



**Arkansas Better Chance (ABC) 2023
Program Longitudinal Study 2009-2022**

November 2023

Ellie Wheeler Hill, M.A.

Sarah Argue, Ph.D.

Greg Holland, Ph.D.

Arkansas Research Center

University of Central Arkansas



Table of Contents

| | |
|---|----|
| REPORT SUMMARY | 3 |
| ON-TIME PROFICIENCY | 4 |
| 2022 ACT ASPIRE PROFICIENCY | 5 |
| 2022 LITERACY (ELA) PROFICIENCY | 5 |
| 2022 LITERACY (ELA) – ENGLISH SUBCATEGORY PROFICIENCY | 6 |
| 2022 LITERACY (ELA) – READING SUBCATEGORY PROFICIENCY | 6 |
| 2022 MATH PROFICIENCY | 7 |
| 2022 SCIENCE PROFICIENCY | 7 |
| ATTENDANCE | 8 |
| CORE COMPARISON – KINDERGARTEN DAYS PRESENT | 8 |
| CORE COMPARISON – 2022 DAYS PRESENT | 8 |
| RETENTION | 9 |
| CORE COMPARISON – 2022 RETENTION KINDERGARTEN TO 12 TH GRADE | 9 |
| GRADUATION | 10 |
| ENROLLMENT BEFORE GRADUATION | 11 |
| ON-TIME PROFICIENCY DETAIL – LITERACY (ELA) BY GRADE | 12 |
| ABC DATA DESCRIPTION | 16 |
| CORE COMPARISON DATA | 17 |
| REPORTING TERMS | 18 |
| ABC | 18 |
| CORE COMPARISON | 18 |
| DESE | 18 |
| DATA QUALITY NOTES | 19 |
| NOTES ON APPARENT ROUNDING ERRORS | 19 |
| NOTES ON EXCLUDED DATA | 19 |
| NOTES ON PROFICIENCY CALCULATIONS | 19 |

Arkansas Better Chance (ABC) 2023 Program Longitudinal Study 2009-2022

REPORT SUMMARY

The Arkansas Better Chance (ABC) 2023 Program Longitudinal Study 2009-2022 evaluates the kindergarten through 12th grade outcomes of participation in pre-k services in Arkansas for ABC participants from 2009 to 2021 compared to low-income students not participating in pre-K. ADE DESE data is analyzed to determine outcomes for these two core groups from 2010 to 2022. Kindergarten meal statuses of direct certification and free lunch are in the core comparison.

The “**core comparison**” of this study is between ABC pre-k participants and students who had no known pre-k participation with the same low socio-economic household income levels. These two core groups are identified as “**ABC**” and “**No Known Pre-K (NK)**” in this study.

This study shows that compared to No Known Pre-K, the **ABC participants consistently have:**

- **Higher ACT Aspire on-time proficiency** in ELA Literacy, Math, and Science
- **More days attended** in kindergarten through 12th grade
- **Lower rates of grade level retention**
- **Higher rates of graduation** (*a new measure for this 2023 study*)

The ABC participants of 2009 could have graduated from high school on-time during the 2022 academic year. This 2023 study allowed for the kindergarten rate of graduation to be calculated.

The core comparison groups (ABC and NK) are set at kindergarten, and **all longitudinal outcomes in this study are measured using the kindergarten starting point as the baseline.**

The purpose of the ABC program is to offer high quality early education services to children exhibiting developmental and socio-economic risk factors. This study sets the two core comparison groups on those DESE kindergarten students which best represent the contrast between children who received ABC program services and those children who would have qualified for ABC program services but did not participate in ABC.

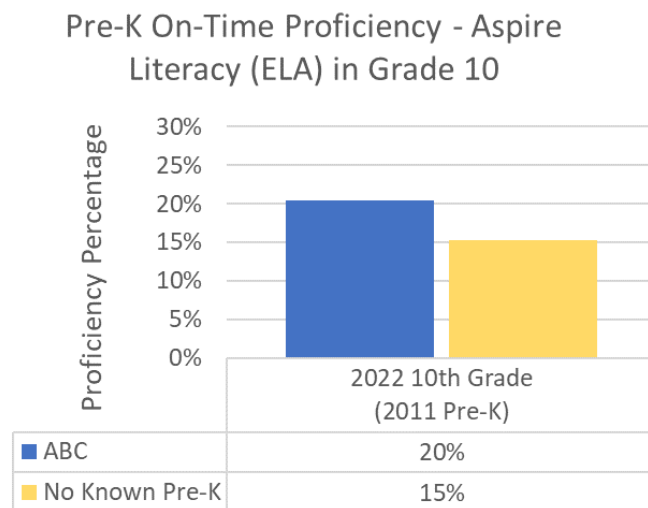
This study evaluates the outcomes of pre-k participation, not an established DESE measure of accountability. The calculations keep the core comparison groups of ABC and NK unchanged. By establishing this core comparison, the impact of the ABC program can be isolated and studied longitudinally for outcomes of Arkansas K-12 public education through high school graduation.

ON-TIME PROFICIENCY

On-time proficiency is a calculation of the percentage of DESE kindergarten students who are proficient on a state assessment for the appropriate on-time grade level after kindergarten. Proficiency data includes reported Proficiency Levels L3 and L4 or Benchmark Readiness = Yes.

For example, in the earliest kindergarten class of students who took the 2022 ACT Aspire, a measure of on-time proficiency requires that a 2012 DESE kindergarten student achieved proficiency when tested in Grade 10 on the 2022 ACT Aspire Literacy (ELA) assessment.

The on-time Literacy (ELA) proficiency of 2011 ABC participants in Grade 10 in 2022 was 20%. The on-time Literacy (ELA) proficiency of No Known 2011 Pre-K in Grade 10 in 2022 was 15%.



These on-time proficiency percentages use the original 2012 kindergarten ABC and NK core comparison baseline data. Students who were retained, not proficient, not tested, or no longer attend DESE schools are not on-time proficient for the purpose of this calculation.

ABC and NK kindergarten students who are no longer enrolled in DESE schools cannot be evaluated, but those **outcomes of ABC and NK kindergarten students which are known are directly comparable in terms of their Arkansas DESE outcomes in this study.**

While it is possible that 2011 ABC and NK students had proficient outcomes in non-DESE schools during 2022, there is no reasonable assumption that No Known Pre-K students should have a higher rate of on-time proficiency in non-DESE schools during 2022 than the ABC students in non-DESE schools. The core differences which can be known are present in the DESE outcomes.

The longitudinal count of students is set for DESE kindergarten and does not change.
All calculations for on-time measures use the original DESE kindergarten count as the baseline.

