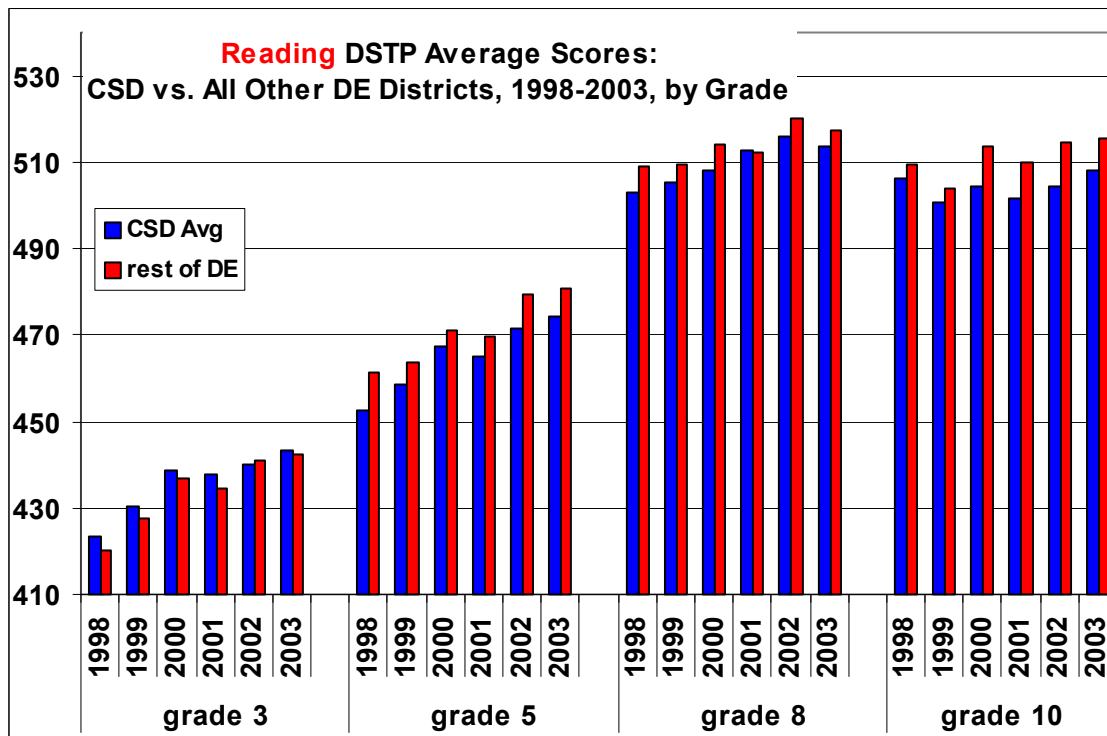
This enrollment decline represents a loss of market share to several alternative education options. The Newark Charter School opened in 2001, now has about 640 students enrolled in grades 5 through 8, and turns away hundreds of additional applicants each year. An additional 600+ students attend other public charter schools outside CSD boundaries (Wilmington Charter, Cab Calloway, etc.). A larger but unknown number attend Catholic Diocese of Wilmington schools or other parochial schools. A large number attend private schools. And over 50 students residing within district boundaries are home-schooled. Overall, about 28 percent of students residing within CSD boundaries attend non-CSD schools.

