

Luzerne County Science PSSAs

2009 Results

March 2010

The Institute for Public Policy & Economic Development

The **INSTITUTE** for

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*A partnership among Keystone College, King's College, Luzerne County Community College,
Marywood University, Misericordia University, Penn State Wilkes-Barre, The Commonwealth Medical College,
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Introduction:

The purpose of the School Assessment Report (SAR) is to provide educators, administrators, parents, business and industry, and civic leaders with information regarding student proficiencies in the public K-12 school system – the same system that trains our future workforce. Since local and regional economies are dependent upon the strength of the workforce, K-12 education is a strong economic development tool. To guarantee an adequate future workforce, within the next several years (through 2014), the Commonwealth of Pennsylvania must ensure that each child is proficient in reading, mathematics, and the sciences – a goal that coincides with the Federal No Child Left Behind Act (NCLB). Moreover, parents, guardians and educators can mutually assist in student proficiency improvements if they take the necessary actions to help students learn and advance their skills.

The SAR measures and analyzes Pennsylvania System of School Assessment (PSSA) statistics from 2007 to 2009. Fourth, eighth, and eleventh grade student proficiencies are evaluated across Luzerne County, and are compared with state and county averages. While the PSSA is broken down into four sections of proficiency – reading, writing, mathematics and science, this SAR specifically examines science proficiencies. The 2008-2009 school year marks the second year that Pennsylvania formally assessed science proficiencies. As such, the Pennsylvania Department of Education administered the science portion of the PSSA on a pilot basis only, seeking feedback that would allow it to revise the exam that will become part of next year's regular statewide test. According to the Pennsylvania Department of Education, the science exam attempts to move beyond the testing of facts and superficial knowledge, a trend that has dominated U.S. science education for decades, towards assessment of student abilities to engage in critical thinking and make accurate, evidence-based predictions.

Report Methodology

This SAR is designed to summarize the performance and monitor the progress of Luzerne County public schools with regard to science assessment. In doing so, this report also aims to identify Luzerne County's strengths, as well as areas that require timely improvement. As this was the first year of science testing, the state viewed the assessment largely as a pilot study aimed at gathering data and making corrections for subsequent, full-scale testing in the following year. Given its pilot status, the state focused only on a smaller population – specifically, students in grades four, eight and eleven. As such, the statistics and comparisons reported herein are reflective of the smaller group's grades only and do not necessarily reflect the knowledge and skills of the county's entire public school population.

PSSA scores, which serve as the foundation of the report, are found on the Pennsylvania Department of Education’s website at <http://www.pde.state.pa.us>. **PSSA results are organized by county and divided into the following proficiency ratings: advanced, proficient, basic, and below basic.** The total number of proficient scores is calculated by combining the number of PSSA test takers who scored advanced or proficient on the science section.

For clarification, those requiring an Individualized Educational Program are classified as “IEP” students. This category includes any student with a disability who requires a service and/or accommodation in addition to the standard educational approach used for non-IEP students. Usually, the term IEP refers to at least one of the following disabilities: autism, deafness, deaf-blindness, emotional disturbance, hearing impairment, learning disability, mental retardation, multiple disabilities, orthopedic impairment, other health-impairment, speech or language impairment, traumatic brain injury or visual impairment including blindness.

Economically disadvantaged students comprise another subcategory and are comprised of students who are eligible for free or reduced fee lunch. Data on this group is not available for each year since 2002, which introduces uncertainty in trend predictions in this category. Similarly, data for both African-American and Hispanic students is sparse at best, with information lacking for most school districts. For schools with fewer than ten students in the subgroup, data is not reported.

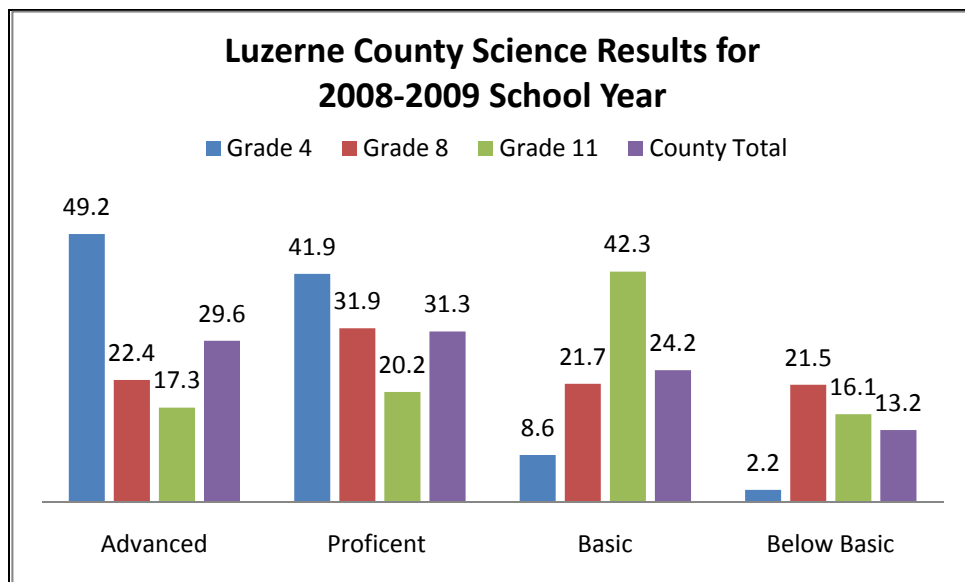
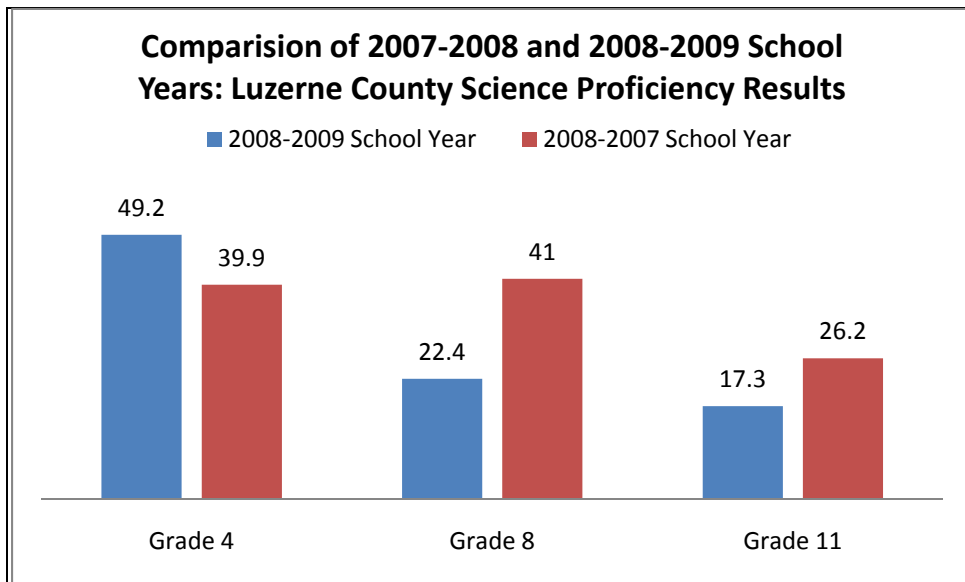
Student Performance

Luzerne County Science Proficiency Results

During the 2008-2009 school year, 9,343 of Luzerne County’s fourth, eighth, and eleventh grade students took the science PSSA. Of the total test takers in the study group (grades four, eight and eleven), 30.6% scored at least proficient in science. Fourth graders achieved an average science proficiency score of 41.9%, eighth graders achieved an average science proficiency score of 31.9%, and eleventh graders achieved a average science proficiency score of 20.2%. Luzerne County’s combined science averages for the 2008-2009 school year reveal that

