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Arkansas Science Benchmark, EOC Biology and ITBS Test Results 2014-15

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This Brief

Academic Snapshots P.1
 Benchmark Performance: Statewide P.1
 Benchmark Performance: Regional P.2
 EOC Performance: Statewide/Regional P.3
 ITBS Performance: Statewide: P.4
 ITBS Performance: Regional P.5
 Summary P.6

Summary Points

- 60% of 5th graders scored proficient or advanced on the 2014-15 Science Benchmark exam.
- Only 34% of 7th graders scored proficient or advanced on the 2014-15 Science Benchmark exam.
- The statewide proficiency rate on the 2014-15 Biology End-of-Course exams remained 47%.
- First and second grade students' national percentile rank on the Iowa Tests of Basic Skills (ITBS) declined in reading, language and math.
- 2014-15 was the final year for administration of the Arkansas Science exams.
- Full databases with state- and district-level scores are available on the OEP Arkansas Data webpage:
www.officeforeducationpolicy.org/arkansas-schools-data/

2014-15 Arkansas Science Benchmark, EOC Biology and ITBS Test Results

The Arkansas Department of Education (ADE) has released the 2014-15 Benchmark Science and ITBS (Iowa Test of Basic Skills) results. PARCC results of Literacy and Math will be released later this fall. The following brief highlights the results of these tests, compares achievement scores over time, and provides a glimpse of regional achievement results for the following exams:

- **Benchmark Science Exam (Grades 5 and 7)**
- **End-of-Course Biology Exam**
- **Iowa Test of Basic Skills (Grades 1 and 2)**

Benchmark Performance: Statewide

The Arkansas Benchmark exams in science were administered for the final time in the 2014-15 school year. The criterion-referenced science Benchmark has been administered to Arkansas students in 5th and 7th grades each spring since the 2007-08 school year and measures knowledge proficiency according to the Arkansas science standards.

As can be seen in Figure 1, science proficiency increased for 5th grade students over the prior year, with 60% of students scoring proficient or advanced on the 2014-15 Benchmark exam. Conversely, science proficiency rates declined for 7th graders to only 34%, the lowest level recorded in five years.

Figure 1. Percent Proficient and Advanced on Arkansas' Science Benchmark Exam, by Grade, 2007-2015.

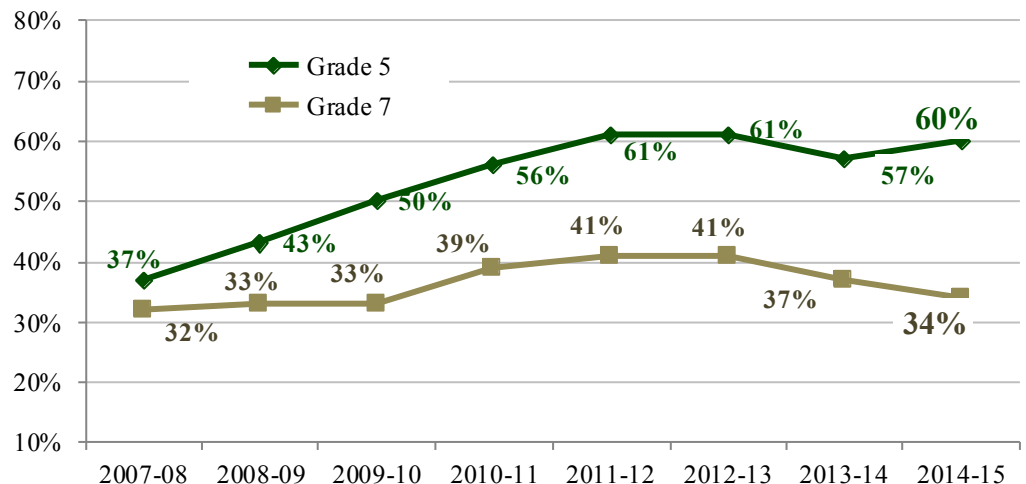


Table 1. Student Demographic Characteristics, 2014-15 by Region.