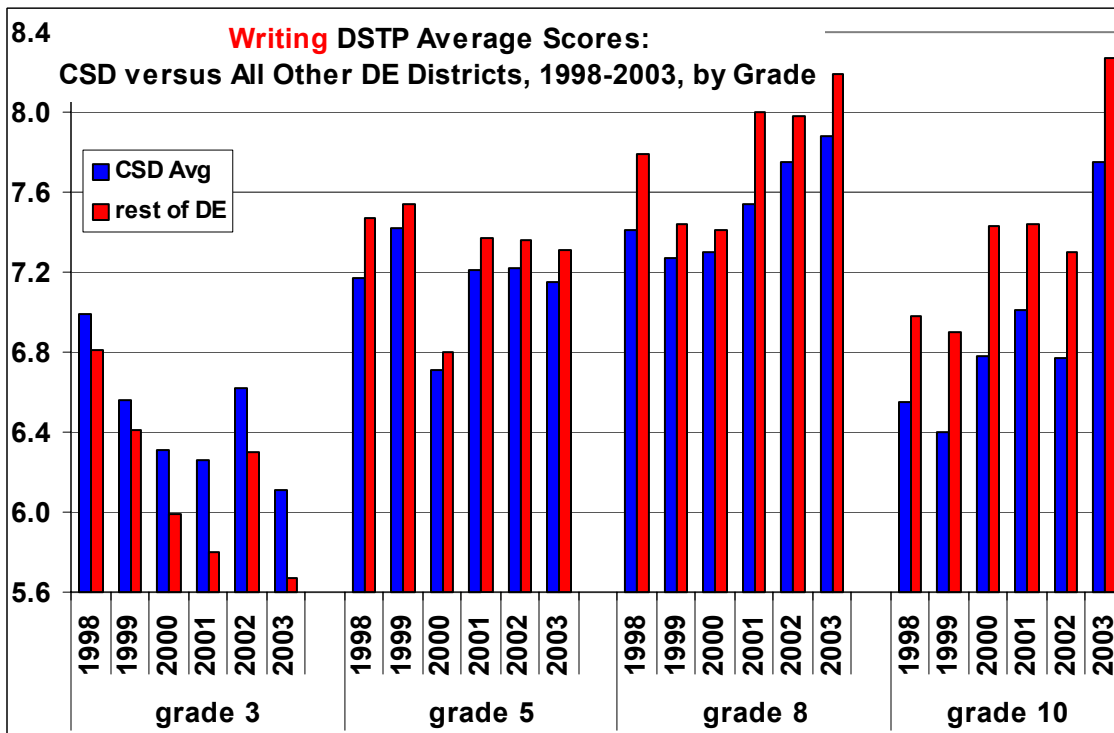
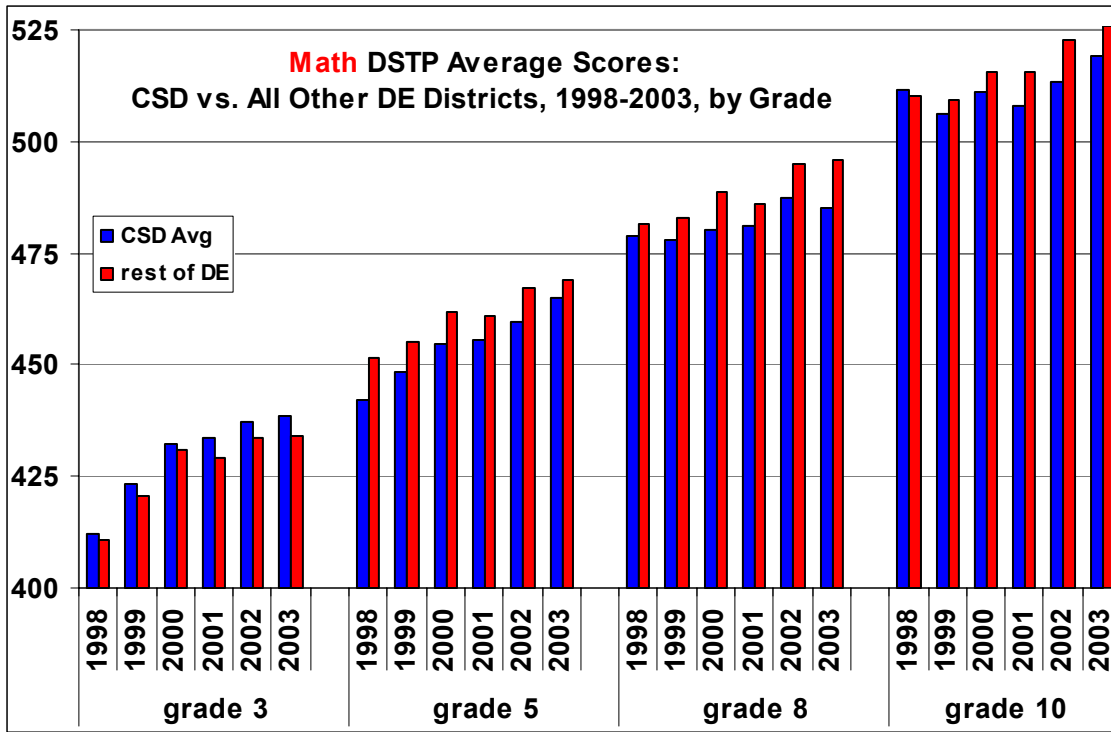
**Trends in DSTP scores**

Since the initiation of the DSTP in 1998, average scores statewide have been trending upward, particularly in reading and math. This sort of score inflation is to be expected as Delaware’s school systems get accustomed to the DSTP, adopt the writing rubric, teach students to include full explanations for their answers on math tests, etc.

Trends in CSD’s raw average scores over time are less informative than how CSD’s scores rise or fall relative to other Delaware public school students. The former CSD administration’s 2002 DSTP analysis focused on selected individual schools where raw average scores went up or performance gaps went down, and failed to acknowledge that CSD’s overall test results were disappointing. In fact, the charts below show that after 3<sup>rd</sup> grade, CSD students persistently lag behind other DE public school students on all three components of the DSTP. The CSD Board of Education brought in new administrative leadership in July 2003 to focus more directly on student performance.

The following charts show how CSD’s drop-off in DSTP performance between 3<sup>rd</sup> and 5<sup>th</sup> grades in all three tests has persisted over six years of DSTP testing.





### Spring 2003 DSTP Scores—Comparison of CSD against all of Delaware

Table 1 compares average DSTP test results of CSD students against the average test results of all public school students in Delaware. The first pair of data columns compare average CSD scores for 3<sup>rd</sup>, 5<sup>th</sup>, 8<sup>th</sup> and 10<sup>th</sup> grade reading, math, and writing against average scores statewide. The next pair of data columns compare the percentages of CSD students who failed to meet the state standard (Performance Level 3 or better) on the DSTP versus percentages of all Delaware students who failed to meet these standards.

