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Science Test Scores Paint a Disturbing Picture of Education

It is a constant refrain: Our children must do better in science and math if the nation hopes to compete effectively in the 21st century. Sadly, if recently released (2008) science test scores of Pennsylvania students are a measuring stick, we are not preparing students to compete in a 20th century economy. Statewide, only 35.7 percent of 11th graders scored at the 11th grade proficiency level or higher. This means 64.3 percent scored below grade level.

These students are a year away from graduation. There is simply not enough time to bring them to 11th grade proficiency, let alone 12th grade proficiency. Thus, it seems very unlikely many of these students, if they go to college, will opt for careers in science or engineering, an area where the USA is already lagging well behind other countries. And if they do opt for a science major, a difficult remedial period will be required—a further discouragement.

Still, the science scores were not unrelievedly horrible. Fourth graders did much better than older students with 81.4 percent scoring at grade level or better. Indeed, more fourth graders scored at grade level in science than attained the proficient level in reading (71.1 percent) or math (79.5 percent). However, the news does go down hill from there. By the 8th grade the percentage reaching the proficient level in science had fallen precipitously to just 52.6 percent and from there continues dropping to the 35.7 percent level for 11th graders. In a reversal of the 4th grade pattern, 11th grade science scores were well below reading and math test results.

The statewide pattern was repeated throughout Allegheny County school districts, i.e., fourth graders did best, 11th graders worst. Moreover, among County school districts there was enormous variation in the test results. For example, Upper St. Clair 11th graders posted the best numbers in the County and among the best in the state. Even so, the percentage falling below grade level stood at 27.8 percent, which seems high for a great school. By contrast, Upper St. Clair 4th graders had a remarkably low 2.3 percent of students who failed to score at grade level proficiency.

At the same time, Wilkesburg students' scores were tragically low across all grades with 97 percent of 11th graders scoring below grade level proficiency. Nearly 83 percent of 8th graders fell below grade level proficiency along with 60 percent of 4th graders. In sum, an all around disaster for the school district's science scores. But given the district's extremely weak performance in math and reading, the science scores are not surprising. If kids cannot understand what they are reading and are unable to do math, how can they take a test in science and do well?

What can we take away from these test results? Several things are apparent. Science is either better taught or kids are far more interested in the subject in 4th grade compared to later grades. Another plausible explanation is that the 4th grade subject matter is far easier for nine year olds to

grasp than 8th and 11th grade science materials are to understand by older kids. Further, the science content at higher grades requires knowledgeable and well prepared teachers. Teachers not well versed in math and chemistry cannot possibly teach chemistry very well. Ditto physics. Biology, geology, and other harder sciences by their nature require truly knowledgeable folks to impart a decent understanding of the subject matter.

One could speculate that the recent heavy emphasis on the pseudoscience surrounding the hysteria over global warming has caused the early grade science curriculum to be diluted to achieve a political objective. Obviously, science should not be taught as an adjunct to the environmental movement.

Beyond the overall disappointment with scores of 8th and 11th graders in Pennsylvania and Allegheny County, the truly stunning revelation is just how inadequate students are in many schools where over 80 percent of 11th graders are unable to score at grade level proficiency and where 70 percent of 8th graders don't measure up. Just three years away from 11th grade and they are already hopelessly behind.

Undoubtedly, the awful performance by these students reflects a multitude of factors. Lack of discipline in class, peer pressure, lack of parental concern and in some cases totally inadequate teaching.

Whatever else we might learn from them, the science scores serve to reinforce what observers have known for a long time. In far too many school districts in Pennsylvania the quality of educational achievement is unacceptable—at least it should be. And for the amount of money being spent, as in Pittsburgh, the performance is disgraceful.

One can only watch in amazement as the situation is allowed to continue year after year with endless promises to do better and perennial requests for more money. Here's a New Year's resolution for Pennsylvania and its school districts: Work for real reform through the introduction of vouchers for any student whose parents wish to enroll him/her in a non-public school. At the same time, allow the creation of more charter schools. Do what is right and give students a chance to get out of the failing schools they are in. Quit trying to convince legislators and parents you are doing a great job. Facing the truth is hard but problems cannot be solved by forever sticking one's head in the sand and living in denial. After all, children's future opportunities are being stunted by the poor quality of education they are receiving.

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