COMMONWEALTH of VIRGINIA

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September 20, 2022

The Honorable Luke E. Torian
Chairman, House Appropriations Committee
Virginia General Assembly
4222 Fortuna Plaza, Suite 659
Dumfries, Virginia 22025

The Honorable Janet D. Howell
Chair, Senate Finance Committee
Virginia General Assembly
P.O. Box 2608
Reston, Virginia 20195-0608

Dear Sir and Madam:

I am pleased to submit the enclosed report that provides a status update on the Virginia Kindergarten Program (VKRP) and summarizes VKRP data for fall and spring data collected during the 2021-2022 academic year on both statewide kindergarten and four-year-old pre-kindergarten publicly funded students. The enclosed report also includes, for the first time, VKRP kindergarten data that examines progress and growth from fall to spring timepoints.

Item 128h (a-d) directs the Department of Education and the University of Virginia's Center for Advanced Study of Teaching and Learning to use the results of the multi-dimensional Virginia Kindergarten Readiness Program assessments to determine how well the Virginia Preschool Initiative promotes readiness in all key developmental domains assessed and submit such findings to the Chairmen of House Appropriations and Senate Finance Committees.

Virginia has made great strides in addressing COVID-19 readiness gaps by deepening investments in the Virginia Preschool Initiative and Virginia Early Childhood Foundation Mixed Delivery program, resulting in a continued increase in preschool enrollment for three- and four-year-olds over the past two years. An update on the current progress of the development and piloting of the VKRP pre-kindergarten three-year-old mathematics measure and future goals and enhancements of the VKRP system for the 2022-2023 year and beyond, in response to COVID-19, are also detailed in the closing section of the report.

Please direct questions to Jenna Conway, Deputy Superintendent of Early Childhood Education, by email at Jenna.Conway@doe.virginia.gov.

Sincerely,

Dicky Shanor for
Jillian Balow, Superintendent of Public Instruction

VKRP Annual Report for the Chairmen of House Appropriations and Senate Finance Committees

October 2022 Report for the 2021-2022 School Year

Acknowledgments:

This report was prepared by the University of Virginia's Center for Advanced Study of Teaching and Learning (CASTL) and the Virginia Department of Education supported through an appropriation from the Virginia General Assembly to the Virginia Department of Education subcontracted to CASTL. Additional funding was also provided through the federal Governor's Emergency Education Relief (GEER) Fund. The Virginia Kindergarten Readiness Program (VKRP) is implemented by CASTL under the direction of Amanda Williford (williford@virginia.edu).

Correspondence concerning this report should be addressed to Jenna Conway at Jenna.Conway@doe.virginia.gov.

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2021-2022 VKRP Status Annual Report for the Chairmen of House Appropriations and Senate Finance Committees

Executive Summary

In this October 2022 data report[1] of the Virginia Kindergarten Readiness Program (VKRP) to the General Assembly, we report the fall and spring data collected during the 2021-2022 academic year on both statewide kindergarten and four-year-old pre-kindergarten publicly funded students, update on the current progress on the development and piloting of the VKRP pre-kindergarten three-year-old mathematics measure, and share future goals and enhancements of the VKRP system for the 2022-2023 year and beyond. The 2021-2022 data and trends in the data over recent years can be used to reduce disparities and respond to COVID-related concerns.

VKRP empowers Virginia's teachers and education leaders by providing a comprehensive assessment system that shines a spotlight on pre-kindergarten and kindergarten students' learning and growth. VKRP is a Virginia standards-aligned, multi-year early learning assessment system that produces actionable information to guide decisions at the student, classroom, school, and division level from the beginning of pre-kindergarten through the end of kindergarten to support student learning. VKRP provides assessments of mathematics, self-regulation, and social skills to complement Virginia's longstanding literacy screeners. The 2021-2022 literacy data gathered from the PALS-K and PALS Pre-K measures come directly from the Virginia Literacy Partnerships (VLP), formerly known as the PALS office. Additional information on the literacy screeners can be found on the VLP website.

From 2014 through 2018, the Center for Advanced Study of Teaching and Learning (CASTL) at the University of Virginia implemented VKRP through a voluntary rollout where, each year, an increasing number of divisions elected to administer VKRP. Virginia began statewide, mandatory kindergarten administration of the VKRP in the 2019-2020 school year.

The VKRP team has been developing a four-year-old pre-kindergarten extension of VKRP since 2018. In the 2021-2022 school year, VKRP was available to all publicly funded preschool programs to assess four-year-old children's skills in fall 2021 and spring 2022. Additionally, the VKRP team is working to expand VKRP to three-year-old children in publicly funded pre-kindergarten classrooms in the 2022-2023 school year.

Defining readiness for summative data purposes

Virginia defines school readiness as, "the capabilities of children, their families, schools, and communities that best promote student success in kindergarten and beyond." For summative purposes, kindergarten students are categorized as *ready* or *meeting the benchmark* (fall) and *meeting the benchmark* (spring) if they demonstrate minimally expected skills for the fall or the spring (depending upon the data timepoint) of kindergarten for literacy, mathematics, self-regulation, **and** social skills. If a kindergarten student does **not** demonstrate the minimally expected skill **in one or more** areas at the respective timepoint (fall or spring), they are categorized as *not ready* or *below the benchmark* (fall) and *below the benchmark* (spring). VKRP does not currently publish benchmarks for pre-kindergarten children.

[1] This report is submitted to satisfy the requirement that "the Department shall submit such findings using data from the prior year's fall assessment to the Chairmen of House Appropriations and Senate Finance Committees no later than October 1 each year."

VKRP during the COVID-19 pandemic

The worldwide COVID-19 pandemic caused sudden and long-lasting changes to children's lives, starting in March of 2020. During the 2020-2021 school year, many schools shifted between in-person, online, and remote formats due to changing levels of risk in their communities. At the start of the 2021-2022 school year, most children returned to in-person learning, but there were still challenges due to teacher and student absences related to quarantines and illness, nationwide teacher shortages, repeated teacher turnover, a lack of substitute teachers, and transportation difficulties.

However, in terms of the VKRP assessments, nearly all kindergarten students statewide were assessed using VKRP in the fall of 2021 and spring of 2022, and many pre-kindergarten children in publicly funded settings were also assessed using VKRP. VKRP continues to respond to the impacts of the pandemic by using a set of items to assess students' well-being.

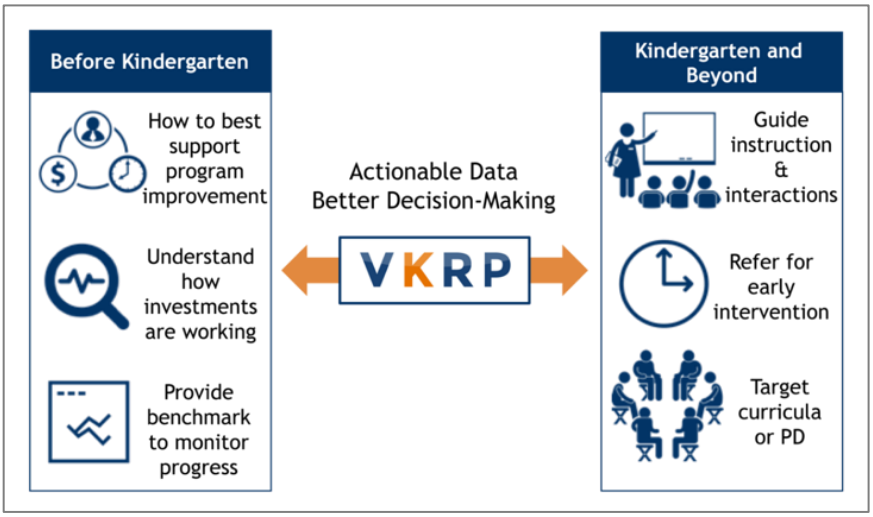
How statewide VKRP data can be used in Virginia

VKRP highlights the strengths of Virginia's pre-kindergarten children and kindergarten students, bringing attention to areas where students need support to maximize their learning. For teachers and school personnel, VKRP data can help drive day-to-day instruction, guide conversations with families, and inform decisions about educators' professional development needs. At the state level, VKRP data informs policy decisions and helps identify schools/programs, divisions, and regions that may need more support or can serve as exemplars.

VKRP should be used by various stakeholders to better understand and support students' academic and social-emotional learning and development, as well as their mental health well-being.

Figure 1

How Statewide Data Can Be Used in Virginia



2021-2022 Kindergarten Students Assessed with VKRP

In the fall of 2021, teachers assessed approximately 99% of eligible kindergarteners on the PALS-K literacy screener and 97% of eligible kindergarteners on the Early Mathematics Assessment System (EMAS) mathematics assessment. Approximately 97% of eligible kindergarteners were rated by teachers on self-regulation and social skills on the Child Behavior Rating Scale (CBRS) and Well-being items. Statewide, 95% of kindergarten students had complete VKRP data on all four measures – literacy (PALS-K), mathematics (EMAS), and self-regulation and social skills assessments (CBRS) in the fall of 2021.

In the spring of 2022, approximately 99% of eligible kindergarteners were assessed on the PALS-K literacy screener, 98% were assessed on the EMAS mathematics assessment, and 97% were rated by teachers on self-regulation and social skills using the CBRS and Well-being items. Statewide, 96% of kindergarten students enrolled in the spring of 2022 had complete VKRP data on the four assessments – literacy (PALS-K), mathematics (EMAS), self-regulation, and social skills (CBRS) assessments in the spring of 2022.

Over 79,000 kindergarten students were assessed in both the fall of 2021 and the spring of 2022 in all four domains of literacy, mathematics, self-regulation, and social skills.

2021-2022 VKRP Kindergarten Key Findings

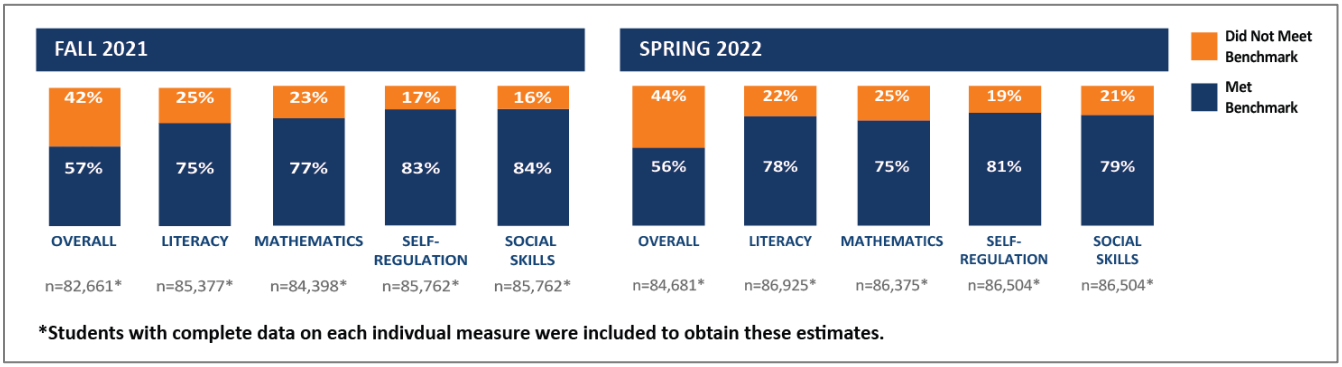
Fall 2021 and Spring 2022 VKRP kindergarten data

In fall of 2021, approximately 58% of kindergarten students met the benchmark or minimum competency level in literacy, mathematics, social skills, and self-regulation. This means that **42% of Virginia's kindergarteners began the school year still needing to build skills in literacy, mathematics, self-regulation, and/or social skills (Figure 2).**

In the spring of 2022, approximately 56% of kindergarten students met the benchmark or minimum competency level in literacy, mathematics, social skills, and self-regulation. This means that **44% of Virginia's kindergarteners ended the school year below expected levels in literacy, mathematics, self-regulation, and/or social skills. These results indicate a small, 2%, increase in percentage of kindergarten students not meeting the overall VKRP benchmark from fall 2021 to spring 2022.**

Figure 2

Fall 2021 and Spring 2022 Kindergarten Overall and Domain Benchmark Estimates [+]



[+]If a kindergarten student does not demonstrate the minimally expected skill in one or more areas at the respective timepoint (fall or spring), they are categorized as *not ready* or *below the benchmark* (fall) or *below the benchmark* (spring).

2021-2022 VKRP kindergarten benchmark estimates across demographics

Students falling below the VKRP benchmark at the beginning and end of kindergarten were disproportionately more likely to be students from low-income backgrounds, students with a disability, students who are English language/multilingual learners (EL), and students from historically marginalized racial/ethnic groups. These differential patterns in skill development illustrate the stark disparities in opportunities and access to high quality educational experiences available to students and their families. These results elevate concerns that disparities in opportunity and access were likely exacerbated following mandated school closures in Virginia during the spring of 2020 and beyond.

Table 1

2021-2022 Kindergarten Demographics and Below Benchmark Percentages

	Percent Below the Overall Benchmark	
	Fall 2021	Spring 2022
Kindergarten Student Demographic Characteristics		
From Low-Income Background[a]	56%	57%
Has a Disability[b]	64%	69%
Is an English Language/Multilingual Learner[c]	67%	62%
Student Race		
American Indian or Alaska Native	39%	38%
Asian	29%	30%
Black or African American	52%	57%
Hispanic/Latino of Any Race	60%	57%
White	34%	36%
Native Hawaiian or Pacific Islander	38%	38%
Non-Hispanic/Latino of any race, two or more races	38%	40%

[a]Source: SRC Disadvantaged Status Flag. Students are identified as having a low-income background if, at any point during the school year, the student: 1) is eligible for Free/Reduced Meals, 2) receives TANF, or 3) is eligible for Medicaid.

[b]Source: SRC Primary Disability Code. Students are identified as having a disability if any code is present *except,* "*Qualified Individual under Section 504.*"

[c]Source: Student Record Collection (SRC) Limited English Proficiency (LEP) Status Code. Students are identified as English learners (EL) if code is, "*Identified as EL and receives EL services*," "*Identified as EL but has refused EL services*," or "*Identified as formerly EL for each of the four years after exiting EL services*."

2021-2022 VKRP Kindergarten well-being data

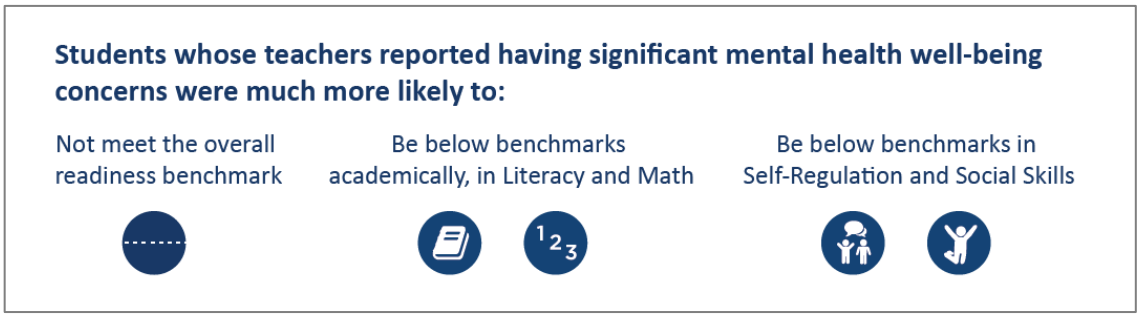
> ***"Teacher concern about a student's well-being is an important indicator that the student may need early, comprehensive, and intensive supports to be successful in school."***

In fall of 2021, VKRP added items to measure students' mental health and well-being. Teachers continue to report concern for student well-being into year three of the pandemic. Teachers reported being moderately, very, or extremely concerned about mental health and social-emotional well-being for about 13% of kindergarten students in both fall 2021 and spring 2022.

Additionally, in both fall of 2021 and spring of 2022, students whose teachers were concerned for their mental health well-being were much more likely to *not* meet the overall benchmark, and to be below the benchmark academically and social-emotionally when compared to students whose teachers did not report well-being concern. These results indicate teacher concern is an important indicator of which students likely need comprehensive and intensive supports to be successful in school.

Figure 3

Mental Health Well-Being Concerns and Benchmark Status

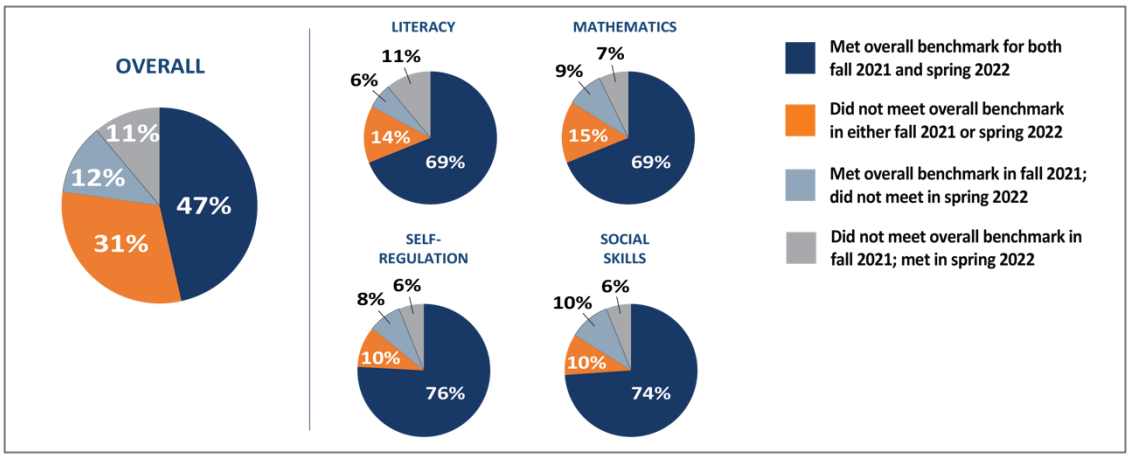


2021-2022 VKRP kindergarten growth data

This is the first year that VKRP kindergarten data examined progress and growth from fall to spring timepoints. In terms of benchmark status, 47% of kindergarten students met the benchmark for both fall 2021 and spring 2022 while 31% did not meet the benchmark in either fall 2021 or spring 2022. Smaller percentages of students shifted in their benchmark status across the 2021-22 school year—either meeting the benchmark in fall 2021 and not meeting in spring 2022 (12%) or not meeting the benchmark in fall 2021 and meeting in spring 2022 (11%). Regarding the individual learning domains (literacy, mathematics, self-regulation, and social skills), most students met the benchmark in both fall 2021 and spring 2022 (69%, 69%, 76%, and 74% respectively) while relatively small percentages of students did not meet the benchmark in fall 2021 and spring 2022 (14%, 15%, 10%, and 10% respectively).

Figure 4

Kindergarten Benchmark Status for Fall 2021 and Spring 2022



We examined trends in student growth[2] from fall 2021 to spring 2022 in mathematics, self-regulation, and social skills. Kindergarten students tended to display strong growth in mathematics skills and modest growth in self-regulation and social skills. There was variation in students' growth across all domains with some students making robust gains, while a small percentage of students lost ground from fall to spring. Student characteristics

[1] The current literacy screener does not measure growth from fall to spring, but the revised literacy screener will measure growth across time.

were associated with growth in mathematics, self-regulation, and social skills, although the size of these associations tended to be small.

One consistent finding across all learning domains was that kindergarten students who are English language/multilingual learners (EL) tended to make greater skill gains compared to their monolingual peers.

In addition, although students with no pre-kindergarten experience were likely to enter kindergarten below the overall readiness benchmark in the fall, they made greater skill gains during kindergarten. This finding was strongest for mathematics.

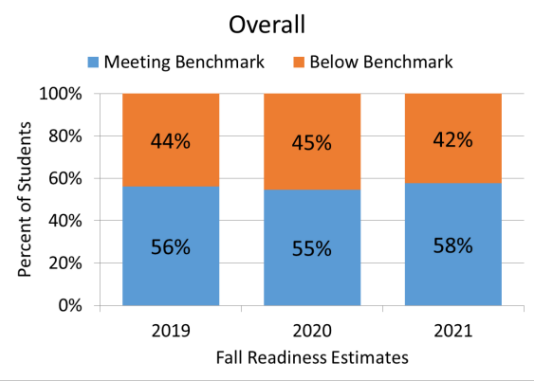
These findings illustrate the importance of kindergarten for students who start kindergarten with fewer school readiness skills due to factors such as limited English language or without preschool experience.

2019-2022 VKRP kindergarten trends across time key findings

Overall readiness estimates remained relatively stable from fall 2019 (pre-pandemic) through fall 2021.

Figure 5

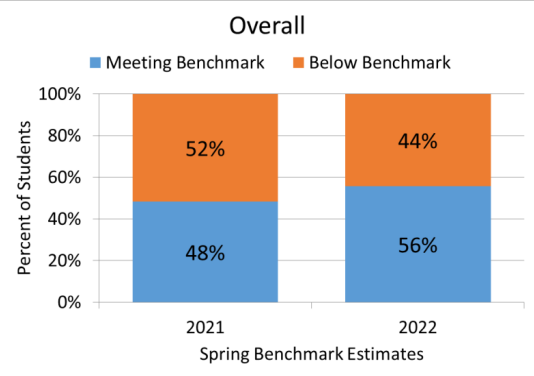
Fall Overall Kindergarten Readiness Estimates 2019-2022



Significantly more students were meeting the spring 2022 overall benchmark compared to spring 2021. Spring data was not a part of VKRP prior to the 2019-20 school year and the spring assessment was not administered in 2020 due to the onset of the COVID-19 pandemic and universal mandated public-school closures. Spring data is compared between spring 2021 and spring 2022.

Figure 6

Spring Overall Kindergarten Benchmark Estimates 2021-2022



2021-2022 VKRP Four-Year-Old Pre-kindergarten Key Findings

Four-year-old pre-kindergarten children assessed

The VKRP Pre-K 4 sample grew substantially in the year following the 2020-2021 pilot year. In the 2021-2022 school year, VKRP was available to all publicly funded preschool programs to assess four-year-old children's skills in fall 2021 and spring 2022. Over 27,000 four-year-old pre-kindergarten children were assessed. Program types included Head Start, VPI and VPI+, Early Childhood Special Education (ECSE), Title I, and Virginia Early Childhood Foundations (VECF) Mixed Delivery classrooms.

Fall 2021 and spring 2022 four-year-old VKRP pre-kindergarten data

Benchmarks in Kindergarten were established using developmental expectations in conjunction with data collected across the Commonwealth over the 2015-2019 pilot phase. For pre-kindergarten, we do not have established benchmarks for the 2021-2022 school year because data was still being collected to inform guidance for interpreting VKRP results.

Moving forward, VKRP, in partnership with VLP, is developing information to provide guidance to families, teachers, and administrators for pre-kindergarten children. Starting in fall 2022, pre-kindergarten reports will show skill development bands to help teachers and administrators contextualize children's scores across literacy (using the new Pre-K Language & Literacy Screener), mathematics, self-regulation, and social skills assessments.

Four-year-old pre-kindergarten children displayed a range of skills across mathematics, self-regulation, and social skills in fall 2021 and spring 2022.

In the fall of 2021, teachers reported being moderately, very, or extremely concerned about 20% of four-year-old children enrolled in VKRP. Elevated teacher concern for pre-kindergarten children decreased slightly in the spring of 2022 where teachers reported being moderately, very, or extremely concerned about 18% of children.

2021-2022 VKRP four-year-old pre-kindergarten growth data

On average, four-year-old pre-kindergarten children grew in their skills across literacy, mathematics, self-regulation, and social skills across the 2021-2022 school year.

Like kindergarten, pre-kindergarten children tended to display strong growth in mathematics skills and modest growth in self-regulation and social skills. There was variation in children's growth across all domains. Children's characteristics were associated with growth in mathematics, self-regulation, and social skills, although the size of these associations tended to be small.

In mathematics, younger children and children who were English language/multilingual learners (EL) made more growth compared with older children and monolingual learners. Additionally, children in public pre-kindergarten and Head Start showed more growth than children with private pre-kindergarten/daycare experience.

For self-regulation and social skills, children from low-income backgrounds experienced slightly less growth than children who were not from low-income families.

Future directions

Virginia's youngest learners come to pre-kindergarten and kindergarten with unique experiences and varied exposure to early learning opportunities. Given the effects of the ongoing COVID-19 pandemic, these young learners continue to need tailored academic and social-emotional support across the school year to solidify and build new skills.

Like the two years prior, in 2022-2023, there will be a continued focus on accelerating student growth while attending to students' social-emotional needs. This will require divisions, schools, and programs to be proactive in determining educator and student needs and in providing quick and effective support for instruction and learning. Educators and administrators can use VKRP data, in combination with other formative and summative assessments, to help target individualized instruction, to identify teacher professional development needs, and at the state level, to inform policy decisions to identify the regions and divisions in need of the most support.

In the 2022-2023 school year, VKRP will be:

- **Expanding.** VKRP will continue to be used in publicly funded four-year-old pre-kindergarten classrooms with continued implementation support for programs required to participate (e.g., VPI, ECSE, VECF Mixed Delivery) or who are voluntarily participating and targeted outreach to those who are not yet participating but may choose to participate. Pre-kindergarten VKRP data will allow teachers to better understand the early foundational skills that young children bring to their classrooms and provide rich interactions and learning opportunities to support growth and development.

- **Extending**. Additional funding was appropriated to develop and pilot an upward extension of VKRP into first through third grades to "help teachers, parents and divisions identify students' strengths, deficiencies and support student growth longitudinally." In coordination with VLP, VKRP will partner with VDOE to develop measures of mathematics, social skills and self-regulation that could be used in school divisions in grades one, two, and three to help teachers, families and divisions identify students' strengths, areas of needed support, and monitor student growth longitudinally in the early elementary grades. Current timeline estimates for this pilot extension are that the VKRP team will pilot initial item development in 2022-2023 and will refine items in 2023-2024 school year.

- **Collaborating.** VKRP is closely collaborating with the Virginia Literacy Partnerships (VLP) around the development and launch of VKRP and the new Pre-K Language & Literacy Screener in three and four-year-old pre-kindergarten classrooms. The VKRP and VLP teams regularly work together on assessment development, technology system development and expansion, data integration, teacher and administrator training, and data usage and reporting. VKRP is also closely collaborating with the STREAMin^3 team to support STREAMin^3 teachers to administer the VKRP preschool assessments and use data to improve their curriculum use and instruction in the classroom.