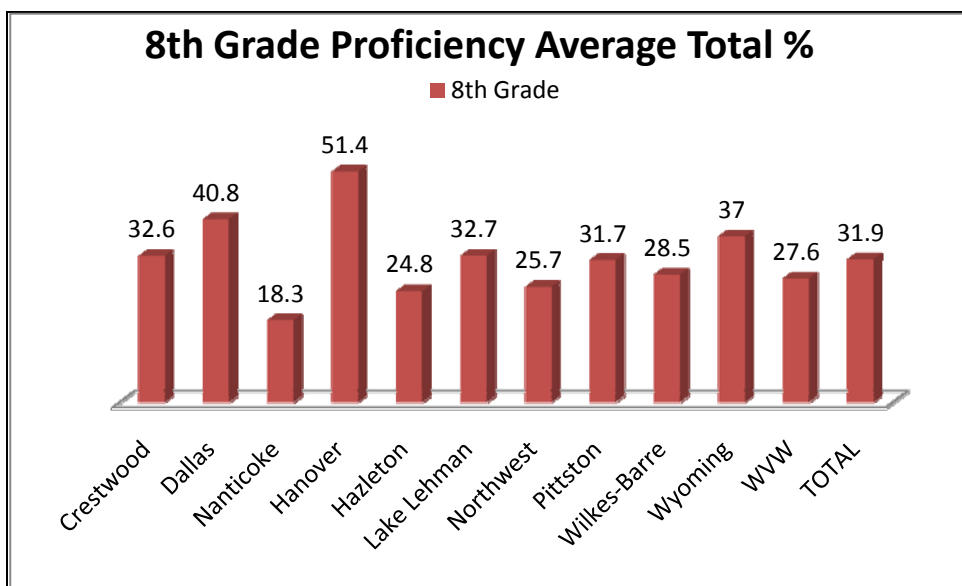
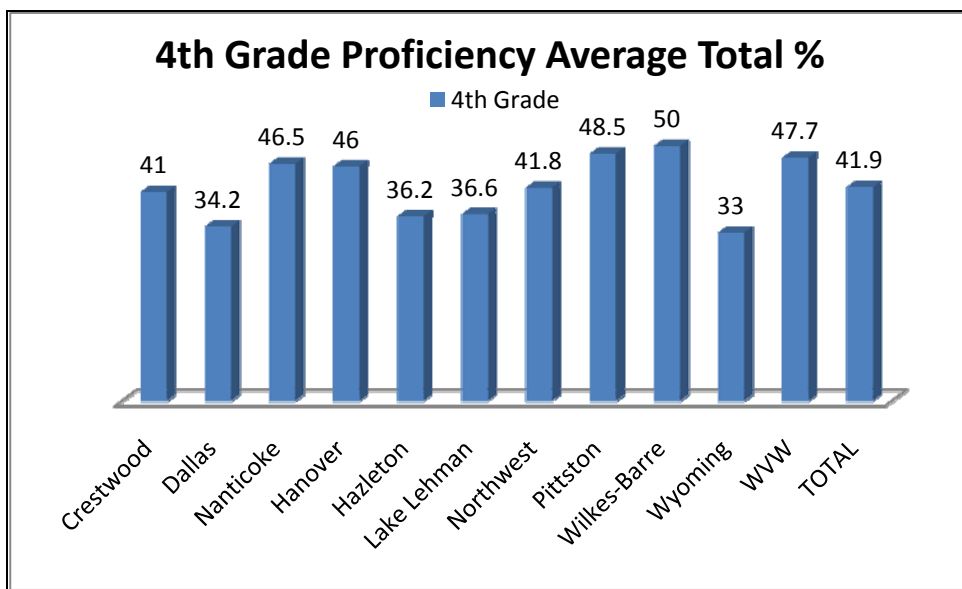
Grades Tested	Students Tested	Advanced % Average	Proficient % Average	Basic % Average	Below Basic % Average
4TH Grade	2,983	49.2	41.9	8.6	2.2
8th Grade	3,180	22.4	31.9	21.7	21.5
11th Grade	3,180	17.3	20.2	42.3	16.1
Total	9,343	29.6	31.3	24.2	13.2

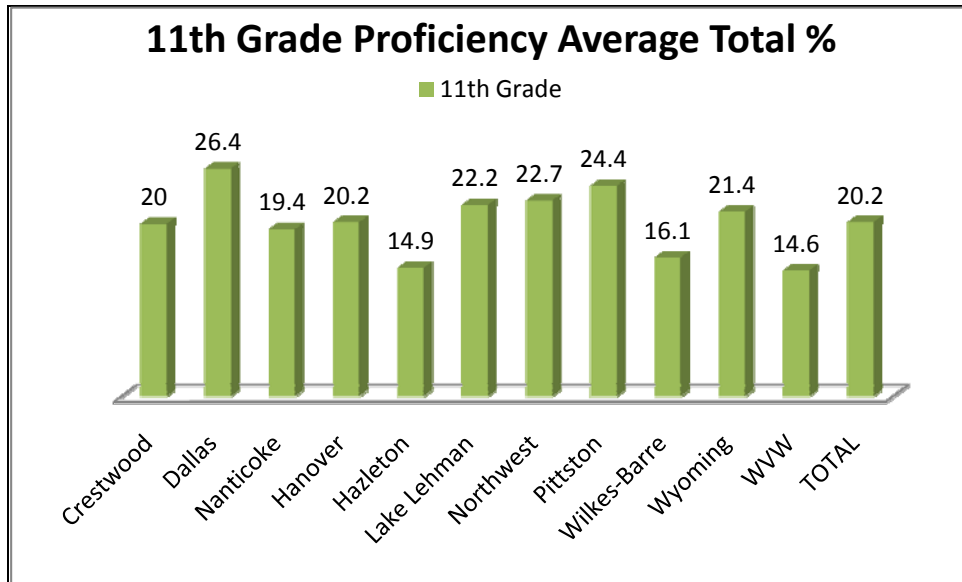
It is the intent of No Child Left Behind to have all students capable of exhibiting scientific knowledge at a proficient level by 2014. In order to reach this goal, it is necessary for schools to systematically convert the number of students performing at a level considered to be basic or below basic to a proficient or advanced level. The graph below represents the number of students at each ability level in Lackawanna County during the most recent round of testing. Ideally, the number of students scoring proficient or advanced should be at a much higher level than the number of those scoring basic or below basic.



The county’s fourth graders have shown strong scientific aptitudes, with those scoring proficient or advanced significantly outnumbering those scoring basic or below basic. By contrast, the county’s eighth graders had a higher proficiency percentage than the other eight grade rankings. Luzerne County’s eighth graders manage to remain stable between the other two grades analyzed. Its eleventh graders demonstrated the greatest disparity between levels of proficiency and non-proficiency and performed the poorest, with the highest “basic” ranking in the county. In Luzerne County, as well as statewide, science proficiencies exhibit a trend of decreasing proficiencies with grade level progressions.

The charts below detail each school district by grade and science proficiency level achieved in the 2008-2009 school year:





Luzerne County School District Proficiencies and Rankings

The following tables identify Luzerne County's test group scores by proficiency level, school district and grade in the 2008-2009 school year.

Advanced Science PSSA Results for 2008-2009 School Year			
School District	4th Grade	8th Grade	11th Grade
Crestwood	59.1	35.5	21.5
Dallas	70	32.9	26.4
Nanticoke	35	6.1	10.1
Hanover	37.2	20	20.4
Hazleton	41.8	16.6	11.7
Lake Lehman	56.7	22.7	16.3
Northwest	55.6	30.2	14.2
Pittston	42	25.7	22.7
Wilkes-Barre	38.3	12.3	11
Wyoming	65.2	29.6	20
WWV	40.5	15.8	16.1
TOTAL	49.2	22.4	17.3

Data reveals that fourth grade students in all of Luzerne County's school districts performed the best on the advanced science PSSA. The Wyoming Area School District's fourth graders achieved the highest score of all grade levels examined (65.2%). The Crestwood School District's eighth graders achieved the highest eighth

grade score of 35.5%. The Dallas School District's eleventh graders achieved the highest proficiency score among all of Luzerne County's eleventh graders.