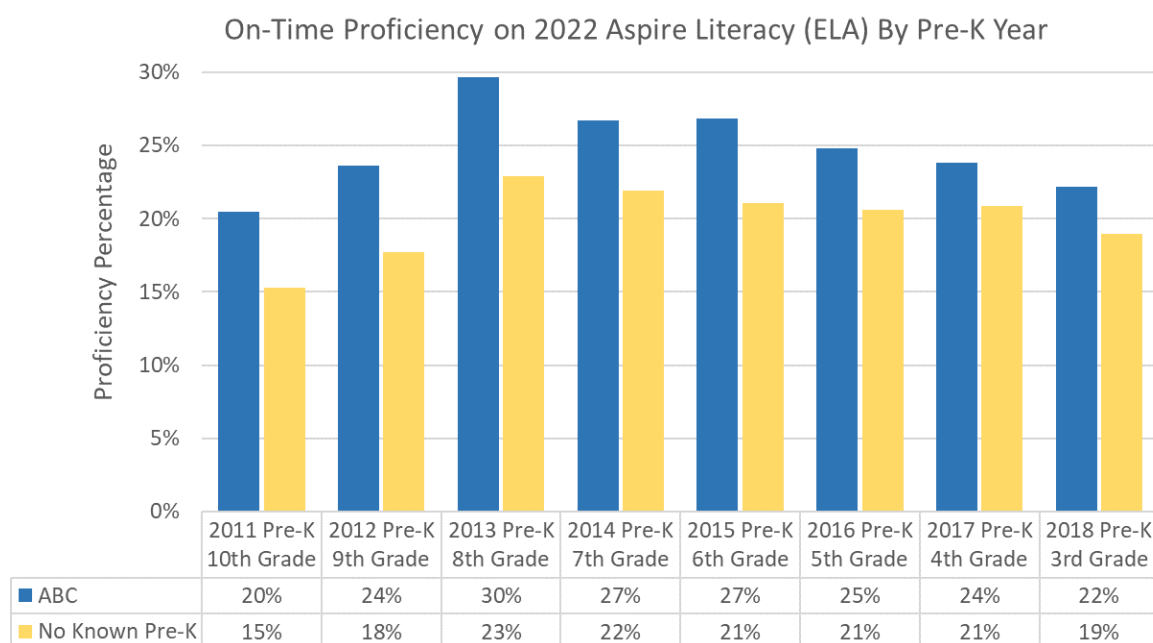
2022 ACT ASPIRE PROFICIENCY

The 2022 ACT Aspire was administered to DESE students in grades 3 through 10. Each of these grades correspond to an earlier DESE kindergarten year and indication of pre-k participation. Both core comparison groups **ABC** and **No-Known Pre-K** are associated with the 2022 ACT Aspire.

Eight years of longitudinal analysis of 2022 ACT Aspire on-time proficiency outcomes are:

- 2011 Pre-K – 2012 DESE Kindergarten – ACT Aspire 10th Grade in 2022
- 2012 Pre-K – 2013 DESE Kindergarten – ACT Aspire 9th Grade in 2022
- 2013 Pre-K – 2014 DESE Kindergarten – ACT Aspire 8th Grade in 2022
- 2014 Pre-K – 2015 DESE Kindergarten – ACT Aspire 7th Grade in 2022
- 2015 Pre-K – 2016 DESE Kindergarten – ACT Aspire 6th Grade in 2022
- 2016 Pre-K – 2017 DESE Kindergarten – ACT Aspire 5th Grade in 2022
- 2017 Pre-K – 2018 DESE Kindergarten – ACT Aspire 4th Grade in 2022
- 2018 Pre-K – 2019 DESE Kindergarten – ACT Aspire 3rd Grade in 2022

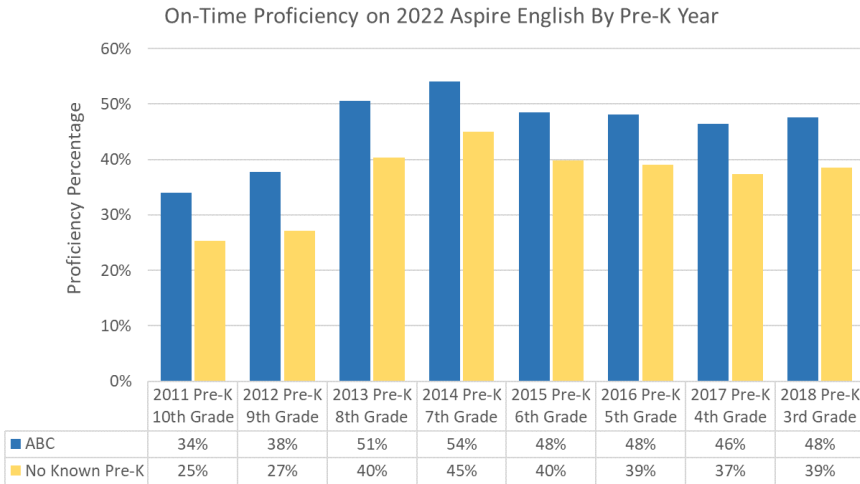
2022 LITERACY (ELA) PROFICIENCY



For each of eight years of kindergarten students, students with ABC participation have higher on-time Literacy (ELA) proficiency than No Known Pre-K on the 2022 ACT Aspire.

The overall difference is 5% higher on-time 2022 ACT Aspire Literacy (ELA) proficiency for ABC, ranging from 3% higher in 3rd grade and 4th grade to 7% higher in 8th grade.

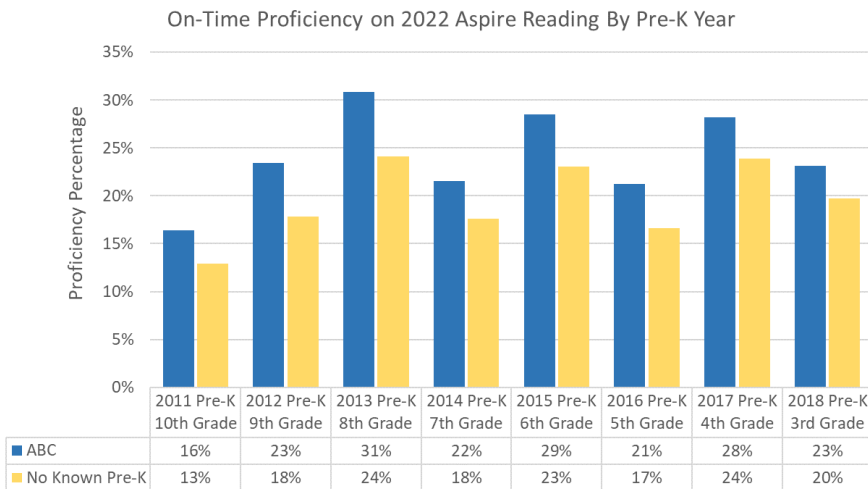
2022 LITERACY (ELA) – ENGLISH SUBCATEGORY PROFICIENCY



For each of eight years of kindergarten students, students with ABC participation have higher on-time Literacy (ELA) proficiency in the English subcategory than No Known Pre-K on the 2022 ACT Aspire.

The overall difference is 9% higher on-time 2022 ACT Aspire Literacy (ELA) English subcategory proficiency for ABC, ranging from 8% higher in 6th grade to 11% higher in 8th grade and 9th grade.