- **Integrating.** The VKRP team is working with the Virginia Literacy Partnerships and LinkB5 team to develop a coordinated Integrated Data System between the growing state data collection initiatives to maximize the impact and potential of these data systems. The goals of the Integrated Data System are to build a robust, coordinated system with enhanced hosting infrastructure and security features; shared data warehousing reflecting effective data governance; consistent, aligned, and integrated reporting; and a more streamlined user interface.

- **Supporting.** VKRP will continue to support pre-kindergarten and kindergarten teachers' implementation of VKRP by providing in-person, remote, and online training, resources, and information for teachers as well as school-level and division-level administrators. VKRP partners with programs, schools, and divisions on how to use their growth data to promote student skill development over time.

- **Listening and Learning.** VKRP has completed a series of focus groups with families to learn more about what school readiness means to families and how to improve the VKRP family reports and resources. Families from a range of backgrounds, including families with children who are English language/multilingual learners (EL) and families with children who have educational disabilities have been intentionally included in the focus groups.

Summary of appropriations language

The Virginia Department of Education and the University of Virginia's Center for Advanced Study of Teaching and Learning (CASTL) are providing this report to the Chairmen of House Appropriations and Senate Finance Committees to share the results of the Virginia Kindergarten Readiness Program in accordance with HB30 Item 137.H, as described below:

Out of this appropriation, $1,350,000 the first year (2020-2021) and $1,350,000 the second year (2021-2022) from the general fund is provided through the Department of Education to the University of Virginia to continue statewide implementation of the Virginia Kindergarten Readiness Program conducted in the fall, and to develop and implement a post-assessment upon the conclusion of the kindergarten year.

The Department of Education shall coordinate with the University of Virginia's Center for Advanced Study of Teaching and Learning to ensure that all school divisions shall be required to have their kindergarten students assessed annually during the school year using the multi-dimensional kindergarten readiness assessment model. All school divisions shall be required to have their kindergarten students assessed with such a model.

Further, out of this appropriation, $100,000 the first year (2020-2021) and $100,000 the second year (2021-2022) from the general fund shall be allocated to University of Virginia's Center for Advanced Study of Teaching and Learning to provide training to school divisions annually on how to effectively use Virginia Kindergarten Readiness Program data to improve instructional practices and student learning. Such teacher focused professional development and training shall be prioritized for the school divisions that would most benefit from state assistance to provide more time for classroom instruction and student learning.

The Department and the University of Virginia's Center for Advanced Study of Teaching and Learning shall use the results of the multi-dimensional Virginia Kindergarten Readiness Program assessments to determine how well the Virginia Preschool Initiative promotes readiness in all key developmental domains assessed. The Department shall submit such findings using data from the prior year's fall assessment to the Chairmen of House Appropriations and Senate Finance Committees no later than October 1 each year.

Introduction

The Virginia Kindergarten Readiness Program (VKRP) empowers Virginia's teachers and education leaders by providing a comprehensive set of assessments that shine a spotlight on pre-kindergarten and kindergarten students' learning and growth. VKRP is a Virginia standards-aligned, multi-year early learning assessment system that produces actionable information to guide decisions at the student, classroom, school, and division levels from the beginning of pre-kindergarten through the end of kindergarten to support student learning. VKRP provides assessments of mathematics, self-regulation, and social skills to complement Virginia's longstanding literacy screeners (PALS-K and PALS-PreK). The 2021-2022 literacy data gathered from the PALS-K and PALS-PreK measures come directly from the Virginia Literacy Partnerships (VLP), formerly known as the PALS office. Additional information on the literacy assessments can be found on the VLP website.

From 2014 through 2018, the Center for Advanced Study of Teaching and Learning (CASTL) at the University of Virginia designed, piloted, and implemented VKRP in the fall of the kindergarten year through a voluntary rollout where, each year, an increasing number of divisions elected to administer VKRP. Virginia began statewide implementation of VKRP in kindergarten classrooms in the 2019-2020 school year. The VKRP team has been developing a pre-kindergarten extension of VKRP since 2018. In the 2021-2022 school year, VKRP was available to all publicly funded preschool programs to assess four-year-old children's skills in fall and spring. Additionally, the VKRP team is working to expand VKRP to three-year-old children in pre-kindergarten classrooms.

In this October 2022 report to the General Assembly, we report the data collected during the 2021-2022 academic year on both kindergarten and pre-kindergarten publicly funded students statewide, provide an update on the current progress on the VKRP pre-kindergarten three-year-old measure (VKRP Pre-K 3) and share out the future goals and enhancements of the VKRP system in the 2022-2023 year.

Defining and measuring school readiness with VKRP

Virginia defines school readiness as, "the capabilities of children, their families, schools, and communities that best promote student success in kindergarten and beyond."[3] Each component – children, families, schools, and communities – plays an essential role in the development of school readiness. For Virginia's youngest learners a "ready" child is prepared socially, personally, physically, and intellectually in the areas of literacy, mathematics, science, history and social science, physical and motor development, and personal and social development.

The Virginia Kindergarten Readiness Program (VKRP) is an initiative focused on building a more comprehensive understanding of students' early skills in Virginia. As an assessment system, VKRP adds measures of mathematics, self-regulation, and social skills to complement Virginia's statewide assessment of literacy skills. Although not fully comprehensive of all the skills children need to thrive in school and life, VKRP provides reliable and valid data across indicators known to predict school success in the short and long term and puts an equal emphasis on academic and social-emotional skills, including a teacher report of students' emotional well-being. Notably, students develop skills through their early experiences at home, school, and in the community. However, it is important to acknowledge that VKRP is not a measure of a school's or a community's readiness.

The VKRP benchmark estimates are calculated based upon the expected skill levels of a kindergarten student at the beginning (fall) and end (spring) of the school year for each learning domain. For example, if a student is above the benchmark for self-regulation in the fall, they should be demonstrating the minimum self-regulation skills needed to be successful at the *beginning* of kindergarten. If a student is above the benchmark in self-regulation in the spring, this means that they should demonstrate the minimum self-regulation skills needed to

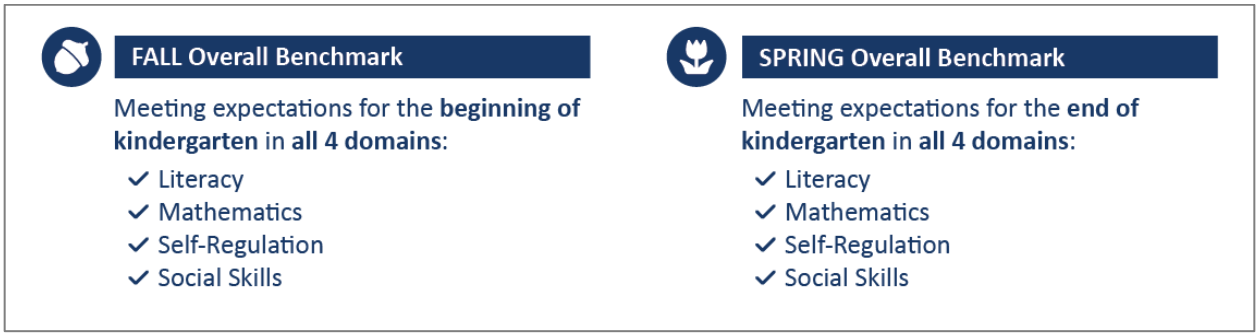
[3] Virginia Department of Education. (n.d.). *School Readiness*. Retrieved from https://www.doe.virginia.gov/early-childhood/school-readiness/index.shtml

be successful at the *end* of kindergarten. Thus, the benchmark for self-regulation is *higher* in the spring of kindergarten than in the fall of kindergarten. This holds true for all the learning domains.

For summative purposes, kindergarten students are categorized as *ready* or *meeting the overall benchmark* (fall) and *meeting the overall benchmark* (spring) if they demonstrate minimally expected skills for the fall or the spring (depending upon the data timepoint) of kindergarten for literacy, mathematics, self-regulation, and social skills. If a kindergarten student does not demonstrate the minimally expected skill in one or more areas at the respective timepoint (fall or spring), they are categorized as *not ready* or *below the benchmark* (fall) and *below the benchmark* (spring). A student classified as "ready" in the fall of kindergarten is estimated to be demonstrating the minimum skills needed to be successful across all measured learning domains at the beginning of kindergarten. A student classified as "meeting the benchmark" in the spring of kindergarten is estimated to be demonstrating the minimum skills across all measured learning domains needed to be successful across learning domains at the end of kindergarten and so could be considered ready for first grade.

Figure 7

Kindergarten Benchmark Expectations for fall and spring



More information regarding VKRP's history, the VKRP measure itself, VKRP's history, and how it is used for summative purposes can be found in Appendices C through G.

Benchmarks in kindergarten were established using developmental expectations in conjunction with data collected across the Commonwealth over the 2015-2019 pilot phase. For pre-kindergarten, VKRP did not have established benchmarks for the 2021-2022 school year because data was still being collected to inform guidance on interpreting VKRP results. Moving forward, VKRP, in partnership with Virginia Literacy Partnerships (VLP, formerly the PALS office), is developing information to provide guidance to families, teachers, and administrators for pre-kindergarten children. Starting in fall 2022, pre-kindergarten reports will show skill development bands to help teachers and administrators contextualize children's scores across literacy (using the new Pre-K Language & Literacy Screener), mathematics, self-regulation, and social skills assessments.

VKRP during the COVID-19 pandemic

The worldwide COVID-19 pandemic caused sudden and long-lasting changes to children's lives, starting in March of 2020. Due to these mandated school closures in spring of 2020, VKRP data were not collected for kindergarteners across the Commonwealth. Due to changing levels of risk in their communities and quarantines, many schools continued to shift between in-person, synchronous remote, and asynchronous formats in 2020-2021.

To ascertain the mental health impacts of the pandemic, VKRP responded by creating a set of items to assess student well-being in fall 2021. These data provided an academic and social-emotional snapshot of where Virginia's learners began the 2021-2022 school year and how their mental health changed over the course of the academic year. Additionally, VKRP adapted the mathematics assessment (EMAS) in spring of 2021 to provide a remote alternative to the in-person version.

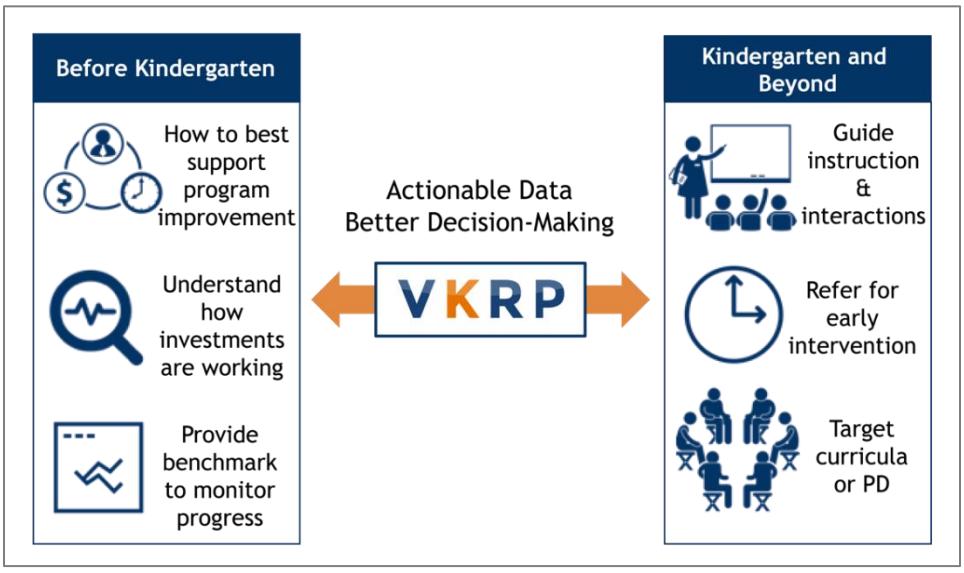
As COVID numbers started to decline in the summer of 2021 and more schools went back to in-person learning in the fall of 2021, 99% of four-year-old pre-kindergarten children and kindergarten students from publicly funded schools and programs were able to be assessed in-person at both the fall 2021 and spring 2022 timepoints.

How statewide VKRP data can be used in Virginia

VKRP provides detailed, actionable information to guide decisions at various levels before and after kindergarten entry to support early learning. Pre-kindergarten and kindergarten VKRP data can be used at different levels and by a variety of stakeholders. First and foremost, VKRP provides timely and actionable data for teachers to support the implementation of individualized academic and social-emotional instruction to meet students' needs. VKRP provides information about where students are succeeding and where more support is needed. For example, teachers can use the data to tailor their instruction to a student's current skill level and provide scaffolding to get them to the next level, refer a student for additional assessment or support, and have conversations with families to support students' learning at home.

Figure 8

How Statewide Data Can Be Used in Virginia



VKRP provides information and resources for families to support their students' early skill development and to help teachers to be well-positioned to work as partners with families from the onset of a student's formal educational experience.

At a program, school, and division level, VKRP can be used to better target professional development for educators for the specific needs of the students, schools, and communities it serves. For example, division leaders can use the data to look for variability within and across divisions, individualize professional development to teachers, and align pre-kindergarten, kindergarten, and elementary programming.

At the state level, VKRP data informs targeted investments in divisions and programs across the state. Having statewide data allows for meaningful comparisons across divisions and regions to provide opportunity and access that can eliminate early learning gaps. VKRP and other early childhood education data can be used to identify readiness gaps, track system-level trends, and inform effective allocation of education resources.

2021-2022 VKRP Kindergarten Data

Below, we present kindergarten data from the 2021-2022 school year. In the fall of 2021 and the spring of 2022, kindergarten students across the Commonwealth completed assessments in the domains of literacy (via PALS-K) and mathematics (EMAS), and teachers rated students' self-regulation, social skills, and well-being (CBRS). 2021-2022 assessment methods, demographic data, completion rates, results, and VKRP trends across time in mathematics, self-regulation, and social skills are all described below.

Background

Assessment methods

Students were directly assessed on the Early Mathematics Assessment System (EMAS) and the Phonological Awareness Literacy Screener (PALS-K) assessment in the fall of 2021 and spring of 2022 by their classroom teachers, instructional assistants, and/or other school personnel (e.g., mathematics leads, literacy specialists). In fall 2021 and spring 2022, teachers also completed the Child Behavior Rating Scale (CBRS), which assesses teachers' report of students' self-regulation, social skills, and well-being. Throughout the year 2021-2022, VKRP trained school staff on how to administer the EMAS and CBRS either at an in-person or remote training, by a trainer designated by the school division, or by completing VKRP online training modules. Most teachers were trained on the PALS-K measure by a trainer designated by the school division. More information regarding the VKRP assessments and the history of their implementation can be found in Appendices C through E.

The fall 2021 assessment windows were September 12 - November 23, 2021, for PALS-K and August 23 - November 5, 2021, for VKRP. However, due to the pandemic's continued impact on instructional modes, VKRP extended the fall assessment term to December 8, 2021. The spring 2022 assessment windows were April 24 - June 2, 2022, for PALS-K and April 11 - May 20, 2022, for VKRP. Like the previous term, the assessment window was extended in spring 2022 for VKRP to June 4, 2022, to accommodate for both school staff and student absences related to the ongoing pandemic. Both PALS-K and EMAS had remote testing options available for use during both fall 2021 and spring 2022 timepoints. During the 2021-2022 school year, less than 1% of assessments were completed in a remote format.

2021-2022 VKRP kindergarten demographic data

During the 2021-2022 academic year, 133 of 134 school divisions participated in VKRP. The Virginia School for the Deaf and Blind did not participate because it did not have any enrolled kindergarten students. James City County Schools' VKRP data was merged with Williamsburg City's VKRP data. In total, 1,124 Virginia schools implemented VKRP in the fall 2021, resulting in data from 5,145 classrooms and 89,422 students. These numbers increased to 1,127 schools, 5,211 classrooms, and 92,585 students in the spring 2022 assessment term. Individual division VKRP results for both fall 2021 and spring 2022 are located within Appendix A.

The student demographic data are presented in Table 2. The spring 2022 sample includes slightly more students from low-income backgrounds (42%) compared to the fall of 2021 (38%). This change has been observed in past school years and reflects both more complete data obtained about the family's socioeconomic status as well as changes in a family's financial needs from fall to spring. There are also more students identified as having a disability in the spring (12%) compared to the fall (9%), and this is reflective of changes in students' needs identified by schools and divisions over the school year.

Table 2

2021-2022 Kindergarten Demographic Summary

		Fall 2021 N=89,422	Spring 2022 N=92,585
		Mean (SD) or n (%)	Mean (SD) or n (%)
Age	Age in months on September 30, 2021	66.8 (4.4)	66.8 (4.3)
Gender	Female	42,753 (48.8)	44,759 (48.7)
	Male	44,858 (51.2)	47,160 (51.3)
Race/Ethnicity	American Indian or Alaska Native	217 (0.2)	225 (0.2)
	Asian	6,025 (6.9)	6,436 (7.0)
	Black or African American	18,070 (20.6)	19,119 (20.8)
	Hispanic/Latino of any race	16,667 (19.0)	17,911 (19.5)
	White	39,880 (45.5)	41,164 (44.8)
	Native Hawaiian or other Pacific Islander	124 (0.1)	133 (0.1)
	Non-Hispanic/Latino of any race, two or more races	6,643 (7.6)	6,943 (7.6)
Family Income Status[a]	Students not from low-income backgrounds	54,287 (62.0)	52,951 (57.6)
	Students from low-income backgrounds	33,339 (38.0)	38,980 (42.4)
Preschool Experience	Head Start	3,141 (3.6)	3,391 (3.7)
	Public preschool	27,997 (32.0)	29,142 (31.7)
	Private preschool/Daycare	25,701 (29.3)	26,571 (28.9)
	Department of Defense Child Development Program	474 (0.5)	520 (0.6)
	Family Home Daycare	2,286 (2.6)	2,378 (2.6)
	No preschool	28,026 (32.0)	29,928 (32.6)
Disability[b]	Students without a disability	79,320 (90.7)	80,746 (88.3)
	Students with a disability	8,131 (9.3)	10,745 (11.7)
Language[c]	Not English language/multilingual learners	74,707 (85.3)	77,186 (84.0)
	English language/multilingual learners	12,905 (14.7)	14,733 (16.0)

[a]Source: SRC Disadvantaged Status Flag. Students are identified as having a low-income background if, at any point during the school year, the student: 1) is eligible for Free/Reduced Meals, 2) receives TANF, or 3) is eligible for Medicaid.

[b]Source: SRC Primary Disability Code. Students are identified as having a disability if any code is present *except,* "*Qualified Individual under Section 504.*"

[c]Source: Student Record Collection (SRC) Limited English Proficiency (LEP) Status Code. Students are identified as English learners (EL) if code is, "*Identified as EL and receives EL services*," "*Identified as EL but has refused EL services*," or "*Identified as formerly EL for each of the four years after exiting EL services*."

2021-2022 VKRP kindergarten completion data

Kindergarten completion rates were above 95% for the fall of 2021 and the spring of 2022 (Table 3). EMAS and CBRS exemptions from testing, which are usually reserved for children who cannot be validly assessed due to developmental disabilities, were around 1% or less of the total population of potentially assessed students.

Table 3

2021-2022 Kindergarten Assessment Completion

		Fall 2021 N=89,422	Spring 2022 N=92,585
		n (%)	n (%)
PALS	Incomplete	421 (0.5)	251 (0.3)
	Exempt	264 (0.3)	378 (0.4)
	Complete, remote	583 (0.7)	504 (0.6)
	Complete, non-standard[a]	223 (0.3)	275 (0.3)
	Complete, standard	84,794 (98.3)	86,421 (98.4)
EMAS	Incomplete	1,590 (1.8)	1,047 (1.2)
	Exempt	862 (1.0)	493 (0.6)
	Complete, Spanish	967 (1.1)	680 (0.8)
	Complete, remote	554 (0.6)	469 (0.5)
	Complete, non-standard[a]	122 (0.1)	106 (0.1)
	Complete, standard	83,844 (95.3)	85,906 (96.8)
CBRS	Incomplete	1,704 (1.9)	1,872 (2.1)
	Exempt	473 (0.5)	325 (0.4)
	Complete, standard	85,762 (97.5)	86,504 (97.5)
Breakdown of assessment overlap (complete, standard, or remote only)	PALS, EMAS, CBRS	82,654 (95.0)	84,681 (96.4)
	PALS, EMAS	636 (0.7)	1,091 (1.2)
	PALS, CBRS	1,596 (1.8)	904 (1.0)
	EMAS, CBRS	977 (1.1)	569 (0.6)
	PALS	491 (0.6)	249 (0.3)
	EMAS	131 (0.2)	34 (0.0)
	CBRS	535 (0.6)	350 (0.4)

Note. Overall and domain benchmarks are only calculated for students with a standard or remote administration.
[a]A non-standard administration is when accommodations are made to the assessment (i.e., frequent breaks, simplified directions) that do not follow the standard administration protocol.

Table 4 provides demographic characteristics of those students who were assessed across all four domain assessments. Due to the high completion rates in both the fall of 2021 and the spring of 2022, students who were fully assessed across all four domains largely resemble the overall sample except for disability status. In the fall, 9% of all students in the sample are identified as having a disability and of this group of students, 8% of students have complete data. In the spring of 2022, fewer students with disabilities had complete data (10%) compared to all students identified with a disability (12%).

Table 4

2021-2022 Fully Assessed Kindergarten Students Demographic Summary

		Fall 2021 N=82,654	Spring 2022 N=84,681
		Mean (SD) or n (%)	Mean (SD) or n (%)
Age	Age in months on September 30, 2021	66.8 (4.3)	66.8 (4.3)
Gender	Female	40,326 (49.4)	41,495 (49.3)
	Male	41,361 (50.6)	42,659 (50.7)
Race/Ethnicity	American Indian or Alaska Native	205 (0.3)	202 (0.2)
	Asian	5,658 (6.9)	5,891 (7.0)
	Black or African American	16,745 (20.5)	17,332 (20.6)
	Hispanic/Latino of any race	14,674 (18.0)	15,899 (18.9)
	White	38,013 (46.5)	38,335 (45.5)
	Native Hawaiian or other Pacific Islander	116 (0.1)	119 (0.1)
	Non-Hispanic/Latino of any race, two or more races	6,290 (7.7)	6,387 (7.6)
Family Income Status[a]	Students not from low-income backgrounds	51,146 (62.6)	48,653 (57.8)
	Students from low-income backgrounds	30,555 (37.4)	35,512 (42.2)
Preschool Experience	Head Start	2,936 (3.6)	3,110 (3.7)
	Public preschool	25,105 (30.7)	25,647 (30.5)
	Private preschool/Daycare	25,164 (30.8)	25,486 (30.3)
	Department of Defense Child Development Program	467 (0.6)	480 (0.6)
	Family Home Daycare	2,216 (2.7)	2,234 (2.7)
	No preschool	25,813 (31.6)	27,208 (32.3)
Disability[b]	Students without a disability	75,416 (92.5)	75,510 (90.2)
	Students with a disability	6,122 (7.5)	8,249 (9.8)
Language[c]	Not English language/multilingual learners	70,659 (86.5)	71,264 (84.7)
	English language/multilingual learners	11,029 (13.5)	12,890 (15.3)

[a]Source: SRC Disadvantaged Status Flag. Students are identified as having a low-income background if, at any point during the school year, the student: 1) is eligible for Free/Reduced Meals, 2) receives TANF, or 3) is eligible for Medicaid.

[b]Source: SRC Primary Disability Code. Students are identified as having a disability if any code is present *except, "Qualified Individual under Section 504."*

[c]Source: Student Record Collection (SRC) Limited English Proficiency (LEP) Status Code. Students are identified as English learners (EL) if code is, "*Identified as EL and receives EL services*," "*Identified as EL but has refused EL services*," or "*Identified as formerly EL for each of the four years after exiting EL services*."

Table 5 provides descriptive information on the means across all four domains in the fall and spring of the 2021-2022 school year. Table 5 also provides information on the number of students who were meeting or below the benchmark across the four domains in the fall and spring. Students were gaining on average approximately 30 points in literacy from fall 2021 (50.29) to spring 2022 (85.45). There was also robust growth in mathematics from fall 2021 (588.77) to spring 2022 (704.48), with students gaining on average over 100 points across the year. In the fall of 2021, students average raw score in self-regulation and social skills were 3.66 and 4.25, respectively, meaning that, on average, students were displaying developmentally expected social and emotional skills at the start of kindergarten.

Table 5

2021-2022 Kindergarten Assessment Descriptives

		Fall 2021 N=89,422			Spring 2022 N=92,585		
		Min	Max	Mean (SD)	Min	Max	Mean (SD)
Literacy	PALS Summed Score	0	92	50.29 (25.18)	3	95	85.45 (15.78)
Mathematics	EMAS Scaled Score	296	830	588.77 (77.38)	332	872	704.48 (86.74)
Social-Emotional	CBRS Self-Regulation Mean Score	1.00	5.00	3.66 (0.85)	1.00	5.00	3.89 (0.82)
	CBRS Social Skills Mean Score	1.00	5.00	4.25 (0.66)	1.00	5.00	4.34 (0.66)
	CBRS Well-Being Mean Score	1.00	5.00	4.32 (0.62)	1.00	5.00	4.42 (0.59)
		n (%)			n (%)		
Literacy	Met benchmark	63,813 (74.7)			68,082 (78.3)		
	Below benchmark	21,564 (25.3)			18,843 (21.7)		
Mathematics	Met benchmark	65,066 (77.1)			64,655 (74.9)		
	Below benchmark	19,332 (22.9)			21,720 (25.1)		
Self-Regulation	Met benchmark	71,399 (83.3)			70,088 (81.0)		
	Below benchmark	14,363 (16.7)			16,416 (19.0)		
Social Skills	Met benchmark	71,860 (83.8)			68,493 (79.2)		
	Below benchmark	13,902 (16.2)			18,011 (20.8)		
Overall	Met benchmark	47,569 (57.6)			47,223 (55.8)		
	Below benchmark	35,085 (42.4)			37,458 (44.2)		

2021-2022 VKRP Kindergarten Overall and Domain Results

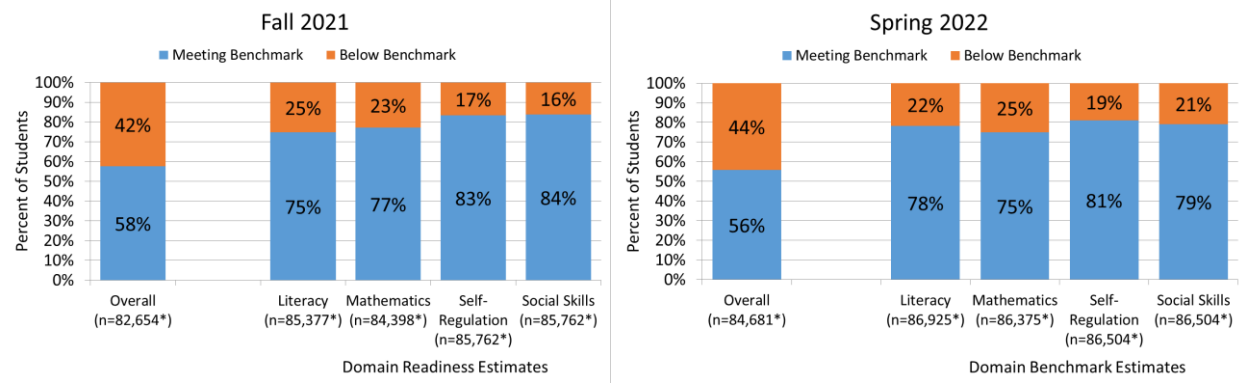
In this section, the fall 2021 and spring 2022 data for kindergarteners in the Commonwealth of Virginia are presented. Data shared include the 2021-2022 overall readiness/benchmark levels of Virginia kindergarteners and those represented in specific demographic categories for both the overall readiness/benchmark levels and within the specific domains of literacy, mathematics, self-regulation, and social skills.