Proficient Science Results for 2008-2009 School Year			
School District	4th Grade	8th Grade	11th Grade
Crestwood	41	32.6	20
Dallas	34.2	40.8	26.4
Nanticoke	46.5	18.3	19.4
Hanover	46	51.4	20.2
Hazleton	36.2	24.8	14.9
Lake Lehman	36.6	32.7	22.2
Northwest	41.8	25.7	22.7
Pittston	48.5	31.7	24.4
Wilkes-Barre	50	28.5	16.1
Wyoming	33	37	21.4
WVW	47.7	27.6	14.6
TOTAL	41.9	31.9	20.2

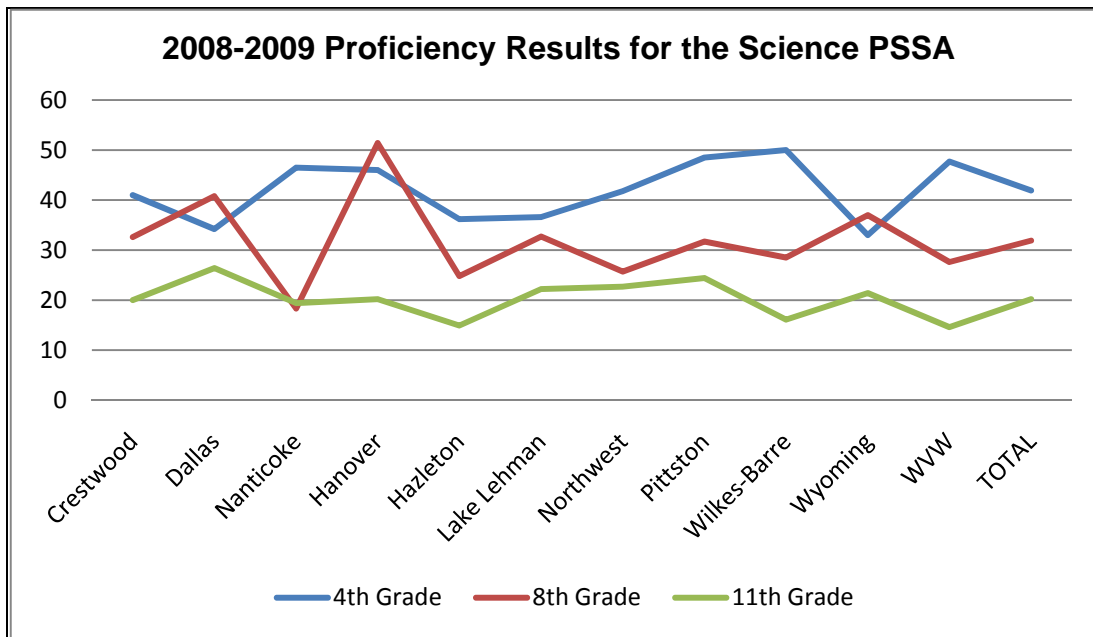
Overall, Luzerne County's fourth graders achieved the highest average science proficiency score (41.9%). Fourth graders in the Pittston Area School District achieved the highest proficiency score of all fourth graders at 48.5%. Eighth graders in the Hanover School District achieved the highest proficiency score among all eighth graders at 51.4%. Eleventh graders in the Dallas School District outperformed eighth graders in all other school districts with a score of 26.4%.

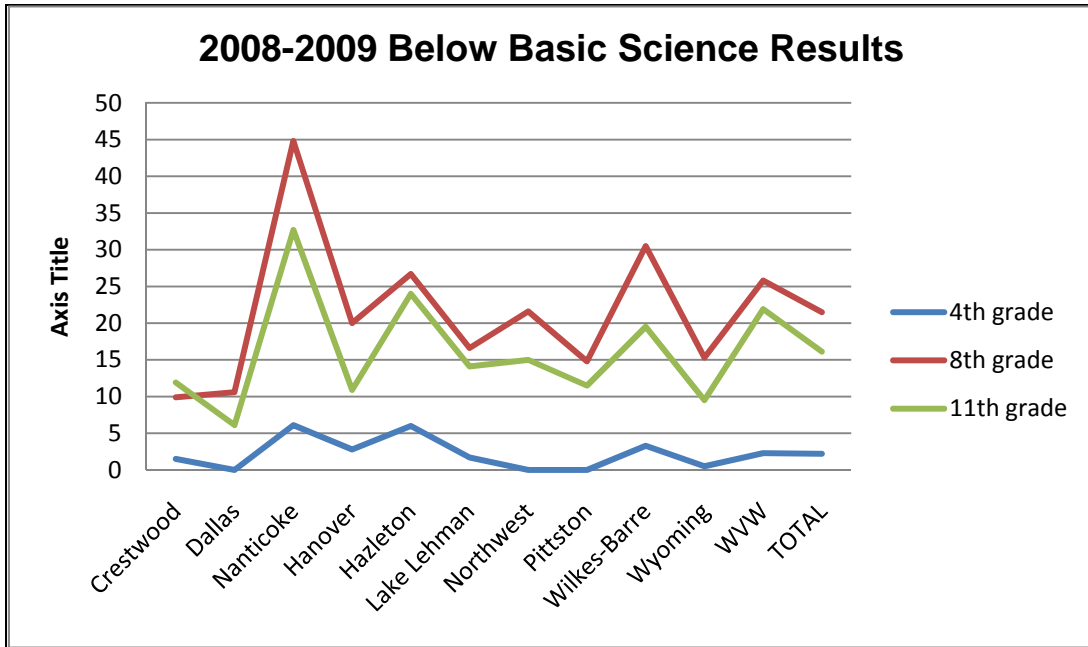
Basic Science PSSA Scores For 2008-2009 School Year			
School District	4th grade	8th grade	11th grade
Crestwood	3.4	16.5	41.8
Dallas	2.4	12.5	34.5
Nanticoke	13.5	26	43.5
Hanover	11.7	26	44.9
Hazleton	13.6	22.8	45.4
Lake Lehman	8.4	27	40.8
Northwest	3.7	16.4	41.7
Pittston	11.3	21.9	37.1
Wilkes-Barre	11	22.8	47.8
Wyoming	4.3	18.5	43
WVW	11.6	28.4	45.6
TOTAL	8.6	21.7	42.3

The above table reveals that Luzerne County’s eleventh graders scored the highest scores on the basic portion of the PSSA. The county’s eighth graders performed second and fourth graders scored lowest.

Below Basic Science PSSA Scores For 2008-2009 School Year			
School District	4th grade	8th grade	11th grade
Crestwood	1.5	9.9	11.9
Dallas	0	10.6	6.1
Nanticoke	6.1	44.8	32.7
Hanover	2.8	20	10.9
Hazleton	6	26.7	24
Lake Lehman	1.7	16.6	14.1
Northwest	0	21.6	15
Pittston	0	14.8	11.5
Wilkes-Barre	3.3	30.5	19.5
Wyoming	0.5	15.3	9.5
WVW	2.3	25.8	21.9
TOTAL	2.2	21.5	16.1

Among Luzerne County’s eleven school districts, eighth graders achieved the highest below basic proficiency scores. The Nanticoke Area School District’s eighth graders achieved the lowest score of 44.8%.





School District Science Results: 2008-2009

The tables below identify Luzerne County school district results for the 2008-2009 PSSA science assessment. The table illustrates proficiency results by grade level and provides the percentage of students at each level of attainment (advanced, proficient, basic and below basic). Overall district averages are provided at the bottom of each district’s section within the table.