The data demonstrate a drop-off in performance of CSD students between grades 3 and 5 that has persisted for several years: CSD's average 2003 DSTP scores are *above* state averages in all three subjects for grade 3, while CSD's average 2003 DSTP scores are *below* state averages in all three subjects for grades 5, 8 and 10. Consistent with this, CSD has significantly higher proportions of 5<sup>th</sup>, 8<sup>th</sup> and 10<sup>th</sup> graders failing to meet state standards (Performance Level 3) in all subjects.

Table 1: **Spring 2003 DSTP: CSD vs. DE averages and failure rates**

<u>Test</u>	<u>Grade</u>	2003		2003	
		<u>DE avg</u>	<u>DE %&lt;std</u>	<u>CSD avg</u>	<u>CSD%&lt;std</u>
reading	3	442.49	20.7	443.51	19.33
reading	5	479.73	21.51	<b>474.37</b>	<b>26.13</b>
reading	8	516.83	30.21	<b>513.53</b>	<b>34.28</b>
reading	10	514.33	33.39	<b>507.97</b>	<b>38.34</b>
math	3	434.79	26.4	438.45	24.59
math	5	468.43	29.01	<b>464.98</b>	<b>32.28</b>
math	8	493.98	52.82	<b>484.99</b>	<b>64.3</b>
math	10	524.99	54.79	<b>519.33</b>	<b>59.29</b>
writing	3	5.75	60.87	6.11	53.03
writing	5	7.28	40.01	<b>7.15</b>	<b>42.19</b>
writing	8	8.14	22.25	<b>7.88</b>	<b>28.61</b>
writing	10	8.20	27.48	<b>7.75</b>	<b>35.91</b>

Table 2 shows how CSD's average DSTP scores ranked among the average scores of all public school districts in Delaware in 1998 (the first year of the DSTP), 2002 and 2003.

In 1998 CSD's average DSTP scores ranked at or above the median in 5 of 12 test categories. In 2002 CSD's average aggregate ranking was the lowest since the inception of the DSTP. In 2003 CSD showed improvements in grades 3, 5 and 8, although the district's average scores still rank below the median on all 5<sup>th</sup>, 8<sup>th</sup> and 10<sup>th</sup> grade tests.

Table 2: **How CSD's Average DSTP Scores Rank Among DE School Districts, 1998, 2002 and 2003**

<u>grade</u>	<u>test</u>	2003		
		<u>1998 CSD rank</u>	<u>2002 CSD rank</u>	<u>CSD rank</u>
3	reading	6/15	<b>10/15</b>	7/15
3	math	<b>9/15</b>	<b>9/15</b>	7/15
3	writing	7/15	5/15	2/15
5	reading	<b>13/15</b>	<b>12/15</b>	<b>12/15</b>
5	math	<b>13/15</b>	<b>12/15</b>	<b>9/15</b>
5	writing	<b>15/15</b>	<b>9/15</b>	<b>9/15</b>
8	reading	<b>13/16</b>	<b>12/16</b>	<b>9/15</b>
8	math	8/16	<b>11/16</b>	<b>12/16</b>
8	writing	<b>13/16</b>	<b>14/16</b>	<b>11/15</b>
10	reading	10/19	<b>15/19</b>	<b>16/19</b>
10	math	7/19	<b>14/19</b>	<b>15/19</b>
10	writing	<b>15/19</b>	<b>16/19</b>	<b>16/19</b>

## Tracking DSTP Performances of Student Cohorts Over Time

Delaware's student ID system allows the Department of Education to track the performances of individual students and student cohorts on successive tests over time. The DSTP reports student performance levels (PL) for each test using a 1-to-5 scale. Table 3 shows percentages of students whose 2003 performance levels decreased or increased by one level or more from their prior performance level (in 2000 or 2001) in the same subject area. The matched performances of CSD students are compared against matched performances of all Delaware public school students at the same grade levels.

In 2003, over 2- or 3-year testing intervals, CSD students had higher-than-average rates of performance decline in 4 of 9 categories, and lower-than-average rates of performance improvement in 5 of 9 categories, when compared to all DE public school students. In 2002, CSD students had higher-than-average rates of performance decline in 6 of 9 categories, and lower-than-average rates of performance improvement in 6 of 9 categories.