Benchmark estimates for the 2021-2022 school year are provided in Figure 9. **The data from the 2021-2022 academic year indicates that 42% of students fell below the overall VKRP benchmark in the fall of 2021. In the spring of 2022, 44% of students fell below the overall VKRP benchmark.**

When looking across fall 2021 and spring 2022, we see that for literacy, slightly more students were below the benchmark in fall (25%) compared to spring (22%). The pattern for mathematics, self-regulation, and social skills was the opposite. In mathematics, 23% of students did not meet the benchmark in the fall of 2021 compared to 25% in the spring of 2022. In self-regulation and social skills, 17% and 16% of students fell below the benchmark, respectively, in the fall of 2021. In the spring of 2022, the percentages of students below the benchmarks were slightly larger at 19% (self-regulation) and 21% (social skills).

Figure 9

Fall 2021 and Spring 2022 Kindergarten Overall and Domain Benchmark Estimates



*Note. * = All students who had data on each individual measure were included to obtain these estimates.*

2021-2022 Variability in benchmark estimates disaggregated by student characteristics

In this section, we disaggregate the benchmark data in fall of 2021 and spring of 2022 according to a variety of student characteristics. We present the breakdowns of VKRP data by pre-kindergarten experience first because this is specifically requested in the budget appropriation language. Following that, we provide the VKRP data according to student disability status, English language/multilingual learner (EL) status, race, gender, and age. Associations between student characteristics and VKRP data do not provide causal evidence that a student characteristic leads to having higher or lower scores on the VKRP assessments.

Students with public pre-kindergarten experience in relation to those who did not attend pre-kindergarten

For this breakdown, public pre-kindergarten was defined as any pre-kindergarten program operating within the public school. This includes VPI, VPI+, Title I, ECSE, and Head Start programs – both in the public school and if the public school is the fiscal agent, and locally funded public pre-kindergarten programs. *No pre-kindergarten* was defined as any student whose families reported that they had not had a formal classroom pre-kindergarten experience. An example of this would be if the student were at home with a parent, family member, caregiver, nanny, etc. A detailed breakdown of benchmark estimates by pre-kindergarten experience type can be found in Appendix F. Below, we discuss comparisons between students who attended any type of publicly supported pre-kindergarten experience with those who did not attend formal pre-kindergarten.

Students assessed in the fall of 2021 who attended public pre-kindergarten were more likely to be categorized as meeting or exceeding the readiness benchmark (ready), compared to students who did not attend any pre-kindergarten (Figure 10). In the fall of 2021, 54% of students who attended public pre-kindergarten were meeting the VKRP readiness benchmark compared to 45% of students without pre-kindergarten experience.

With respect to the individual domains (Appendix F), in the fall of 2021, students who attended public pre-kindergarten, compared to those who did not attend pre-kindergarten, were more likely to be categorized as ready in foundational literacy skills (76% compared with 61%) and mathematics (75% compared with 67%). This pattern was *not* found for self-regulation (81% for both groups). For social skills, the percentage of students with public pre-kindergarten experience who met the benchmark was slightly lower than students without pre-kindergarten (82% compared with 85%). This pattern of results for social skills has been consistent over time and is consistent with other large-scale evaluations (e.g., Lipsey et al., 2018[4]) of associations between pre-

[4] Lipsey, M. W., Farran, D. C., & Durkin, K. (2018). Effects of the Tennessee Prekindergarten Program on children's achievement and behavior through third grade. Early Childhood Research Quarterly, 45, 155–176. https://doi.org/10.1016/j. ecresq.2018.03.005

kindergarten experience and kindergarten outcomes where there are generally negligible or slightly lower social skills for children with pre-kindergarten experience compared to children without pre-kindergarten experience.

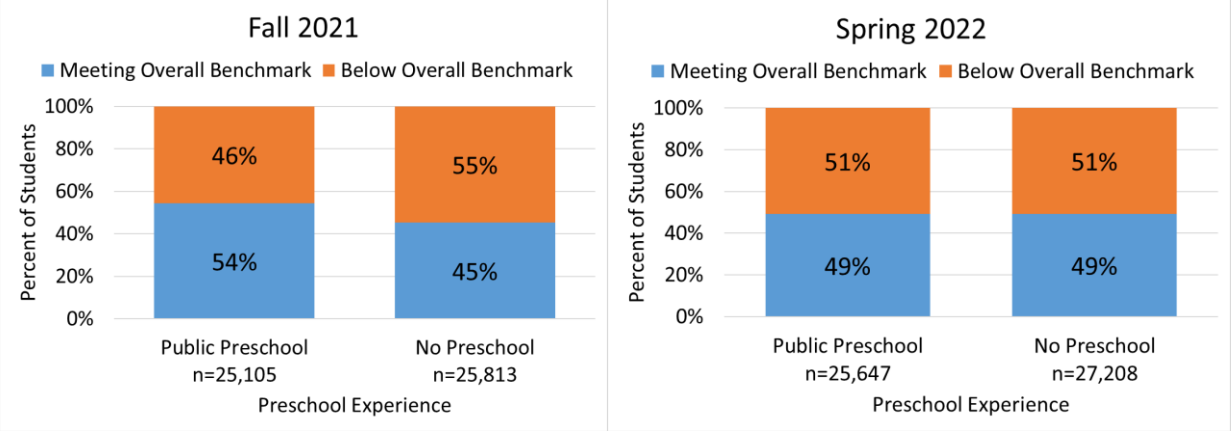
In the spring of 2022, the overall benchmark estimates were the same between students who attended public pre-kindergarten and those who did not attend any pre-kindergarten – with both groups meeting the VKRP benchmark at 49% ready. This is consistent with recent literature highlighting how children who did not attend pre-kindergarten are capable of "catching up" with their peers who did attend pre-kindergarten by the end of the kindergarten year (e.g., Ansari et al., 2020[5]).

With respect to the individual domains (Appendix F), in the spring of 2022, students who attended public pre-kindergarten compared to those who did not attend pre-kindergarten were more likely to be meet the benchmark in foundational literacy skills (75% compared with 71%) and mathematics (70% compared with 68%), although these differences were smaller than were seen in the fall of 2021. For self-regulation (78% compared with 79%) and social skills (76% compared with 80%), the percentage of students with public pre-kindergarten experience who met the benchmark was slightly lower than students without pre-kindergarten experience.

Detailed tables with information about the separate learning domains are included in Appendix F.

Figure 10

Fall 2021 and Spring 2022 Kindergarten Overall Benchmark Status by Public Preschool Status



Students from low-income backgrounds

We examined students' 2021-2022 benchmark scores based upon whether they came from low-income backgrounds. We categorized students as coming from low-income backgrounds using the VDOE Disadvantaged Status Flag entered in the Student Record Collection. The Disadvantaged Status Flag identifies a student as economically disadvantaged, at any point during the school year, if the student: 1) is eligible for Free/Reduced Meals, 2) receives TANF, or 3) is eligible for Medicaid. Detailed definitions for the Student Record Collection (SRC) are included in Appendix B.

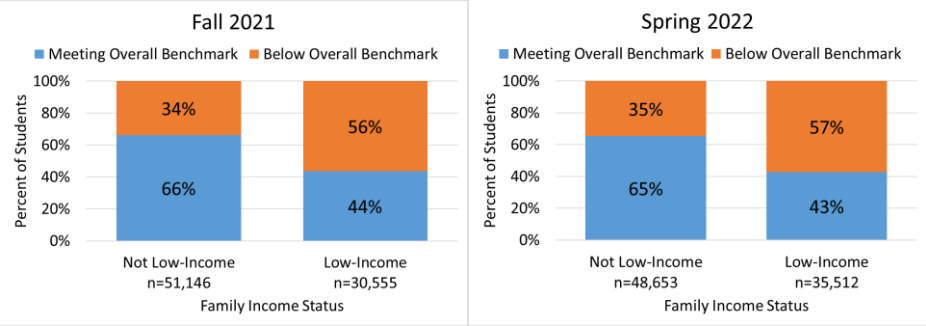
For the overall benchmark, in both the fall and spring of 2021-2022, students from low-income backgrounds were significantly more likely to be categorized as below benchmark, or not ready, compared to those coming from higher income backgrounds (**Figure 11**). Percentages were fairly consistent in fall 2021 (66% for students not from low-income backgrounds compared with 44% for students coming from low-income backgrounds) and

[5] Ansari, A., Pianta, R. C., Whittaker, J. V., Vitiello, V. E., & Ruzek, E. A. (2020). Persistence and convergence: The end of kindergarten outcomes of pre-K graduates and their nonattending peers. *Developmental Psychology, 56*(11), 2027–2039. https://doi.org/10.1037/dev0001115

spring 2022 (65% for students not from low-income backgrounds compared with 43% for students coming from low-income backgrounds). This was also true for fall 2021 and spring 2022 in each of the separate learning domains. Detailed tables with information about the separate learning domains are included in Appendix B.

Figure 11

Fall 2021 and Spring 2022 Kindergarten Overall Benchmark Status by Family Income Status



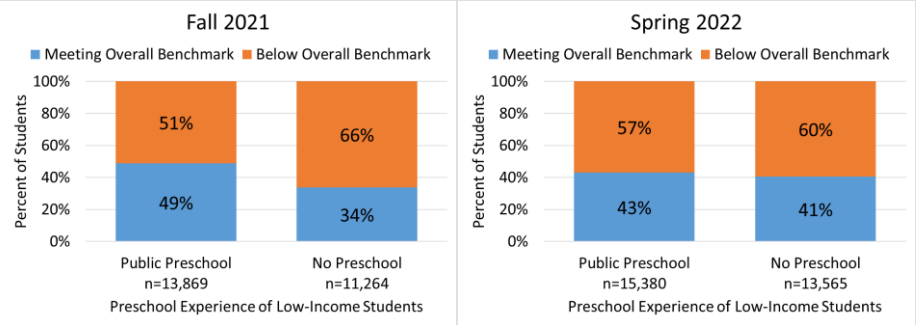
Students from low-income backgrounds with public pre-kindergarten experience

In fall of 2021 and spring of 2022, **students from low-income backgrounds who attended public pre-kindergarten were more likely to meet or exceed the benchmark compared to students from similar backgrounds who did not attend public pre-kindergarten (Figure 12).** The public pre-kindergarten advantage was larger in the fall of 2021 compared to the spring of 2022. In fall 2021 data, there was a 15% difference between the two groups. In the spring of 2022, the difference was only 2%. This is again consistent with recent literature that children who did not attend pre-kindergarten often catch up to their peers who attended pre-kindergarten by the end of the kindergarten year (e.g., Ansari et al., 2020[6]).

In the fall of 2021, the pattern in overall benchmark performance holds true across all the domains except social skills. In the fall of 2021, students from low-income backgrounds who did not attend public pre-kindergarten were rated slightly higher on social skills. In the spring of 2022, students from low-income families who did attend public pre-kindergarten again scored higher on the literacy and mathematics assessments. For self-regulation, there were no significant differences between groups. For social skills, spring 2022 findings were consistent with the fall of 2021. Detailed tables for fall 2021 and spring 2022 are included in Appendix F.

Figure 12

Fall 2021 and Spring 2022 Kindergarten Overall Benchmark Status by Preschool Experience for Students from Low-Income Background Status



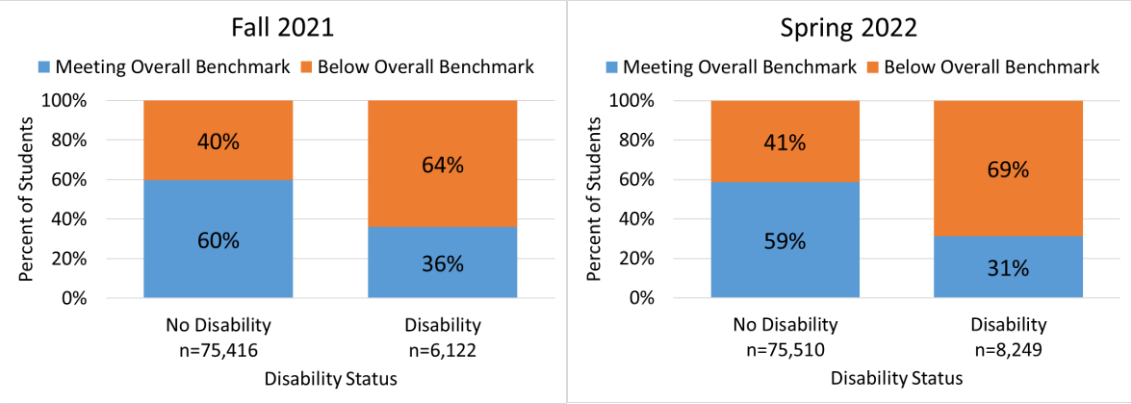
[6] Ansari, A., Pianta, R. C., Whittaker, J. V., Vitiello, V. E., & Ruzek, E. A. (2020). Persistence and convergence: The end of kindergarten outcomes of pre-K graduates and their nonattending peers. *Developmental Psychology, 56*(11), 2027–2039. https://doi.org/10.1037/dev0001115

Students with disability status

Students with disabilities were more likely to be categorized as below the benchmark in both the fall of 2021 and in the spring of 2022 (Figure 13). In fall 2021, 64% of students with disabilities were categorized as below the benchmark, compared with 40% of students without disabilities. In spring 2022, 69% of students with disabilities were categorized as below the benchmark, compared to 41% students without a disability. This is true overall and in each of the four separate learning domains in both in fall of 2021 and in the spring of 2022. Detailed tables for fall 2021 and spring 2022 are included in Appendix F.

Figure 13

Fall 2021 and Spring 2022 Kindergarten Overall Benchmark Status by Disability Status

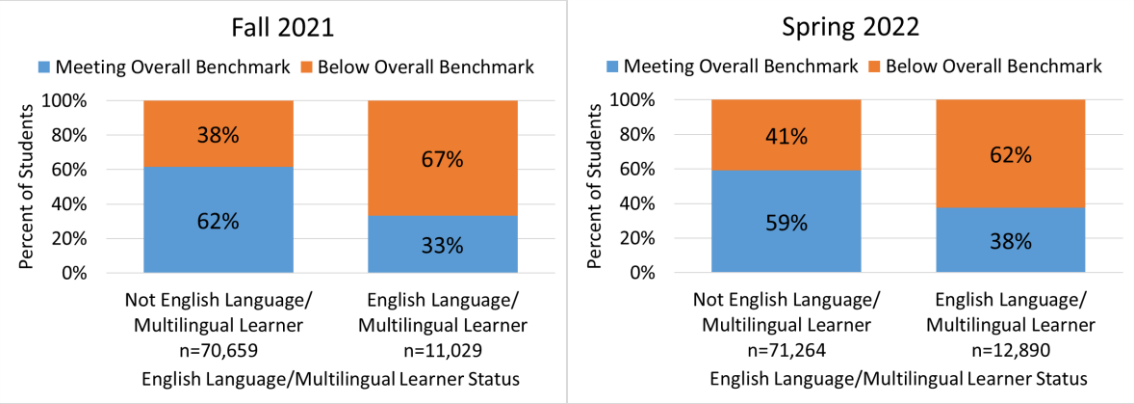


Students with English language/multilingual learners (EL) status

Students identified as English language/multilingual learners (EL) were more likely than monolingual English speakers to be categorized as below the benchmark in both fall 2021 and spring 2022 (Figure 14). In the fall of 2021, 67% of EL students were below the overall readiness benchmark compared to 38% of monolingual English speakers. This was also true in each of the separate learning domains. In spring 2022, 62% of EL students were below the overall benchmark compared to 41% of non-EL students. This was also true in each of the separate learning domains, except social skills, where the same percentage (20%) of EL and non-EL students were below the benchmark. Detailed tables for fall 2021 and spring 2022 are included in Appendix F.

Figure 14

Fall 2021 and Spring 2022 Kindergarten Overall Benchmark Status by English Language/Multilingual Learner Status



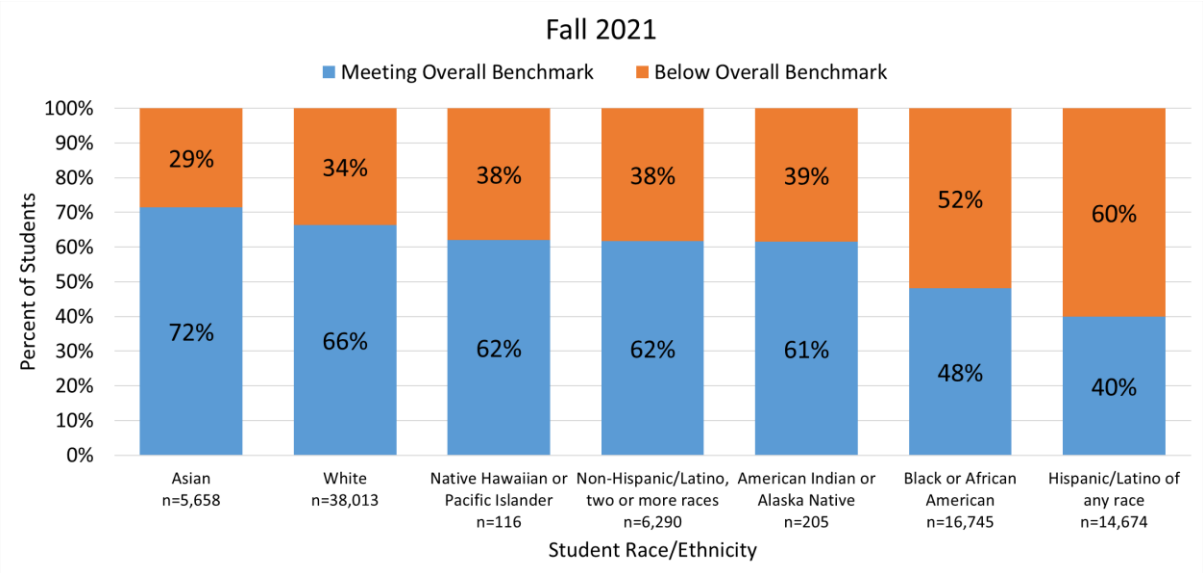
Students' race and ethnic groups

Overall benchmark status was associated with racial/ethnic identification. In 2021-2022, there was significant variability in the proportions of students performing above and below the benchmark across racial and ethnic groups at both timepoints (Figure 15). Hispanic/Latino students of any race and Black or African American students were more likely to fall below the benchmark in fall of 2021 and in spring of 2022 compared to students from other racial groups. This pattern holds overall and for the four separate learning domains. Detailed tables for fall 2021 and spring 2022 are included in Appendix F.

When looking across fall 2021 and spring 2022, for most racial categories, similar percentages of students were below the benchmark in the fall 2021 and spring 2022, with percentages in fall 2021 and spring 2022 being within 2 percentage points of one another. There were two exceptions to this, however. First, we see that a greater percentage of Black or African American students were below the benchmark in spring 2021 (57%) as compared to fall 2021 (52%). Second, we see that a lower percentage of Hispanic/Latino students of any race were below the benchmark in spring 2022 (57%) compared to fall 2021 (60%).

Figure 15

Fall 2021 and Spring 2022 Kindergarten Overall Benchmark Status by Race/Ethnicity



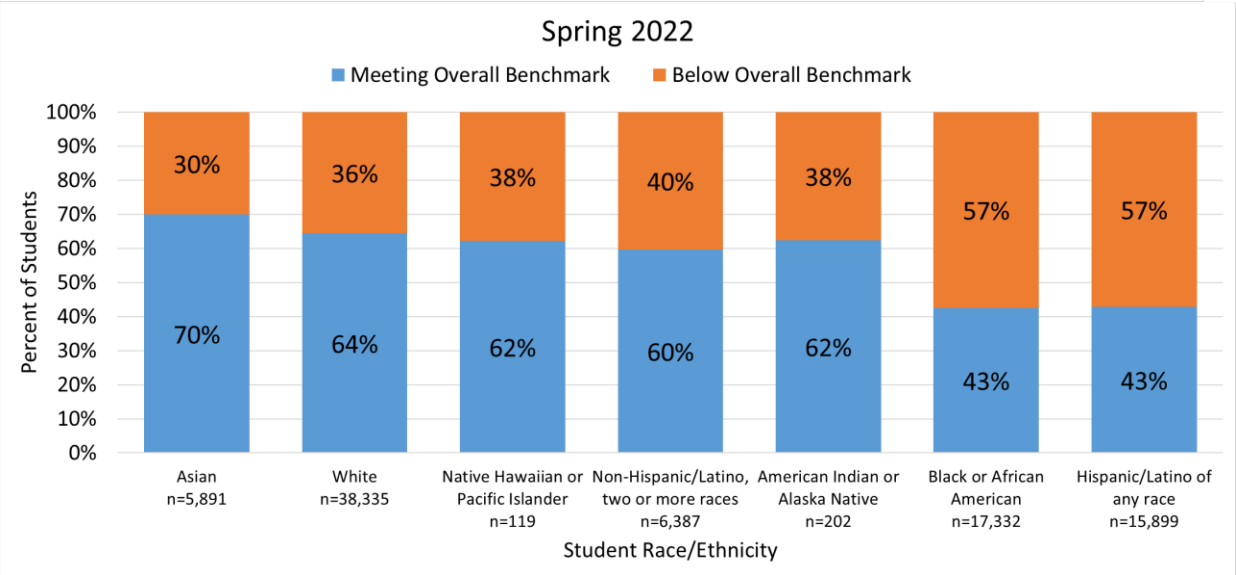


Table 6 and Table 7 show how the overlap between student race/ethnicity and those coming from a low-income background are jointly associated with proportions of students falling above and below the benchmark in 2021-2022. For example, students who were Hispanic/Latino of any race or Black or African American were more likely to score below the benchmark if they came from a low-income background. These associations tended to be more pronounced in the spring of 2022.

Table 6

Fall 2021 Kindergarten Overall Benchmark Status by Low-Income Status and Race/Ethnicity

	Not Low-Income			Low-Income		
	Meeting Benchmark	Below Benchmark	Total	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
American Indian or Alaska Native	95 (69.3)	42 (30.7)	137 (100.0)	31 (45.6)	37 (54.4)	68 (100.0)
Asian	3,256 (76.2)	1,018 (23.8)	4,274 (100.0)	787 (56.9)	597 (43.1)	1,384 (100.0)
Black, not of Hispanic origin	3,991 (53.7)	3,447 (46.3)	7,438 (100.0)	4,057 (43.6)	5,250 (56.4)	9,307 (100.0)
Hispanic	3,310 (48.1)	3,573 (51.9)	6,883 (100.0)	2,542 (32.6)	5,249 (67.4)	7,791 (100.0)
White, not of Hispanic origin	20,421 (72.1)	7,890 (27.9)	28,311 (100.0)	4,811 (49.6)	4,891 (50.4)	9,702 (100.0)
Native Hawaiian or Pacific Islander	53 (73.6)	19 (26.4)	72 (100.0)	19 (43.2)	25 (56.8)	44 (100.0)
Non-Hispanic, two or more races	2,769 (68.7)	1,262 (31.3)	4,031 (100.0)	1,110 (49.1)	1,149 (50.9)	2,259 (100.0)
Total	**33,895 (66.3)**	**17,251 (33.7)**	**51,146 (100.0)**	**13,357 (43.7)**	**17,198 (56.3)**	**30,555 (100.0)**

Table 7

Spring 2022 Kindergarten Overall Benchmark Status by Low-Income Status and Race/Ethnicity

	Not Low-Income			Low-Income		
	Meeting Benchmark	Below Benchmark	Total	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
American Indian or Alaska Native	92 (74.2)	32 (25.8)	124 (100.0)	34 (43.6)	44 (56.4)	78 (100.0)
Asian	3,264 (74.8)	1,098 (25.2)	4,362 (100.0)	852 (55.7)	677 (44.3)	1,529 (100.0)
Black, not of Hispanic origin	3,078 (52.2)	2,822 (47.8)	5,900 (100.0)	4,310 (37.7)	7,122 (62.3)	11,432 (100.0)
Hispanic	3,546 (49.6)	3,608 (50.4)	7,154 (100.0)	3,261 (37.3)	5,484 (62.7)	8,745 (100.0)
White, not of Hispanic origin	19,140 (70.4)	8,051 (29.6)	27,191 (100.0)	5,549 (49.8)	5,595 (50.2)	11,144 (100.0)
Native Hawaiian or Pacific Islander	47 (64.4)	26 (35.6)	73 (100.0)	27 (58.7)	19 (41.3)	46 (100.0)
Non-Hispanic, two or more races	2,634 (68.4)	1,215 (31.6)	3,849 (100.0)	1,176 (46.3)	1,362 (53.7)	2,538 (100.0)
Total	**31,801 (65.4)**	**16,852 (34.6)**	**48,653 (100.0)**	**15,209 (42.8)**	**20,303 (57.2)**	**35,512 (100.0)**

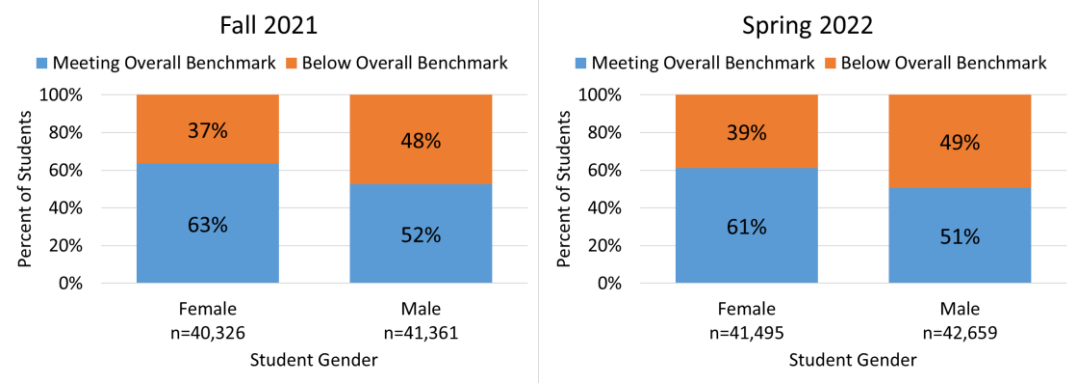
Student sex/gender

In both fall 2021 and spring 2022 data, male students were more likely to fall below the benchmark compared to female students (Figure 16). This was true for all domains *except* for mathematics in the spring of 2022, where 24% of both males and females were below the mathematics benchmark. The differences between males and females were most pronounced in the areas of self-regulation and social skills, where a significantly larger

portion of males were below the benchmark in both self-regulation and social skills compared to females at both the fall of 2021 and spring of 2022 timepoints. Detailed tables for fall 2021 and spring 2022 are included in Appendix F.