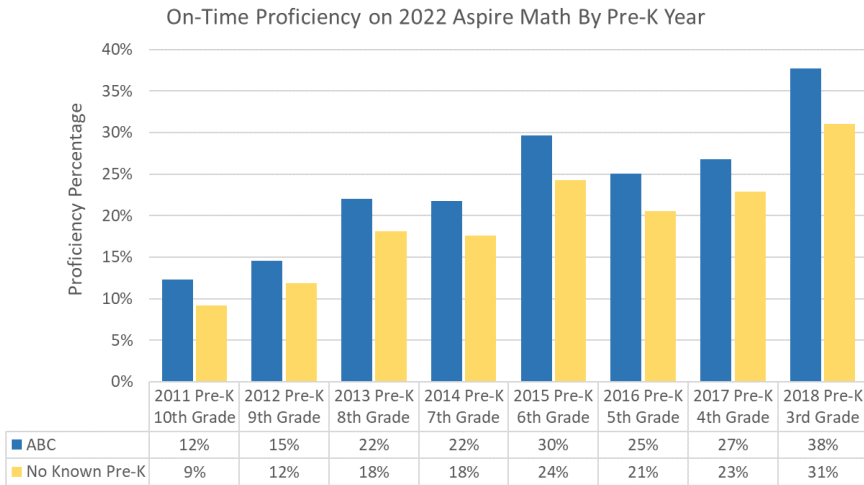
2022 LITERACY (ELA) – READING SUBCATEGORY PROFICIENCY



For each of eight years of kindergarten students, students with ABC participation have higher on-time Literacy (ELA) proficiency in the English subcategory than No Known Pre-K on the 2022 ACT Aspire.

The overall difference is 4% higher on-time 2022 ACT Aspire Literacy (ELA) Reading subcategory proficiency for ABC, ranging from 3% higher in 3rd grade and 10th grade to 7% higher in 8th grade.

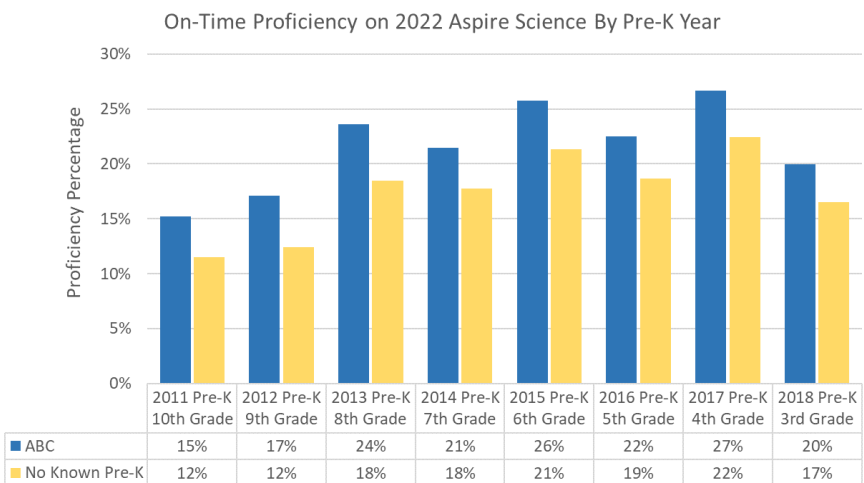
2022 MATH PROFICIENCY



For each of eight years of kindergarten students, students with ABC participation have higher on-time Math proficiency than No Known Pre-K on the 2022 ACT Aspire.

The overall difference is 4% higher on-time 2022 ACT Aspire Math proficiency for ABC, ranging from 3% higher in 9th grade and 10th grade to 7% higher in 3rd grade.

2022 SCIENCE PROFICIENCY



For each of eight years of kindergarten students, students with ABC participation have higher on-time Science proficiency than No Known Pre-K on the 2022 ACT Aspire.

The overall difference is 4% higher on-time 2022 ACT Aspire Science proficiency for ABC, ranging from 3% higher in several grades to 6% higher in 8th grade. All eight years of kindergarten students from 2011 to 2018 have higher 2022 ACT Aspire on-time proficiency in Literacy (ELA), Math, and Science for low-income ABC participants compared to low-income DESE kindergarten students with no known pre-k participation.

2022 ACT Aspire ABC Literacy (ELA) 5% higher, ABC Math 4% higher, ABC Science 4% higher

ATTENDANCE

CORE COMPARISON – KINDERGARTEN DAYS PRESENT

There is a significant difference in average Total Days Present in kindergarten between ABC and NK. On average, **ABC kindergarten students attend +5.5 additional days of school compared to No Known Pre-K students**, most recently +6.3 additional days in 2021-2022.

Kindergarten Average Total Days Present

| Kindergarten Year | ABC Participants | No Known Pre-K | ABC Days vs. NK |
|-------------------|------------------|----------------|-----------------|
| 2010 | 163.7 | 158.1 | +5.6 |
| 2011 | 164.5 | 158.5 | +6.0 |
| 2012 | 165.1 | 159.1 | +6.0 |
| 2013 | 165.2 | 159.5 | +5.7 |
| 2014 | 164.1 | 158.0 | +6.1 |
| 2015 | 164.8 | 158.3 | +6.5 |
| 2016 | 165.4 | 160.2 | +5.2 |
| 2017 | 165.0 | 159.2 | +5.7 |
| 2018 | 163.8 | 158.7 | +5.1 |
| 2019 | 164.2 | 159.4 | +4.8 |
| 2020 | 167.0 | 162.2 | +4.8 |
| 2021 | 163.4 | 159.1 | +4.3 |
| 2022 | 162.2 | 155.9 | +6.3 |

CORE COMPARISON – 2022 DAYS PRESENT

The most recent year of school allows a comparison of ABC and NK kindergarten groups for the past thirteen years, with attendance days present shown up to 12th grade for those students still enrolled in DESE schools.

| Kindergarten Year | 2022 Grade Level | ABC Participants | No Known Pre-K | ABC Days vs. NK |
|-------------------|------------------|------------------|----------------|-----------------|
| 2010 | 12th | 149.9 | 147.1 | +2.8 |
| 2011 | 11th | 150.7 | 149.7 | +1.0 |
| 2012 | 10th | 154.3 | 152.0 | +2.3 |
| 2013 | 9th | 157.9 | 155.5 | +2.3 |
| 2014 | 8th | 159.4 | 157.2 | +2.2 |
| 2015 | 7th | 160.7 | 158.4 | +2.3 |
| 2016 | 6th | 161.8 | 159.5 | +2.3 |
| 2017 | 5th | 161.7 | 159.8 | +2.0 |
| 2018 | 4th | 161.9 | 159.2 | +2.8 |
| 2019 | 3rd | 161.8 | 158.9 | +2.9 |
| 2020 | 2nd | 161.4 | 158.1 | +3.3 |
| 2021 | 1st | 161.5 | 157.7 | +3.8 |
| 2022 | Kindergarten | 162.2 | 155.9 | +6.3 |

RETENTION

Students who are not promoted from one grade level to the next according to standard annual progress are retained or “held back” to repeat a grade level. This repetition of a grade level removes the student from the majority of his/her classmates, particularly in the data sets of longitudinal research and on-time measurements.

