

Indiana Science Initiative Update: Fourth Grade Student Performance on State Accountability Testing from Schools Participating for Two Years

November 2013

The I-STEM vision is for Indiana to be a national leader in student achievement and to demonstratively improve college and career readiness in the STEM disciplines.

Indiana Science Initiative: Fourth Grade Student Performance on State Accountability Testing from Schools Participating for Two Years

The Indiana Science Initiative (ISI) is a systemic reform of K-8 science education based upon scaffolded guided inquiry using research-based curricular materials enhanced with literacy education. This update investigates 4th grade ISI student performance on the I-STEP+ in Science, English/Language Arts (ELA), and Mathematics compared to all 4th grade Indiana public school students. Fourth grade was selected because only 4th and 6th grades have I-STEP+ tests for science, mathematics, and ELA. 4th grade was selected of the two grades, because there are substantially more students involved in the ISI at 4th grade than at the 6th grade. All data for this update were obtained through COMPASS the Indiana Department of Education performance data system (<http://compass.doe.in.gov/dashboard/overview.aspx>). The pilot for the ISI took place during the 2010-2011 school year and impacted about 25% of the ISI schools from which data was collected for this report. The 2011-2012 academic school year represents the first year of the ISI for the majority of the remaining schools. ISI schools have a Free and Reduced Lunch Rate [FRL%] of 64.2% in comparison to the Indiana FRL% of 49.1%. Schools with a higher FRL% have traditionally performed worse on the I-STEP+ than schools with a lower FRL%. Chart 1 shows the comparison of these two rates.

Chart 1. Indiana Public Schools and ISI Schools Free and Reduced Lunch Percentage 2012-2013

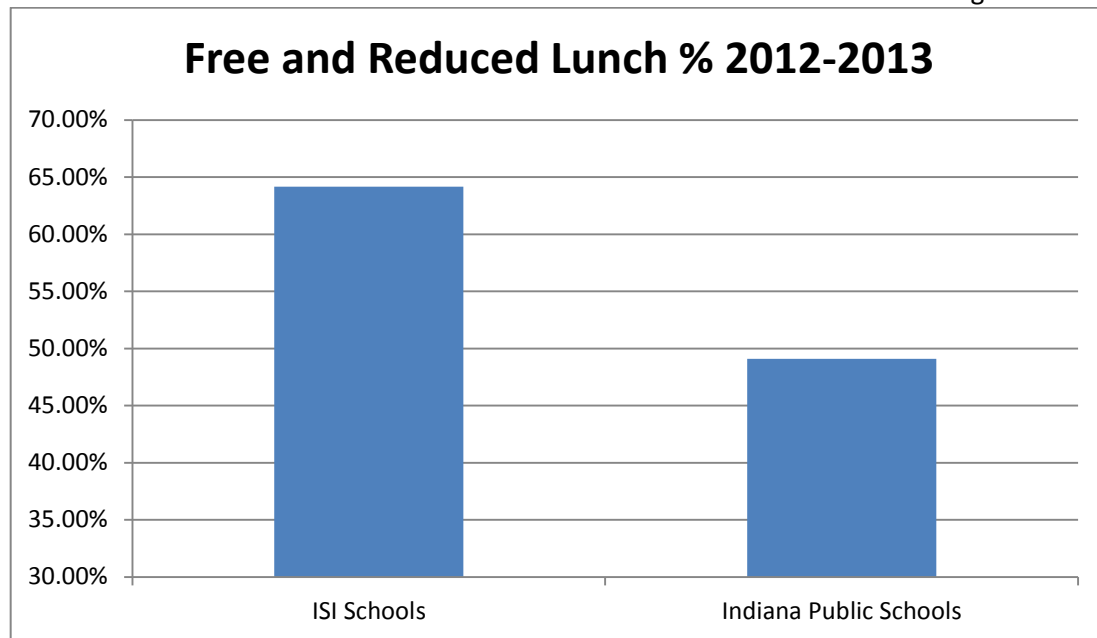


Chart 2 shows the passing rates for all 4th grade Indiana public school students and ISI 4th grade students on the I-STEP+ Science test. During the 2012-2013 school year, a new I-STEP+ science exam was introduced that tested on the 2010 Indiana Science Standards. This new test also included more use of scientific process skills than the previous I-STEP Science test. The chart shows that the overall percentage of students passing ISTEP Science for the ISI schools decreased 2% in comparison to the state average decrease of 3.7%.