Figure 16

Fall 2021 and Spring 2022 Kindergarten Overall Benchmark Status by Gender



Students' age

At both fall 2021 and spring 2022 timepoints, younger students were more likely to be categorized as below the overall benchmark and below the benchmark in each of the four learning domains compared to older students (Figure 17). Correlations show small, positive associations between student age and scores on each of the domain assessments (Table 8).

Figure 17

Fall 2021 and Spring 2022 Kindergarten Overall Benchmark Status by Age

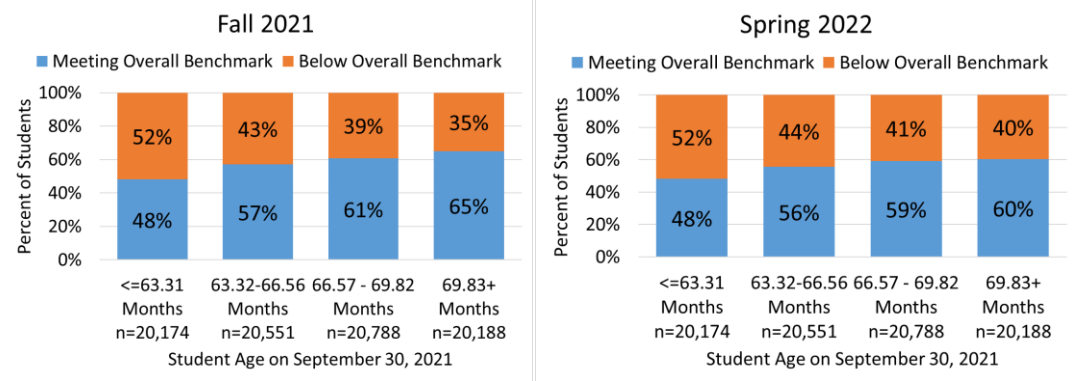


Table 8

Fall 2021 and Spring 2022 Kindergarten Assessment Correlations with Age

Associations with Student Age in Months on September 30, 2021	Correlations			
	PALS Summed Score	EMAS Scaled Score	Self-Regulation Score	Social Skills Score
Fall 2021	.124*	.166*	.121*	.037*
Spring 2022	.057*	.117*	.100*	.027*

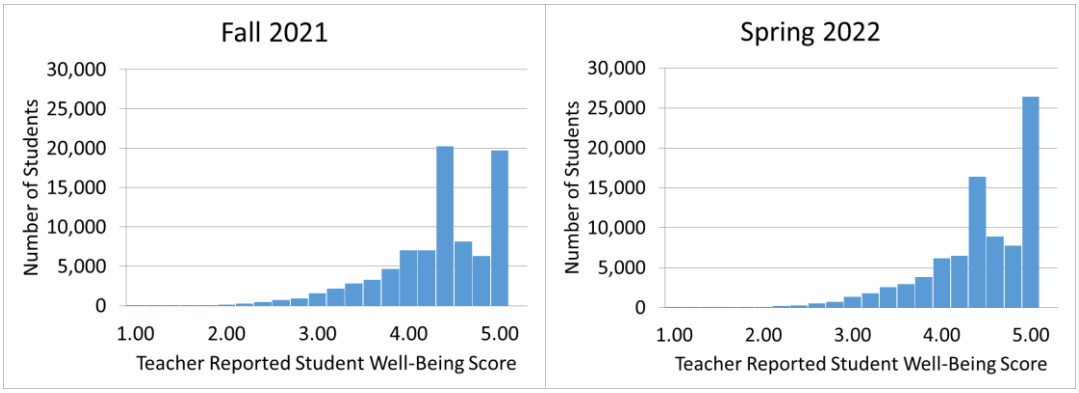
**Correlation significant at the 0.01 level.*

2021-2022 VKRP kindergarten students' well-being data

In response to the COVID-19 pandemic and beginning in the 2020-21 school year, VKRP added new reporting items to better understand teachers' perceptions of students' well-being. These Well-being items capture the teachers' perceptions of students' behaviors and feelings related to mental health. Items include "adapts when things change; goes with the flow" and "calms down after being upset, frustrated, or angry." Items are rated by the kindergarten classroom teacher on a scale of 1 to 5, with higher scores indicating greater well-being. A composite score is created by averaging the Well-being item scores. Additionally, there is a single item where teachers are asked to rate their level of concern for each student's well-being on a scale of 1 ("not at all") to 5 ("extremely"). The average overall well-being score was 4.32 out of 5 in the fall of 2021 and 4.42 out of 5 in the spring of 2022 (Figure 18).

Figure 18

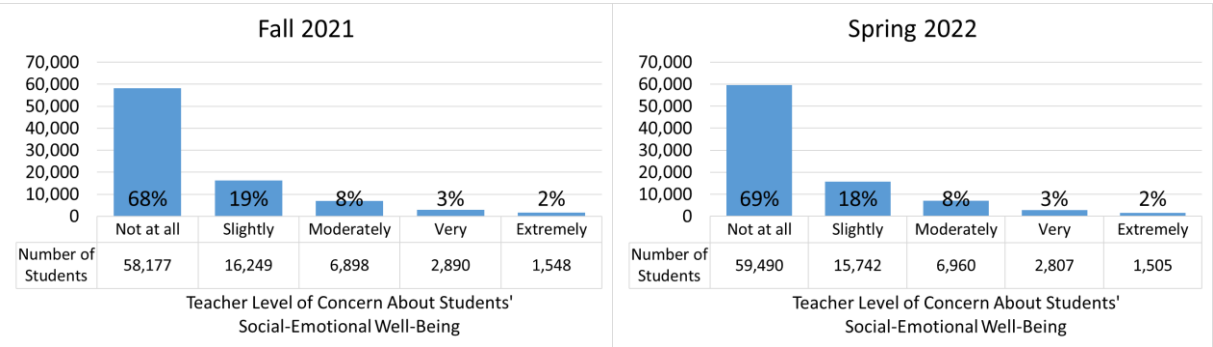
Fall 2021 and Spring 2022 Kindergarten Well-Being Composite Score



Overall, teachers reported that most students were doing well emotionally in 2021-2022. However, kindergarten teachers reported to be moderately, very, or extremely concerned about the well-being of 13% of their students in the fall of 2021 and the spring of 2022 (Figure 19).

Figure 19

Fall 2021 and Spring 2022 2021-22 Kindergarten Teacher Concern



2021-2022 Kindergarten students' well-being and benchmark estimates

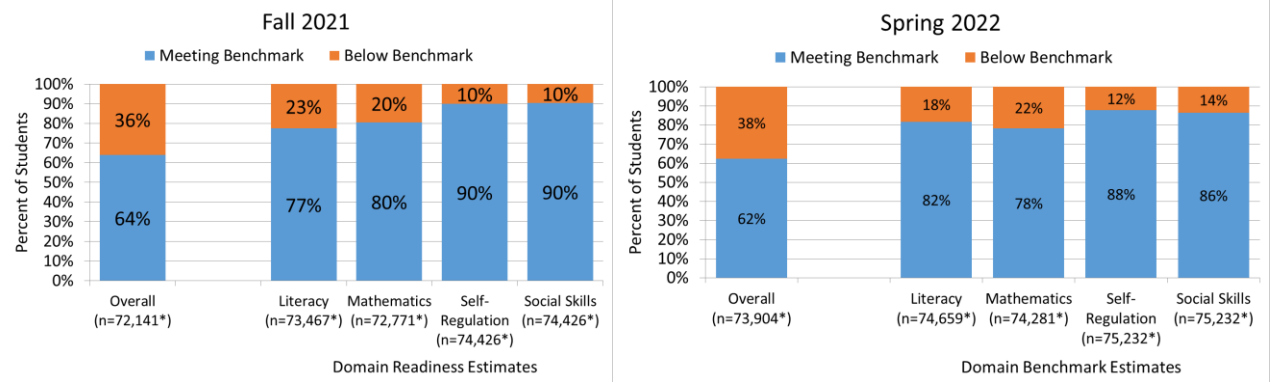
As described above in the Well-being section, in both the fall 2021 and spring 2022, teachers reported being moderately, very, or extremely concerned for about 13% of their students. Teachers reported being not concerned or only slightly concerned for 87% of students (74,426 students in fall 2021 and 75,232 in spring 2022).

Figures 20 and 21 on the next page show the benchmark estimates for fall 2021 and spring 2022 for the 87% of students whom teachers reported to not have elevated concerns (Figure 20) and the 13% of students where teachers reported elevated concerns (Figure 21). We see large differences between these groups of students.

In both fall of 2021 and spring of 2022, students whose teachers were concerned for their mental health well-being were much more likely to not meet the overall benchmark and to be below the benchmark academically (in literacy and mathematics) and social-emotionally (in self-regulation and social skills) when compared to students whose teachers did not report well-being concern. These results indicate teacher concern is an important indicator of which students likely need comprehensive and intensive supports to be successful in school.

Figure 20

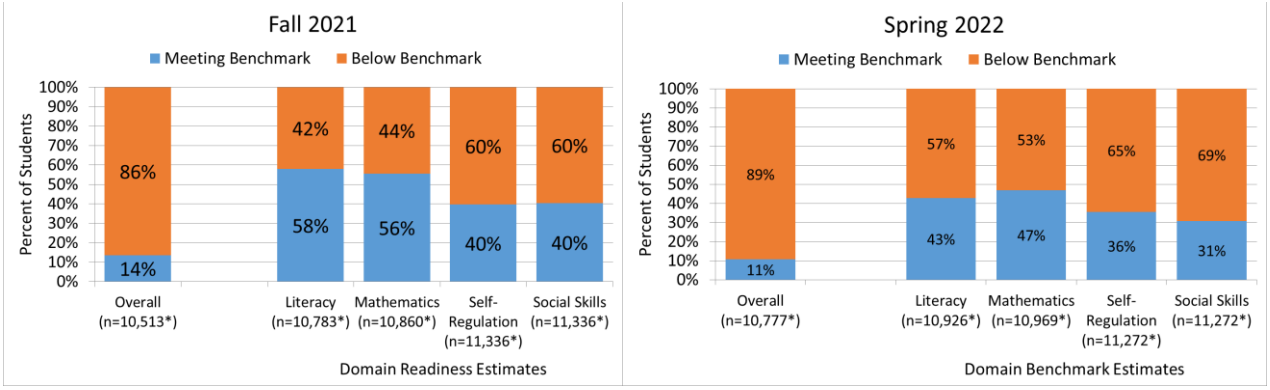
*Fall 2021 and Spring 2022 Overall and Domain Estimates for Kindergarten Students **Without** Elevated Teacher Concern*



Note. * = All students who had data on each individual measure were included to obtain these estimates.

Figure 21

*Fall 2021 and Spring 2022 Overall and Domain Estimates for Kindergarten Students **With** Elevated Teacher Concern*



*Note. * = All students who had data on each individual measure were included to obtain these estimates.*

Trends in VKRP Kindergarten Benchmark Status and Growth from Fall 2021 to Spring 2022

In both the fall and spring of the 2021-2022 school year, teachers administered literacy and mathematics assessments to kindergarten students and teachers completed ratings of kindergarten students' self-regulation and social skills. **Eighty-six percent (n = 79,180) of Virginia kindergarten students had complete data across all measures, both in the fall of 2021 and the spring of 2022**.

This allows us to answer the following questions:

1) How did students shift in benchmark status from fall 2021 to spring 2022?
2) How did students grow in mathematics, self-regulation, and social skills from fall 2021 to spring 2022?
3) Are student demographic characteristics associated with growth in skills from fall 2021 to spring 2022?

Below, we present two metrics for understanding student progress or growth in the 2021-2022 school year. First, we examine students' benchmark status changes from fall 2021 to spring 2022 for the overall benchmark (which incorporates literacy, mathematics, self-regulation, and social skills) and for each separate learning domain. Second, we examine students' growth from fall 2021 to spring 2022 for mathematics, self-regulation, and social skills. The PALS-K screener was not developed as a growth measure; therefore, literacy growth is not displayed in the tables below. The revised state-supported literacy screener, to be implemented during the 2024 school year, will allow for growth to be detected. For this reason, literacy data are not included in the growth section. For mathematics, self-regulation, and social skills, we include information about whether student demographic characteristics are associated with growth from fall 2021 to spring 2022.

Did kindergarten students change their VKRP benchmark status from fall 2021 to spring 2022?

There are four possible groups that students can fall into based upon their benchmark status in the fall of 2021 and in the spring of 2022. The four groups are:

- Below benchmark fall 2021/Below benchmark spring 2022
- Below benchmark fall 2021/Met benchmark spring 2022
- Met benchmark fall 2021/Below benchmark spring 2022
- Met benchmark fall 2021/Met benchmark spring 2022

As a reminder, the VKRP benchmark estimates are calculated based upon the expected skill levels of a kindergarten student at the beginning (fall) and end (spring) of the school year for each learning domain. For example, if a student is above the benchmark for self-regulation in the fall, they should be demonstrating the minimum self-regulation skills needed to be successful at the *beginning* of kindergarten. If a student is above the benchmark in self-regulation in the spring, this means that they should demonstrate the minimum self-regulation skills needed to be successful at the *end* of kindergarten. Thus, the benchmark for self-regulation is *higher* in the spring of kindergarten than in the fall of kindergarten. This holds true for all the learning domains. For summative purposes, students are categorized as above the benchmark if they demonstrate minimally expected skills (for fall or spring depending upon the data timepoint) for literacy, mathematics, self-regulation, *and* social skills. If a kindergarten student does not demonstrate the minimally expected skill in one or more areas at the respective time-point (fall or spring), they are categorized as below the benchmark.

In Appendix F there are tables showing demographic summary information for students in each of the benchmark status groups.

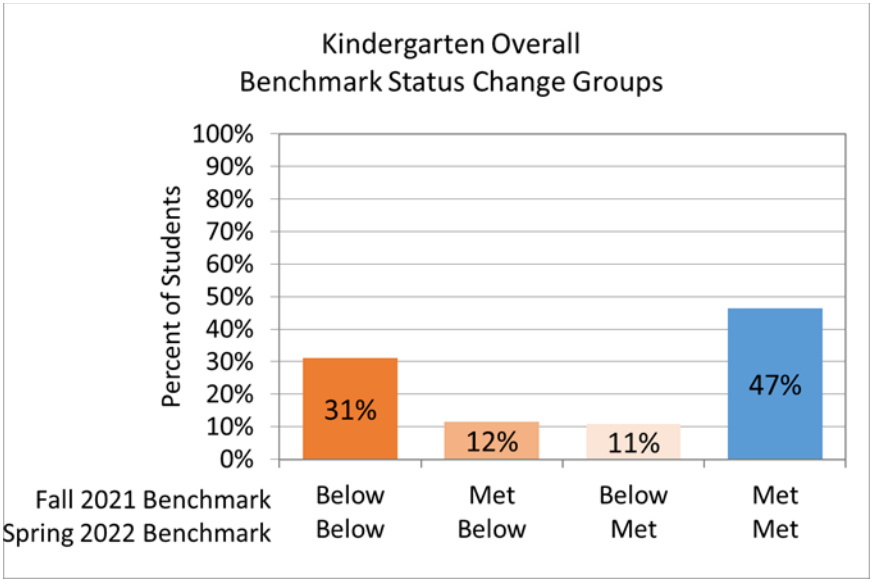
Fall 2021 to Spring 2022 Overall Kindergarten Benchmark Change

In this section, changes in benchmark status are presented for students' overall score. Students are included in the *below benchmark* group for fall 2021 and spring 2022, respectively, if they did not meet the benchmark in one or more of the four domains (e.g., literacy, mathematics, self-regulation, social skills) during either fall 2021 or spring 2022. Students are included in the *meeting benchmark* group for fall 2021 and spring 2022 terms, respectively, if they met the benchmark in all four domains during either the fall of 2021 or the spring of 2022.

As seen in Figure 22, **the largest group of kindergarten students (47%) were meeting the overall benchmark in both the fall of 2021 and spring of 2022. The second largest group of students (31%) were below the overall benchmark in both the fall of 2021 and spring of 2022. Most students (78%) remained in the same benchmark status group (met/met or below/below) from the fall of 2021 to the spring of 2022**. There were also two smaller groups of students whose benchmark status shifted from the fall of 2021 to the spring of 2022. Specifically, 12% of students met the overall benchmark in fall 2021 but were below the overall benchmark in spring 2022. Conversely, 11% of students were below the overall benchmark in the fall of 2021 and met the overall benchmark in the spring of 2022.

Figure 22

Kindergarten Overall Benchmark Status Change from Fall 2021 to Spring 2022



2021-2022 Kindergarten benchmark status change for individual learning domains

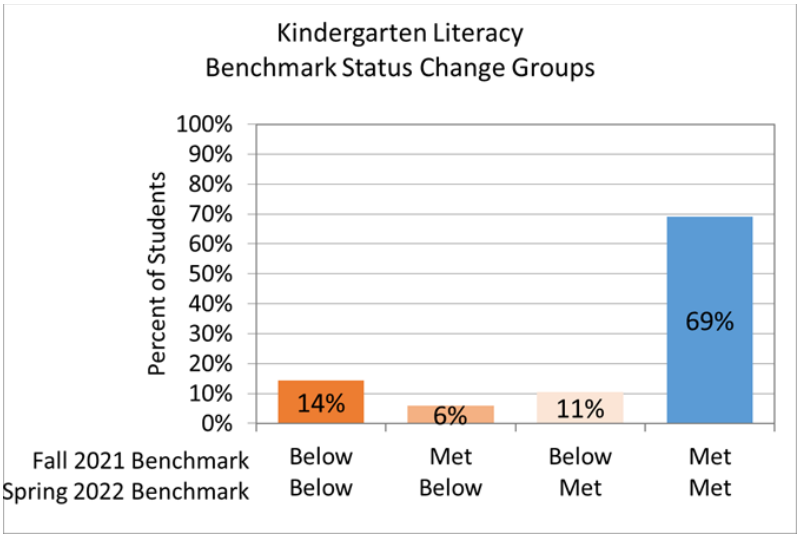
In this section, changes in benchmark status in 2021-2022 academic year are presented for the individual learning domains of literacy, mathematics, self-regulation, and social skills. As with the overall benchmark, kindergarten students fall into one of the four groups based upon their benchmark status for each assessment in the fall of 2021 and in the spring of 2022. For example, a student would fall into the below/met group if they were below the fall mathematics benchmark and met the spring mathematics benchmark.

2021-2022 VKRP kindergarten literacy benchmark status change

As seen in Figure 23, in literacy, **the largest group of kindergarten students (69%) met the literacy benchmark in both the fall of 2021 and the spring of 2022.** A smaller group of students (14%) were below the literacy benchmark in both the fall of 2021 and spring of 2022. A small percentage of students (6%) met the literacy benchmark in fall 2021 but were below the literacy benchmark in spring 2022. Conversely, 11% of students were below the literacy benchmark in the fall of 2021 and met the literacy benchmark in the spring of 2022.

Figure 23

Kindergarten Literacy Benchmark Status Change from Fall 2021 to Spring 2022

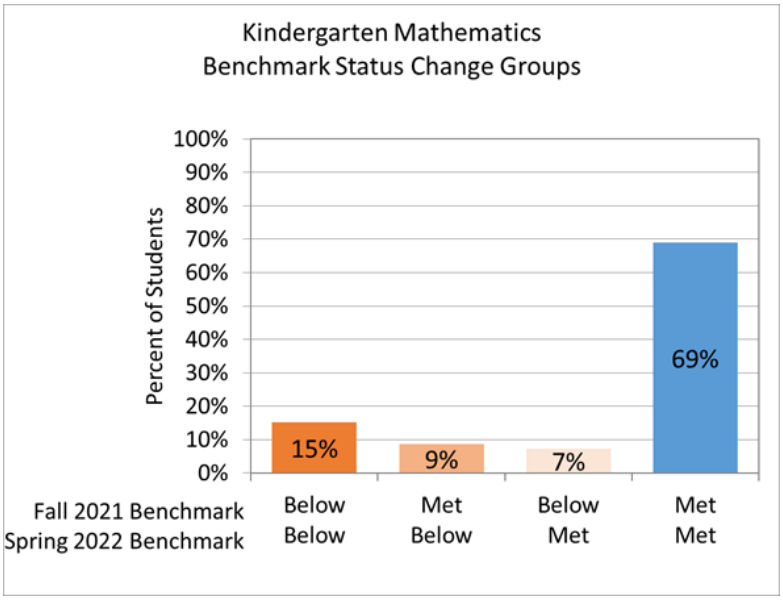


2021-2022 VKRP kindergarten mathematics benchmark status change

As seen in Figure 24, in mathematics, **the largest group of students (69%) met the mathematics benchmark in both the fall of 2021 and the spring of 2022.** A smaller group of students (15%) were below the mathematics benchmark in both the fall of 2021 and spring of 2022. There were two groups of students whose benchmark status shifted from the fall of 2021 to the spring of 2022. Specifically, 9% of students met the mathematics benchmark in fall 2021 but were below the mathematics benchmark in spring 2022. Conversely, 7% of students were below the mathematics benchmark in the fall of 2021 and met the mathematics benchmark in the spring of 2022.

Figure 24

Kindergarten Mathematics Benchmark Status Change from Fall 2021 to Spring 2022

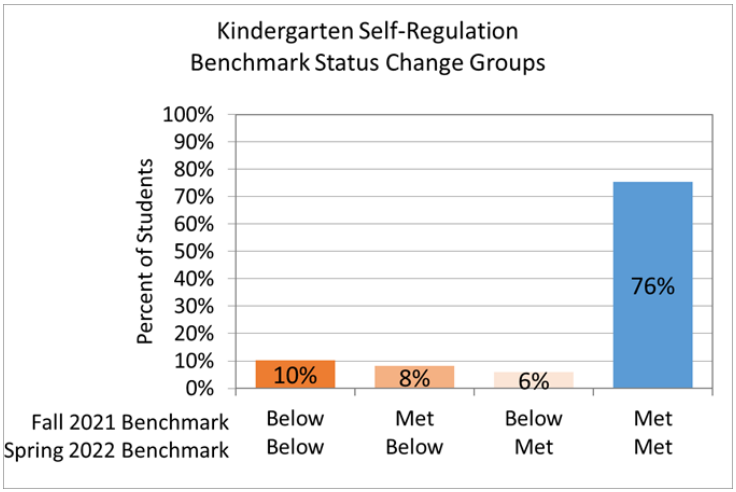


2021-2022 VKRP kindergarten self-regulation benchmark status change

Figure 25 shows that, **for self-regulation skills, most kindergarten students met the self-regulation benchmark in both the fall of 2021 and the spring of 2022 (76%).** A smaller group of students (10%) were below the self-regulation benchmark in both the fall of 2021 and spring of 2022. Eight percent of students met the self-regulation benchmark in fall 2021 but were below the self-regulation benchmark in spring 2022. Conversely, 6% of students were below the self-regulation benchmark in the fall of 2021 and met the self-regulation benchmark in the spring of 2022.

Figure 25

Kindergarten Self-Regulation Benchmark Status Change from Fall 2021 to Spring 2022

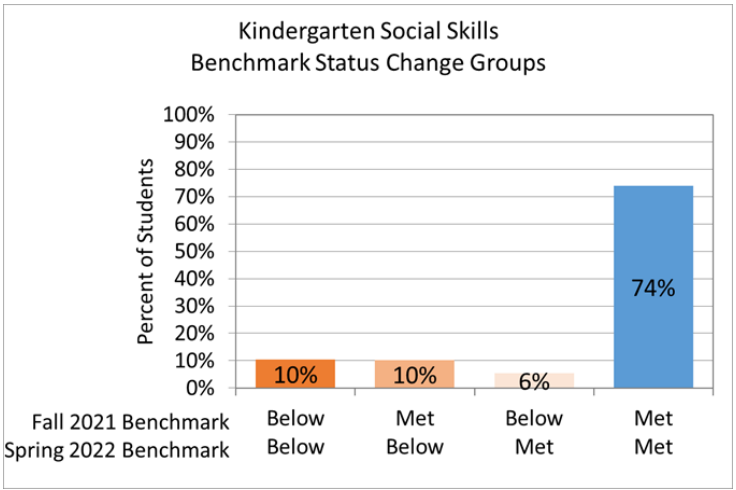


2021-2022 VKRP kindergarten social skills benchmark status change

Social skills followed a similar pattern as self-regulation skills with 74% of kindergarten students meeting the social skills benchmark in both the fall of 2021 and the spring of 2022 (Figure 26). A smaller group of students (10%) were below the self-regulation benchmark in both the fall of 2021 and spring of 2022. Ten percent of students met the self-regulation benchmark in fall 2021 but were below the self-regulation benchmark in spring 2022. Conversely, 6% of students were below the self-regulation benchmark in the fall of 2021 and met the self-regulation benchmark in the spring of 2022.