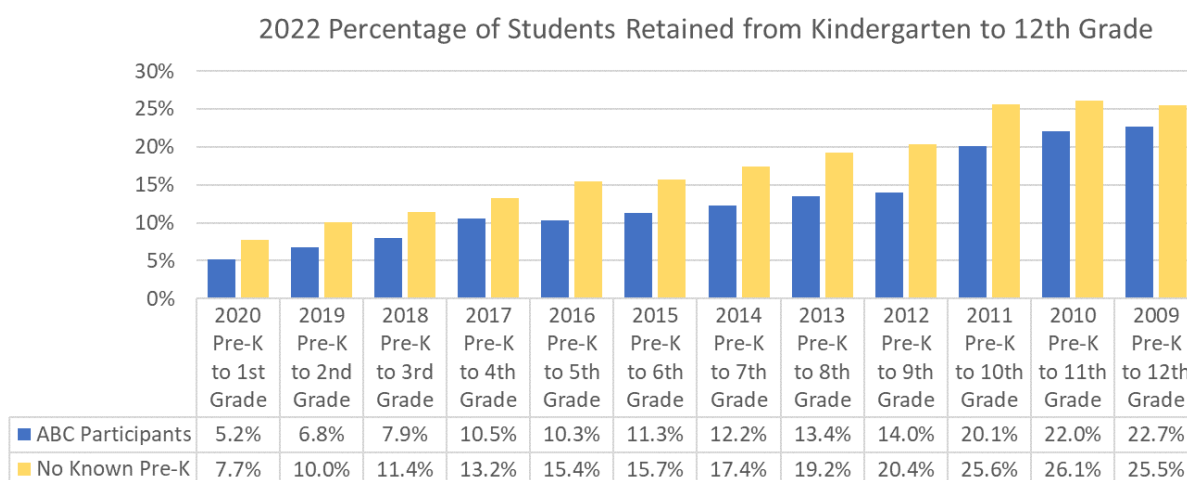
2022 RETENTION KINDERGARTEN TO 12TH GRADE

| Kindergarten Year | 2022 Grade Level | ABC Participants | No Known Pre-K | ABC vs. NK |
|-------------------|------------------|------------------|----------------|------------|
| 2021 | 1st | 5.2% | 7.7% | -2.6% |
| 2020 | 2nd | 6.8% | 10.0% | -3.2% |
| 2019 | 3rd | 7.9% | 11.4% | -3.4% |
| 2018 | 4th | 10.5% | 13.2% | -2.8% |
| 2017 | 5th | 10.3% | 15.4% | -5.1% |
| 2016 | 6th | 11.3% | 15.7% | -4.4% |
| 2015 | 7th | 12.2% | 17.4% | -5.2% |
| 2014 | 8th | 13.4% | 19.2% | -5.8% |
| 2013 | 9th | 14.0% | 20.4% | -6.4% |
| 2012 | 10th | 20.1% | 25.6% | -5.5% |
| 2011 | 11th | 22.0% | 26.1% | -4.1% |
| 2010 | 12th | 22.7% | 25.5% | -2.9% |

Lower rates of retention are observed in all grades for ABC compared to No Known Pre-K.

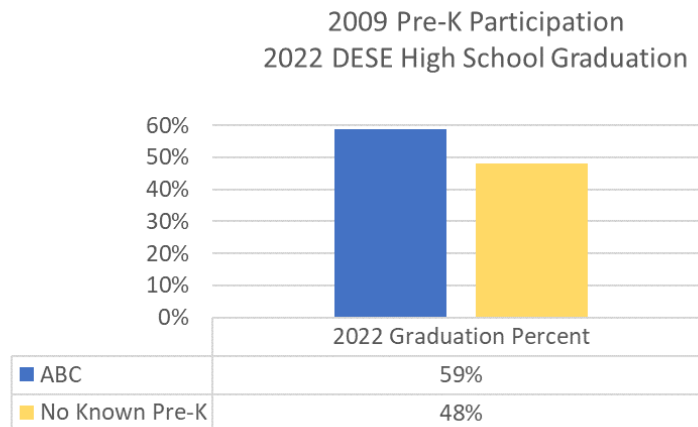
Students who transfer out of DESE schools are not included for years without DESE enrollment but may return to DESE in later years to be counted again. Formerly retained students are not counted as retained if they have been promoted back to their original on-time grade level.

Students who do not attend school in DESE are not counted in these retention calculations since they do not have a DESE enrollment record.



PRE-K COHORT GRADUATION

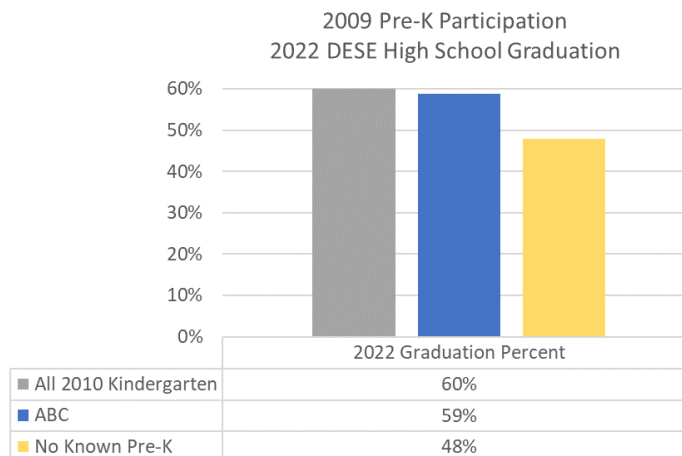
This 2023 ABC Program Longitudinal Study is the first to report graduation rates based upon ABC participation. ABC participants in 2009 were reported in the 2022 DESE high school graduation data 11% more often than No Known Pre-K students who did not attend pre-k in 2009.



This is not a standard calculation of high school graduation rate. This is a Pre-K measure.

Calculation is specific to the core comparison groups established for 2009 pre-k participation in ABC or no known pre-k participation and free meal status in 2010 DESE kindergarten.

The percentage of all 2010 DESE kindergarten students, regardless of pre-k participation or meal status, which was reported in the 2022 DESE high school graduation data was 60%.