Table 3: **Spring 2003 Performance Levels matched against students' prior PL's**

<u>MATCHED SCORES</u>	<u>SUBJECT</u>	<u>% with PL DECREASE</u>		<u>% with PL INCREASE</u>	
		<u>DE-%decr</u>	<u>CSD-%decr</u>	<u>DE-%incr</u>	<u>CSD-%incr</u>
2003 5th vs. 2001 3 <sup>rd</sup>	reading	20.8	<b>22.2</b>	23.5	<b>18.1</b>
2003 5th vs. 2001 3 <sup>rd</sup>	math	22.4	20.9	19.4	<b>18.7</b>
2003 5th vs. 2001 3 <sup>rd</sup>	writing	8.4	<b>9.3</b>	44.9	<b>37.3</b>
2003 8th vs. 2000 5 <sup>th</sup>	reading	24.3	21.5	17.4	20.0
2003 8th vs. 2000 5 <sup>th</sup>	math	26.7	<b>30.4</b>	21.3	<b>16.0</b>
2003 8th vs. 2000 5 <sup>th</sup>	writing	2.4	2.2	66.9	68.9
2003 10th vs. 2001 8 <sup>th</sup>	reading	20.9	<b>27.4</b>	11.2	<b>8.3</b>
2003 10th vs. 2001 8 <sup>th</sup>	math	18.1	15.1	26.9	29.4
2003 10th vs. 2001 8 <sup>th</sup>	writing	13.0	12.9	32.4	33.5

## Racial/Ethnic Performance Gaps

Statewide, average DSTP scores for African-American and Hispanic students are typically lower than the average scores of white and non-Hispanic students. Delaware and CSD have placed particular emphasis on closing the performance gaps between its minority and economically disadvantaged students and its other students.

Table 4 breaks out DSTP mean scores for African-American, Hispanic and white students, and compares the performance gaps of African-American students and Hispanic students versus white students for CSD and statewide. These data largely mirror CSD's overall DSTP performance. Mean scores for CSD 5<sup>th</sup>, 8<sup>th</sup> and 10<sup>th</sup> graders are lower than state averages for all tests across all racial/ethnic categories with only two exceptions: 8<sup>th</sup>-grade African-Americans in reading and 5<sup>th</sup>-grade whites in math.

Although performance gaps typically vary from year to year, CSD's racial-ethnic performance gaps remain consistent with statewide performance gaps. In 2003, CSD had smaller-than-average performance gaps in 12 of 24 categories.

On the 3<sup>rd</sup> grade tests, CSD's African-American students perform relatively worse than other African-American public school students in Delaware in all test categories, which Hispanic students perform relatively better than other Hispanic students in Delaware in all test categories.

**Table 4: 2003 Performance Gaps of Minorities, CSD versus DE, by Test and Grade**

Test	Grade	Category	DE_N	%students	CSD_N	%students	DE_avg	CSD_avg	DE_gap	CSD_gap
reading	3	All	8,229	100.0%	1,552	100.0%	442.49	443.51		
reading	3	Afr-Am	2,757	33.5%	572	36.89%	424.91	426.01	-28.01	<b>-29.41</b>
reading	3	Hispanic	538	6.5%	111	7.2%	432.71	437.32	-20.21	-18.19
reading	3	White	4,691	57.0%	802	51.7%	452.92	455.51		
reading	5	All	8,257	100.0%	1,347	100.0%	479.73	<b>474.37</b>		