Figure 26

Kindergarten Social Skills Benchmark Status Change from Fall 2021 to Spring 2022



How did kindergarten students grow in mathematics, self-regulation, and social skills from fall 2021 to spring 2022?

In this section, we discuss the overall growth in scaled scores in mathematics and growth in raw averaged scores in self-regulation and social skills from fall 2021 to spring 2022. The PALS-K screener was not developed as a growth measure; therefore, literacy growth is not displayed in the tables below. The revised state-supported literacy screener, to be implemented during the 2024 school year, will allow for growth to be detected.

2021-2022 VKRP kindergarten students' mathematics scaled scores growth

The Early Mathematics Assessment System (EMAS) for kindergarten captures growth over time using scaled scores ranging from 296 to 872. In the following table and figures, each student's scaled score in the fall of 2021 is subtracted from their scaled score in the spring of 2022 to arrive at each individual student's growth in mathematics (Table 9). These individual growth scores are then averaged to create a mean growth score at the state level for the 2021-2022 year.

Figure 27 shows that students' scores on the EMAS have a normal distribution in the fall 2021 and spring 2022. As highlighted in Figure 28, there was a normal distribution of growth across the year. Although there was a range in growth across the year, **on average, students gained 118 points in mathematics from fall 2021 to spring 2022, demonstrating robust growth in mathematics skills.** Very few children (1,477 or 1.8%) showed no growth.

Table 9

Fall 2021 and Spring 2022 Kindergarten Mathematics Descriptives

State N=81,611		Mean (SD)	Range	Benchmark
Mathematics	Scaled Score, Fall	589.79 (76.60)	296-830	545
	Scaled Score, Spring	707.55 (85.06)	332-872	652
	Mean Growth	117.76 (60.81)	-318.00 – 513.00	--

Note. Sample restricted to students with both fall and spring EMAS data.

Figure 27

Distribution of Kindergarten EMAS Scaled Scores in Fall 2021 and Spring 2022

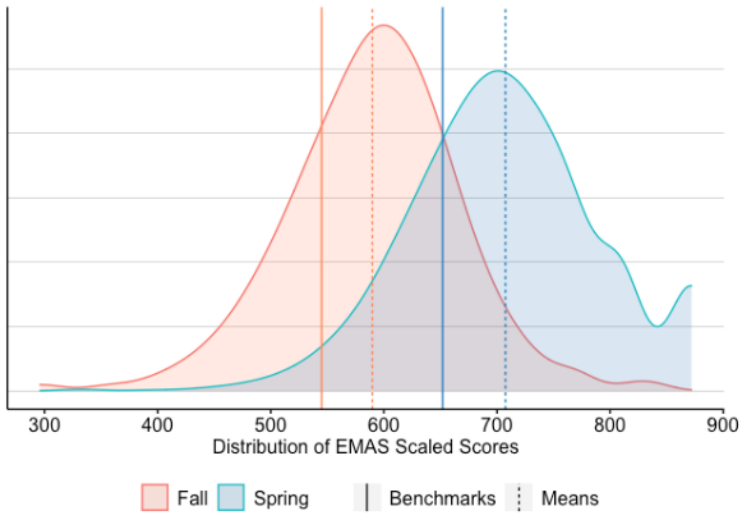
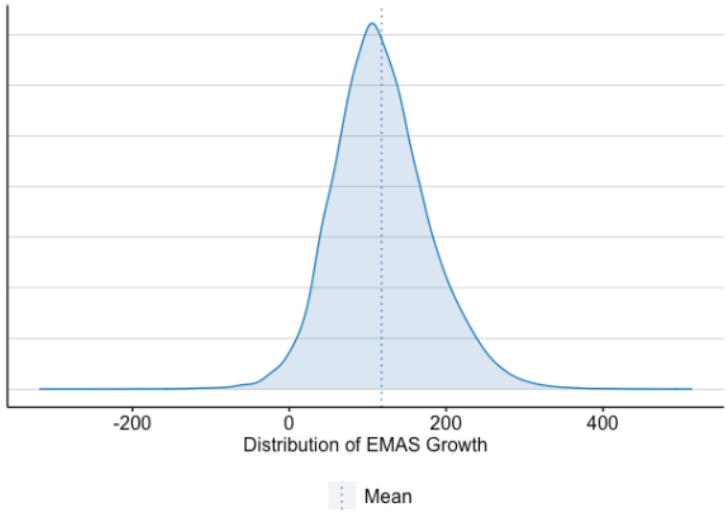


Figure 28

Distribution of Kindergarten EMAS Growth from Fall 2021 to Spring 2022



2021-2022 VKRP students' demographic characteristics associated with mathematics scaled scores growth

There were significant associations between students' demographic characteristics and growth in mathematics scores from fall 2021 to spring 2022. Specifically, students' age, gender, race/ethnicity, pre-kindergarten experience, disability status, and EL status were all significantly associated with growth (see Table 10). There was not a significant association between low-income background status and growth in mathematics scores. Drawing from Cohen (1988)[7], we interpret an R^2 of .001 as a small effect size, .009 as a medium effect size, and .025 as a large effect size. Significant associations ranged from small to medium in effect size. More specifically, on average:

- **Younger students showed slightly more growth than older students in mathematics scores from fall 2021 to spring 2022.** This was a small effect size (R^2 = .001).
- **Males (120 points) showed slightly more growth than females (116 points)** in mathematics scores from fall 2021 to spring 2022. This was a small effect size (R^2 = .001).
- Students from different racial backgrounds showed different amounts of growth in mathematics skills from fall 2021 to spring 2022. **Hispanic/Latino of one race students showed the greatest growth in mathematics scores (127 points),** followed by Asian students (124 points), American Indian/Alaskan (122 points), Native Hawaiian or Pacific Islander (120 points), White, Non-Hispanic and non-Hispanic, two or more races (both with 116 points), and Black or African American students (113 points) from fall 2021 to spring 2022. This effect size of race was small to medium (R^2 = .007).
- **Students with no pre-kindergarten experience showed the greatest growth in mathematics scores (125 points)** followed by Department of Defense (118 points), Head Start and family day homes, also referred to as family childcare (both with 116 points), private preschool (115 points), and public preschool (114 points). This effect size was small to medium (R^2 = .007).
    - When comparing students with no pre-kindergarten experience to students who have public pre-kindergarten experience, we see that students with no pre-kindergarten experience showed

[7] Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences.* New York, NY: Routledge Academic.

greater growth (125 points) in mathematics scores compared to students who had a public pre-kindergarten experience (114 points). The effect size was medium (R^2 = .009).

- **Students without a disability (119 points) made slightly greater growth than students with a disability (110 points).** This was a small effect size (R^2 = .002).
- **Students who were English language/multilingual learners (EL; 133 points) made greater growth than their monolingual peers (115 points).** This effect size was medium (R^2 = .010).

Table 10

Kindergarten Mathematics Growth by Demographic Characteristics

	Fall Mean Score	Spring Mean Score	Mean Growth	Difference from Average Average = 118	Effect Size
Age in months					R^2 = .001
<= 63.31	568	686	120	+2	
63.32 – 66.56	585	702	119	+1	
66.57 – 69.82	596	713	118	0	
69.83+	607	718	114	-4	
Gender					R^2 = .001
Male	590	707	120	+2	
Female	589	702	116	-2	
Race/Ethnicity					R^2 = .007
Hispanic/Latino	552	674	127	+9	
Asian	610	729	124	+6	
American Indian/Alaskan	592	711	122	+4	
Native Hawaiian or Pacific Islander	600	713	120	+2	
White Non-Hispanic	610	725	116	-2	
Non-Hispanic two or more races	598	713	116	-2	
Black	565	677	113	-5	
Preschool Experience					R^2 = .009
No pre-k experience	566	686	125	+7	
With pre-k experience	577	691	114	-4	
Preschool Experience by Sector					R^2 = .007
No pre-k experience	566	686	125	+7	
Department of Defense	613	728	118	0	
Head Start	564	679	116	-2	
Family day homes	600	715	116	-2	
Private preschool	627	741	115	-3	
Public school	577	691	114	-4	
Disability					R^2 = .002
Without a disability	593	710	119	+1	
With a disability	549	657	110	-8	
Language					R^2 = .010
English language/ multilingual learners	537	662	133	+15	
Not English language/ multilingual learners	598	713	115	-3	

Interpreting kindergarten students' growth in self-regulation and social skills using the CBRS

The Child Behavior Rating Scale (CBRS) captures teacher reports of students' self-regulation and social skills with scores ranging from 1 to 5 (never, rarely, sometimes, frequently, always) and uses the same items and the same rating scale across grades and in fall and spring within a grade. The CBRS captures students' growth in self-regulation and social skills over time using averaged raw scores.

When teachers rate a student's skills in self-regulation and social skills, they do so in relation to what their expectations are of what students should be able to do in their classroom at a particular point in time. Therefore, we expect gains in scores from fall to spring to be positive but modest. For example, consider the following item on the CBRS self-regulation scale: "Completes tasks successfully." A teacher may score a child as being able to do this frequently (a score of 4) in the fall and the spring. Thus, the growth score for that item would be zero. However, this does not mean a child did not grow in self-regulation skills in relation to this task because instructional tasks become more advanced and require greater self-regulation from fall to spring (tasks take longer, cover higher order concepts, have more steps, are expected to be done more independently). Therefore, a student would need to grow in their self-regulation skills to be able to frequently complete tasks successfully in the fall and spring.

In the following tables and figures, each kindergarten student's average raw score in the fall of 2021 is subtracted from their average raw score in the spring of 2022 to arrive at each individual student's growth in self-regulation or social skills. These individual growth scores are then averaged to create a mean growth score at the state level. Below, we first present growth in self-regulation skills followed by growth in social skills.

2021-2022 VKRP kindergarten students' self-regulation growth

Figure 29 shows that there is a range in kindergarten self-regulation scores in both the fall of 2021 and the spring of 2022. As highlighted in Figure 30, **teachers reported small gains in students' self-regulation skills over the year and that the distribution of growth is normally distributed. Additionally, the data show that some students did make larger gains in self-regulation skills while other students lost ground relative to their fall 2021 scores.**

Table 11

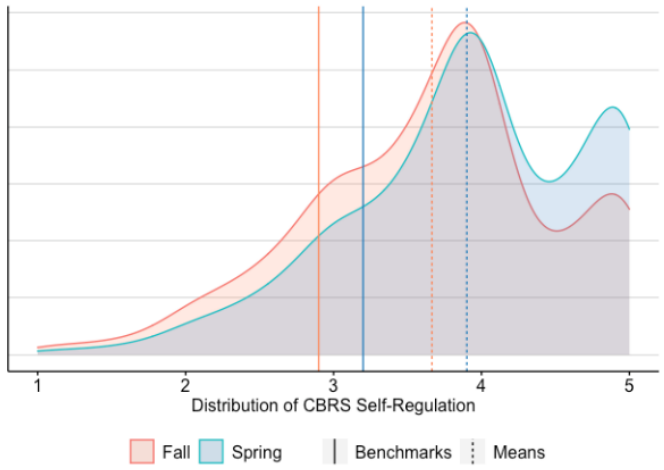
Fall 2021 and Spring 2022 Kindergarten Self-Regulation Descriptives

State N=82,327		Mean (SD)	Range	Benchmark
Self-Regulation	Average Raw Score, Fall	3.67 (0.84)	1.00 – 5.00	2.90
	Average Raw Score, Spring	3.90 (0.82)	1.00 – 5.00	3.20
	Mean Growth	0.24 (0.64)	-3.90 – 3.57	--

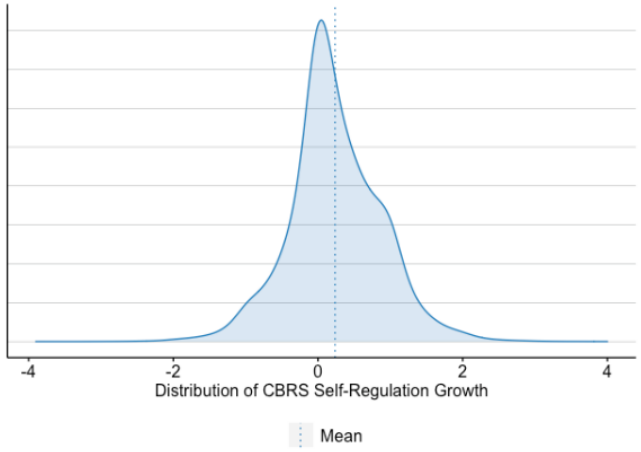
Note. Sample restricted to students with both fall and spring CBRS data.

Figure 29

Distribution of Kindergarten Self-Regulation Scores in Fall 2021 and Spring 2022



Distribution of Kindergarten Self-Regulation Growth from Fall 2021 to Spring 2022



2021-2022 VKRP kindergarten students' demographic characteristics associated with growth in self-regulation

There were significant associations between kindergarten students' demographic characteristics and growth in self-regulation scores from fall 2021 to spring 2022. Specifically, students' race/ethnicity, pre-kindergarten experience, disability status, and EL status were all significantly associated with growth (see Table 12). There was not a significant association between age, gender, and low-income background status and growth in self-regulation scores. Significant associations were small in effect size. More specifically:

- **Asian students showed the greatest growth in self-regulation scores (.34 points)**, followed by Hispanic/Latino of one race students (.28 points), American Indian/Alaskan (.26 points), Native Hawaiian or Pacific Islander (.24 points), White, Non-Hispanic and Non-Hispanic, two or more races (.22 points), and Black or African American students (.20 points) from fall 2021 to spring 2022. This effect size was small to medium (R^2 = .004).

- **Students with no pre-kindergarten experience showed slightly the greatest growth in self-regulation scores (.30 points)** followed by Department of Defense (.27 points), Head Start and Private Preschool

(both with .21 points), public preschool and Family Day Homes (both with .20 points). This effect size was small (R^2 = .001).

- When comparing students with no pre-kindergarten experience to students who have public pre-kindergarten experience, we see that students with no pre-kindergarten experience showed greater growth (.30 points) in self-regulation scores compared to students who had public pre-kindergarten experience (.20 points). The effect size was small to medium (R^2 = .005).

- **Students with a disability (.28 points) made slightly greater growth than students without a disability (.23 points).** This was a small effect (R^2 = .001).

- **Students who were English language/multilingual learners (EL; .34 points) made greater growth than their monolingual peers (.21 points).** This effect size was small to medium (R^2 = .003).

Table 12

Kindergarten Self-Regulation Growth by Demographic Characteristics

	Fall Mean Score	Spring Mean Score	Mean Growth	Difference from Average (Average = .24)	Effect Size
Race/Ethnicity					R^2 = .004
Asian	3.78	4.10	0.34	+0.10	
Hispanic/Latino	3.54	3.80	0.28	+0.04	
American Indian/Alaskan	3.66	3.91	0.26	+0.02	
Native Hawaiian or Pacific Islander	3.80	4.04	0.24	0	
White Non-Hispanic	3.76	3.98	0.22	-0.02	
Non-Hispanic two or more races	3.69	3.91	0.22	-0.02	
Black	3.51	3.70	0.20	-0.04	
Preschool Experience					R^2 = .005
No pre-k experience	3.55	3.83	0.30	+0.06	
With pre-k experience	3.59	3.79	0.20	-0.04	
Preschool Experience by Sector					R^2 = .001
No pre-k experience	3.55	3.83	0.30	+0.06	
Department of Defense	3.67	3.91	0.27	+0.03	
Head Start	3.50	3.70	0.21	-0.03	
Private preschool	3.87	4.07	0.21	-0.03	
Public school	3.59	3.79	0.20	-0.04	
Family day homes	3.76	3.96	0.20	-0.04	
Disability					R^2 = .001
With a disability	3.10	3.35	0.28	+0.04	
Without a disability	3.71	3.95	0.23	-0.01	
Language					R^2 = .003
English language/ multilingual learners	3.44	3.76	0.34	+0.10	
Not English language/ multilingual learners	3.70	3.91	0.22	-0.02	

2021-2022 VKRP kindergarten students' social skills growth

Figure 31 shows that there is a range in kindergarten social skills scores in both fall 2021 and spring 2022. As highlighted in Figure 32, and like self-regulation, **teachers reported small gains in students' social skills over the year 2021-2022. The distribution of growth is normally distributed with some students making gains and others losing ground with regards to teachers' perceptions of their social skills.**

Table 13

Fall 2021 and Spring 2022 Kindergarten Social Skills Descriptives

State N=82,327		Mean (SD)	Range	Benchmark
Self-Regulation	Average Raw Score, Fall	4.26 (0.65)	1.00 – 5.00	3.71
	Average Raw Score, Spring	4.35 (0.66)	1.00 – 5.00	4.00
	Mean Growth	0.09 (0.55)	-3.57 – 3.57	--

Note. Sample restricted to students with both fall and spring CBRS data.

Figure 31

Distribution of Kindergarten Social Skills Scores in Fall 2021 and Spring 2022

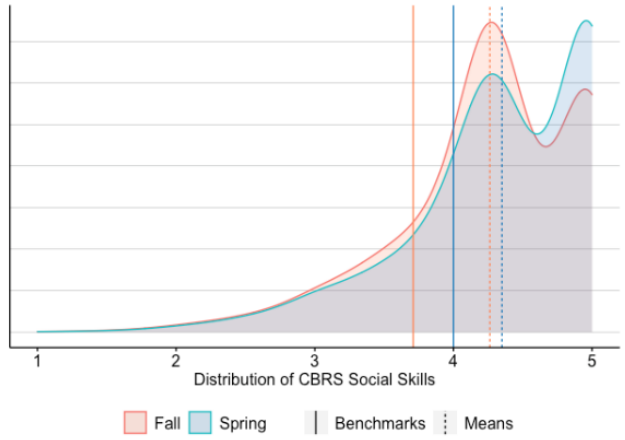
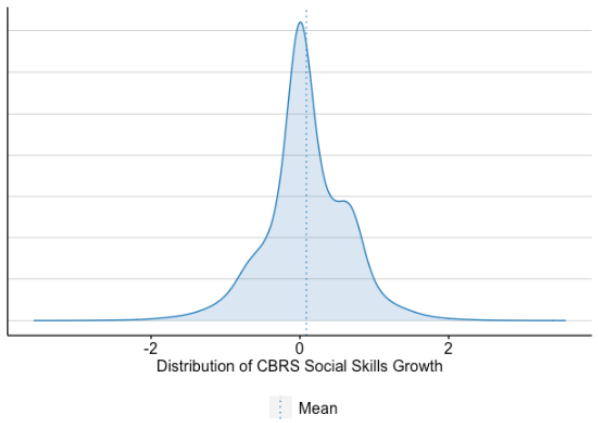


Figure 32

Distribution of Kindergarten Social Skills Growth from Fall 2021 to Spring 2022



2021-2022 VKRP kindergarten students' demographic characteristics associated with growth in social skills

There were significant associations between kindergarten students' demographic characteristics and growth in social skills scores from fall 2021 to spring 2022. Specifically, students' race/ethnicity, pre-kindergarten experience, disability status, and EL status were all significantly associated with growth (see Table 14). There was not a significant association between age, gender, and low-income background status and growth in social skills scores. Significant associations were small in effect size. More specifically:

- **Asian students showed the greatest growth in social skills** scores (.18 points), followed by Native Hawaiian or Pacific Islander (.15 points), Hispanic/Latino of one race students (.12 points), American Indian/Alaskan (.11 points), White, Non-Hispanic and Non-Hispanic, two or more races (.08 points), and Black or African American students (.04 points) from fall 2021 to spring 2022. This effect size was small to medium (R^2 = .004).

- **Student growth in social skills varied according to their pre-kindergarten experience.** For social skills, students with Department of Defense pre-kindergarten experience (.14 points) showed the greatest growth in social skills scores followed by no pre-kindergarten experience (.10 points), Private Preschool (.09 points), public preschool (.07 points), Head Start and Family Day Homes (.06 points). This effect size was small to medium (R^2 = .004).
    - When comparing students with no pre-kindergarten experience to students who have public pre-kindergarten experience, **students with no pre-kindergarten experience showed slightly greater growth (.10 points) in social skills scores compared to students who had a public pre-kindergarten experience (.07 points).** The effect size was small (R^2 = .001).

- **Students with a disability (.13 points) made greater growth than students without a disability (.08 points).** This was a small effect (R^2 = .001).

- **Students who were English language/multilingual learners (EL; .16 points) made greater growth than their monolingual peers (.08 points).** This effect size was small to medium (R^2 = .005).

Table 14

Kindergarten Social Skills Growth by Demographic Characteristics

	Fall Mean Score	Spring Mean Score	Mean Growth	Difference from Average Average = .09	Effect Size
Race/Ethnicity					R^2 = .004
Asian	4.35	4.52	0.18	+0.09	
Native Hawaiian or Pacific Islander	4.35	4.50	0.15	+0.06	
Hispanic	4.22	4.34	0.12	+0.03	
American Indian/Alaskan	4.32	4.41	0.11	+0.02	
White Non-Hispanic	4.30	4.38	0.08	-0.01	
Non-Hispanic two or more races	4.26	4.34	0.08	-0.01	
Black	4.16	4.20	0.04	-0.05	
Preschool Experience					R^2 = .001
No pre-k experience	4.26	4.36	0.10	+0.01	
With pre-k experience	4.19	4.27	0.07	-0.02	
Preschool Experience by Sector					R^2 = .004
Department of Defense	4.14	4.28	0.14	+0.05	
No pre-k experience	4.26	4.36	0.10	+0.01	
Private preschool	4.32	4.41	0.09	+0.00	
Public school	4.19	4.27	0.07	-0.02	
Head Start	4.18	4.24	0.06	-0.03	
Family day homes	4.36	4.42	0.06	-0.04	
Disability					R^2 = .001
With a disability	3.91	4.04	0.13	+0.04	
Without a disability	4.29	4.38	0.08	-0.01	
Language					R^2 = .005
English language/ multilingual learners	4.19	4.34	0.16	+0.07	
Not English language/ multilingual learners	4.27	4.35	0.08	-0.02	

2019-2022 VKRP Kindergarten Trends Across Time

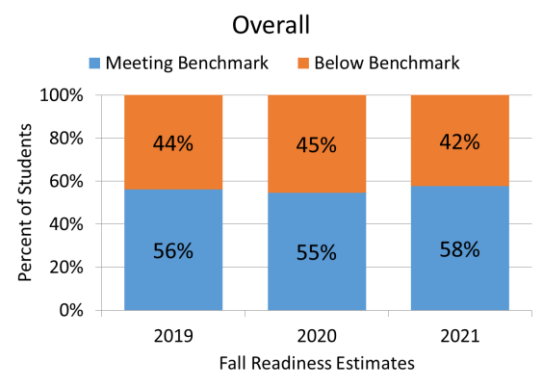
In this section, we present kindergarten trends over time across the last three years, from fall 2019 to spring 2022. Analyses include VKRP comparisons between fall timepoints of 2019, 2020, and 2021 and spring timepoints of 2021 and 2022 in terms of overall benchmark and specific skill domains in literacy, mathematics, self-regulation, and social skills.

2019-2022 Fall VKRP kindergarten data over time

Overall readiness estimates remained relatively stable from fall 2019 through fall 2021 (Figure 33). The percentage of kindergarten students not meeting the overall benchmark is 3% lower than 2020 and 2% lower compared to 2019. In the fall of 2019, which was the last assessment timepoint pre-pandemic and the first year of statewide fall VKRP data collection, 44% of students did not meet the overall benchmark. In the fall of 2020 when the sample was significantly reduced due to school closures, changes in student enrollment, and limited availability of remote assessments, 45% of kindergarten students who were assessed on all four measures were below the overall readiness benchmark. In the fall of 2021, the sample of students assessed was much closer to the full population of kindergarten students enrolled in public school classrooms, and 42% of kindergarten students were below the overall readiness benchmark.

Figure 33

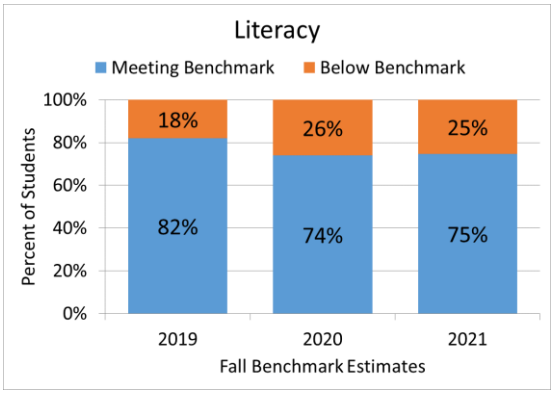
Fall Kindergarten Overall Readiness Estimates 2019-2022



With regards to the four separate learning domains, literacy benchmark estimates have varied over time with fewer kindergarten students (18%) below the literacy benchmark in the fall of 2019 prior to COVID-19 and more kindergarten students (26% and 25%) below the literacy benchmark in the fall of 2020 and 2021, respectively (Figure 34).

Figure 34

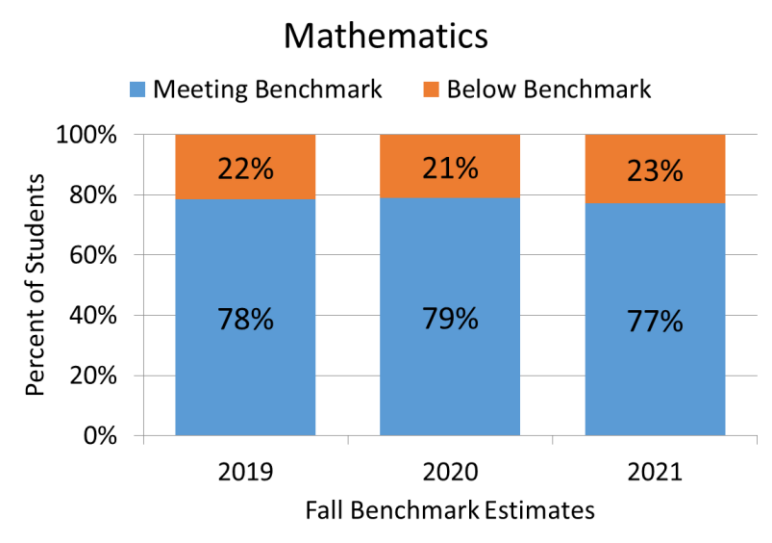
Fall Kindergarten Literacy Benchmark Estimates 2019-2022



Mathematics readiness estimates remained relatively stable over time in the fall with 22%, 21%, and 23% not meeting the mathematics benchmark in the fall of 2019, 2020, and 2021, respectively (Figure 35).