School District PSSA Science Performance: 2008-2009 School Year					
Analysis of Attainment Level by District for Science PSSA		% Advanced Science (2009)	% Proficient Science (2009)	% Basic Science (2009)	% Below Basic Science (2009)
CRESTWOOD SD	4	59.1	36	3.4	1.5
CRESTWOOD SD	8	35.3	38	16.5	9.9
CRESTWOOD SD	11	21.5	24.9	41.8	11.9
CRESTWOOD SD	District Total	38.6	32.9	20.5	7.7
DALLAS SD	4	70	27.6	2.4	0
DALLAS SD	8	32.9	44	12.5	10.6
DALLAS SD	11	26.4	33	34.5	6.1
DALLAS SD	District Total	21.9	34.8	16.4	8.3
GREATER NANTICOKE AREA SD	4	35	45.4	13.5	6.1

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GREATER NANTICOKE AREA SD	8	6.1	23.2	26	44.8
GREATER NANTICOKE AREA SD	11	10.1	13.7	43.5	32.7
GREATER NANTICOKE AREA SD	District Total	17	27.4	27.6	27.8
HANOVER AREA SD	4	37.2	48.3	11.7	2.8
HANOVER AREA SD	8	20	34	26	20
HANOVER AREA SD	11	20.4	23.8	44.9	10.9
HANOVER AREA SD	District Total	25.8	35.3	27.5	11.2
HAZLETON AREA SD	4	41.8	38.6	13.6	6
HAZLETON AREA SD	8	16.6	33.9	22.8	26.7
HAZLETON AREA SD	11	11.7	19	45.4	24
HAZLETON AREA SD	District Total	23.3	30.5	27.2	18.9
LAKE LEHMAN SD	4	56.7	33.1	8.4	1.7
LAKE LEHMAN SD	8	22.7	33.7	27	16.6
LAKE LEHMAN SD	11	16.3	28.8	40.8	14.1
LAKE LEHMAN SD	District Total	31.9	31.8	25.4	10.8

School District PSSA Science Performance: 2008-2009 School Year					
Analysis of Attainment Level by District for Science PSSA		% Advanced Science (2009)	% Proficient Science (2009)	% Basic Science (2009)	% Below Basic Science (2009)
NORTHWEST SD	4	55.6	40.7	3.7	0
NORTHWEST SD	8	30.2	31.9	16.4	21.6
NORTHWEST SD	11	14.2	29.2	41.7	15
NORTHWEST SD	District Total	33.3	33.9	20.6	26.6
PITTSTON AREA SD	4	42	46.8	11.3	0
PITTSTON AREA SD	8	25.7	37.6	21.9	14.8
PITTSTON AREA SD	11	22.7	28.8	37.1	11.5
PITTSTON AREA SD	District Total	30.1	37.7	23.4	8.7
WILKES-BARRE AREA SD	4	38.3	47.4	11	3.3
WILKES-BARRE AREA SD	8	12.3	34.3	22.8	30.5
WILKES-BARRE AREA SD	11	11	21.7	47.8	19.5
WILKES-BARRE AREA SD	District Total	20.5	34.5	27.2	17.7
WYOMING AREA SD	4	65.2	30	4.3	.5
WYOMING AREA SD	8	29.6	36.5	18.5	15.3
WYOMING AREA SD	11	20	27.5	43	9.5
WYOMING AREA SD	District	38.2	31.3	21.9	8.4

	Total				
WYOMING VALLEY WEST SD	4	40.5	45.7	11.6	2.3
WYOMING VALLEY WEST SD	8	15.8	30.1	28.4	25.8
WYOMING VALLEY WEST SD	11	16.1	16.4	45.6	21.9
WYOMING VALLEY WEST SD	District Total	24.1	30.7	28.5	16.6

School District Science Results for 2007-2008

The tables below identify Luzerne County school district results for the 2007-2008 PSSA science assessment. The table illustrates proficiency results by grade level and provides the percentage of students at each level of attainment (advanced, proficient, basic and below basic). Overall district averages are provided at the bottom of each district's section within the table.

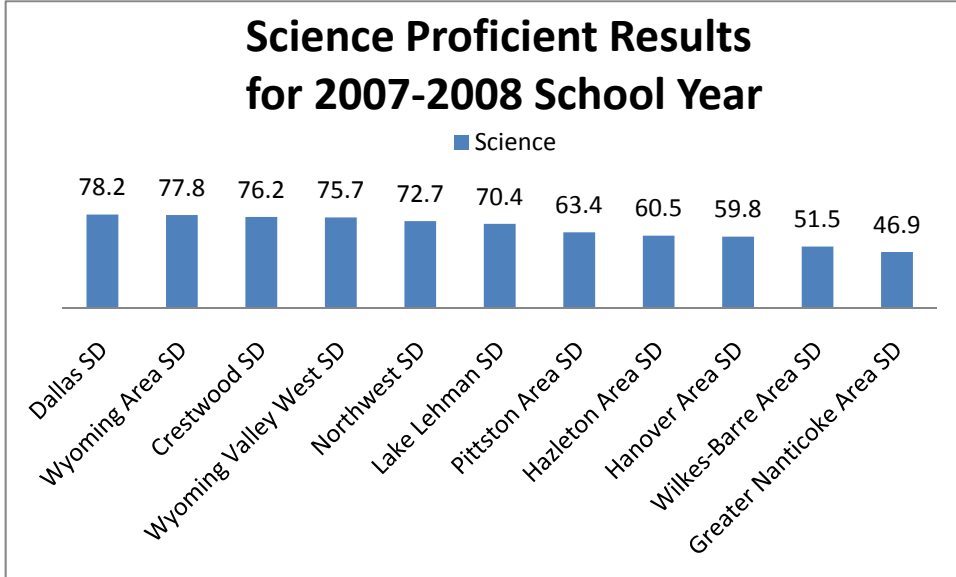
School District PSSA Science Performance: 2007-2008 School Year					
Analysis of Attainment Level by District for Science PSSA		% Advanced Science (2008)	% Proficient Science (2008)	% Basic Science (2008)	% Below Basic Science (2008)
CRESTWOOD SD	4	53.6	41.3	4.7	0.4
CRESTWOOD SD	8	19.6	55.2	16.7	8.5
CRESTWOOD SD	11	11.3	28.7	47.9	12.1
CRESTWOOD SD	District Total	27.1	41.8	23.8	7.3
DALLAS SD	4	64.8	31.9	2.4	1.0
DALLAS SD	8	20.4	50.7	19.1	9.8
DALLAS SD	11	14.8	33.8	45.4	6.0
DALLAS SD	District Total	32.9	39.0	22.4	5.7
GREATER NANTICOKE AREA SD	4	24.0	52.0	19.3	4.7
GREATER NANTICOKE AREA SD	8	6.2	33.7	32.0	28.1
GREATER NANTICOKE AREA SD	11	5.5	19.1	59.6	15.8
GREATER NANTICOKE AREA SD	District Total	11.2	33.9	38.2	16.8
HANOVER AREA SD	4	30.5	42.6	20.6	6.4
HANOVER AREA SD	8	12.3	42.6	27.8	17.3
HANOVER AREA SD	11	10.7	40.7	39.3	9.3
HANOVER AREA SD	District Total	17.4	41.9	29.4	11.3

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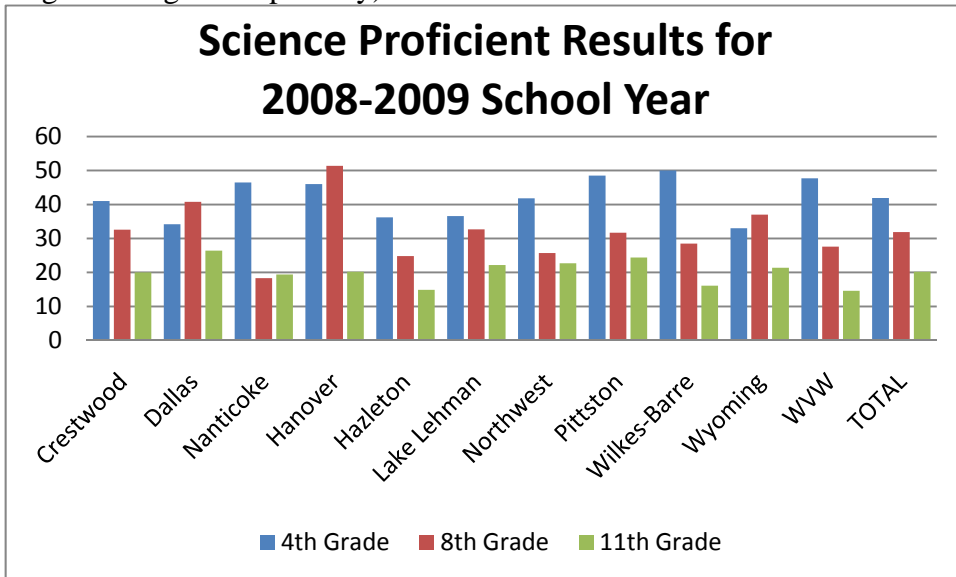
HAZLETON AREA SD	4	35.9	40.7	15.8	7.7
HAZLETON AREA SD	8	10.5	34.5	26.3	28.7
HAZLETON AREA SD	11	5.0	14.9	49.7	30.4
HAZLETON AREA SD	District Total	16.9	29.9	30.8	22.4
LAKE LEHMAN SD	4	66.2	26.6	5.8	1.4
LAKE LEHMAN SD	8	12.1	41.8	23.6	22.5
LAKE LEHMAN SD	11	7.0	15.2	63.3	14.6
LAKE LEHMAN SD	District Total	26.1	28.6	31.5	13.8