reading	5	Afr-Am	2,727	33.0%	551	40.9%	463.42	<b>461.10</b>	-26.05	-25.41
reading	5	Hispanic	497	6.0%	112	8.3%	466.24	<b>465.74</b>	-23.23	-20.77
reading	5	White	4,799	58.1%	639	47.4%	489.47	<b>486.51</b>		
reading	8	All	9,118	100.0%	1,479	100.0%	516.83	<b>513.53</b>		
reading	8	Afr-Am	2,888	31.7%	557	37.7%	501.77	504.13	-23.59	-18.38
reading	8	Hispanic	533	5.9%	145	9.8%	501.87	<b>493.06</b>	-23.49	<b>-29.45</b>
reading	8	White	5,465	59.9%	719	48.6%	525.36	<b>522.51</b>		
reading	10	All	7,526	100.0%	978	100.0%	514.33	<b>507.97</b>		
reading	10	Afr-Am	2,151	28.6%	337	34.5%	495.81	<b>493.83</b>	-27.43	-25.89
reading	10	Hispanic	326	4.3%	72	7.4%	493.65	<b>478.54</b>	-29.59	<b>-41.18</b>
reading	10	White	4,807	63.9%	526	53.8%	523.24	<b>519.72</b>		
math	3	All	8,818	100.0%	1,639	100.0%	434.79	438.45		
math	3	Afr-Am	2,983	33.8%	608	37.1%	413.66	415.84	-33.28	<b>-36.87</b>
math	3	Hispanic	618	7.0%	123	7.5%	425.29	432.31	-21.65	-20.4
math	3	White	4,969	56.4%	840	51.3%	446.94	452.71		
math	5	All	8,765	100.0%	1,422	100.0%	468.43	<b>464.98</b>		
math	5	Afr-Am	2,961	33.8%	590	41.5%	449.24	<b>447.77</b>	-30.31	<b>-32.53</b>
math	5	Hispanic	557	6.4%	122	8.6%	457.67	<b>455.66</b>	-21.88	<b>-24.64</b>
math	5	White	5,009	57.1%	665	46.8%	479.55	480.30		
math	8	All	9,468	100.0%	1,524	100.0%	493.98	<b>484.99</b>		
math	8	Afr-Am	3,028	32.0%	585	38.4%	474.86	<b>471.01</b>	-29.27	-24.22
math	8	Hispanic	554	5.9%	148	9.7%	480.38	<b>472.84</b>	-23.75	-22.39
math	8	White	5,649	59.7%	733	48.1%	504.13	<b>495.23</b>		
math	10	All	7,571	100.0%	980	100.0%	524.99	<b>519.33</b>		
math	10	Afr-Am	2,164	28.6%	339	34.6%	502.39	<b>498.17</b>	-32.32	<b>-34.52</b>
math	10	Hispanic	332	4.4%	71	7.2%	506.10	<b>500.75</b>	-28.61	<b>-31.94</b>
math	10	White	4,834	63.8%	528	53.9%	534.71	<b>532.69</b>		
writing	3	All	8,776	100.0%	1,633	100.0%	5.75	6.11		
writing	3	Afr-Am	2,964	33.8%	605	37.0%	5.30	5.67	-0.70	<b>-0.72</b>
writing	3	Hispanic	606	6.9%	121	7.4%	5.39	5.79	-0.61	-0.60
writing	3	White	4,960	56.5%	840	51.4%	6.00	6.39		
writing	5	All	8,761	100.0%	1,422	100.0%	7.28	<b>7.15</b>		
writing	5	Afr-Am	2,963	33.8%	591	41.6%	6.81	<b>6.78</b>	-0.76	-0.73
writing	5	Hispanic	555	6.3%	122	8.6%	6.83	<b>6.79</b>	-0.74	-0.72
writing	5	White	5,007	57.2%	664	46.7%	7.57	<b>7.51</b>		
writing	8	All	9,444	100.0%	1,517	100.0%	8.14	<b>7.88</b>		
writing	8	Afr-Am	3,017	31.9%	582	38.4%	7.64	<b>7.53</b>	-0.78	-0.68
writing	8	Hispanic	549	5.8%	146	9.6%	7.61	<b>7.12</b>	-0.81	<b>-1.09</b>
writing	8	White	5,645	59.8%	732	48.3%	8.42	<b>8.21</b>		
writing	10	All	7,619	100.0%	997	100.0%	8.20	<b>7.75</b>		
writing	10	Afr-Am	2,188	28.7%	348	34.9%	7.57	<b>7.14</b>	-0.91	<b>-1.06</b>
writing	10	Hispanic	336	4.4%	73	7.3%	7.51	<b>6.66</b>	-0.97	<b>-1.54</b>
writing	10	White	4,853	63.7%	533	53.5%	8.48	<b>8.20</b>		