Figure 35

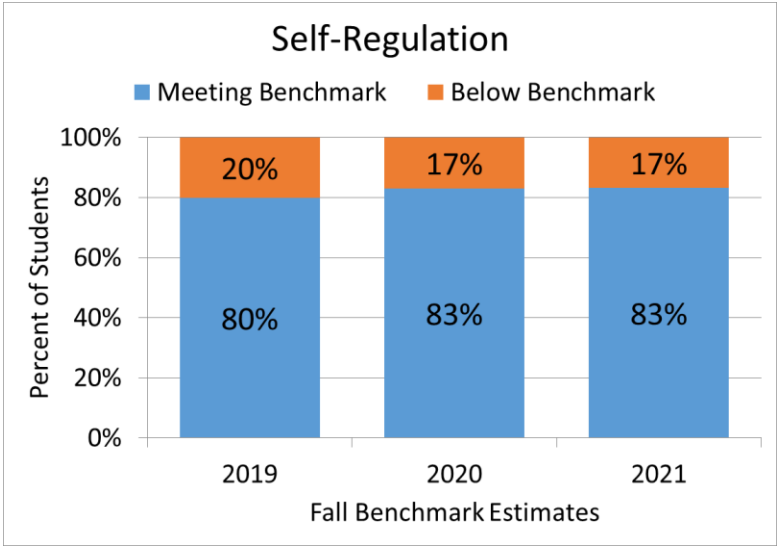
Fall Kindergarten Mathematics Readiness Estimates 2019-2022



In fall 2019, 20% of students were not meeting the self-regulation benchmark. Self-regulation readiness estimates decreased slightly and remained stable in fall 2020 and fall 2021 with 17% of students not meeting the self-regulation benchmark in both years (Figure 36).

Figure 36

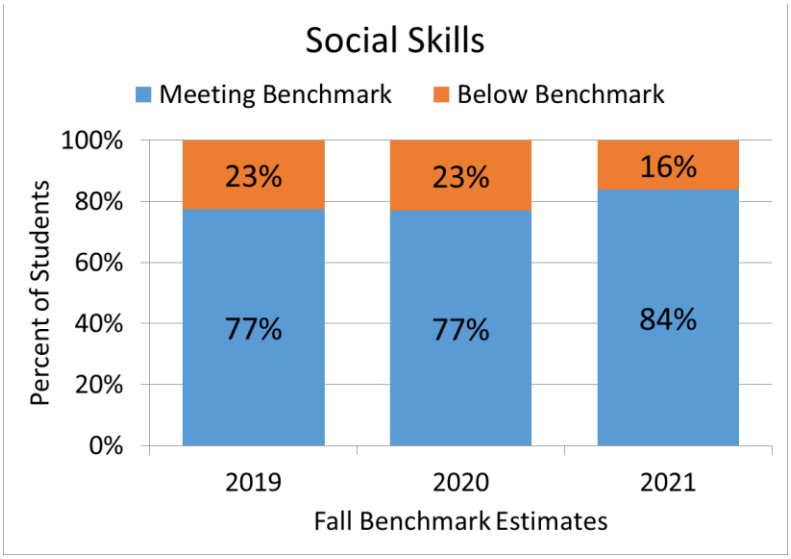
Fall Kindergarten Self-Regulation Readiness Estimates 2019-2022



Social skills readiness was stable from fall 2019 to fall 2020 with 23% of kindergarten students not meeting the benchmark. In the fall of 2021, the percentage of kindergarten students not meeting the social skills benchmark decreased to 16% (Figure 37).

Figure 37

Fall Kindergarten Social Skills Readiness Estimates 2019-2022

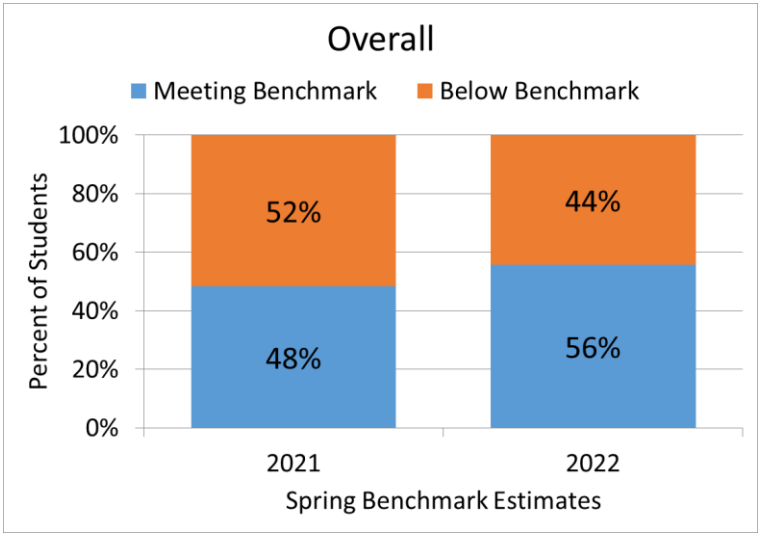


2021-2022 Spring VKRP kindergarten data over time

Spring VKRP data was not available in 2020 due to the onset of the COVID-19 pandemic and universally mandated public-school closures. Spring data is compared between spring 2021 and spring 2022. In the spring of 2021, 52% of kindergarten students were below the overall benchmark and, in the spring of 2022, 44% of students were below the overall benchmark. Thus, **substantially more students ended kindergarten likely demonstrating the skills they need for first grade in the spring of 2022 compared to the spring of 2021.** We cannot make causal claims about the differences we see when looking at the spring of 2021 versus the spring of 2022 data. However, the data may suggest some COVID recovery and underscoring the importance of in-person instruction.

Figure 38

Spring Kindergarten Overall Benchmark Estimates 2021-2022

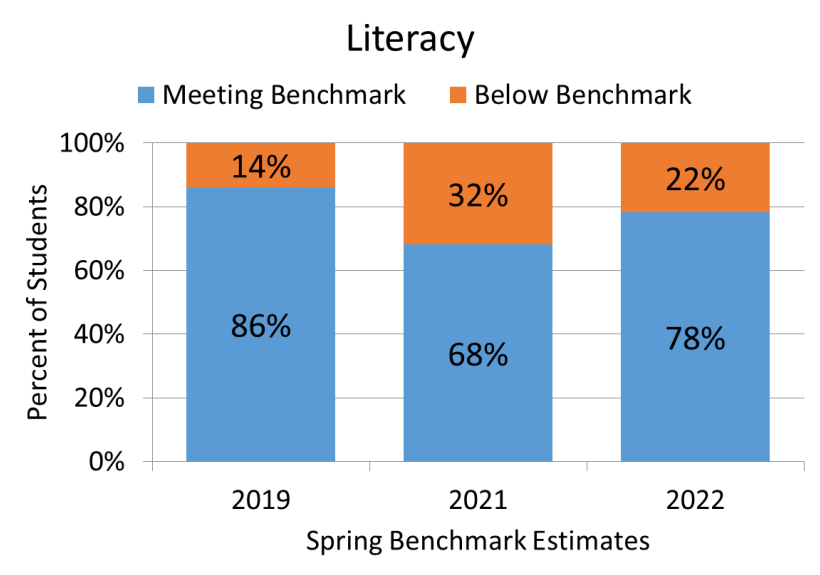


As the PALS assessment has been implemented for many years, spring literacy benchmark estimates are available longitudinally. For literacy we show data for spring 2019, spring 2021, and spring 2022. **In spring**

2019—prior to COVID-19—14% of students scored below the literacy benchmark. The percentage rose to 32% in spring 2021 and fell to 22% in spring 2022 (Figure 39).

Figure 39

*Spring Kindergarten Literacy Benchmark Estimates 2019-2022**

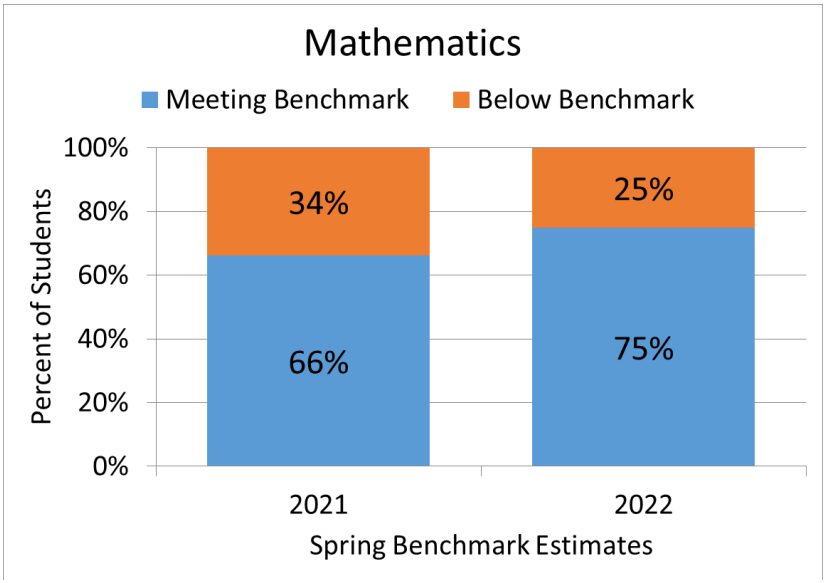


Note. VKRP and PALS assessments were not conducted in the spring of 2020 due to the COVID-19 pandemic.
FCPS is not represented in the Spring 2019 VKRP estimate but is represented in spring 2021 (iReady) and spring 2022 (PALS) VKRP estimates.

For mathematics, **34% of students fell below the mathematics benchmark in the spring of 2021 compared to 25% below the mathematics benchmark in the spring of 2022** (Figure 40).

Figure 40

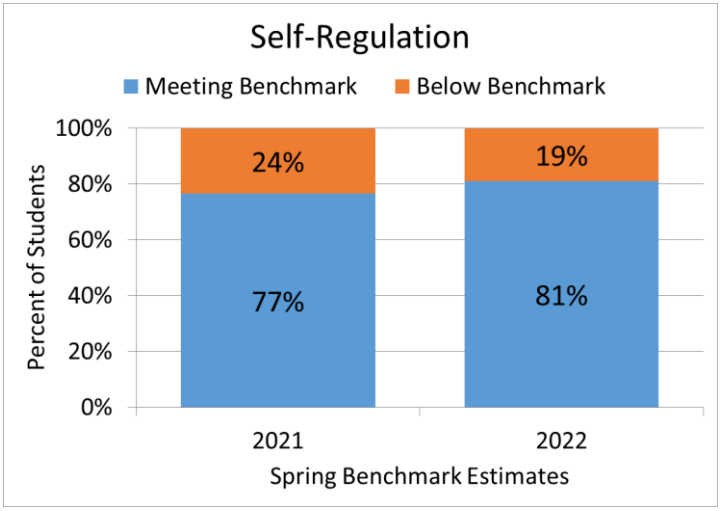
Spring Kindergarten Mathematics Benchmark Estimates 2021-2022



For self-regulation, **24% of kindergarten students were below the self-regulation benchmark in spring 2021 compared to 19% below the self-regulation benchmark in spring 2022** (Figure 41).

Figure 41

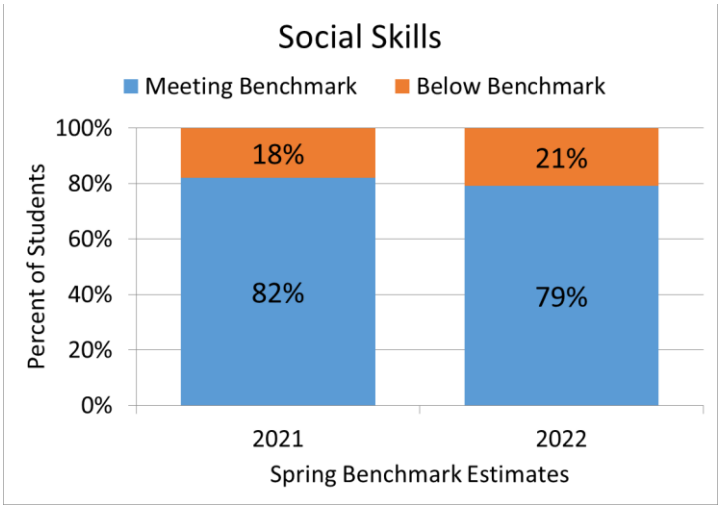
Spring Kindergarten Self-Regulation Benchmark Estimates 2021-2022



Spring social skills benchmark estimates followed a different trend with 18% of kindergarten students below the social skills benchmark in the spring of 2021 compared to 21% of students below the social skills benchmark in the spring of 2022 (Figure 42). Again, we cannot make causal claims, but the fact that fewer students met the spring social skills benchmark in 2022 compared to the spring of 2021 is consistent with teacher reports that students' social-emotional skills have suffered as a result of the pandemic (e.g., Egan et al., 2021[8]).

Figure 42

Spring Kindergarten Social Skills Benchmark Estimates 2021-2022



[8] Egan, S. M., Pope, J., Moloney, M., Hoyne, C., & Beatty, C. (2021). Missing early education and care during the pandemic: The socio-emotional impact of the COVID-19 crisis on young children. Early Childhood Education Journal, 49(5), 925-934.

2021-2022 VKRP Four-Year-Old Pre-kindergarten Data

The VKRP four-year-old pre-kindergarten assessment background, outreach efforts to pre-kindergarten programs, and the four-year-old pre-kindergarten readiness results for the 2021-2022 academic year are shared in the sections below. Included are descriptive information in the areas of literacy, mathematics, self-regulation, and social skills. The PALS-PreK screener was used to gather literacy data, the Early Mathematics Assessment System (EMAS) was used to measure children's mathematics knowledge and skills mathematics, and the Child Behavioral Rating Scale (CBRS) was used to measure teachers' report of children's self-regulation and social skills. Additionally, teachers rated children on well-being items designed to quantify the teacher's perception of a child's well-being, both in the fall of 2021 and the spring of 2022 for four-year-old pre-kindergarteners.

Background

VKRP pre-kindergarten expansion to four-year-old children in publicly funded pre-kindergarten programs

In response to the desire for uniform, repeated assessments that measure a child's growth in learning from the beginning of pre-kindergarten and extend across pre-kindergarten and kindergarten, the VKRP team began a downward extension of the VKRP assessment system to be used in four-year-old pre-kindergarten classrooms that would measure children's growth in the four domain areas: literacy (PALS-PreK), mathematics (EMAS), self-regulation, and social skills (CBRS). Beginning in 2017-2018 and with internal funding from the University of Virginia, the VKRP team developed and piloted new items for four-year-old pre-kindergarten children. Further development and piloting of the four-year-old pre-kindergarten extension of the VKRP assessments (mathematics, social skills, and self-regulation) and accompanying assessment and reporting systems (online web portal, reports, instructional resources) were supported through funding from the Virginia Department of Social Services (VDSS) and private funders (The Obici Healthcare Foundation in Western Tidewater and the Alleghany Foundation in the Alleghany Highlands) from 2018 to 2020. During the 2020-2021 school year, funding for the continued piloting of the four-year-old pre-kindergarten extension of VKRP came from private funders (The Obici Healthcare Foundation and the Alleghany Foundation) and federal Governors' Emergency Education Relief (GEER) funds. GEER funding allowed the VKRP team to provide support for interested Virginia Preschool Initiative (VPI) divisions to voluntarily use the VKRP measure to assess their children's self-regulation skills, social skills, and well-being using the CBRS. This was done to help better understand the impact of COVID-19 on four-year-old pre-kindergarten children's social-emotional functioning, mental health, and well-being. During each year of the pilot, the number of participating classrooms has increased as more four-year-old pre-kindergarten classrooms found value in the VKRP measures. In the 2021-2022 school year, VKRP became available to all publicly funded four-year-old pre-kindergarten programs to assess children's skills in fall 2021 and spring 2022.

Outreach to the pre-kindergarten community

Beginning in the summer of 2021, VKRP engaged in a series of outreach efforts to four-year-old pre-kindergarten programs. Specifically, programs were contacted through an onboarding survey and asked to reply by July 2021. There was also an interest in using VKRP from the Virginia Early Childhood Foundation (VECF) Mixed Delivery programs and VKRP worked closely with VECF to create training and support to match the unique needs of these programs. Pre-kindergarten interest in VKRP steadily grew as the school year started in 2021 and by the end of the fall window, VKRP worked with 2,511 four-year-old pre-kindergarten classrooms across the Commonwealth. Of these, 1,646 were VPI classrooms, 358 were VPI/Virginia Early Childhood Foundation Mixed Delivery classrooms, 263 were Virginia Early Childhood Foundation Mixed Delivery classrooms, and 244 were Head Start classrooms.

To best support pre-kindergarten programs, teachers, and families over the years, the VKRP team within CASTL developed a series of resources to communicate about school readiness and how VKRP measures and supports school readiness skills. Resources were specifically developed to be inclusive of the diversity of early childhood

programs, including family day homes (also referred to as family childcare) as well as private, publicly subsidized, and public pre-kindergarten settings. These resources include short videos on early mathematics, self-regulation, and social skills, a set of slides that can be adapted, and instructional resources for both four-year-old pre-kindergarten teachers and families to support children's skill development. In spring of 2022, the toolkit of pre-kindergarten instructional resources became available to divisions across the Commonwealth. Additionally, the VKRP team led several in-person presentations with four-year-old pre-kindergarten teachers and families to discuss the importance of school readiness and how VKRP measures and supports readiness across all four separate learning domains. Pre-kindergarten teachers were also given access to view the VKRP online training modules to learn how to properly use the assessments. Additionally, several family focus groups were held in spring of 2022 to gather feedback on how VKRP could best report out child level data and meet family's unique needs.

2021-2022 Four-Year-Old VKRP Pre-kindergarten Data

In this section, VKRP shares the four-year-old pre-kindergarten data for fall of 2021 and spring of 2022. Data include pre-kindergarten demographic information, program/classroom data, data completion information, descriptive data, and Well-being results for four-year-old children assessed in the 2021-2022 academic year.

2021-2022 four-year-old VKRP pre-kindergarten demographic information

In the fall of 2021, over 27,000 four-year-old children participated in VKRP (Table 15). Children were on average 4 years and 4 months old in the fall of 2021 and were racially and ethnically diverse, with 21.3% of children identifying as Hispanic/Latino of any race and 32.3% identifying as Black or African American. 51.5% of the sample in the fall of 2021 were children from low-income backgrounds. The number of children participating in the spring was like the fall 2021 sample (increase in spring 2022 of approximately 300 children). Racial/ethnic representation remained relatively consistent from fall 2021 to spring 2022, but there was a 9.1% increase in the number of children from low-income backgrounds in the spring of 2022 compared to the fall of 2021. This increase is likely due to additional children enrolling in four-year-old pre-kindergarten classrooms after the start of the school year and/or real increases in the number of families meeting low-income status criteria over the course of the 2021-2022 year.

Table 15

Pre-kindergarten Demographic Summary for the 2021-2022 Academic Year

		Fall 2021 N=27,547	Spring 2022 N=27,867
		Mean (SD) or n (%)	Mean (SD) or n (%)
Age	Age in months on September 30, 2021	53.9 (4.6)	53.9 (4.1)
Gender	Female	11,300 (48.6)	11,716 (48.7)
	Male	11,965 (51.4)	12,339 (51.3)
Race/Ethnicity	American Indian or Alaska Native	53 (0.2)	60 (0.2)
	Asian	942 (4.0)	988 (4.1)
	Black or African American	7,526 (32.3)	7,870 (32.7)
	Hispanic/Latino of any race	4,962 (21.3)	5,206 (21.6)
	White	8,151 (35.0)	8,276 (34.4)
	Native Hawaiian or other Pacific Islander	25 (0.1)	28 (0.1)
	Non-Hispanic/Latino of any race, two or more races	1,607 (6.9)	1,632 (6.8)
Family Income Status[a]	Students not from low-income backgrounds	11,285 (48.5)	9,477 (39.4)
	Students from low-income backgrounds	11,981 (51.5)	14,583 (60.6)
Preschool Experience	Head Start	413 (1.5)	302 (1.3)
	Public preschool	22,810 (82.8)	23,716 (98.6)
	Private preschool/Daycare	43 (0.2)	42 (0.2)
Disability[b]	Students without a disability	20,491 (88.1)	20,483 (85.3)
	Students with a disability	2,759 (11.9)	3,535 (14.7)
Language[c]	Not English language/multilingual learners	22,929 (98.6)	23,607 (98.1)
	English language/multilingual learners	336 (1.4)	448 (1.9)

[a]Source: SRC Disadvantaged Status Flag. Students are identified as having a low-income background if, at any point during the school year, the student: 1) is eligible for Free/Reduced Meals, 2) receives TANF, or 3) is eligible for Medicaid.

[b]Source: SRC Primary Disability Code. Students are identified as having a disability if any code is present *except,* "*Qualified Individual under Section 504.*"

[c]Source: Student Record Collection (SRC) Limited English Proficiency (LEP) Status Code. Students are identified as English learners (EL) if code is, "*Identified as EL and receives EL services*," "*Identified as EL but has refused EL services*," or "*Identified as formerly EL for each of the four years after exiting EL services*."

2021-2022 four-year-old VKRP pre-kindergarten data across program/classroom type

Classroom-level funding source for 2021-2022 was assigned based on the VDOE experience/funding code for most of the children within the classroom (e.g., a class of 15 students has 8 whose PKFundingCode=VPI. The classroom is coded as VPI). Classrooms missing a funding source were then coded according to the school/division names.

In both the fall of 2021 and spring of 2022, early childhood programs across sector type were well-represented and included the following (Table 16 and Table 17): Head Start (n=315 classrooms in the fall, 317 in the spring); VPI, VPI+, local funding for VPI placement, special education funding for VPI placement (n=1,318 classrooms in the fall, 1,331 in the spring); Special Education Preschool (n= 227 classrooms in the fall, 240 in the spring), Title I (n=30 classrooms in the fall, 27 in the spring), Local funding for other public preschool (n= 74 classrooms in the fall, 75 in the spring), Private preschool/daycare (n= 231 classrooms in the fall, 267 in the spring), and public school (n= 38 classrooms in the fall, 17 in the spring).

Table 16

Fall 2021 Pre-kindergarten Completion by Classroom Type

Classroom Type	Classroom count	Student count
	N (%)	N (%)
Head Start	315 (14.0)	3,230 (11.7)
VPI, VPI+, local funding for VPI placement, special education funding for VPI placement	1,318 (58.6)	19,983 (72.6)
Special Education Preschool	227 (10.1)	874 (3.2)
Title I	30 (1.3)	445 (1.6)
Local funding for other public preschool	74 (3.3)	592 (2.2)
VPI Pilot for threes	18 (0.8)	208 (0.8)
Private preschool/Daycare	231 (10.3)	1,926 (7.0)
Public school	38 (1.7)	264 (1.0)
Total	**2,2251 (100.0)**	**27,522 (100.0)**

Table 17

Spring 2022 Pre-kindergarten Completion by Classroom Type

Classroom Type	Classroom count	Student count
	N (%)	N (%)
Head Start	317 (13.8)	3,305 (11.9)
VPI, VPI+, local funding for VPI placement, special education funding for VPI placement	1,331 (58.1)	19,994 (72.0)
Special Education Preschool	240 (10.5)	962 (3.5)
Title I	27 (1.2)	420 (1.5)
Local funding for other public preschool	75 (3.3)	560 (2.0)
VPI Pilot for threes	16 (0.7)	213 (0.8)
Private preschool/Daycare	267 (11.7)	2,185 (7.9)
Public school	17 (0.7)	138 (0.5)
Total	**2,290 (100.0)**	**27,777 (100.0)**

2021-2022 four-year-old VKRP pre-kindergarten completion data

In the first year of the four-year-old publicly funded pre-kindergarten expansion, over 85% of children in participating classrooms were assessed in the fall of 2021 and in the spring of 2022. In fall 2021 (Table 18), 86.4% of children had complete data on the VKRP assessments (literacy, mathematics, self-regulation, and social skills). In spring 2022, 88.6% of four-year-old pre-kindergarten children had complete VKRP data. The table on the next page presents information on completion rates across the pre-kindergarten assessments in 2021-2022. Of note, the largest group of children who were exempted from the four-year-old pre-kindergarten EMAS in the fall and spring were three-year-old children who were in mixed-age classrooms. These exemptions impact the percentage of children with overall complete data. However, this exemption was recommended for this year given that the three-year-old EMAS was still under development and these exemption and completion numbers for the four-year-old pre-kindergarten data are expected. Additionally, children enrolled in private or faith-based programs did not have demographic data available through the VDOE data system and are noted as missing data.

Table 18

Pre-kindergarten Assessment Completion in the 2021-2022 School Year

		Fall 2021 N=27,547	Spring 2022 N=27,867
		Mean (SD) or n (%)	Mean (SD) or n (%)
PALS	Incomplete	331 (1.3)	163 (0.6)
	Exempt	144 (0.6)	277 (1.1)
	Complete, remote	120 (0.5)	58 (0.2)
	Complete, non-standard[a]	148 (0.6)	138 (0.5)
	Complete, standard	25,173 (97.1)	25,701 (97.6)
EMAS	Incomplete	2,220 (8.1)	2,246 (8.1)
	Exempt	881 (3.2)	695 (2.5)
	Complete, Spanish	381 (1.4)	215 (0.8)
	Complete, remote	35 (0.1)	25 (0.1)
	Complete, non-standard[a]	91 (0.3)	57 (0.2)
	Complete, standard	23,914 (86.9)	24,539 (88.3)
CBRS	Incomplete	1,996 (7.3)	2,210 (8.0)
	Exempt	571 (2.1)	294 (1.1)
	Complete, standard	24,955 (90.7)	25,273 (91.0)
Breakdown of assessment overlap (complete, standard, or remote only)	PALS, EMAS, CBRS	23,059 (86.4)	23,810 (88.6)
	PALS, EMAS	135 (0.5)	229 (0.9)
	PALS, CBRS	552 (2.1)	379 (1.4)
	EMAS, CBRS	709 (2.7)	499 (1.9)
	PALS	1,547 (5.8)	1,341 (5.0)
	EMAS	46 (0.2)	26 (0.1)
	CBRS	635 (2.4)	585 (2.2)

[a]A non-standard administration is when accommodations are made to the assessment (i.e., frequent breaks, simplified directions) that do not follow the standard administration protocol.