School District PSSA Science Performance: 2007-2008 School Year					
Analysis of Attainment Level by District for Science PSSA		% Advanced Science (2008)	% Proficient Science (2008)	% Basic Science (2008)	% Below Basic Science (2008)
NORTHWEST SD	4	51.5	38.6	7.9	2.0
NORTHWEST SD	8	15.5	40.8	31.1	12.6
NORTHWEST SD	11	8.5	28.3	48.1	15.1
NORTHWEST SD	District Total	24.8	35.8	29.4	10.0
PITTSTON AREA SD	4	42.7	43.1	10.0	4.2
PITTSTON AREA SD	8	20.6	45.2	22.1	12.1
PITTSTON AREA SD	11	7.2	31.5	52.2	9.1
PITTSTON AREA SD	District Total	22.6	39.8	29.0	8.6
WILKES-BARRE AREA SD	4	32.6	40.6	18.2	8.6
WILKES-BARRE AREA SD	8	8.5	32.3	33.8	25.4
WILKES-BARRE AREA SD	11	7.4	23.2	54.3	15.2
WILKES-BARRE AREA SD	District Total	16.0	32.1	35.2	16.6
WYOMING AREA SD	4	57.6	34.2	7.1	1.1
WYOMING AREA SD	8	25.4	36.3	22.4	15.9
WYOMING AREA SD	11	13.9	31.3	44.3	10.4
WYOMING AREA SD	District Total	31.6	34.0	25.1	9.4
WYOMING VALLEY WEST SD	4	36.6	47.4	12.5	3.5
WYOMING VALLEY WEST SD	8	12.0	38.7	26.5	22.8
WYOMING VALLEY WEST SD	11	7.5	21.6	52.5	18.4
WYOMING VALLEY WEST SD	District Total	19.1	36.9	29.0	15.0

Total of all Grades (4, 8, 11th) Science Results for 2007-2008:



Compared to this current year (2008-2009) Science Results:
(**Looking at each grade separately)

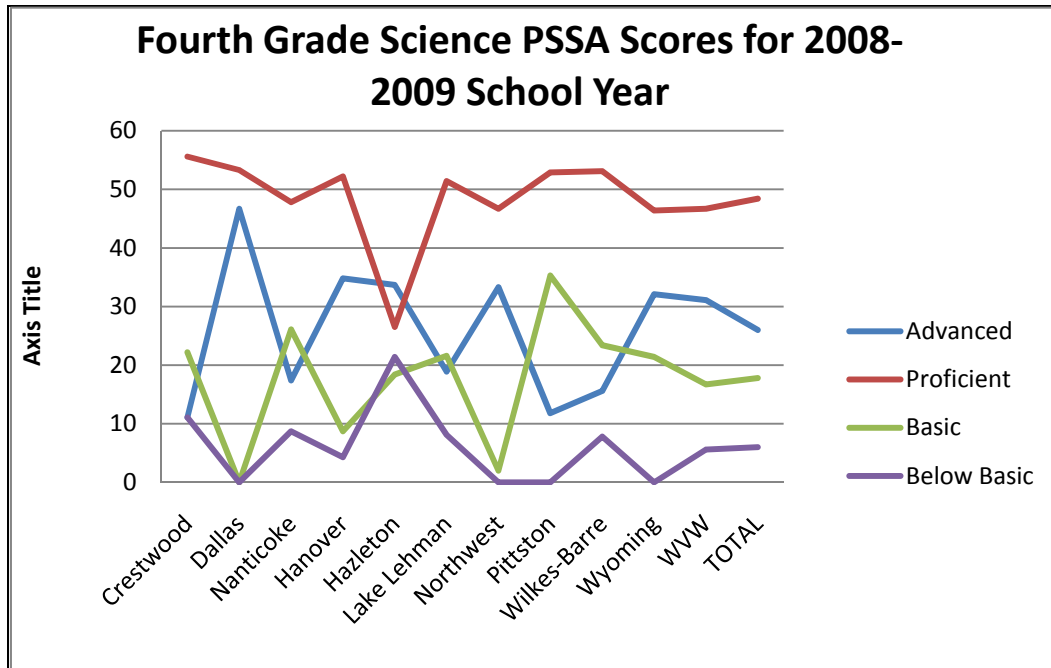


Special Populations

Students with Disabilities

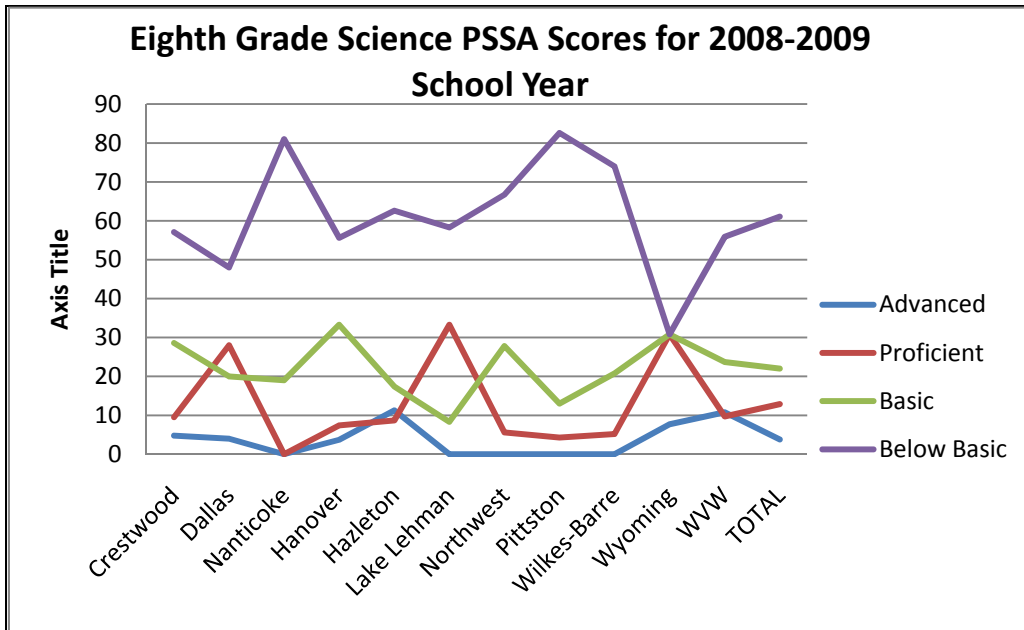
In this SAR, a student with a disability is defined as any student who requires the use of an Individualized Education Program (IEP) to meet his/her educational goals. In Luzerne County, 1,261 fourth, eighth and eleventh grade students with disabilities took the science portion of the PSSA during the 2008-2009 school year. Overall, this group achieved a 21.8% proficiency rating, although fourth grade scores differ from eighth and eleventh grade results. It should be noted that although scores for students with disabilities are often reported separately from the aggregated data, their scores are equally factored into each school district's proficiency total and Annual Yearly Progression (AYP) goals.