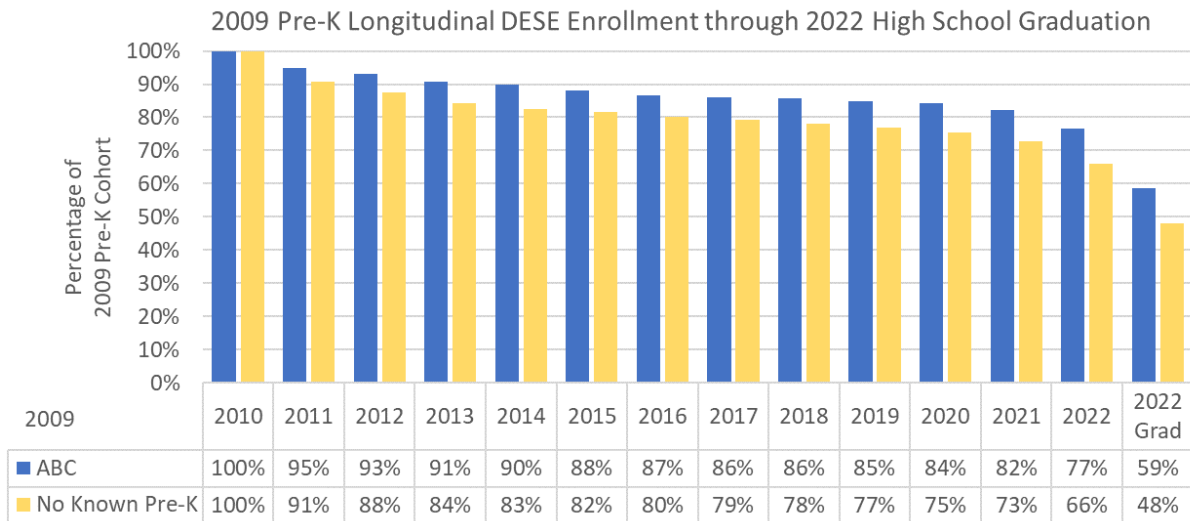


Students who transferred out of DESE schools are not included in the 2022 graduation percentage. Students who are still enrolled in DESE schools but did not graduate in 2022 are not included in the 2022 graduation percentage. It is expected that some students graduated from non-DESE schools or completed their GED. Those 2022 rates of other graduation/completions are not known, but they would not be reasonably associated with 2009 pre-k participation.

This calculation provides a direct DESE comparison of graduation outcomes for 2010 kindergarten students with 11% higher 2022 graduation for ABC compared to No Known Pre-K.

ENROLLMENT BEFORE GRADUATION

The difference in 2022 DESE graduation percentages for 2009 ABC participants compared to No Known Pre-K students reflects a similar difference for those students from 2010 to 2022 DESE enrollment percentages. While both groups were established in 2010 DESE kindergarten enrollment, the percentage of students remaining enrolled in DESE schools through 2022 continued to decline each year.

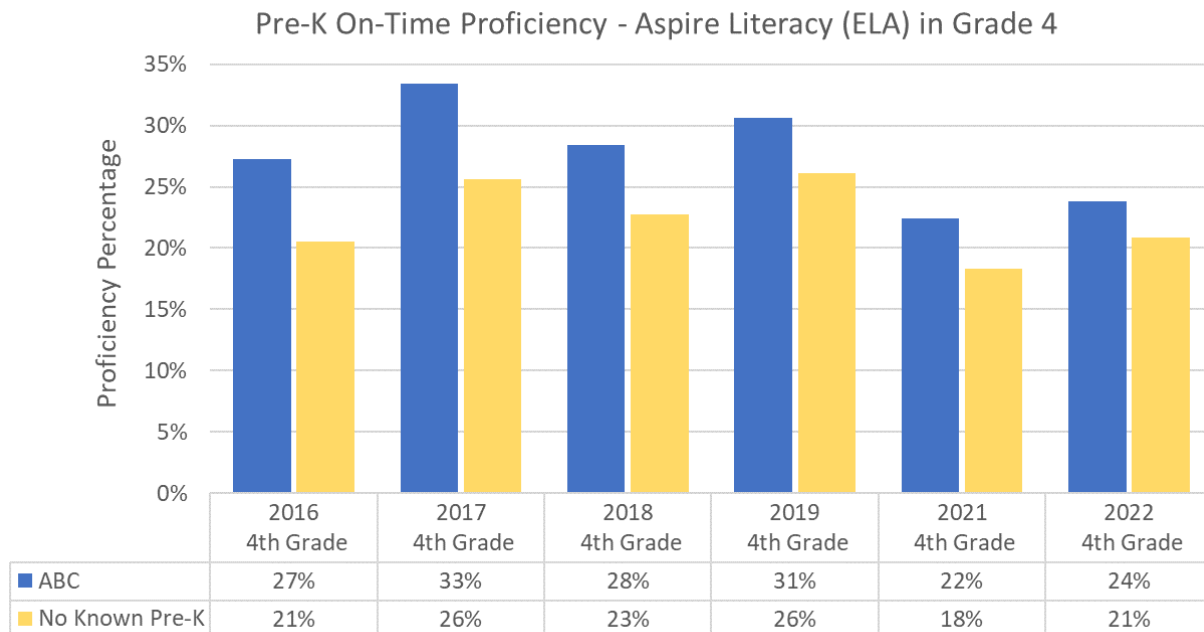
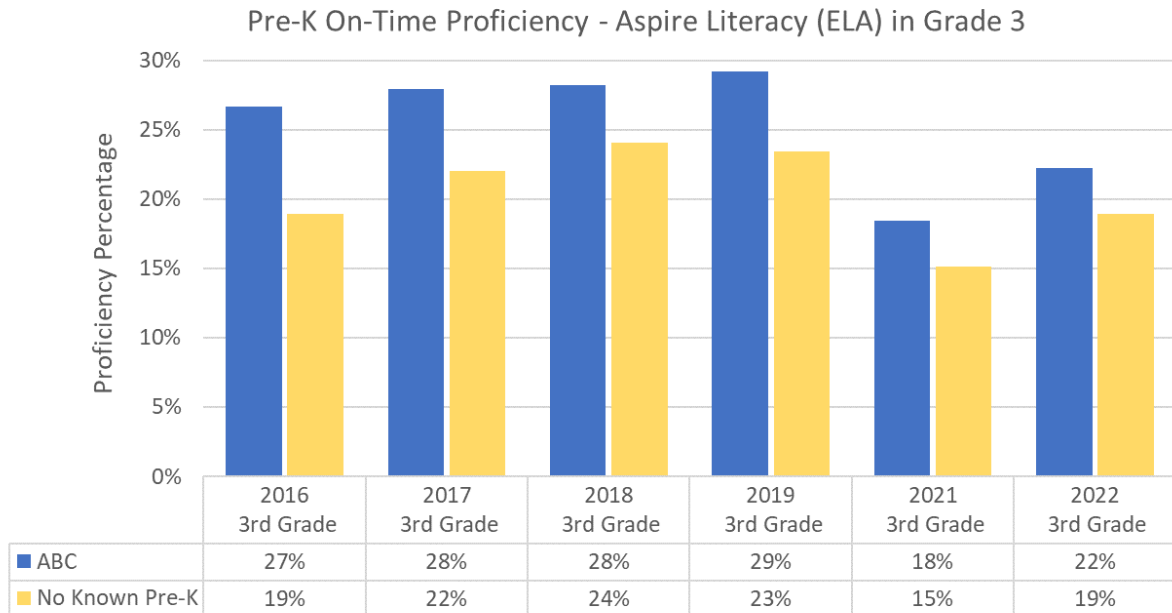


The 11% difference for ABC and No Known Pre-K in 2022 DESE graduation rates (59% to 48%) is mirrored by an 11% difference in 2022 enrollment (77% to 66%). Both groups had 18% more students enrolled in DESE schools in 2022 than completing graduation.