Chart 2. 4th Grade I-STEP+ Science Passing Percentages for ISI and Indiana Public Schools.

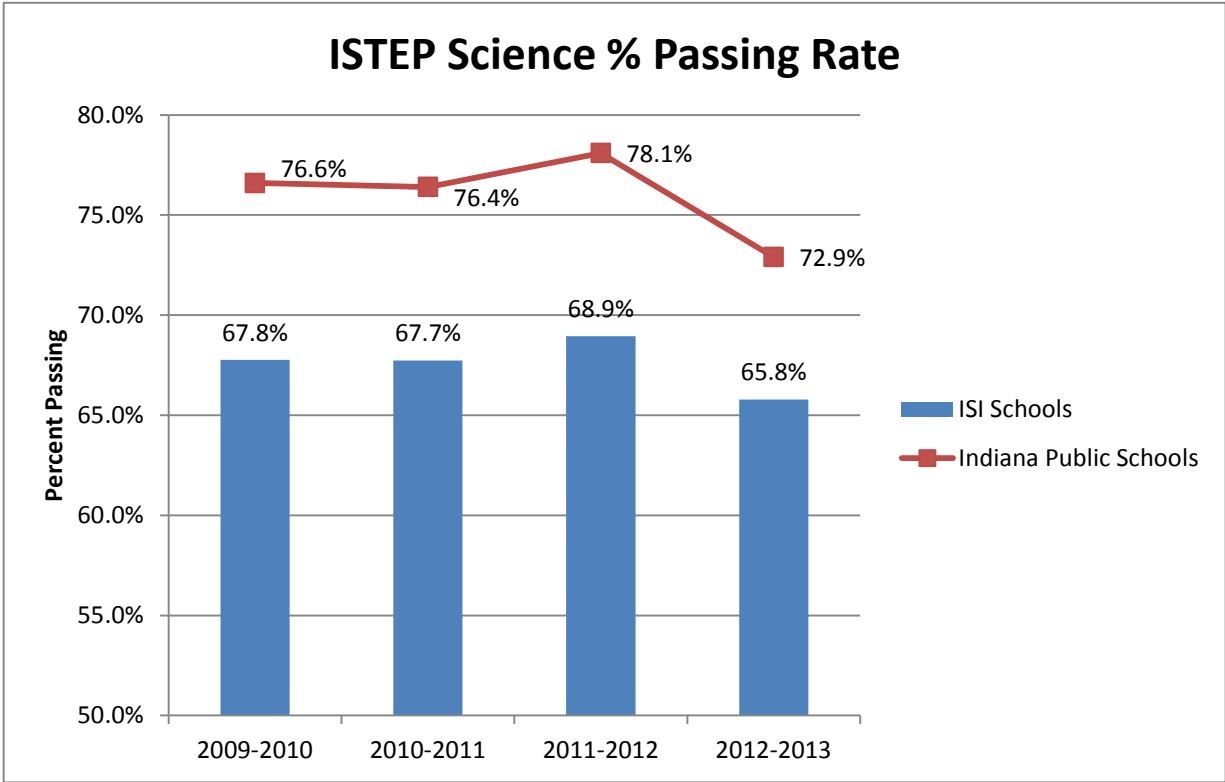


Chart 3 shows the gap between the 4th grade ISI students and the Indiana Public School students. While ISI schools have historically been behind the state average, the gap started to decrease when students were tested over the standards being covered in the ISI materials.

Chart 3. I-STEP+ Science Passing Rate Difference Between ISI and Indiana Public Schools.