Grade 4 Science PSSA Scores for 2008-2009 School Year				
School District	Advanced	Proficient	Basic	Below Basic
Crestwood	11.1	55.6	22.2	11.1
Dallas	46.7	53.3	0	0
Nanticoke	17.4	47.8	26.1	8.7
Hanover	34.8	52.2	8.7	4.3
Hazleton	33.7	26.5	18.4	21.4
Lake Lehman	18.9	51.4	21.6	8.1
Northwest	33.3	46.7	2	0
Pittston	11.8	52.9	35.3	0
Wilkes-Barre	15.6	53.1	23.4	7.8
Wyoming	32.1	46.4	21.4	0
WVW	31.1	46.7	16.7	5.6
TOTAL	26	48.4	17.8	6



For the 2008-2009 school year, fourth grade students with disabilities achieved the highest science proficiency scores among all students with disabilities in the grades examined, with an average proficiency score of 48.4%. Fourth grade students with disabilities in all of Luzerne County’s school districts performed rather well on the science PSSA. Students in the Dallas School District achieved the highest advanced proficiency score of 46.7%. In addition, the district’s proficient scores averaged 53.3%, and no students performed at the basic or below basic levels.

Grade 8 Science PSSA Scores for 2008-2009 School Year				
School District	Advanced	Proficient	Basic	Below Basic
Crestwood	4.8	9.5	28.6	57.1
Dallas	4	28	20	48
Nanticoke	0	0	19	81
Hanover	3.7	7.4	33.3	55.6
Hazleton	11.3	8.7	17.4	62.6
Lake Lehman	0	33.3	8.3	58.3
Northwest	0	5.6	27.8	66.7
Pittston	0	4.3	13	82.6
Wilkes-Barre	0	5.2	20.8	74
Wyoming	7.7	30.8	30.8	30.8
WVW	10.8	9.7	23.7	55.9
TOTAL	3.8	12.9	22	61.1



Luzerne County’s eighth grade students with disabilities did not perform as well as its fourth graders. Eighth graders with disabilities scored an average proficiency rating of 12.9%; the grade’s overall below basic score of 61.1% was the highest among the three grades analyzed. By comparison, the county’s eleventh graders achieved a 57.5% below basic rating.

Grade 11 Science PSSA Scores for 2008-2009 School Year				
School District	Advanced	Proficient	Basic	Below Basic
Crestwood	3.1	3.1	31.3	62.5
Dallas	0	7.7	69.2	23.1
Nanticoke	0	0	11.5	88.5
Hanover	4.5	0	50	45.5
Hazleton	11.1	12.2	25.6	51.1
Lake Lehman	0	9.5	42.9	47.6
Northwest	0	0	15.4	84.6
Pittston	0	3.7	37	59.3
Wilkes-Barre	0	2.5	42	55.6
Wyoming	4.5	0	45.5	50
WVW	0	6.3	28.1	65.6
TOTAL	2.1	4	36.2	57.5

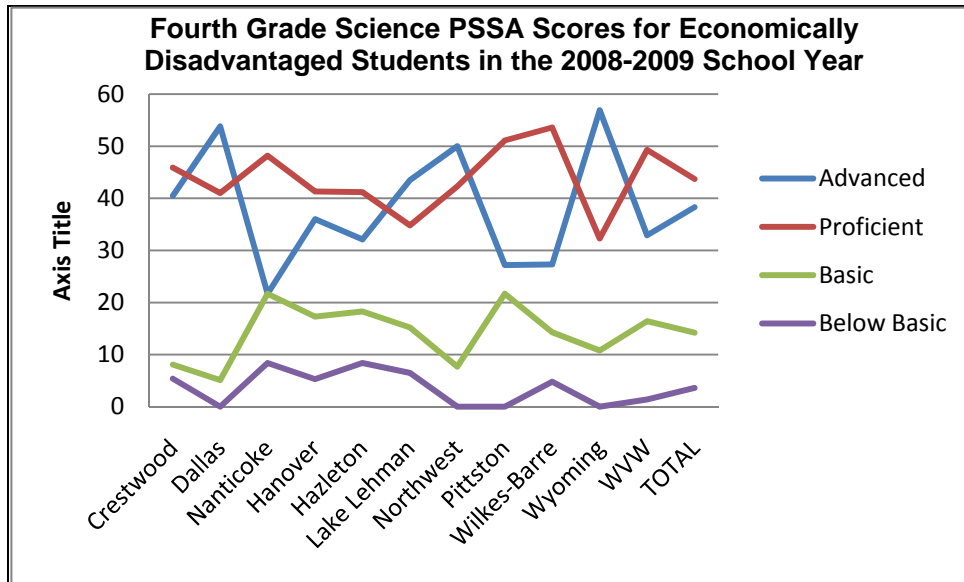
Luzerne County’s eleventh grade students with disabilities also had a high “below basic” score at 57.5, but a proficient score of just 4% - the lowest among the three grades examined. Eleventh graders with disabilities achieved the lowest science PSSA scores overall. The county’s school districts must pay special attention to students struggling with science and help them in achieving higher scores in the 2009-2010 school year.

Economically Disadvantaged

Economically disadvantaged students comprise another subgroup whose performance is monitored and analyzed via PSSA testing. The Pennsylvania Department of Education considers a student as being “economically disadvantaged” based on his or her participation in the free lunch or reduced fee lunch program instituted in public schools. Traditionally, students who are raised in low-income environments tend to perform at a significantly lower level than peers from higher socioeconomic backgrounds.

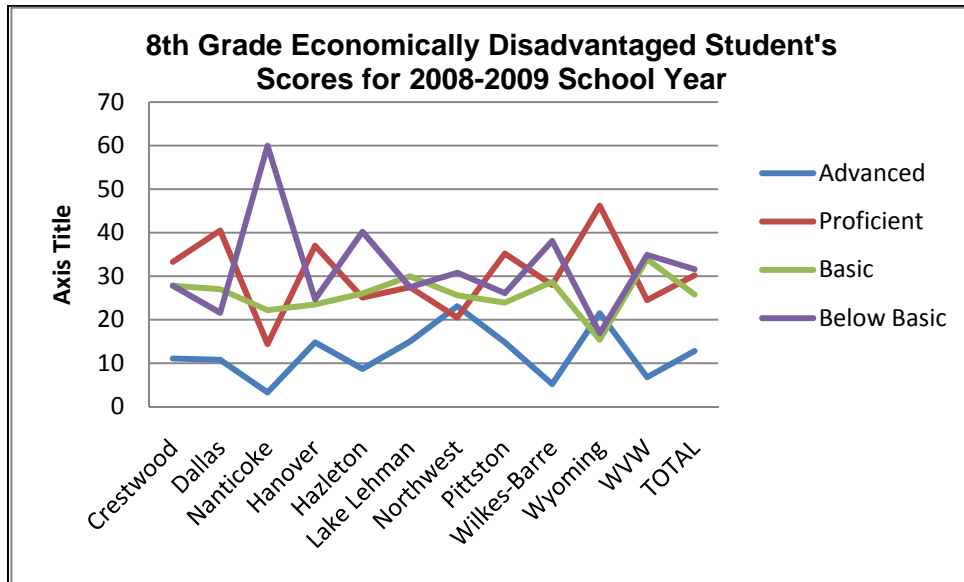
In Luzerne County, over 3,803 fourth, eighth and eleventh grade students classified as economically disadvantaged took the science portion of the PSSA during the 2008-2009 school year. Overall, this subgroup scored 25.9% proficient in science, although proficiency ratings varied among the three grade levels examined.