2021-2022 four-year-old pre-kindergarten descriptive data

In Table 19, we present descriptive data for the EMAS (total scaled score) and CBRS (self-regulation, social skills and well-being mean scores) in 2021-2022. The PALS-PreK measure for literacy does not have a summed score, and therefore in Table 19, we present the mean subtask scores (e.g., name writing, letter sounds etc.) in the screener. Table 19 provides additional descriptive statistics for the VKRP assessments. **Overall, four-year-old children displayed a range of skills in the fall of 2021 and spring of 2022 across each of the domains-literacy, mathematics, self-regulation, and social skills.**

Table 19

Pre-kindergarten Assessment Descriptives from the 2021-2022 School Year

		Fall 2021 N=27,547	Spring 2022 N=27,867
		Mean (SD) or n (%)	Mean (SD) or n (%)
Literacy	Name writing	3.63 (2.21)	6.05 (1.57)
	Upper case alphabet	9.64 (9.44)	19.23 (8.23)
	Lower case alphabet	9.56 (9.42)	18.20 (8.28)
	Letter sounds	4.92 (6.85)	13.79 (8.51)
	Beginning sound awareness	4.19 (3.71)	7.69 (3.23)
	Print word awareness	4.63 (2.84)	7.52 (2.40)
	Rhyme awareness	3.96 (2.67)	6.84 (2.93)
	Nursery rhyme awareness	4.13 (2.86)	7.14 (2.84)
Mathematics	EMAS Scaled Score	498.37 (85.72)	605.11 (81.45)
Social-Emotional	CBRS Self-Regulation Mean Score	3.42 (0.80)	3.81 (0.81)
	CBRS Social Skills Mean Score	3.93 (0.72)	4.13 (0.72)
	CBRS Well-Being Mean Score	4.12 (0.65)	4.33 (0.61)

2021-2022 four-year-old VKRP pre-kindergarten well-being data

The mean Well-being scores for four-year-old children in fall 2021 and spring 2022 were 4.12 (*SD*= 0.65) and 4.33 (*SD*= 0.61), respectively (Table 19). In the fall of 2021, teachers reported being moderately, very or extremely concerned about 20% of four-year-old children enrolled. In comparison, in fall of 2021, kindergarten teachers reported elevated concern about 13% of the total sample of kindergarten students, suggesting that four-year-old pre-kindergarten teachers were more concerned about the well-being of their children compared to kindergarten teachers. Elevated teacher concern for pre-kindergarten children decreased slightly in the spring of 2022 where teachers reported being moderately, very, or extremely concerned about 18% of children. **In fall 2021, pre-kindergarten teachers reported being concerned for the mental health well-being of one in every 5 pre-kindergarten students (20%) and the rate of concern decreased only slightly in the spring of 2022 to 18%.**

Figure 43

Fall 2021 and Spring 2022 Pre-kindergarten Well-Being Composite Score

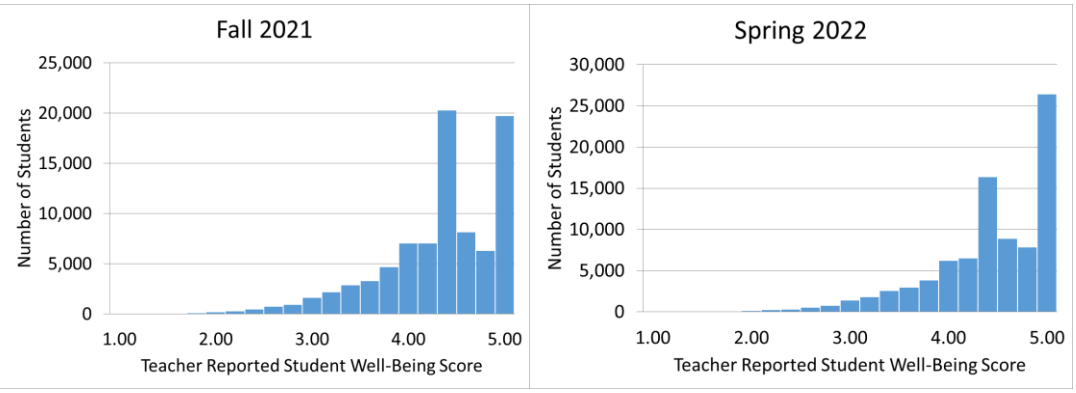
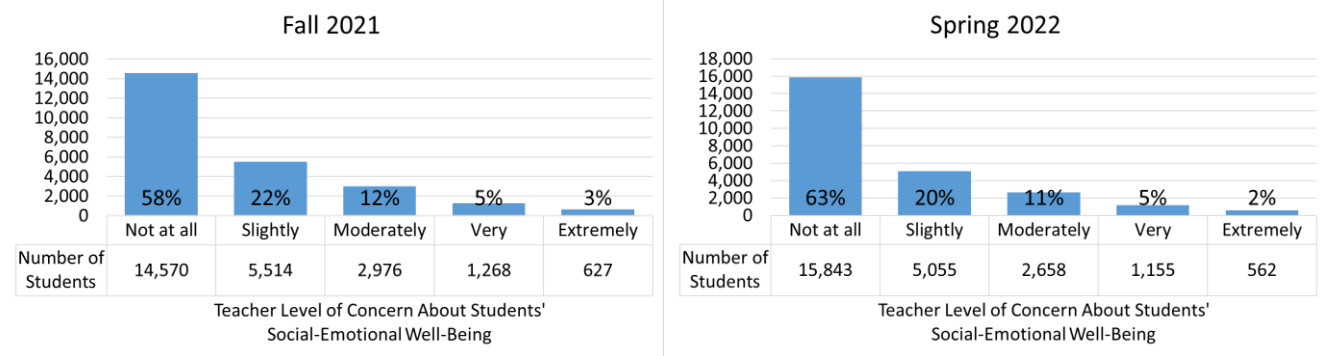


Figure 44

Fall 2021 and Spring 2022 Pre-kindergarten Teacher Concern



How did pre-kindergarten students' grow in mathematics, self-regulation, and social skills from fall 2021 to spring 2022?

In this section, we will discuss the overall growth in scaled scores in mathematics and growth in raw averaged scores in self-regulation and social skills from fall 2021 to spring 2022. The PALS-PreK literacy screener was not developed as a growth measure; therefore, literacy growth is not displayed in the tables below. The revised state-supported literacy screener, to be implemented during the 2024 school year, will allow for growth to be detected.

2021-2022 VKRP pre-kindergarten children's mathematics scaled scores growth

The Early Mathematics Assessment System (EMAS) for pre-kindergarten captures growth over time using scaled scores ranging from 250 to 817. In the following table and figures, each child's scaled score in the fall of 2021 is subtracted from their scaled score in the spring of 2022 to arrive at each individual child's growth in mathematics (Table 20 and Figure 45). These individual growth scores are then averaged to create a mean growth score at the state level for the 2021-2022 year.

Figure 45 shows that children's scores on the EMAS have a normal distribution in the fall 2021 and spring 2022. As highlighted in Figure 46, there was a normal distribution of growth across the year. Although there was a range in growth across the year, on average, pre-kindergarten children gained 108 points in mathematics from fall 2021 to spring 2022, demonstrating robust growth in mathematics skills. Very few children (889 or 4.0%) showed little or no growth.

Table 20

Fall 2021 and Spring 2022 Pre-kindergarten Mathematics Descriptives

State N=22,264		Mean (SD)	Range
Mathematics	Scaled Score, Fall	499.72 (85.60)	250-758
	Scaled Score, Spring	607.97 (79.93)	296-817
	Mean Growth	108.24 (65.96)	-267.00 – 505.00

Note. Sample restricted to students with both fall and spring EMAS data.

Figure 45

Distribution of Pre-kindergarten EMAS Scaled Scores in Fall 2021 and Spring 2022

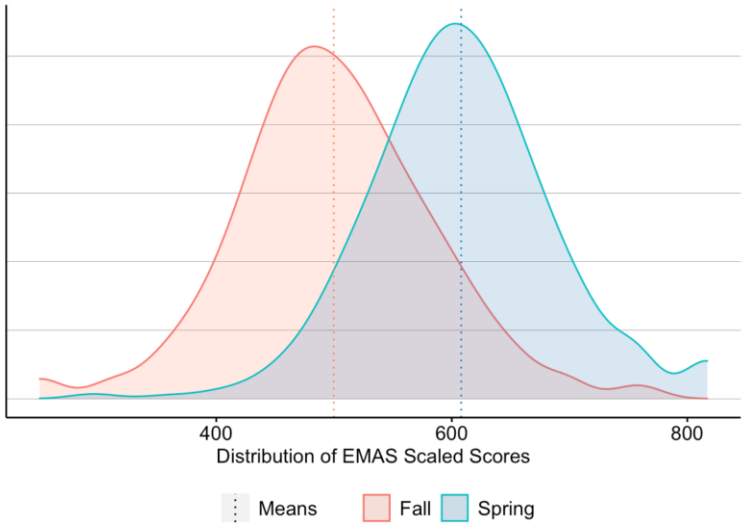
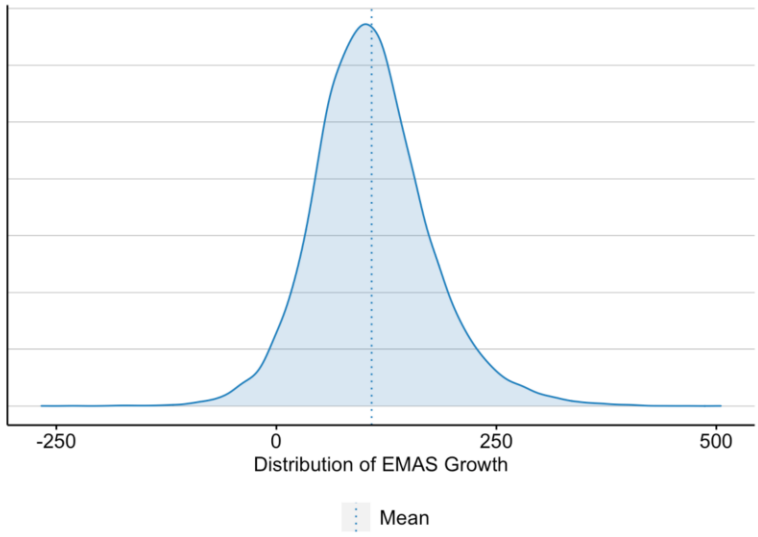


Figure 46

Distribution of Pre-kindergarten EMAS Growth from Fall 2021 to Spring 2022



2021-2022 VKRP pre-kindergarten children's demographic characteristics associated with mathematics scaled scores growth

There were significant associations between pre-kindergarten children's demographic characteristics and growth in mathematics scores from fall 2021 to spring 2022. Specifically, **children's age, race/ethnicity, pre-kindergarten experience, disability status, low-income background status and EL status were all significantly associated with growth** (see Table 21). There was not a significant association between gender and growth in mathematics scores. Significant associations ranged from small to medium in effect size. Drawing from Cohen

(1988)[9], we interpret an R^2 of .001 as a small effect size, .009 as a medium effect size, and .025 as a large effect size.

More specifically, on average:

- **Younger pre-kindergarten children showed more growth than older children in mathematics scores from fall 2021 to spring 2022.** This was a small to medium effect (R^2 = .006).
- **Children from low-income backgrounds made slightly greater gains (112 points) in mathematics from fall to spring compared to children not from low-income backgrounds (106 points).** This was a small effect (R^2 = .002).
- Children from different racial backgrounds showed different amounts of growth in mathematics skills from fall 2021 to spring 2022. **Hispanic/Latino of one race children showed the greatest growth in mathematics scores (123 points)**, followed by Asian children (116 points), Black or African American and White, Non-Hispanic children (106 points), non-Hispanic, two or more races (105 points), American Indian/Alaskan (103 points), and Native Hawaiian or Pacific Islander (96 points) from fall 2021 to spring 2022. This effect size of race was medium (R^2 = .011).
- **Children with public pre-kindergarten and Head Start experience showed greater growth in mathematics scores (110 points each) than private pre-kindergarten/daycare experience (65 points).** This effect size was small (R^2 = .001).
- **Children without a disability (111 points) made greater growth than students with a disability (99 points).** This was a small effect size (R^2 = .004).
- **Children who were English language/multilingual learners (EL; 147 points) made greater growth than their monolingual peers (109 points).** This effect size was small to medium (R^2 = .006).

[9] Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences.* New York, NY: Routledge Academic.

Table 21

Pre-kindergarten Mathematics Growth by Demographic Characteristics

	Fall Mean Score	Spring Mean Score	Mean Growth	Difference from Average Average = 108	Effect Size
Age in months					R^2 = .006
<= 50.79	467	581	116	+8	
50.80 - 54.08	487	598	113	+5	
54.09 - 57.20	507	612	106	-2	
57.21+	520	623	104	-4	
Race/Ethnicity					R^2 = .011
Hispanic	471	591	123	+15	
Asian	507	617	116	+8	
Black	492	598	106	-2	
White Non-Hispanic	511	616	106	-2	
Non-Hispanic two or more races	501	607	105	-3	
American Indian/Alaskan	506	595	103	-5	
Native Hawaiian or Pacific Islander	517	616	96	-12	
Preschool Experience					R^2 = .001
Public school	496	604	110	+2	
Head Start	491	597	110	+2	
Private preschool	520	580	65	-43	
Family Income Status					R^2 = .002
Low-income	486	598	112	+4	
Not low-income	507	614	106	-2	
Disability					R^2 = .004
Without a disability	499	611	111	+3	
With a disability	467	560	99	-9	
Language					R^2 = .006
English language/ multilingual learners	469	607	147	+39	
Not English language/ multilingual learners	496	604	109	+1	

2021-2022 VKRP pre-kindergarten children's self-regulation growth

Children's mean raw scores in self-regulation in the fall and spring as well the average self-regulation growth across the state are presented in Table 22. Figure 47 shows that there is a range in four-year-old pre-kindergarten children's self-regulation scores in both the fall of 2021 and the spring of 2022. As highlighted in Figure 48, **teachers reported small gains in pre-kindergarten children's self-regulation skills over the year and the distribution of growth is normally distributed. The data also show that some children made larger gains in self-regulation skills while other children lost ground relative to their fall 2021 scores.**

Table 22

Fall 2021 and Spring 2022 Pre-kindergarten Self-Regulation Descriptives

State N=23,104		Mean (SD)	Range
Self-Regulation	Average Raw Score, Fall	3.43 (0.79)	1.00 – 5.00
	Average Raw Score, Spring	3.83 (0.80)	1.00 – 5.00
	Mean Growth	0.40 (0.66)	-2.90 – 4.00

Note. Sample restricted to students with both fall and spring CBRS data.

Figure 47

Distribution of Pre-kindergarten Self-Regulation Scores in Fall 2021 and Spring 2022

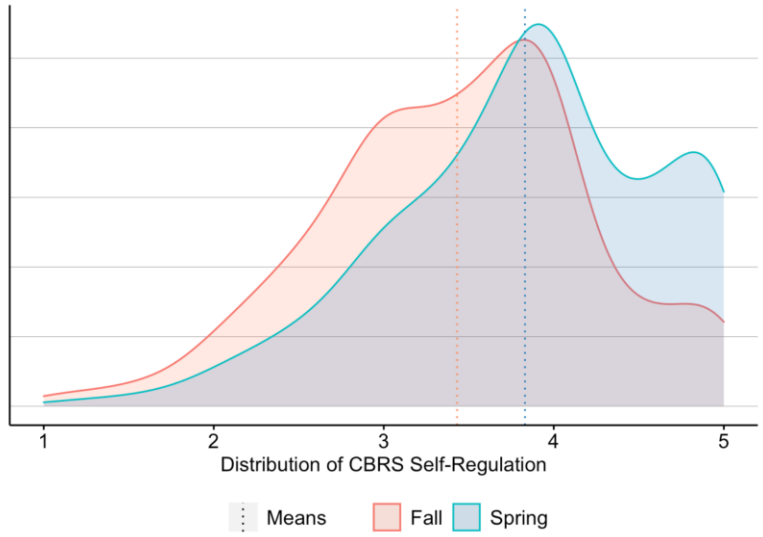
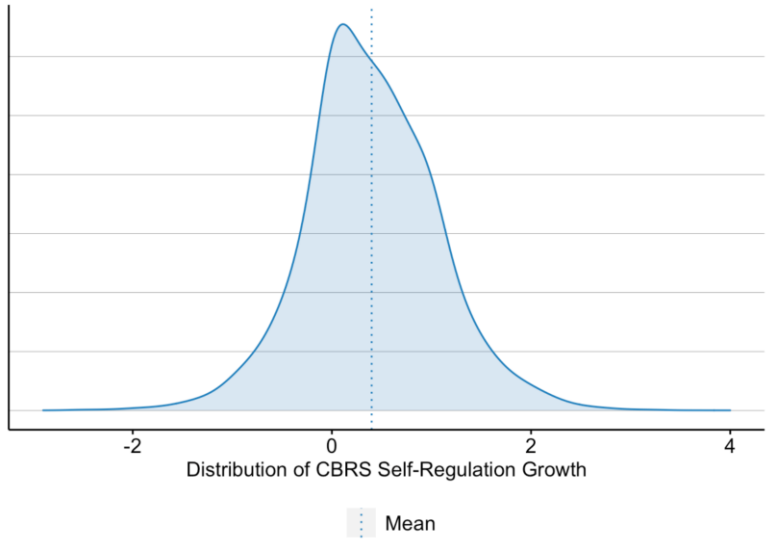


Figure 48

Distribution of Pre-kindergarten Self-Regulation Growth from Fall 2021 to Spring 2022



2021-2022 VKRP pre-kindergarten children's demographic characteristics associated with growth in self-regulation

There were a couple of significant associations between children's demographic characteristics and growth in self-regulation scores from fall 2021 to spring 2022. **Specifically, children's race/ethnicity and low-income background status were significantly associated with growth (see Table 23).** There was not a significant association between age, gender, pre-kindergarten experience, disability status, and EL status and growth in prekindergarten self-regulation scores. Significant associations were small to medium in effect size. More specifically:

- **Asian children showed the greatest growth in self-regulation scores (.51 points)**, followed by Hispanic/Latino of one race children (.47 points), American Indian/Alaskan and White, Non-Hispanic (.43 points), non-Hispanic, two or more races (.37 points), Black or African American children (.36 points) and Native Hawaiian or Pacific Islander (.35 points) from fall 2021 to spring 2022. This effect size was small to medium (R^2 = .004).

- **Children from a low-income background (.40 points) showed slightly less growth than students who were not from a low-income background (.44 points).** This was a small effect (R^2 = .001).

Table 23

Pre-kindergarten Self-Regulation Growth by Demographic Characteristics

	Fall Mean Score	Spring Mean Score	Mean Growth	Difference from Average (Average = .40)	Effect Size
Race/Ethnicity					R^2 = .004
Asian	3.54	4.01	0.51	+0.11	
Hispanic	3.42	3.88	0.47	+0.07	
American Indian/Alaskan	3.53	3.84	0.43	+0.03	
White Non-Hispanic	3.44	3.86	0.43	+0.03	
Non-Hispanic two or more races	3.43	3.80	0.37	-0.03	
Black	3.36	3.72	0.36	-0.04	
Native Hawaiian or Pacific Islander	3.64	3.98	0.35	-0.05	
Family Income Status					R^2 = .001
Not low-income	3.45	3.89	0.44	+0.04	
Low-income	3.38	3.78	0.40	0	

2021-2022 VKRP pre-kindergarten children's social skills growth

Children's mean raw scores in social skills in the fall and spring as well the average social skills growth across the state are presented in Table 24. Figure 49 shows that there is a range in four-year-old pre-kindergarten social skills scores in both the fall of 2021 and the spring of 2022. As highlighted in Figure 50 and like self-regulation**, pre-kindergarten teachers reported small gains in children's social skills over the year 2021-2022. The distribution of growth is normally distributed with some children making gains and others losing ground with regards to teachers' perceptions of their social skills.**

Table 24

Fall 2021 and Spring 2022 Pre-kindergarten Social Skills Descriptives

State N=23,104		Mean (SD)	Range
Social Skills	Average Raw Score, Fall	3.94 (0.71)	1.00 – 5.00
	Average Raw Score, Spring	4.15 (0.71)	1.00 – 5.00
	Mean Growth	0.21 (0.60)	-2.72 – 3.29

Note. Sample restricted to students with both fall and spring CBRS data.

Figure 49

Distribution of Pre-kindergarten Social Skills Scores in Fall 2021 and Spring 2022

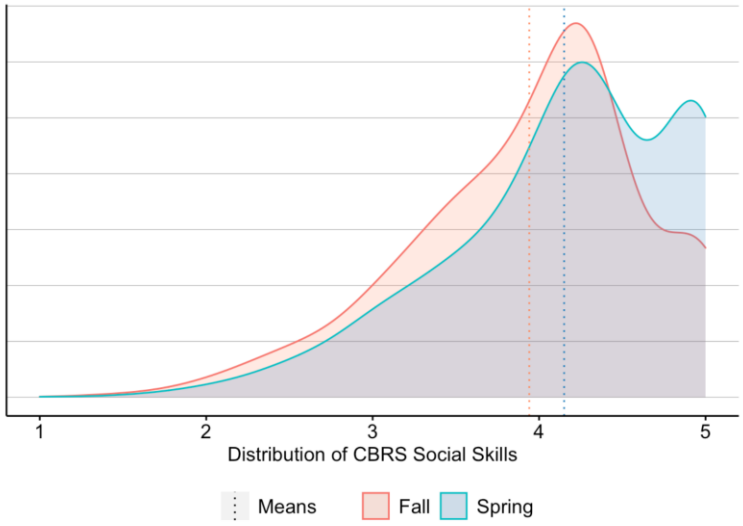
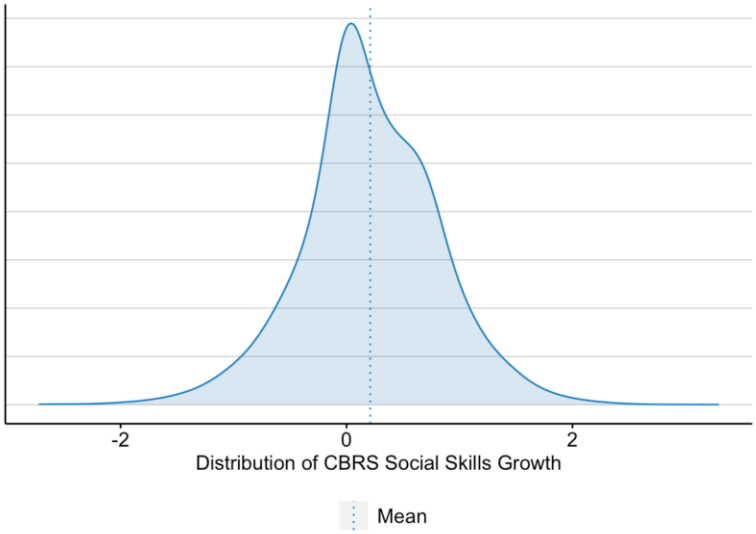


Figure 50

Distribution of Pre-kindergarten Social Skills Growth from Fall 2021 to Spring 2022



2021-2022 VKRP pre-kindergarten children's demographic characteristics associated with growth in social skills

Mirroring the self-regulation findings, there were two significant associations between children's demographic characteristics and growth in social skills scores from fall 2021 to spring 2022. **Specifically, children's race/ethnicity and low-income background status were significantly associated with growth (see Table 25).** There was not a significant association between age, gender, pre-kindergarten experience, disability status, and EL status and growth in pre-kindergarten social skills scores. Significant associations were small to medium in effect size. More specifically:

- **Asian children showed the greatest growth in self-regulation scores (.31 points)**, followed by American Indian/Alaskan (.28 points), Hispanic/Latino of one race children (.27 points), White, Non-Hispanic (.22), Black or African American children (.19 points), non-Hispanic, two or more races (.18 points), and Native Hawaiian or Pacific Islander (.05 points) from fall 2021 to spring 2022. This effect size was small to medium (R^2 = .005).

- **Children from a low-income background (.21 points) showed slightly less growth than children who were not from a low-income background (.25 points).** This was a small effect (R^2 = .001).

Table 25

Pre-kindergarten Social Skills Growth by Demographic Characteristics

	Fall Mean Score	Spring Mean Score	Mean Growth	Difference from Average	Effect Size
				Average = .21	
Race/Ethnicity					R^2 = .005
Asian	4.02	4.29	0.31	+0.10	
American Indian/Alaskan	3.91	4.12	0.28	+0.07	
Hispanic	3.94	4.21	0.27	+0.06	
White Non-Hispanic	3.95	4.18	0.22	+0.01	
Black	3.90	4.10	0.19	-0.02	
Non-Hispanic two or more races	3.91	4.10	0.18	-0.03	
Native Hawaiian or Pacific Islander	4.19	4.26	0.05	-0.16	
Family Income Status					R^2 = .001
Not low-income	3.95	4.20	0.25	+0.04	
Low-income	3.92	4.13	0.21	-0.01	

2021-2022 VKRP Three-year-old Pre-Kindergarten EMAS Piloting

Through the federal Governor's Emergency Education Relief (GEER) Fund in 2021-2022, the VKRP team received funding to develop and implement a downward extension of VKRP to three-year-olds in publicly funded pre-kindergarten classrooms. This three-year-old expansion was critical in the wake of COVID-19 as it promotes the visibility of young children's learning and provides information that can guide educators in their support of children's early learning development.

Below, we describe the summer/fall 2021 item development process, the spring 2022 piloting of the three-year-old EMAS, and the preliminary descriptives stemming from the spring 2022 pilot.