	Enrollment	% Minority	% Free/Reduced Lunch
Arkansas Overall	476,083	37%	61%
Northwest	167,554	31%	58%
Northeast	95,171	29%	64%
Central	141,194	45%	58%
Southwest	46,218	45%	68%
Southeast	25,946	53%	72%

Figure 2. Grade 5 Science Benchmark Exam, Percent Scoring Proficient or Advanced, by Region, 2010-11 through 2014-15.

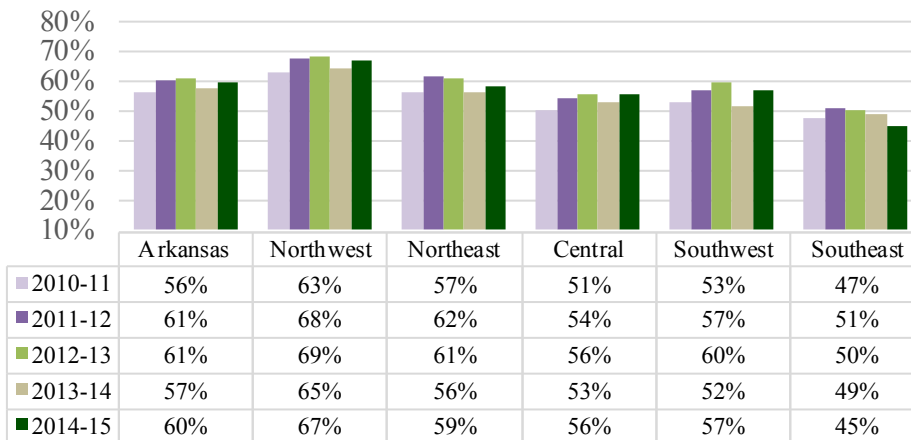
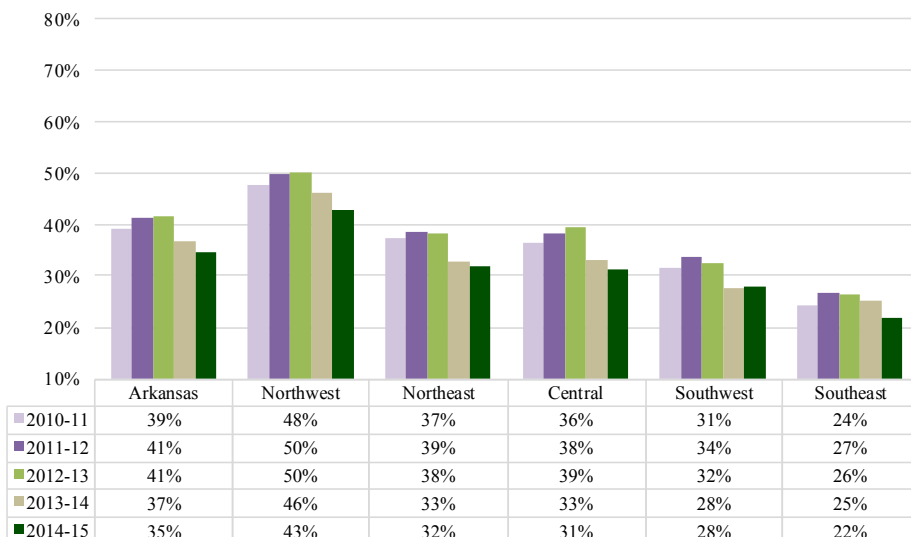


Figure 3. Grade 7 Science Benchmark Science, Percent Scoring Proficient or Advanced, by Region 2010-11 through 2014-15.

**Benchmark Performance: Regional**

In this section, we examine student performance on the science Benchmark exam by region. The ADE divides schools and districts into the following five regional categories:

- Northwest
- Northeast
- Central
- Southwest
- Southeast

When comparing academic performance, it is important to consider the population being assessed, as students from lower socioeconomic settings are at greater risk academically. Demographic characteristics about each region are presented in Table 1.