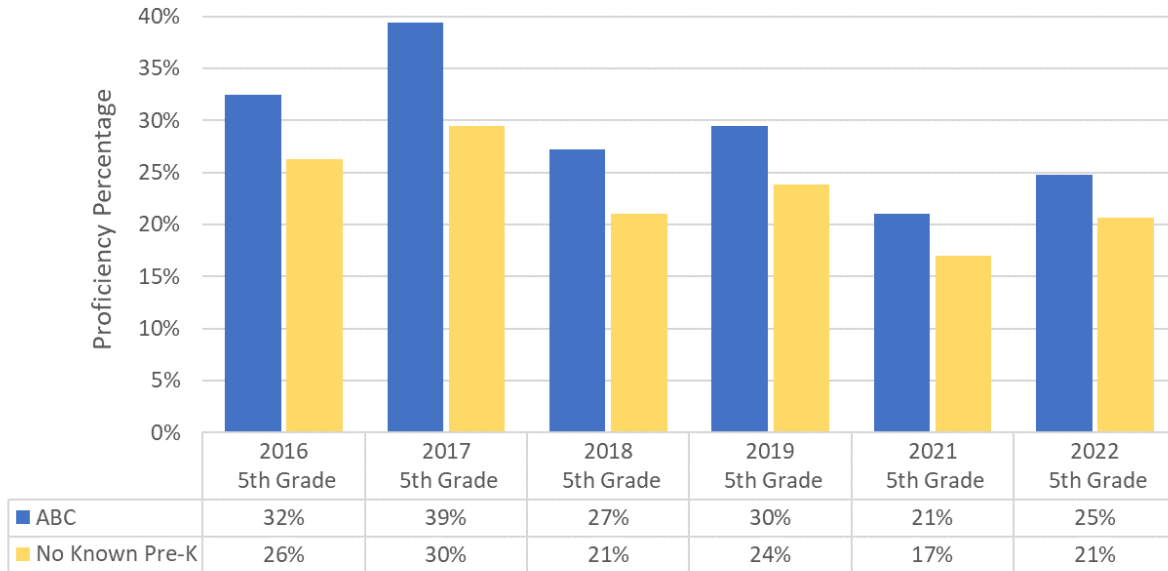
Retention of students in both groups was greater than 18% in 2022, which may explain the majority of 2022 non-graduates who were still enrolled during 2022.

ON-TIME PROFICIENCY DETAIL – LITERACY (ELA) BY GRADE

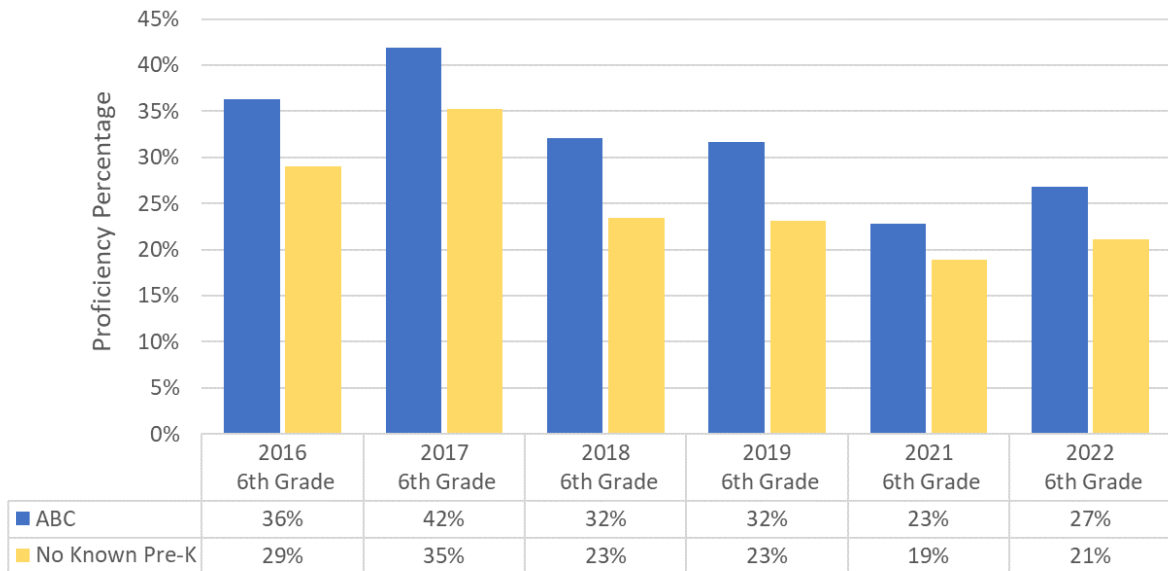
Detailed comparison of ABC and No Known Pre-K by grade level for multiple years of ACT Aspire assessments are presented in this section of the report. 2016-2022 Literacy ELA for grade levels 3 through 10 are included.



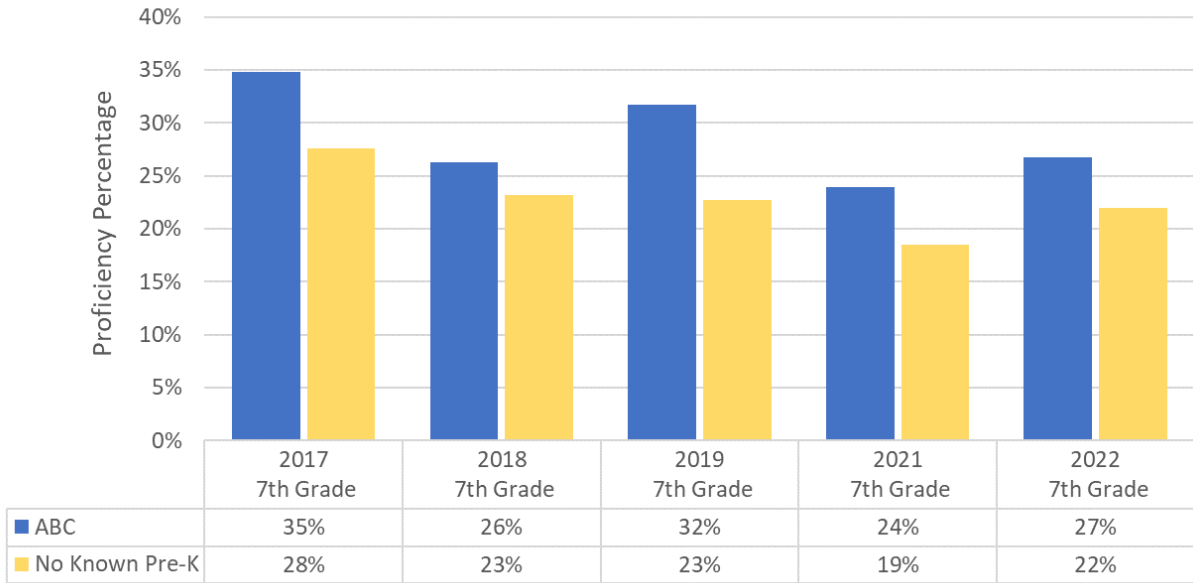
Pre-K On-Time Proficiency - Aspire Literacy (ELA) in Grade 5