CSD’s 5<sup>th</sup>, 8<sup>th</sup> and 10<sup>th</sup> grade African-American students perform relatively better than other African-American students in Delaware in reading. Between 5<sup>th</sup> and 10<sup>th</sup> grades, the relative reading performance of CSD’s Hispanic students versus other Hispanic students in Delaware gets substantially worse.



On the math tests, CSD 5<sup>th</sup> grade and 10<sup>th</sup> grade African-American and Hispanic students have larger-than average performance gaps, although in 8<sup>th</sup> grade they have smaller-than-average performance gaps.

Between 5<sup>th</sup> and 10<sup>th</sup> grades, the relative writing performances of African-American and Hispanic students both deteriorate relative to writing performances of other African-American and Hispanic students.

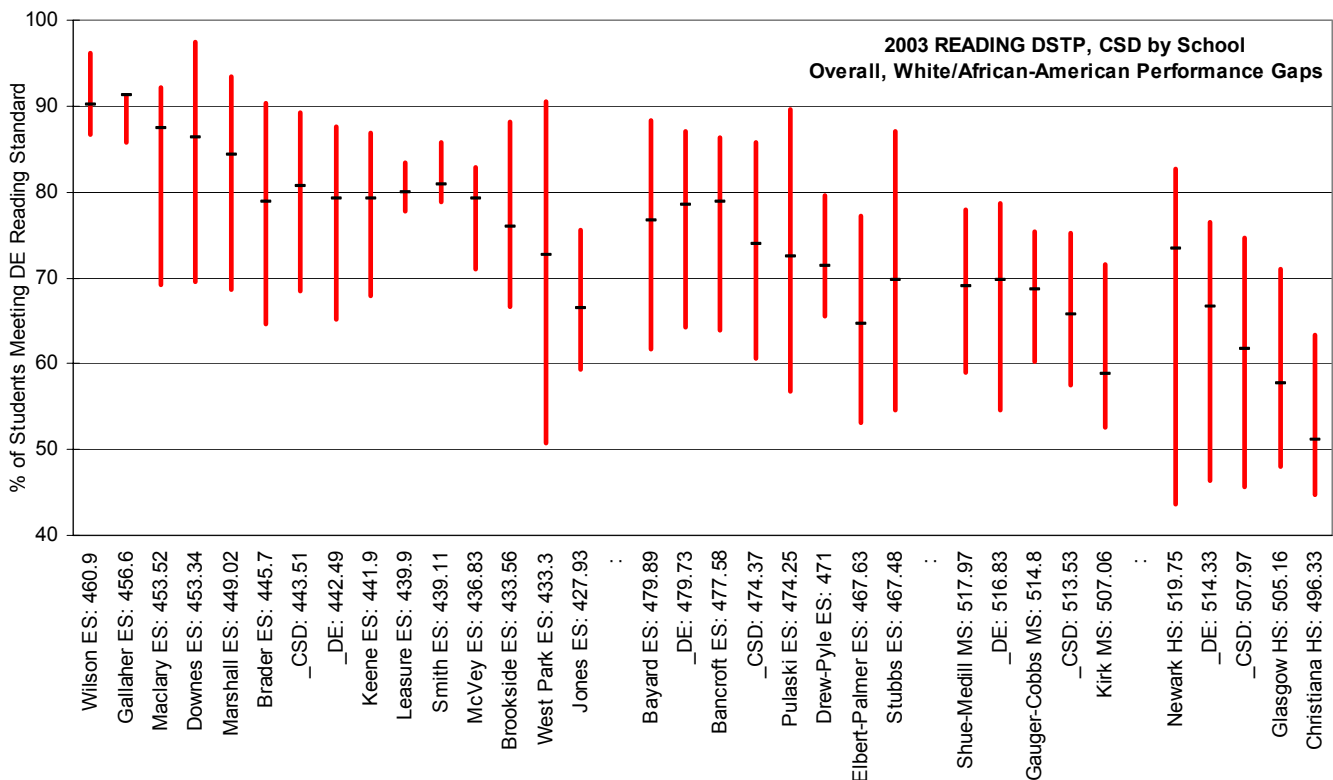
### 2003 DSTP Performances of Individual Schools