As can be seen in Figure 2, four regions demonstrated increased proficiency in 5th grade science compared to 2013-14 results. Statewide proficiency rates neared the peak of 2012-13, and the Northwest, Northeast, Central and Southwest regions experienced an increase in 5th grade science proficiency.

Figure 3 illustrates the proficiency rates for 7th grade science continued to decline statewide and in all regions. Seventh grade science proficiency rates dropped to the lowest point in five years in 2014-15 in all regions.

Northwest Arkansas has the highest percentage of students scoring proficient or advanced in 5th and 7th grade science across the state. It is interesting to note that the Central region enrolls a similar percentage of students participating in the Free/Reduced Lunch programs as Northwest Arkansas, but demonstrates lower proficiency rates in science.

Biology End-of-Course Exam Performance: Statewide

Students in Arkansas are required to take Biology in order to graduate from high school and take an End-of-Course (EOC) exam at the end of the year. The following section highlights Arkansas performance on the Biology EOC exams.

As illustrated in Figure 4, student performance on the **Biology EOC** has steadily increased since first administered in 2007, plateauing at 47% of student scoring Proficient or Advanced in the last two years.

Biology End-of-Course Exam Performance: Regional

Figure 5 displays the percent of students scoring proficient or advanced on the Biology EOC by region for the last five years. Regional trends in Biology EOC performance mirror that of Benchmark Science Exams, with the highest percentage of students scoring Proficient or Advanced concentrated in Northwest Arkansas.

The Northwest and Central regions demonstrate higher Biology EOC proficiency rates in comparison to the other regions, however they are the only two that experienced a decline in proficiency rates in 2014-15 in relation to the previous year. The other three regions have shown a slight increase in the number of students achieving at the proficient/ advanced level; the Northeast region showing the greatest increase. The southeast region of the state has experienced essentially no increase in Biology proficiency over the last five years.

Figure 4. Biology EOC Exam, Percent Scoring Proficient or Advanced, 2007-08 to 2014-15

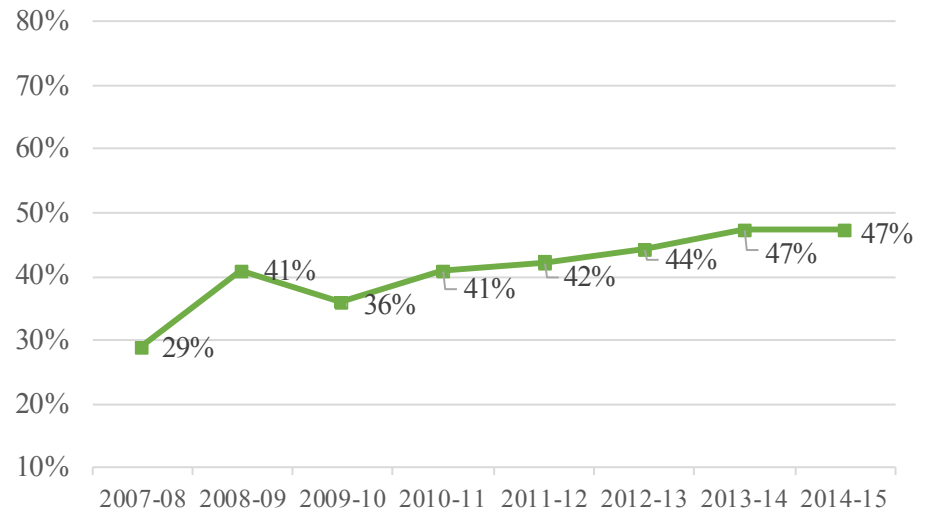


Figure 5. Biology EOC Exam, Percent Scoring Proficient or Advanced, by Region, 2010-11 through 2014-15.