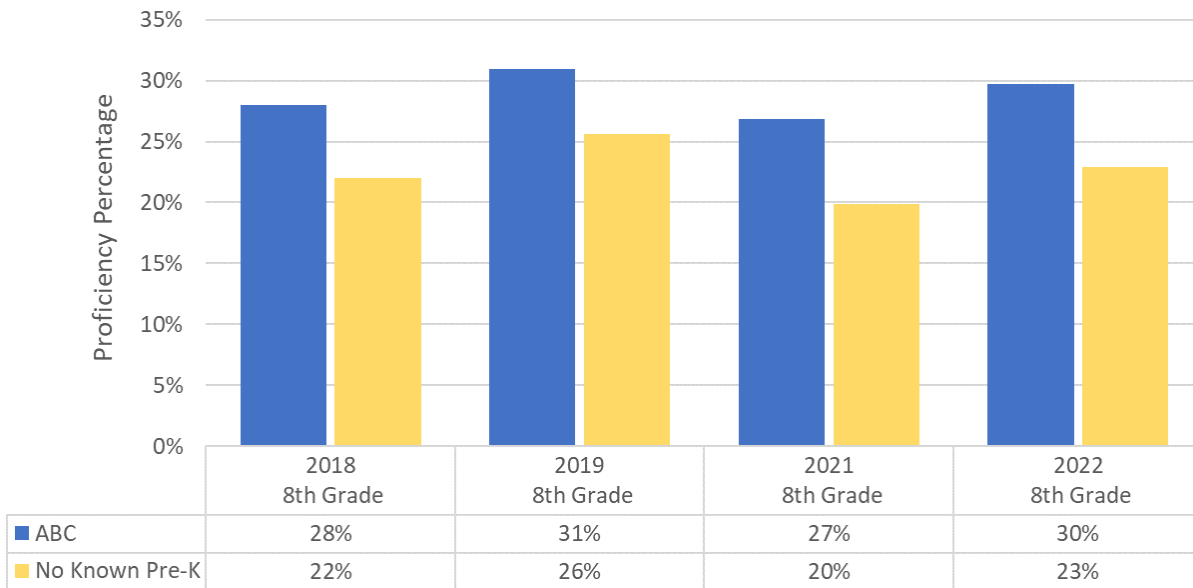
Pre-K On-Time Proficiency - Aspire Literacy (ELA) in Grade 6



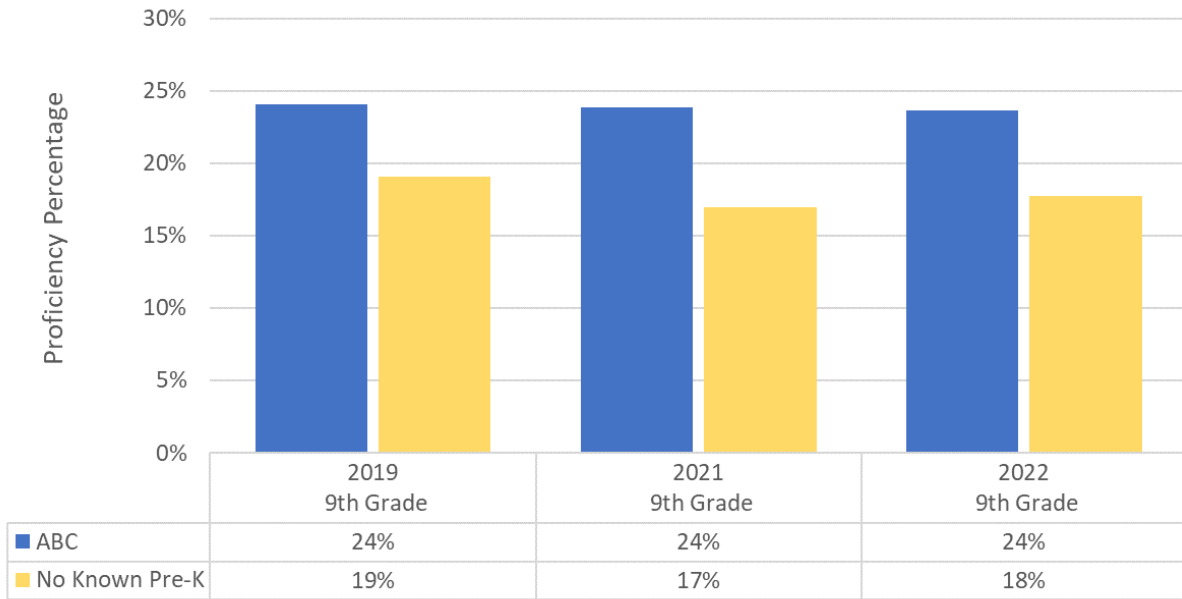
Pre-K On-Time Proficiency - Aspire Literacy (ELA) in Grade 7



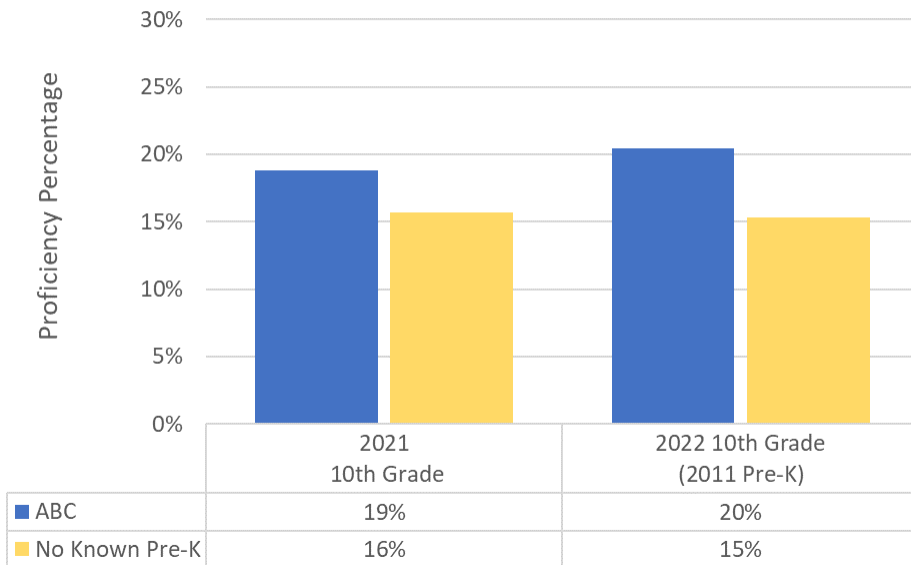
Pre-K On-Time Proficiency - Aspire Literacy (ELA) in Grade 8



Pre-K On-Time Proficiency - Aspire Literacy (ELA) in Grade 9



Pre-K On-Time Proficiency - Aspire Literacy (ELA) in Grade 10



ABC DATA DESCRIPTION

ABC participant records are available for academic years 2009 through 2022. Deduplication processes result in 241,207 individual students noted as school age prior to August 1, 2021. More recent ABC participants were excluded as not enrolled in DESE kindergarten by 2021-2022.

| Pre-K Year | ABC Participants |
|------------|------------------|
| 2009 | 18,214 |
| 2010 | 19,866 |
| 2011 | 19,498 |
| 2012 | 19,615 |
| 2013 | 19,405 |
| 2014 | 19,416 |
| 2015 | 18,255 |
| 2016 | 18,409 |
| 2017 | 18,441 |
| 2018 | 18,191 |
| 2019 | 18,296 |
| 2020 | 18,039 |
| 2021 | 15,562 |
| TOTAL | 241,207 |

The most recent year of ABC participation associated with 2021-2022 kindergarten students is ABC 2020-2021. Participation in ABC during 2020-2021 was about 14% lower than prior years due to the COVID-19 pandemic.