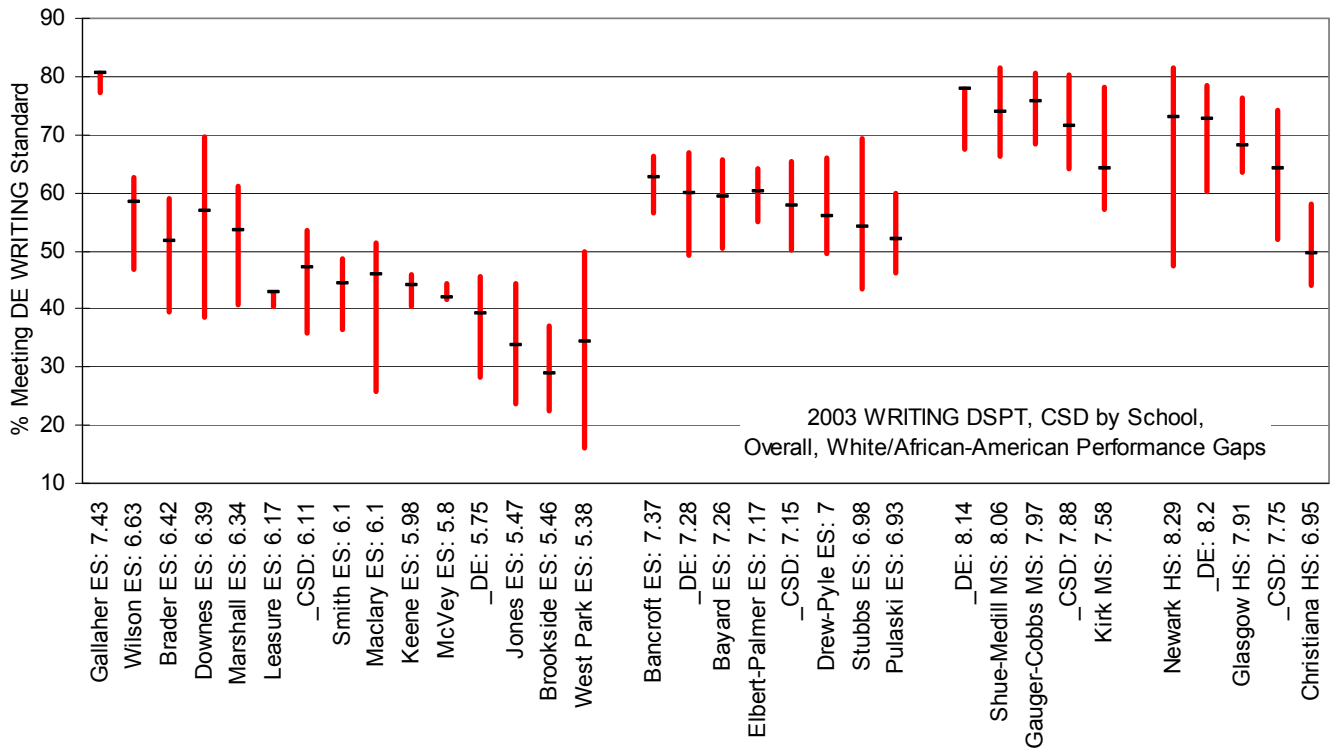
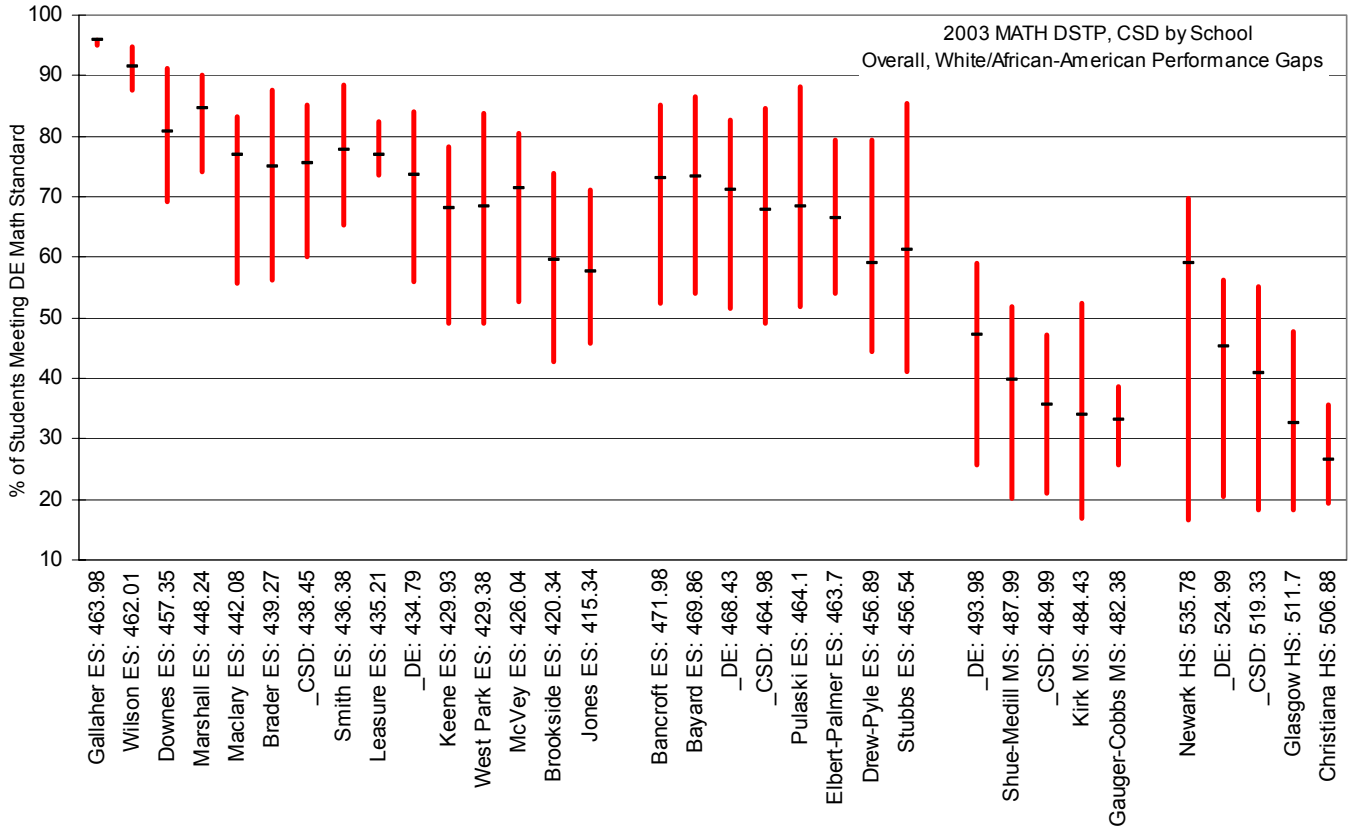
The following three charts compare overall 2003 DSTP performances and racial gaps for each of CSD’s schools against district-wide and statewide averages. Schools are sorted within grade by mean score.

The vertical bars show the gaps between the percent of white students meeting state standards (top) and the percent of African-American students meeting state standards (bottom). The tick mark in the middle of each bar shows the overall percentage of students meeting state standards at each school.

At the 3<sup>rd</sup> grade level, Gallaher and Wilson are CSD’s top-performing elementary schools, with notably low performance gaps for African-American students. Brookside, Jones, McVey and West Park are ranked consistently low, with Jones having the lowest percentages of students meeting state reading and math standards, and West Park having the largest performance gaps between white and African-American students meeting state standards.

At the 5<sup>th</sup> grade level, Bancroft’s and Bayard’s mean scores and performance gaps generally match overall Delaware averages. Drew-Pyle, Stubbs and Pulaski have lower-than-average percentages of students meeting state standards on all three tests. Stubbs has the largest performance gaps between white and African-American Students in both math and writing.





At the 8<sup>th</sup> grade level, CSD's three middle school generally have sub-average mean scores on all three tests. They all have sub-average proportions of students meeting state standards on the three tests. Their performance gaps are all smaller than average in reading and larger than average in writing.