4th Grade Economically Disadvantaged Students Scores				
School District	Advanced	Proficient	Basic	Below Basic
Crestwood	40.5	45.9	8.1	5.4
Dallas	53.8	41	5.1	0
Nanticoke	21.7	48.2	21.7	8.4
Hanover	36	41.3	17.3	5.3
Hazleton	32.1	41.2	18.3	8.4
Lake Lehman	43.5	34.8	15.2	6.5
Northwest	50	42.3	7.7	0
Pittston	27.2	51.1	21.7	0
Wilkes-Barre	27.3	53.6	14.3	4.8
Wyoming	56.9	32.3	10.8	0
WVW	32.9	49.3	16.4	1.4
TOTAL	38.3	43.7	14.2	3.6



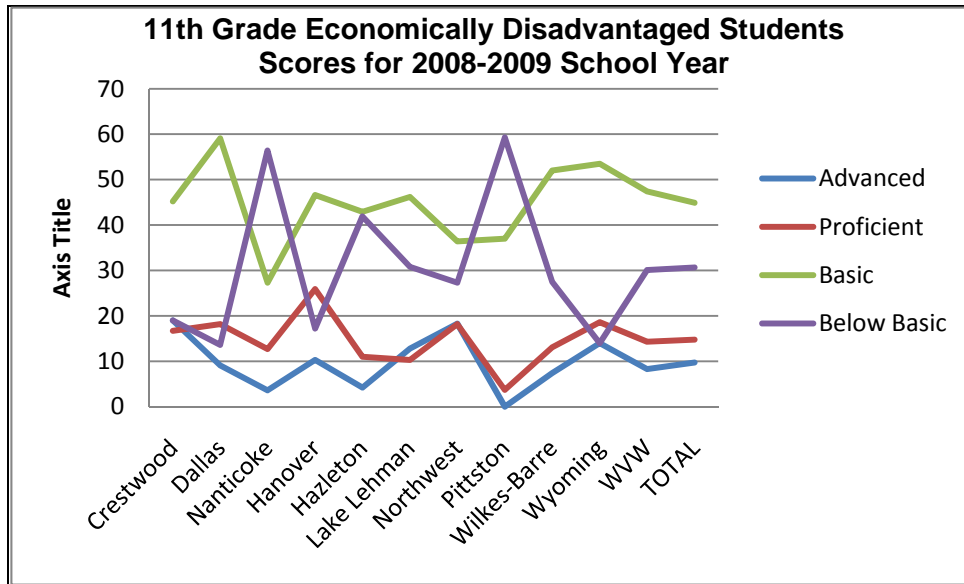
Economically disadvantaged fourth graders performed very well in the science portion of the PSSA compared to the other grades examined. Proficiency scores for economically disadvantaged fourth graders were 43.7%. The sub-group's below basic score was only 3.6% which is much stronger than economically disadvantaged eighth (31.6%) and eleventh (30.6%) grade scores.

8th Grade Economically Disadvantaged Students Results				
School District	Advanced	Proficient	Basic	Below Basic
Crestwood	11.1	33.3	27.8	27.8
Dallas	10.8	40.5	27	21.6
Nanticoke	3.3	14.4	22.2	60
Hanover	14.8	37	23.5	24.7
Hazleton	8.7	25.1	26	40.2
Lake Lehman	15	27.5	30	27.5
Northwest	23.1	20.5	25.6	30.8
Pittston	14.8	35.2	23.9	26.1
Wilkes-Barre	5.2	28	28.7	38.1
Wyoming	21.5	46.2	15.4	16.9
WWV	6.8	24.5	33.9	34.9
TOTAL	12.8	30.2	25.8	31.6



The eighth grade economically disadvantaged students achieved an overall proficiency score of 30.2%, which was lower than their below basic average of 31.6%.

11th Grade Economically Disadvantaged Students Scores				
School District	Advanced	Proficient	Basic	Below Basic
Crestwood	19	16.7	45.2	19
Dallas	9.1	18.2	59.1	13.6
Nanticoke	3.6	12.7	27.3	56.4
Hanover	10.3	25.9	46.6	17.2
Hazleton	4.2	11	42.9	41.9
Lake Lehman	12.8	10.3	46.2	30.8
Northwest	18.3	18.2	36.4	27.3
Pittston	0	3.7	37	59.3
Wilkes-Barre	7.4	13.1	52	27.5
Wyoming	14	18.6	53.5	14
WVW	8.3	14.3	47.4	30.1
TOTAL	9.7	14.7	44.8	30.6



The county’s eleventh grade economically disadvantaged student’s proficiency score was a 14.7%, which reveals a drastic drop from the prior year. Eleventh graders’ basic score was 44.8% - the grade’s highest score.