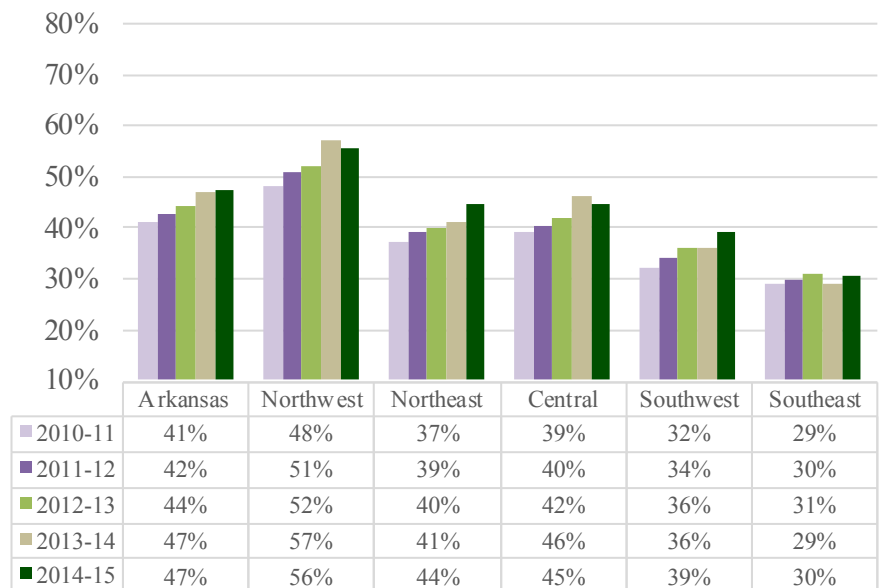


Figure 6. Reading National Percentile Rank on the Iowa Test of Basic Skills Grades 1 and 2, 2011-12 through 2014-15

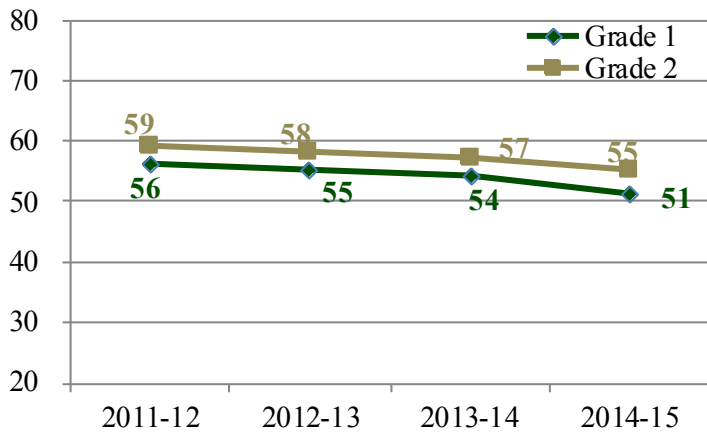


Figure 7. Language National Percentile Rank on the Iowa Test of Basic Skills Grades 1 and 2, 2011-12 through 2014-15