Of the 15,562 ABC participants in 2021, enrollment in DESE kindergarten was 12,427 (79.9%). The percentage of ABC participants enrolled in 2022 DESE kindergarten is consistent with prior years.

| Pre-K Year | ABC Participants | ABC to DESE Kindergarten | DESE Enrolled % |
|------------|------------------|--------------------------|-----------------|
| 2009 | 18,214 | 12,719 | 69.8% |
| 2010 | 19,866 | 14,726 | 74.1% |
| 2011 | 19,498 | 14,134 | 72.5% |
| 2012 | 19,615 | 14,948 | 76.2% |
| 2013 | 19,405 | 14,935 | 77.0% |
| 2014 | 19,416 | 14,830 | 76.4% |
| 2015 | 18,255 | 14,549 | 79.7% |
| 2016 | 18,409 | 15,064 | 81.8% |
| 2017 | 18,441 | 14,909 | 80.8% |
| 2018 | 18,191 | 14,649 | 80.5% |
| 2019 | 18,296 | 14,783 | 80.8% |
| 2020 | 18,039 | 14,452 | 80.1% |
| 2021 | 15,562 | 12,427 | 79.9% |
| TOTAL | 241,207 | 187,125 | 77.6% |

80% of more than 125,000 ABC participants 2015 to 2021 enrolled in DESE kindergarten.

CORE COMPARISON DATA

The core comparison of this report requires full-time participation in ABC more than seven hours per day and low socio-economic status in DESE kindergarten, identified either by direct certification or free meal indicator.

ABC participants with fewer than 7 hours per day or DESE kindergarten meal status of reduced or full-price meal indicators are not included in the ABC core comparison to low socio-economic status DESE kindergarten students with no known pre-k participation.

| DESE Kindergarten | Total Students | ABC Core Students | No Known Pre-K Core |
|-------------------|----------------|-------------------|---------------------|
| 2010 | 38,155 | 7,102 | 6,555 |
| 2011 | 34,360 | 7,393 | 5,316 |
| 2012 | 35,151 | 6,980 | 6,049 |
| 2013 | 38,560 | 8,032 | 6,912 |
| 2014 | 37,611 | 7,876 | 6,853 |
| 2015 | 36,302 | 8,175 | 6,984 |
| 2016 | 35,435 | 8,804 | 7,031 |
| 2017 | 35,173 | 9,131 | 6,654 |
| 2018 | 35,292 | 8,632 | 7,137 |
| 2019 | 34,861 | 8,487 | 7,109 |
| 2020 | 35,301 | 8,954 | 7,632 |
| 2021 | 33,767 | 8,645 | 6,381 |
| 2022 | 35,001 | 5,314 | 8,906 |
| TOTAL | 464,969 | 103,525 | 89,519 |

The total kindergarten enrollment for academic years 2010 through 2022 in the DESE data provided was 464,969. As previously stated, 187,125 ABC students were matched.

40.2% of the total DESE kindergarten enrollment for 2010 through 2022 were ABC participants.

22.3% of the total DESE kindergarten enrollment 2010 to 2022 are ABC core comparison students in this analysis. 19.3% of the total DESE kindergarten enrollment 2010 to 2022 are No Known Pre-K (NK) core comparison students in this analysis. The remaining 58.4% of DESE kindergarten students participated in some other pre-k program or do not have low socio-economic status.

REPORTING TERMS

ABC

Unless otherwise stated, references to Arkansas Better Chance (ABC) within this analysis specifically isolate full-time ABC participants (7 hours or more per day). While other children also received ABC services and are included in the ABC data sets provided, the evaluation of the ABC program focuses upon participants in the full-time ABC program.

CORE COMPARISON

In the core comparison, a phrase used throughout this analysis, the full-time participants in the ABC program who have the lowest socio-economic indicator (free meal status) are compared to students who received no known pre-kindergarten services and are also in the lowest socio-economic indicator (free meal status) according to their DESE Kindergarten enrollment record. This core comparison isolates the difference in the two groups as the participation in ABC, while minimizing any differences which may be due to socio-economic factors. The evaluation of the ABC program is most valid when external factors are reduced in the calculations.

DESE

DESE is the abbreviation for Division of Elementary and Secondary Education, which is part of the Arkansas Department of Education for public schools in Arkansas. All grade levels from Kindergarten through 12th grade and high school graduation are included.

FREE MEAL STATUS

Free meal status represents the lowest socio-economic indicator in DESE enrollment data. Both types of free meal status (Direct Certification and Free Meal) are included as Free meal status. ABC Participants may have any level of socio-economic status, however the Core Comparison of this study isolates full-time ABC participants identified by DESE as Direct Certification or Free Meal (below 130%).

| | | | | |
|-----------------------------------|-----------------------------------|--------------|--------------------|--------------|
| Percent of national poverty level | Below 130% | 130% to 185% | Above 185% to 200% | over 200% |
| Meal Status | Direct Certification or Free Meal | Reduced | Full-price | |
| ABC participation | Eligible | | | Not Eligible |

DATA QUALITY NOTES

NOTES ON APPARENT ROUNDING ERRORS

Throughout this analysis, calculations have been rounded to the nearest whole number, percentage, or to the nearest tenth, for smaller calculated values. This rounding for display purposes and reading comprehension may produce apparent errors, but the original calculations are correct.

NOTES ON EXCLUDED DATA

Certain records have been excluded in the analysis when one or more of the following is observed:

- Fiscal years prior to kindergarten when the Research ID is associated with a higher DESE grade level
 - o DESE research ID application may inadvertently combine records for two students under the same research ID.
- Kindergarten students without a corresponding enrollment record in Cycle 2 (Oct. 15), indicating the student was not enrolled before October 1.
- Attendance which exceeds 178 days present per academic year.
 - o Calculated days present is limited to 178, rather than higher values in the data provided.

NOTES ON PROFICIENCY CALCULATIONS

The calculations for proficiency in this analysis will not match the official proficiency reporting for Arkansas because the kindergarten research data forms the basis of the students selected. In the third grade, proficiency has been calculated within this report for only those students who attended a DESE school in kindergarten, not for all third grade students. Official reporting for proficiency for all Arkansas students exceeds the scope of this analysis which is focused upon ABC Pre-school participation and comparison groups of Arkansas kindergarteners.

The longitudinal aspect of this analysis extends to proficiency on assessments in later years and grade levels, but this analysis does not extend to Arkansas students beyond the established starting point with kindergarten data.

The assessment data provided for this research includes a proficiency level data element with values of L1, L2, L3, and L4. Proficiency calculations in this analysis include L3 and L4 as proficient level outcomes. Students with L1 and L2 proficiency levels are not proficient in these calculations.



**DIVISION OF ELEMENTARY
& SECONDARY EDUCATION**