At the 10<sup>th</sup> grade level, Newark High School has the best test performances, but also the largest performance gaps between white and African-American students. In fact, Newark's African-American 10<sup>th</sup>-graders performed worse as a group than Glasgow's or Christiana's African-American 10<sup>th</sup>-graders. Glasgow has significantly lower overall performance, but a better-than-average proportion of African-American students meeting state standards in reading and writing. Christiana's narrower performance gaps are largely attributable to poor overall performance by both white and African-American students.

### **Statewide Rankings of CSD's High Schools**

CSD's three high schools continue to be a focus of particular concern. In 2002, of 28 tested high schools in Delaware, Newark ranked 15<sup>th</sup> in reading, 14<sup>th</sup> in math and 19<sup>th</sup> in writing. Glasgow ranked 27<sup>th</sup> in reading, 25<sup>th</sup> in math and 25<sup>th</sup> in writing. Christiana ranked 26<sup>th</sup> in reading, 26<sup>th</sup> in math and 26<sup>th</sup> in writing. In short, Glasgow's and Christiana's DSTP performances ranked among the worst in the state.

The 2003 test results show significant improvements for Newark High School, little or no improvement for Glasgow High School, and a further decline for Christiana High School. Of 31 tested high schools in Delaware, Newark ranked 8<sup>th</sup> in reading, 5<sup>th</sup> in math and 12<sup>th</sup> in writing. Glasgow ranked 27<sup>th</sup> in reading, 26<sup>th</sup> in math and 22<sup>nd</sup> in writing. Christiana ranked 31<sup>st</sup> (dead last) in reading, 28<sup>th</sup> in math and 31<sup>st</sup> (dead last) in writing.

### **Conclusions**

CSD has solid financial resources, a fairly typical socioeconomic profile for northern Delaware, a low student-to-teacher ratio, competitive teacher salaries, top-notch teaching talent, and excellent community support as evidenced by the large majority vote in favor of its last referenda. CSD has the potential to be the best school district in Delaware. So why isn't CSD doing better?

These results identify specific areas of concern: Why is CSD student performance falling so sharply after 3<sup>rd</sup> grade? The drop-off in 5<sup>th</sup> grade scores may be explained in part by the exodus of many high-performing 5<sup>th</sup> graders to Newark Charter School and other non-CSD schools. Some of this exodus reflects opposition to the continued busing of all of CSD's Newark 5<sup>th</sup> and 6<sup>th</sup> graders to Wilmington—a remnant of the desegregation order lifted five years ago. A related concern is the general lack of improvement in student performance between 5<sup>th</sup> and 8<sup>th</sup> grade, or between 8<sup>th</sup> and 10<sup>th</sup> grade.

Why isn't CSD doing better at closing overall performance gaps within the district? The data show large variations in performance gaps across schools, but the striking successes of Gallaher and Wilson elementary schools proves indicates that minority gaps can be narrowed substantially to improve overall test scores. CSD has already taken steps to strengthen family and community support of our schools, particularly in the district's minority community.

Why are Glasgow and Christiana High Schools faring so poorly compared to other high schools in Delaware? There are no obvious answers to this question. Part of the problem reflects simple momentum: underperforming 8<sup>th</sup> graders tend to become underperforming 10<sup>th</sup> graders. These schools are under intense scrutiny, and the CSD's current reforms (switch to A-B block scheduling, expansion of AP courses, etc.) are expected to improve their performances dramatically.

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Environmental and Resource Economics	Price and Demand Analysis
Food and Agribusiness Management	Rural and Community Development
Food and Fiber Marketing	Statistical Analysis and Research Methods
International Agricultural Trade	

The department's research in these areas is part of the organized research program of the Delaware Agricultural Experiment Station, College of Agriculture and Natural Resources. Much of the research is in cooperation with industry partners, other state research stations, the USDA, and other State and Federal agencies. The combination of teaching, research, and service provides an efficient, effective, and productive use of resources invested in higher education and service to the public. Emphasis in research is on solving practical problems important to various segments of the economy.

The department's coordinated teaching, research, and service program provides professional training careers in a wide variety of occupations in the food and agribusiness industry, financial institutions, and government service. Departmental course work is supplemented by courses in other disciplines, particularly in the College of Agriculture and Natural Resources and the College of Business and Economics. Academic programs lead to degrees at two levels: Bachelor of Science and Masters of Science. Course work in all curricula provides knowledge of tools and techniques useful for decision-making. Emphasis in the undergraduate program centers on developing the student's managerial ability through three different areas, Food and Agricultural Business Management, Natural Resource Management, and Agricultural Economics. The graduate program builds on the undergraduate background, strengthening basic knowledge and adding more sophisticated analytical skills and business capabilities. The department also cooperates in the offering of an MS and Ph.D. degrees in the interdisciplinary Operations Research Program. In addition, a Ph.D. degree is offered in cooperation with the Department of Economics.

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