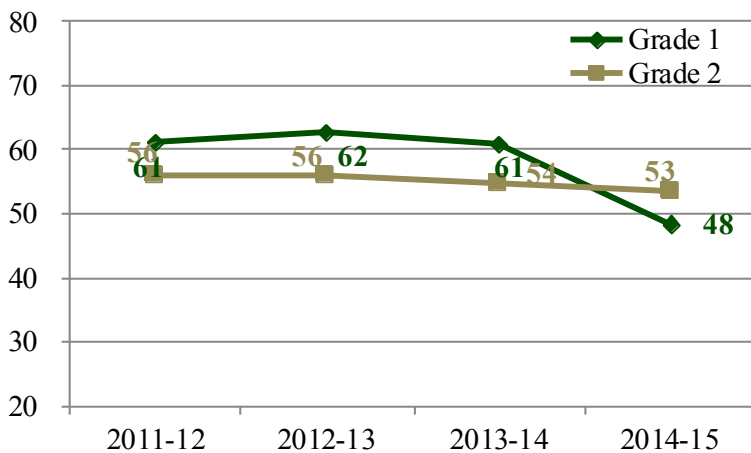
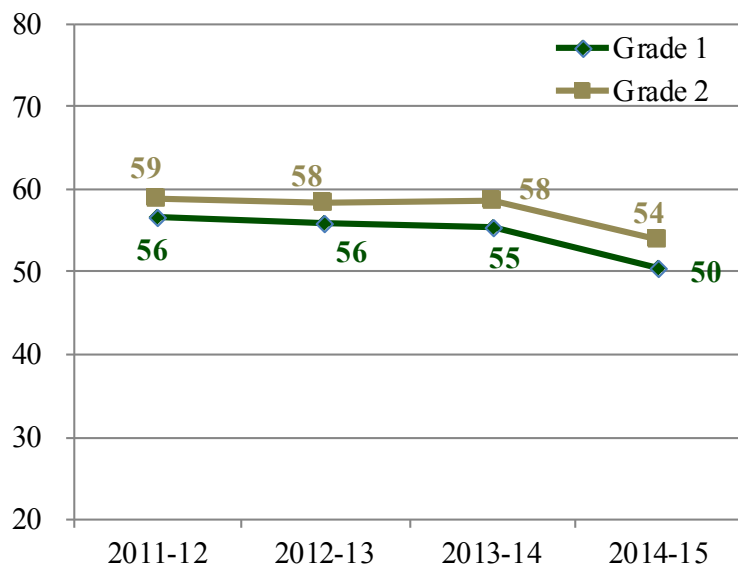


Figure 8. Math National Percentile Rank on the Iowa Test of Basic Skills Grades 1 and 2, 2011-12 through 2014-15.



Iowa Test of Basic Skills Performance: Statewide

The Iowa Test of Basic Skills (ITBS) is a nationally norm-referenced test (NRT) that measures students performance in a variety of subjects including reading, language and mathematics. Prior to 2014-15, ITBS was taken by students through ninth grade but was replaced this year by PARCC for grades 3-9. In 2014-15, ITBS was administered to only first and second grade students.

ITBS results are reported in National Percentile Ranks (NPR). This facilitates comparison between Arkansas student performance and the performance of other students throughout the country. For example, a NPR of 51 in first grade reading indicates that the average Arkansas first grade student's reading performance was better than or equivalent to 51% of first grade students across the county.

As shown in Figures 6 through 8, 2014-15 ITBS scores decreased in all subject areas for both first and second grades. **Reading** performance has declined one or two points in each of the last three years. First grade student performance is at the 51st NPR, and second grade student scores at the 55th NPR in reading. These scores indicate that Arkansas students are slightly above the national average in reading performance.

Language scores, however, shows a very different pattern. Grade 1 **Language** performance dropped substantially in 2014-15: a 13 point decline to a percentile ranking of 48. Grade 2 Language performance declined slightly from a percentile ranking of 56 to 53. These scores indicate that Arkansas first grade students have dropped below the national average performance in Language, while second grade students are slightly above the national average in Language performance.

Math performance has also declined over the past three years, with the most significant declines occurring this year. First grade student performance is at the 50th NPR, and second grade student scores at the 54th NPR in math. These scores indicate that Arkansas first grade students have dropped to the national average performance in math, while second grade students are slightly above the national average in math performance.

Iowa Test of Basic Skills Performance: Regional

Similar to the statewide results, all regions throughout the state experience decreases in ITBS performance for first and second grade students. Not surprisingly, the trend of performance on statewide exams being the highest in Northwest Arkansas does not change with ITBS performance. In fact, Northwest Arkansas is the only region in the state with higher percentile ranks than the state average.

In 2011-12, first grade students from all regions were performing at or above the national average in reading, language and math. In 2014-15, however, only Northwest Arkansas first graders are performing above the national average.