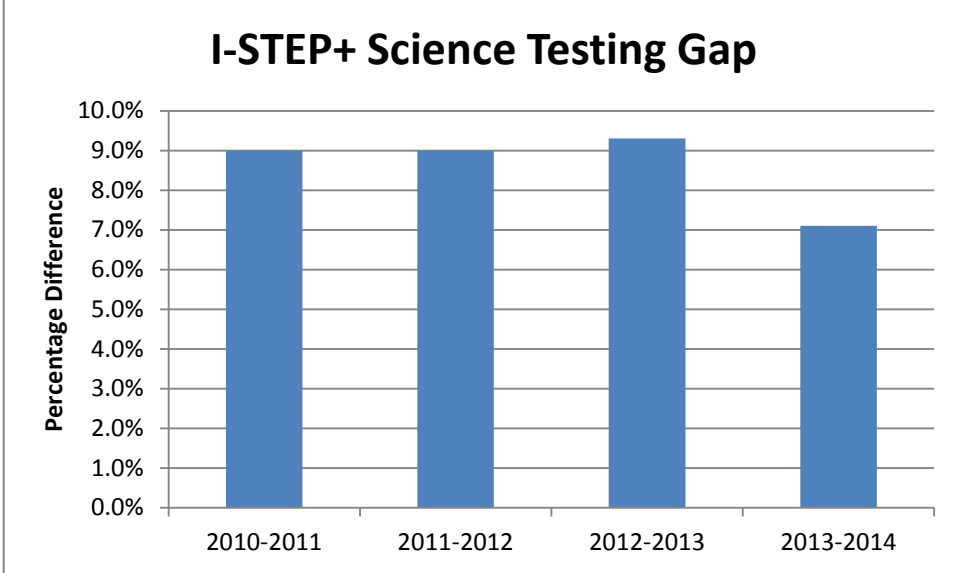


Chart 4 shows the passing rates for 4th grade Indiana public school students and ISI students on the I-STEP+ ELA exam. The chart shows that the overall percentage of students passing ISTEP ELA for the ISI schools increased 6.3% in comparison to the state average increase of 4.7%. The ISI provides teachers with training opportunities that specifically focuses on student writing about science and this data demonstrates a closing of the achievement gap between ISI schools and the state average by 25%.

Chart 4. 4th Grade I-STEP+ ELA Passing Percentages for ISI and Indiana Public Schools

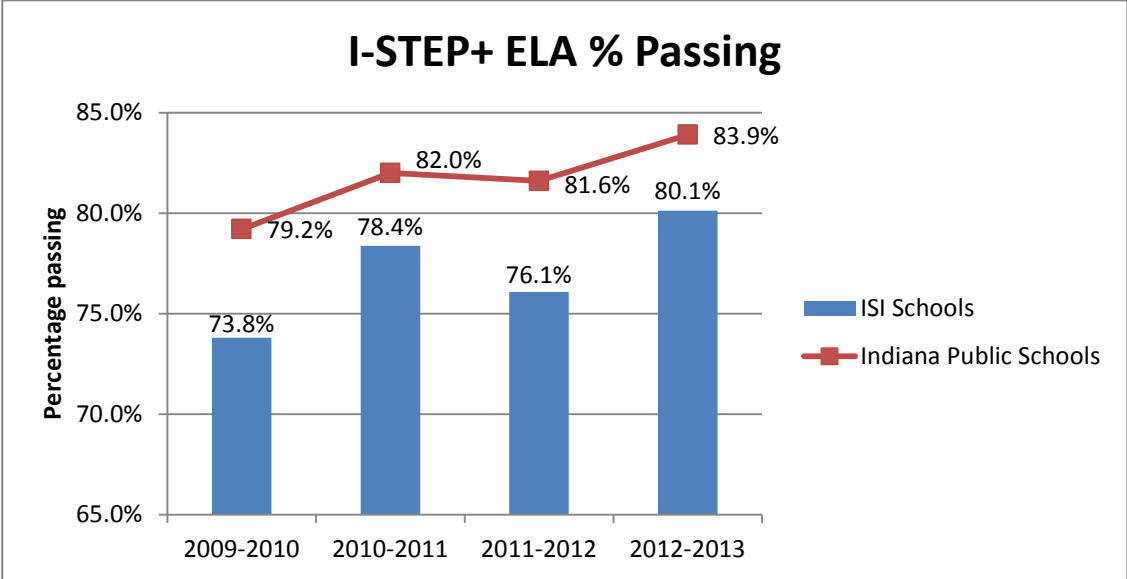


Chart 5 shows the gap between the 4th grade ISI students and the Indiana Public School students on the I-STEP+ ELA. Like on the I-STEP+ Science exam, the ISI schools have historically been behind the state average passing rate. While there is greater inconsistency on ELA than in science over the years, the gap between the two groups did decrease from the year before the pilot until the 2012-2013 academic year.

Chart 5. I-STEP+ ELA Passing Rate Difference Between ISI and Indiana Public Schools.