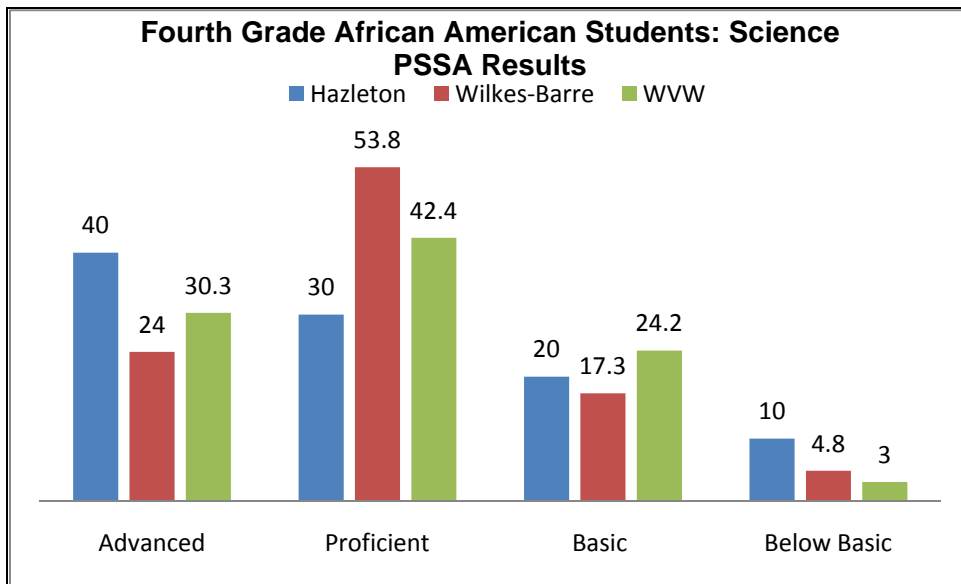
African-American Students

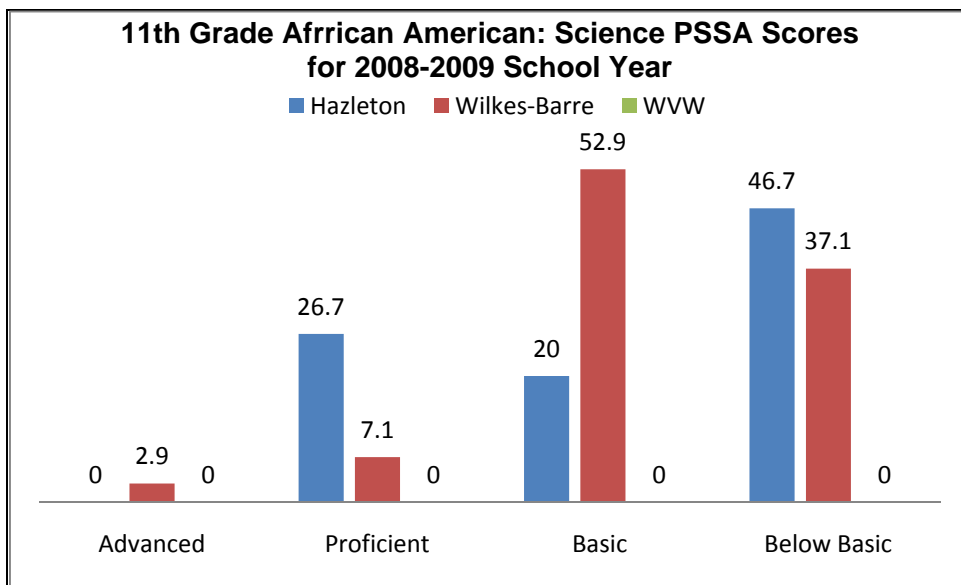
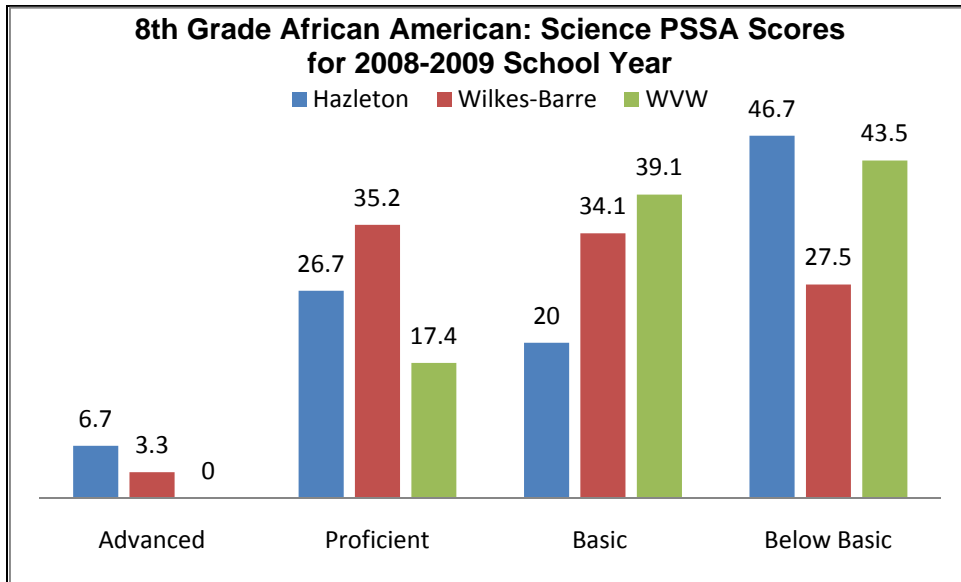
Luzerne County’s African-American students, a subgroup also monitored by PSSA testing as dictated by NCLB, are the most under-represented population - with only 359 students testing in science during the 2008-2009 school year. It should be further noted that just three of the county’s eleven school districts (Hazleton Area, Wilkes-Barre Area and Wyoming Valley West) included schools with African-American populations great enough to be scored and reported independently (population greater than 10). As such, the generalizations and analysis that follow should be tempered with caution given this year’s limited data. Per the data available, African-American students reported a science proficiency rating of 26.5%.

Grade 4-African American Students				
School District	Advanced	Proficient	Basic	Below Basic
Hazleton	40	30	20	10
Wilkes-Barre	24	53.8	17.3	4.8
WVW	30.3	42.4	24.2	3
Total	31.4	42	20.5	5.9
Grade 8-African American Students				
School District	Advanced	Proficient	Basic	Below Basic
Hazleton	6.7	26.7	20	46.7

Wilkes-Barre	3.3	35.2	34.1	27.5
WVW	0	17.4	39.1	43.5
Total	3.3	26.4	31	39.2
Grade 11-African American Students				
School District	Advanced	Proficient	Basic	Below Basic
Hazleton	0	26.7	20	46.7
Wilkes-Barre	2.9	7.1	52.9	37.1
WVW	0	0	0	0
Total	0.96	11.2	24.3	27.9

The fourth grade African American students achieved the highest science proficiency scores (42%) among the three grades examined. Eighth graders in this subgroups achieved a 26.4% proficiency rating, while eleventh graders achieved an 11.2% proficiency rating. Fourth grade African-American students also scored the fewest number of scores under the below basic average (5.9%). African-American eighth graders achieved the highest below basic scores of 39.2%.





Hispanic Students

In Luzerne County, 885 Hispanic students took the science portion of the PSSA during the 2008-2009 school year. This group of testers reported 29.6% science proficiency. Like the African-American subgroup population, only three districts (Hazleton Area, Wilkes-Barre Area and Wyoming Valley West) included schools with Hispanic populations large enough to be scored and independently reported (population greater than 10). Again, the generalizations and analysis that follow should be tempered with caution given the small amount of data available in this testing year.

Hispanic Students Science PSSA Scores for 2008-2009 School Year					
School District	Grades	Advanced	Proficient	Basic	Below Basic
Hazleton	4	26.9	39.9	24.2	9
Hazleton	8	4.5	17.8	30.6	47.1
Hazleton	11	2.2	8.2	38.8	50.8
Total		11.2	21.9	31.2	35.6
Wilkes-Barre	4	18.3	53.3	16.7	11.7
Wilkes-Barre	8	1.4	20.3	24.3	54.1
Wilkes-Barre	11	4.8	15.9	52.4	27
Total		8.1	29.8	31.1	30.9
WVW	4	16.7	61.1	16.7	5.6
WVW	8	4.5	50	18.2	27.3
WVW	11	0	0	0	0
Total		7	37	11.6	10.9

Luzerne County’s fourth grade Hispanic students performed the best among Hispanic students in the three grades examined. Students in the Wyoming Valley West School District performed the best (37%) among all of the county’s school districts. The Hazleton Area School District reported the county’s poorest science PSSA scores among Hispanic students. The district reported a proficient score of 21.9%, and its average below basic score (35.6%) was the highest among the three school districts examined.

Conclusion

The 2008-2009 school year marked the second round of PSSA testing in science. This second round of science scores was lower than the prior year’s results. Luzerne county’s fourth grade students achieved a higher degree of scientific prowess, with 39.9% of students scoring proficient. The county’s eighth and eleventh graders, however, require careful examination, as their scores fell below the state and the county’s fourth grade averages. The most recent data suggests that as students enter higher grade levels, their abilities to think and investigate scientifically regress. The causes for such drops across grade levels are worth careful consideration, warranting perhaps a review of the educational pedagogy and overarching curriculum guiding students through these critical transition periods.

According to the Pennsylvania Department of Education, future science testing will place a heavy emphasis on “inquiry-based learning,” a form of instruction that emphasizes abstract reasoning, thinking and prediction skills, rather than more traditional science curriculum rooted in fact and note memorization skills. This paradigm shift is reflective of our growing need to become more competitive and capable in an ever-expanding global economy - particularly in terms of science and

math proficiencies. The most recent results of the *Program for International Student Assessment* (PISA), an assessment tool used to compare fifteen-year-olds from around the world, found that American students significantly trail most modern countries in science and math abilities, including: Finland, Japan, Canada, China, Australia, Germany and the United Kingdom. As such, the need for quality science instruction is paramount, if the U.S. wishes to remain a leader in the global marketplace.

Science proficiency examinations have recently been added to the PSSA, and, in time, social studies examinations will also be added. Therefore, schools with reduced instruction time in these subjects to focus on mathematics, reading, and writing PSSAs may be doing themselves a disservice to meet today's PSSA demands. It is critical for school districts to investigate best practices to ensure proficiencies in all subjects are met. Teaching specifically to the test should be avoided.

The education triad (administrators, teachers and parents) must form a more effective collaborative effort to ensure that real learning is taking place. For Pennsylvania, emphasis on improving higher education attainment and other continuing education is critical. The economic development success of any region is dependent upon the quality of its workforce, and quality training should begin in elementary school. Specifically, the best economic development strategy is one that maximizes the potential of the public Pre-K – 12 educations.

Many successful school districts have found ways to achieve higher scores and better academic learning skills such as:

- Diagnosing student instructional needs and finding ways to provide appropriate instruction
- Adopting common pedagogical methods so that students can easily move from one classroom to another and apply the same skills
- Using a systematic approach through a scientific thinking process while giving students the ability to take time in and out of class to plan, think, write, confer, read, change their minds, and have fun while learning as well
- Stressing higher-order thinking skills
- Coaching and providing whole-group brainstorming and small-group response sessions
- Offering fun academic activities within the classroom
- Peer or teacher conferences
- Focusing on professional development on the teaching of scientific problem solving and thinking

Best practices from around the country can be researched and evaluated to determine the best opportunities for success and appropriate initiatives can be implemented as pilot programs in schools.

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A partnership among Keystone College, King's College, Luzerne County Community College, Marywood University, Misericordia University, Penn State Wilkes-Barre, The Commonwealth Medical College, University of Scranton, & Wilkes University

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