Compared to ITBS results from 2011-12, all regions throughout the state are experiencing similar decreases in performance. Although the decreases in first grade language are much greater than in any other content area, the decreases are relatively consistent across all regions of the state. The achievement gap between the highest performing region and lowest performing region demonstrates the equality of the declines. The achievement gap has remained consistent in reading and language for first and second grades. In math, however, the gap between the highest performing region and lowest performing region has increased by 2 points.

Table 2. Grade 1 National Percentile Rank on the Iowa Test of Basic Skills, 2011-12 and 2014-15, by Region.

	Reading NPR			Language NPR			Math NPR		
	2011-12	2014-15	Change	2011-12	2014-15	Change	2011-12	2014-15	Change
Arkansas	56	51	-5	61	48	-13	56	50	-6
Northwest	60	56	-5	67	54	-13	62	56	-5
Northeast	55	49	-6	60	47	-12	56	49	-7
Central	54	49	-5	57	45	-12	52	47	-6
Southwest	54	50	-4	58	46	-11	54	48	-6
Southeast	50	45	-6	53	41	-12	50	42	-8

Table 3. Grade 2 National Percentile Rank on the Iowa Test of Basic Skills, 2011-12 and 2014-15, by Region.

	Reading NPR			Language NPR			Math NPR		
	2011-12	2014-15	Change	2011-12	2014-15	Change	2011-12	2014-15	Change
Arkansas	59	55	-4	56	53	-3	59	54	-5
Northwest	63	59	-4	61	58	-3	64	59	-5
Northeast	58	54	-4	54	53	-1	57	53	-4
Central	59	55	-4	55	51	-4	56	52	-4
Southwest	56	51	-5	53	50	-3	55	48	-7
Southeast	53	49	-4	48	46	-2	54	47	-7

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Summary

The 2014-15 standardized tests results released so far are concerning. Benchmark exams reflected a slight increase over last year in 5th grade science proficiency, but proficiency rates continued to fall on 7th grade science, resulting in only 34% of students statewide meeting proficiency expectations. In addition, there was no increase in proficiency on the Biology End-Of-Course exam.

Perhaps more disconcerting that the declining science scores are the declining scores for first and second grade students on the ITBS exam. This nationally comparable assessment showed the continued decline in Arkansas student performance in reading, language and math.

Are Common Core State Standards (CCSS) be to blame for these results?

Science performance should not decrease as a result of CCSS because Arkansas science standards and assessments have not changed due to CCSS. It is possible, however, that schools focused less on science as they implemented CCSS, or perhaps are more concerned with literacy and math instruction because science scores are not used in school accountability determinations.

Declines in first and second grade performance on the ITBS, however, could be due to a lack of alignment between CCSS and the assessment. ITBS may measure student knowledge of content not included in the CCSS, since the test was developed prior to CCSS.

Looking ahead

Although a new assessment is expected soon, first and second grade student performance will still be assessed using the ITBS in 2015-16, allowing one more year for the examination of patterns in reading, language and math performance.

This was the last year, however, for Arkansas students to be assessed on Benchmark and EOC science exams. Beginning this spring, ACT Aspire will be used to measure performance in English Language Arts, math and science for Arkansas students beginning in grade 3. While changes in assessment make it difficult to examine trends in student performance over time, perhaps the assessment of science every year will lead teachers and students to place renewed emphasis on mastering this increasingly important content.

For more detail on school- and district-level results, see the links listed below in the “Sources” section.

Sources:

All of the tables and figures presented above were created using original source data provided by the Arkansas Department of Education Testing Website found here:

<http://www.arkansased.org/divisions/learning-services/student-assessment/test-scores/>

At the OEP, we have taken these raw grade-by-grade data and aggregated them into school- and district-level databases that allow the user to look at performance of the entire school, the entire district, by educational region, and statewide. Click on the following link to access these data by exam and aggregation level:

www.officeforeducationpolicy.org/arkansas-schools-data