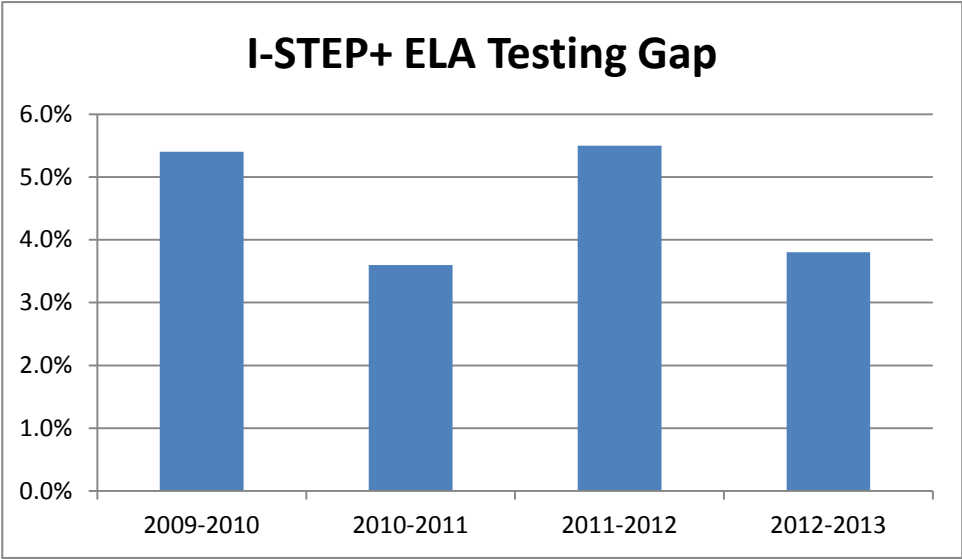


Chart 6 shows the passing rates for 4th grade Indiana public school students and ISI students on the I-STEP+ Math exam. The chart shows that the overall percentage of students passing I-STEP+ Math for the ISI schools increased 10.5% in comparison to the state average increase of 6.7%. The overall ISTEP Math passing rates are below the state average, but the gap in math achievement narrowed to just over three percent. Chart 7 below, shows this gap over the course of the four years. This narrowing may be supported by ISI due to the fact that students have opportunities to apply mathematical understanding during science.

Chart 6. 4th Grade I-STEP+ Math Passing Percentages for ISI and Indiana Public Schools

