



§ 22.1-254.1. C. The parent who elects to provide home instruction shall provide the division superintendent by August 1 following the school year in which the child has received home instruction with either (i) evidence that the child has attained a composite score in or above the fourth stanine on a battery of achievement tests which have been approved by the Board of Education for use in the public schools or (ii) an evaluation or assessment which, in the judgment of the division superintendent, indicates that the child is achieving an adequate level of educational growth and progress.

Like many of you, I first encountered stanines when I was finding out my legal obligations with respect to home schooling in Virginia. Despite my graduate course in statistics, I did not have a clue as to what a stanine was. The word “stanine” is short for “standard nines” and it represents the score on a standardized test. The important things you need to know are:

- There are nine stanines, 1 through 9. Higher scores mean higher stanine numbers.
- The 4<sup>th</sup> stanine called for in the legislation is approximately the 24<sup>th</sup>

## What the \*Bleep\* is a Stanine?

by Jim Angel, Fairfax

percentile. This means that if the composite score on a standardized test such as the CAT is at the 24<sup>th</sup> percentile or better, the score is in the 4<sup>th</sup> stanine or better. If you have forgotten what a percentile is, the 24<sup>th</sup> percentile means that particular observation is higher than 24 percent of the population.

- The fifth stanine includes the middle observations.

Want more details? Read on. Stanines were invented by the U.S. Army Air Force during World War II as a way to store test information in a single 1-9 digit number. Back in the days of punch cards for keeping track of stuff, this meant that the key-punch operator only had to hit one key, and the score only used up one column on the punch card.

Of course, it would be too easy to just put one ninth of the data in each stanine, right? Instead, the devisors of the stanine system put one half a standard deviation in each stanine. If your statistics are rusty, you might recall that a standard deviation is a measure of how much something bounces around. The higher the standard deviation, the more variability you have in whatever you are measuring. In general, about two thirds of the observations from typical distributions will fall between plus or minus one standard deviation.

The 5<sup>th</sup> or middle stanine con-

tains the middle observation plus one fourth of a standard deviation in each direction. If you do the math on a standard normal distribution, that works out to the 41<sup>st</sup> through 59<sup>th</sup> percentiles, or about a fifth of the total number of observations. The other stanines contain fewer of the observations as you get further away from the middle.

Here is a table for converting stanines to percentiles:

Stanine	Percentile range
1	1 - 4
2	5 - 11
3	12 - 23
4	24 - 40
5	41 - 59
6	60 - 76
7	77 - 88
8	89 - 95
9	96 - 99

Source: <http://intranet.cps.k12.il.us/Assessments/ITBS/StdScoreConversionCharts.pdf>

So, what does this mean for homeschoolers? Many school districts use the 4<sup>th</sup> stanine as an indication of “adequate” progress. Note that that statute refers to a composite score, not every score. Thus, if your child scores in the 3<sup>rd</sup> stanine on one part of a particular test and the 7<sup>th</sup> on another part, all hope is not lost. What really matters is the composite score. As long as the composite score is in the 4<sup>th</sup> stanine or higher (i.e., 24<sup>th</sup> percentile or higher), it should convince the school district that the progress is adequate.

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