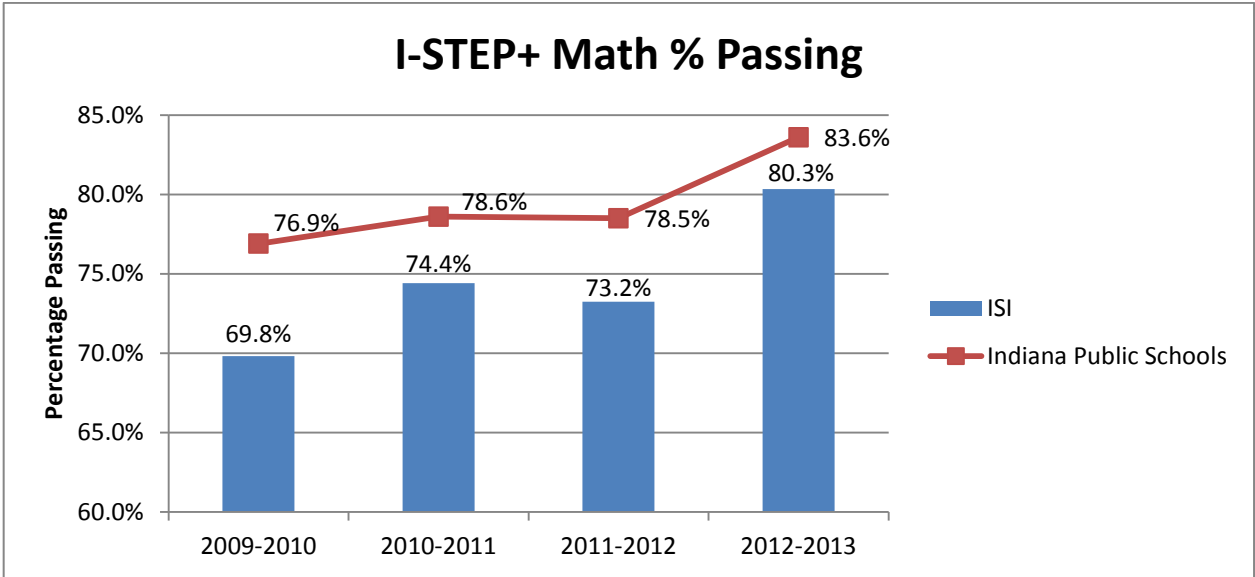
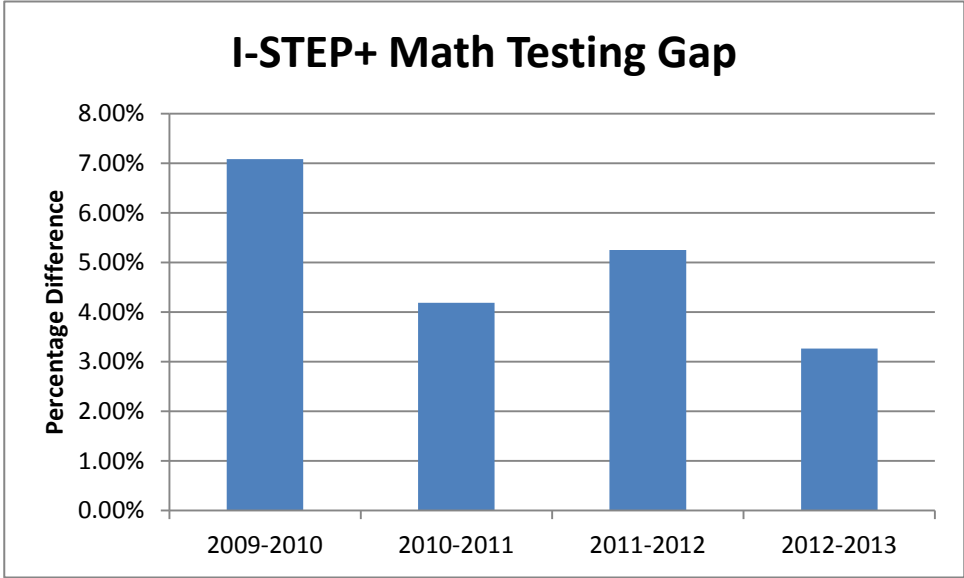
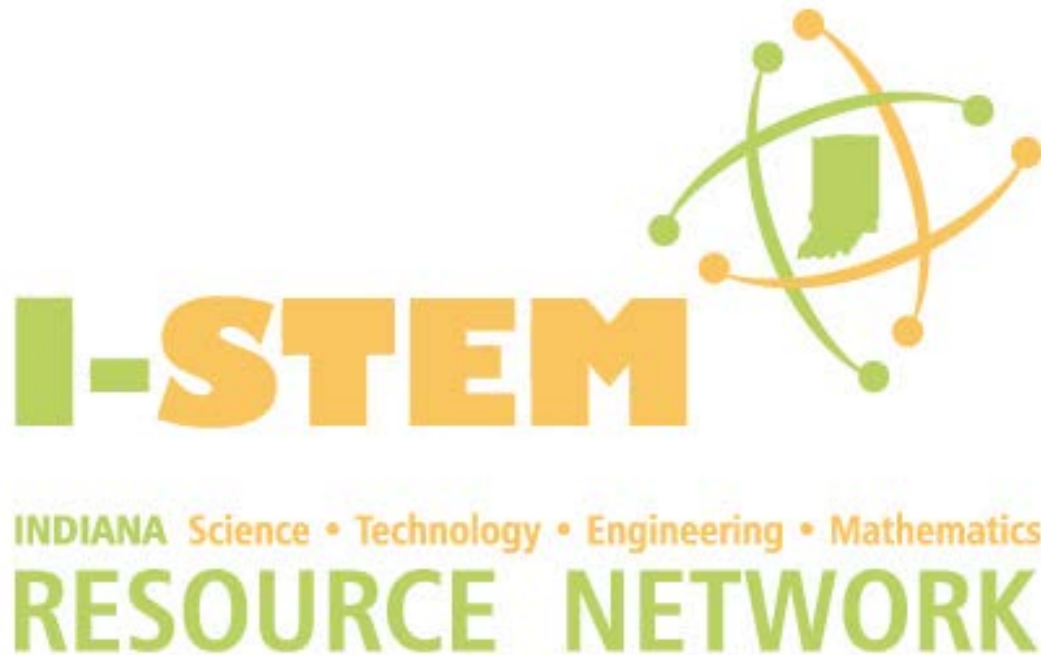


Chart 7. I-STEP+ Math Passing Rate Difference Between ISI and Indiana Public Schools.



There are several items that are important to note when considering this data. First, during the pilot and the first academic year of the ISI, most teachers only received curricular modules addressing standards in physical science and earth science. This means that students were involved in ISI instruction for only half of the school-year. Full school-year implementation started in 2012-2013. Second, schools with the fewest number of teachers who attended ISI training showed the smallest increase or largest decreases in I-STEP+ scores.

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