Development of Three-Year-Old Pre-Kindergarten EMAS Measure

Fall 2021 three-year-old pre-kindergarten EMAS item development and piloting

During the summer 2021, the VKRP team began new EMAS item development in collaboration with early childhood mathematics experts. New items were created using the *Virginia Early Learning and Development Standards*[10] as well as the *Early Childhood Mathematics Learning Trajectories*[11]. Through this process, new items were developed and reviewed. Next, in the fall of 2021, VKRP piloted 106 unique items to three-year-old children throughout the state of Virginia across four separate assessment forms. Each three-year-old EMAS form contained items across the subdomains of geometry, patterning, numeracy, and computation. Sufficient linking items were included to allow for vertical alignment of the three-year-old measure (Pre-K 3) to the four-year-old (Pre-K 4) and to the kindergarten EMAS versions. VKRP piloted each item with around 300 children. Children in the fall 2021 pilot were situated across 39 early childhood centers from eight different divisions/programs in the state. All fall 2021 data collection was completed by trained data collectors.

Spring 2022 three-year-old pre-kindergarten EMAS pilot

Data was used from the fall 2021 pilot to create the spring 2022 three-year-old pre-kindergarten EMAS form. Over the course of the winter/spring of 2022, the EMAS items on the spring pilot form were selected based on data from the fall 2021 pilot and were programmed into the existing VKRP online application. In the late winter 2022, teachers were recruited to participate in the spring 2022 EMAS pilot. In total, 30 teachers and 279 children participated in the spring 2022 three-year-old pre-kindergarten EMAS pilot. Participants received training on how to complete the assessment and received all the necessary kit materials in order to assess their three-year-old children.

Spring 2022 Teacher Feedback Survey on the three-year-old EMAS pilot

VKRP developed a survey for three-year-old pilot teachers to provide feedback about the EMAS training and the actual spring 2022 measure itself. Out of the 32 teachers participating in the three-year-old EMAS pilot, 21 teachers (~66%) completed the survey. Of this group, **90%the pilot teachers surveyed in spring 2022 reported that the training was helpful and increased their confidence to administer the EMAS. Furthermore, most teachers reported that the design of the assessment was easy to use, including both the manipulatives (86%) and the online dashboard (100%)**. Overall, teachers shared that their children were engaged in the assessment with only a few teachers reporting that children needed to take breaks during the spring 2022 EMAS assessment. One teacher wrote: "the children seemed to be excited about actually taking the assessment, and they kept coming to ask when it was going to be their turn to come work with me."

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[10] Virginia Department of Education. (2021). *Virginia's Early Learning & Development Standards (ELDS): Birth-Five Learning Guidelines*. Retrieved from https://www.doe.virginia.gov/early-childhood/curriculum/va-elds-birth-5.pdf

[11] Clements, D. H., & Sarama, J. (2009). *Learning and teaching early math: The learning trajectories approach*. New York: Routledge.

Teachers were also asked to give specific feedback regarding the items on the assessment, and this detailed feedback was used to inform the selection of the fall 2022 items on the Pre-K 3 EMAS. Teachers noted that some patterning items were difficult to administer, so the VKRP team created items that are easier to administer with younger students. Additionally, teachers noted that some students struggled to understand the language in some word problems and instructions. In response the VKRP reviewed and revised instructions and tried to simplify some word problems

Spring 2022 preliminary descriptives of the three-year-old pre-kindergarten EMAS

Pilot data from the three-year-old EMAS in 2021-2022 shows good variability in scores, meaning that the measure is capturing a range of children's early mathematics skills. The average total score for children in the 2021-2022 pilot was 19.09 (SD= 8.21) and the range of scores was 0-32. In addition, the newly developed three-year-old EMAS shows good initial evidence of reliability (i.e., alphas above .70) of both the overall total score and the subdomain scores. The alphas for the subdomain scales of geometry, patterning, numeracy, and computation were .76, .70, .86, and .86, respectively. The alpha for the total EMAS score was strong at .93 (Table 26).

Table 26

Spring 2022 VKRP Three-Year-Old EMAS Pilot Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	α
Geometry Subdomain Score (6 items)	278	0	6	4.26	1.81	.757
Patterning Subdomain Score (6 items)	278	0	6	3.85	1.76	.700
Numeracy Subdomain Score (14 items)	278	0	14	6.96	3.90	.860
Computation Subdomain Score (6 items)	278	0	6	4.03	2.14	.859
Highest Number Counted	278	0	100	15.68	13.46	-
EMAS Total Score (32 items)	278	0	32	19.09	8.21	.927

2022-2023 VKRP Next Steps

Virginia's youngest learners come to pre-kindergarten and kindergarten having had many different experiences including varied access and exposure to early learning opportunities in home, childcare, and school-based settings. In the 2022-23 school year, continuing to accelerate student progress while attending to students' social-emotional needs will require divisions and schools to continue to be proactive in supporting teachers and families to help meet each learner's distinct needs. Educators and administrators can continue to use VKRP data in combination with other formative and summative assessments to help target individualized instruction, determine teacher professional development needs, and, at the state level, inform policy decisions to help identify regions in need of the most support. VKRP results are available to families who are encouraged to contact their school division for information about their child. Additional resources for families are also available on the VKRP (VKRP Resources for Families) and VLP (VLP Families) websites.

Continued support for pre-kindergarten and kindergarten implementation

In 2022-2023, VKRP will continue the support of three and four-year-old pre-kindergarten and kindergarten teachers' implementation of VKRP by providing in-person, remote, and online trainings, resources, and information for teachers and school/division/program level administrators. Based on teacher and administrator feedback, additional training and data use modules and resources will be developed to assist teachers and administrators in understanding how best to use VKRP data to support students' learning and development. Finally, VKRP is working with divisions and programs this upcoming year to analyze their data, to encourage collaboration between grade levels, and to provide a more complete picture of the skill levels of students.

Three and four-year-old pre-kindergarten VKRP expansion

VKRP will continue to be available for use in publicly funded four-year-old pre-kindergarten classrooms with continued implementation support for programs required to participate (e.g., VPI, ECSE, VECF Mixed Delivery) or who are voluntarily participating and targeted outreach to those who are not yet participating but may choose to participate. As mentioned above, in 2022-2023, VKRP will also be available for three-year-old children in publicly-funded pre-kindergarten classrooms. This downward extension includes new programming, data sharing with Virginia Literacy Partnerships and VDOE, incorporation of the new Pre-K Language & Literacy Screener scores, enhanced report development, and creation of new user requested training.

Overall, VKRP data in pre-kindergarten will allow teachers to better understand the early foundational skills that three and four-year-old children bring to the classroom and will help to support high-quality interactions and learning opportunities that encourage children's individual growth and development well before they arrive as kindergarteners. Support of pre-kindergarten teachers continues to be tailored to the needs of the early care and education workforce through high-quality training, just-in-time support, access to data reports, and a suite of high-quality instructional resources. We also continue to collaborate with Head Start to ensure that VKRP meets all Head Start assessment requirements. With the statewide use of VKRP in publicly funded pre-kindergarten classrooms, VKRP will be able to provide estimates of children's skills at the beginning and end of the pre-kindergarten years, examine growth in skills across the pre-kindergarten years, and measure growth across school years (age three through end of kindergarten).

Mid-year assessment pilot

In consultation with VDOE and VLP, VKRP will also develop and pilot items for a mid-year assessment timepoint. Specifically, the 2022-2023 school year will primarily focus on new mid-year item development and piloting of these items in both pre-kindergarten and kindergarten classrooms. Like other VKRP development processes (e.g., the three-year-old EMAS pilot), data from the pilot will be used to inform the continued development of the assessments, reports, and resources to be offered to teachers and school leaders. The inclusion of a mid-

year timepoint for the VKRP will allow teachers to better monitor students' progress over the year and to make continual instructional changes to best meet student's individual needs. Additionally, we will include Head Start programs as key stakeholders in the development of the mid-year assessment. The development of the mid-year assessment will support their continued adherence to the Head Start Program Performance Standard 45CFR 1302.102(C)(2)(ii) to aggregate and analyze child-level assessment data three times annually.

Collaboration with the Virginia Literacy Partnerships (VLP) Team

Continuing in 2022-2023, VKRP is closely collaborating with the Virginia Literacy Partnerships (VLP) team, formerly known as the PALS office, around their development and implementation of the new Pre-K Language & Literacy Screener as well as the new literacy English and Spanish versions of the kindergarten through third grade literacy screeners that are currently being developed for implementation in fall 2024. The two teams regularly work together on assessment coordination and development, technology system development and expansion, data integration, teacher and administrator training, and data usage and reporting. Our Technology and Outreach and Communication teams work together to provide users with consistent literacy and VKRP communication.

Collaboration with STREAMin^3

The STREAMin^3 curriculum model supports skills and interactions that align to the Virginia Kindergarten Readiness Program (VKRP) and highly encourages use of VKRP as a progress monitoring tool. Through a competitive process and beginning in fall 2022, STREAMin^3 is being provided as a no to low-cost choice for eligible early childhood programs who receive public dollars. To support VKRP use in new STREAMin^3 programs, the VKRP and STREAMin^3 teams collaborated to recruit new programs, many of whom are small private childcare and family childcare programs, who are interested in using VKRP in summer 2022. This survey was distributed to 273 early childhood programs that have chosen to adopt STREAMin^3 and current interest in using the VKRP assessments is being collected at this time. All programs who expressed interest received materials kits and training planned specifically for the STREAMin^3 group in summer 2022.

Extending VKRP into Grades 1-3

Beginning in 2022-2023, additional funding was appropriated to develop and pilot an upward extension of VKRP into first through third grades. VKRP will partner with VDOE to develop measures of mathematics, social skills and self-regulation that could be used in school divisions in grades one, two, and three in coordination with VLP to help teachers, families and divisions identify students' strengths, deficiencies, and support student growth longitudinally in the early elementary grades. Current timeline estimates for this pilot extension are that the VKRP team will engage in initial development in 2022-2023 with pilot and item refinement in 2023-2024 school year.

Improved and expanded reports

VKRP includes a robust reporting system that provides a detailed snapshot of students' academic and social-emotional skills in the fall and spring of each academic year. These reports provide detailed, actionable information to help meet students' needs at their current skill levels and to give a snapshot of how students' skills have grown across the year. VKRP has expanded its capabilities to not only show students' growth across a single year, but to also provide information about students' skills across both the pre-kindergarten and kindergarten years. Additionally, in collaboration with pre-kindergarten administrators and teachers, VKRP has revised new pre-kindergarten reports that can meet the needs of a variety of pre-kindergarten settings, including mixed-age (three and four-year-old together) classrooms.

Enhanced resources for pre-kindergarten and kindergarten teachers and families

As VKRP continues to expand into pre-kindergarten, resources provided both to families and teachers are undergoing a rigorous review to ensure that they are inclusive of all children and families' backgrounds, experiences, and all classroom types. VKRP also is reviewing all resources to ensure they are developmentally appropriate for young three-year-old children as well as four- and five-year-old children who are about to enter kindergarten. Also, VKRP continues to guide families and schools/programs about the administration of the VKRP in Virginia and how it should be used in conjunction with other sources of data to make student recommendations for needed challenges and support.

Integrated Data System

The VKRP team is working with the Virginia Literacy Partnerships (VLP) and the LinkB5[12] team to develop a coordinated Integrated Data System between the growing state early childhood data collection initiatives to maximize the impact and potential of these data systems. The goals of the Integrated Data System are to build a robust, coordinated system with enhanced hosting infrastructure and security features; shared data warehousing reflecting effective data governance; consistent, aligned, and integrated reporting; and a more streamlined user interface. This critically important work will allow for better visibility into children's early experiences birth to five and how these experiences influence children's readiness for kindergarten and their future success in school. Through this integrated system, researchers, policymakers, and stakeholders will be better poised to make well-informed decisions regarding funding and professional development support across the state.

[12] LinkB5. (2021). Academic Two-Pager. Retrieved from https://resources.linkb5.virginia.edu/hc/en-us/articles/6954727887387-LinkB5-Academic-Two-Pager

Conclusion

Virginia's youngest learners come to pre-kindergarten and kindergarten having had many different experiences and exposure to early learning opportunities. Since the onset of the pandemic, these differences have intensified as access to available early childhood educations opportunities varied widely. The global COVID-19 pandemic has led to disruption, stress, and in some cases, trauma, for our pre-kindergarten and kindergarten learners. Luckily, the Commonwealth of Virginia has been responsive to this needed support and allocated funding with the intent of getting children back into quality educational environments as quickly as possible so that unfinished learning could be minimized.

Regarding VKRP, teachers conducted complete VKRP/literacy assessments in the fall of 2021 and the spring of 2022 on almost all students (95% in fall 2021 and 96% in spring 2022), using primarily in-person modalities. These efforts have resulted in Virginia having valuable data to help us understand students' school readiness skills during the 2021-2022 school year. In the fall of 2021, 42% of kindergarteners were not meeting minimum expectations in one or more areas of learning. In the spring of 2022, 44% of Virginia's kindergarteners ended the school year still needing additional targeted support to build foundational skills in literacy, mathematics, self-regulation, and/or social skills.

Students falling below the VKRP benchmark at the beginning and end of kindergarten were disproportionately more likely to be students from low-income backgrounds, students with a disability, students who are English language/multilingual learners (EL), and students who are Black or African American, Hispanic/Latino of any race, American Indian or Alaska native, or Non-Hispanic students of two or more races. These patterns point to systemic disparities in opportunities and access to high quality educational experiences available to students and their families. These data elevate concerns that disparities in opportunity and access were likely exacerbated following mandated school closures in Virginia during spring 2020 and beyond.

For children who come from low-income backgrounds, those who participated in public pre-kindergarten were more likely to arrive to kindergarten demonstrating readiness skills (49% ready) compared to those who were reported to not attend any pre-kindergarten (34% ready). This trend was still present but diminished when looking at the associations between pre-kindergarten experience and the spring 2022 VKRP data.

This is the first year that VKRP kindergarten data examined progress and growth from fall to spring. In terms of benchmark status, 47% of students met the benchmark for both fall 2021 and spring 2022 while 31% did not meet the benchmark in either fall 2021 or spring 2022. Regarding the individual learning domains (literacy, mathematics, self-regulation and social skills, the majority of students met the benchmark in both fall 2021 and spring 2022 (69%, 69%, 76%, and 74% respectively) while relatively small percentages of students did not meet the benchmark in fall 2021 and spring 2022 (14%, 15%, 10%, and 10% respectively).

We examined growth from fall 2021 to spring 2022 in mathematics skills, self-regulation, and social skills. The PALS-K screener was not developed as a growth measure; therefore, literacy growth is not reported. The revised state-supported literacy screener, to be implemented during the 2024 school year, will allow for growth to be detected. Kindergarten student growth across math, self-regulation, and social skills was distributed normally. As expected, on average, kindergarten students displayed strong growth in mathematics skills as directly assessed via the EMAS and, on average, modest gains in self-regulation and social skills. Student characteristics were associated with growth in mathematics, self-regulation, and social skills although the effect sizes of these associations were generally small. One consistent finding across all learning domains was that students who are English language/multilingual learners (EL) tended to make greater skill gains compared to their monolingual peers. In addition, although students with no pre-kindergarten experience were likely to enter kindergarten below the benchmark on overall readiness skills, they also made greater skill gains during the kindergarten year. These findings illustrate the importance of kindergarten for children who start kindergarten with fewer school readiness skills due to factors such as limited English language or without pre-kindergarten experience.

The VKRP assessments expanded significantly this year with four-year-old pre-kindergarten children. VPI and VECF Mixed Delivery pre-kindergarten programs successfully administered VKRP in the fall and spring of 2021-2022. In the first year of the four-year-old publicly funded pre-kindergarten expansion, over 85% of children were assessed in the fall of 2021 and in the spring of 2022. Overall, four-year-old children displayed skills in the developmentally expected range in the fall of 2021 and spring of 2022 across each of the domains—literacy, mathematics, self-regulation, and social skills. Pre-kindergarten students grew as expected regarding their mathematics, self-regulation, and social skills. In terms of the well-being of four-year-old pre-kindergarten children, in fall 2021, pre-kindergarten teachers reported being concerned for the mental health well-being of one in every five pre-kindergarten students (20%), and the rate of concern decreased only slightly in the spring of 2022 to 18%.

In addition, the VKRP team continued to develop and pilot the EMAS assessment for use in three-year-old and mixed age classrooms (classrooms with both three and four-year-old) that receive public funding. The three-year-old EMAS pilot went well, and teachers overall reported ease of use and child engagement in the assessment.

The VKRP team will continue to support divisions, programs, schools, and teachers to complete the VKRP assessments in the 2022-23 academic year in close partnership with VDOE and VLP. VKRP will continue to analyze, interpret, and report the school readiness information gathered from VKRP both in kindergarten and in pre-kindergarten, and to provide informative and timely resources to assist teachers and administrators to support student learning.

Virginia's pre-kindergarten and kindergarten teachers, students, their families, and school/program/division administrators continued to face significant challenges resulting from COVID-19 in the 2021-2022 school year. A continued emphasis on accelerating student progress while attending to learners' social-emotional needs will require divisions, schools, and programs to be proactive in determining how they can support teachers and families to meet each student's needs. VKRP data, in combination with other formative and summative assessments, helps divisions target individualized instruction, determine teacher professional development needs, and, at the state level, inform policy decisions to help identify regions in need of the most support.

Appendix A. Division Participation and 2021-2022 Kindergarten Fall 2021-2022

Division	Total Students	% Complete Assessment	% Ready					English-learner students[a]			Students with a disability[b]			Students from low-income backgrounds[c]			Non-identified students[d]		
			Literacy	Math	Self-Reg	Social Skills	Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall
Accomack County Public Schools	327	97%	66%	70%	75%	82%	47%	66	100%	32%	31	87%	19%	23	91%	48%	203	98%	54%
Albemarle County Public Schools	1,006	95%	74%	83%	87%	84%	62%	113	81%	25%	100	84%	37%	272	92%	36%	611	99%	77%
Alexandria City Public Schools	1,365	82%	66%	70%	84%	82%	55%	600	75%	38%	88	69%	26%	604	77%	44%	469	95%	76%
Alleghany County Public Schools	134	99%	63%	84%	88%	88%	53%	s	>95%	<5%	16	100%	25%	48	96%	43%	75	100%	60%
Amelia County Public Schools	123	95%	73%	64%	88%	87%	52%	s	83%	20%	11	73%	0%	65	97%	40%	49	98%	73%
Amherst County Public Schools	271	96%	67%	73%	84%	88%	54%	s	>95%	67%	28	89%	20%	147	97%	38%	106	100%	78%
Appomattox County Public Schools	178	94%	78%	56%	75%	82%	46%	s	>95%	<5%	14	64%	22%	89	93%	35%	83	96%	60%
Arlington County Public Schools	2,025	91%	83%	86%	83%	82%	67%	549	77%	47%	177	77%	36%	530	83%	47%	1,181	98%	78%
Augusta County Public Schools	697	98%	65%	76%	84%	84%	51%	21	86%	22%	29	97%	21%	327	97%	37%	344	99%	66%
Bath County Public Schools	35	97%	68%	91%	94%	86%	65%	s	>95%	>95%	s	80%	25%	22	95%	57%	10	100%	80%
Bedford County Public Schools	646	93%	75%	80%	88%	86%	61%	25	80%	45%	73	89%	42%	279	94%	44%	321	95%	76%
Bland County Public Schools	45	96%	61%	80%	84%	86%	56%	0	-	-	s	50%	<5%	s	50%	<5%	43	98%	57%
Botetourt County Public Schools	361	99%	78%	85%	89%	90%	65%	s	88%	29%	49	100%	43%	110	99%	50%	208	100%	76%
Bristol City Public Schools	176	98%	71%	70%	75%	86%	52%	s	>95%	>95%	18	89%	31%	83	96%	59%	75	100%	49%
Brunswick County Public Schools	127	89%	51%	55%	73%	91%	38%	0	-	-	s	67%	<5%	36	94%	32%	85	91%	40%
Buchanan County Public Schools	162	99%	70%	84%	83%	85%	56%	0	-	-	s	89%	50%	100	98%	42%	57	100%	81%
Buckingham County Public Schools	104	91%	66%	73%	88%	91%	57%	0	-	-	10	80%	25%	66	91%	45%	32	100%	78%
Buena Vista City Public Schools	59	97%	70%	86%	83%	86%	60%	0	-	-	s	80%	50%	13	92%	58%	42	98%	63%
Campbell County Public Schools	547	97%	75%	72%	78%	81%	52%	20	90%	17%	49	92%	40%	280	96%	40%	226	100%	68%
Caroline County Public Schools	321	94%	73%	74%	85%	88%	56%	11	64%	29%	35	74%	62%	134	95%	46%	149	97%	68%
Carroll County Public Schools	249	96%	76%	78%	83%	86%	55%	13	77%	60%	34	100%	38%	152	99%	46%	75	99%	68%
Charles City County Public Schools	36	97%	71%	81%	72%	89%	57%	0	-	-	s	83%	40%	20	100%	55%	13	100%	54%

Division	Total Students	% Complete Assessment	% Ready					English-learner students[a]			Students with a disability[b]			Students from low-income backgrounds[c]			Non-identified students[d]		
			Literacy	Math	Self-Reg	Social Skills	Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall
Charlotte County Public Schools	145	92%	63%	69%	84%	94%	57%	s	>95%	<5%	s	83%	<5%	91	93%	48%	51	94%	71%
Charlottesville City Public Schools	301	98%	80%	81%	84%	84%	64%	38	97%	35%	21	95%	45%	87	98%	44%	187	99%	74%
Chesapeake City Public Schools	2,745	98%	85%	84%	81%	87%	65%	145	95%	46%	288	94%	48%	923	97%	55%	1,531	99%	73%
Chesterfield County Public Schools	4,386	93%	77%	77%	87%	85%	60%	563	85%	27%	377	77%	47%	1,562	92%	44%	2,322	97%	74%
Clarke County Public Schools	128	98%	86%	83%	93%	92%	70%	s	>95%	43%	11	100%	45%	33	97%	63%	83	99%	78%
Colonial Beach Public Schools	49	90%	69%	82%	66%	81%	50%	s	>95%	<5%	10	90%	56%	26	88%	43%	16	94%	53%
Colonial Heights City Public Schools	208	93%	61%	71%	82%	83%	48%	12	75%	33%	26	73%	21%	88	89%	49%	99	99%	53%
Covington City Public Schools	69	97%	60%	69%	94%	97%	52%	0	-	-	s	>95%	38%	0	-	-	54	98%	55%
Craig County Public Schools	35	97%	80%	82%	86%	100%	71%	0	-	-	s	>95%	33%	21	95%	65%	11	100%	100%
Culpeper County Public Schools	561	93%	65%	71%	85%	85%	52%	90	92%	14%	57	84%	42%	258	93%	39%	234	95%	72%
Cumberland County Public Schools	78	96%	68%	60%	85%	86%	53%	0	-	-	s	60%	<5%	51	96%	57%	24	100%	50%
Danville City Public Schools	372	88%	57%	59%	77%	83%	40%	25	68%	41%	21	90%	32%	s	80%	75%	312	90%	40%
Dickenson County Public Schools	137	94%	59%	74%	84%	79%	47%	0	-	-	12	100%	25%	10	90%	33%	120	95%	50%
Dinwiddie County Public Schools	321	97%	65%	76%	83%	86%	54%	s	80%	25%	19	89%	12%	129	98%	50%	170	99%	59%
Essex County Public Schools	82	96%	51%	66%	93%	94%	47%	0	-	-	s	33%	<5%	s	>95%	<5%	58	98%	53%
Fairfax County Public Schools	12,195	93%	78%	79%	83%	81%	59%	3,401	84%	29%	1,213	78%	36%	3,662	89%	35%	6,476	99%	76%
Falls Church City Public Schools	157	97%	93%	94%	87%	85%	75%	14	93%	38%	14	93%	77%	s	>95%	43%	125	99%	80%
Fauquier County Public Schools	767	93%	76%	82%	84%	88%	64%	100	82%	27%	61	74%	47%	226	90%	43%	462	99%	76%
Floyd County Public Schools	111	99%	78%	87%	86%	86%	62%	s	>95%	40%	12	92%	36%	53	100%	57%	47	100%	72%
Fluvanna County Public Schools	198	93%	72%	86%	86%	86%	61%	s	80%	25%	17	71%	50%	84	92%	40%	104	96%	78%
Franklin City Public Schools	66	97%	69%	68%	82%	67%	34%	0	-	-	s	>95%	>95%	49	96%	36%	13	100%	23%
Franklin County	459	95%	68%	80%	86%	88%	56%	19	84%	63%	58	90%	33%	196	95%	51%	210	98%	64%
Frederick County Public Schools	1,037	91%	84%	81%	84%	85%	65%	95	34%	13%	64	69%	45%	380	86%	50%	567	100%	77%

Division	Total Students	% Complete Assessment	% Ready					English-learner students[a]			Students with a disability[b]			Students from low-income backgrounds[c]			Non-identified students[d]		
			Literacy	Math	Self-Reg	Social Skills	Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall
Fredericksburg City Public Schools	256	92%	71%	69%	78%	87%	50%	47	96%	40%	16	88%	7%	130	95%	40%	93	96%	70%
Galax City Public Schools	105	98%	75%	74%	83%	83%	55%	15	100%	0%	10	100%	10%	65	100%	49%	27	100%	85%
Giles County Public Schools	175	97%	61%	78%	84%	77%	45%	s	>95%	>95%	26	81%	29%	83	95%	38%	84	100%	51%
Gloucester County Public Schools	345	97%	74%	76%	89%	92%	61%	s	>95%	<5%	40	93%	35%	60	97%	50%	258	99%	64%
Goochland County Public Schools	149	97%	80%	85%	91%	88%	67%	s	>95%	60%	s	71%	40%	35	97%	50%	107	99%	71%
Grayson County Public Schools	134	99%	83%	90%	83%	88%	66%	s	-	-	18	100%	39%	69	99%	54%	58	100%	84%
Greene County Public Schools	180	98%	68%	83%	83%	92%	61%	13	100%	38%	13	77%	50%	85	98%	51%	80	100%	73%
Greensville County Public Schools	156	97%	57%	68%	75%	82%	42%	s	89%	13%	s	>95%	33%	41	100%	56%	94	99%	37%
Halifax County Public Schools	362	93%	75%	79%	84%	91%	59%	s	75%	33%	39	90%	20%	190	94%	49%	144	94%	75%
Hampton City Public Schools	1,431	93%	73%	72%	79%	81%	52%	25	80%	40%	68	78%	26%	449	96%	50%	885	95%	54%
Hanover County Public Schools	1,115	99%	86%	89%	86%	86%	70%	54	98%	36%	129	89%	44%	117	97%	53%	860	100%	76%
Harrisonburg City Public Schools	503	86%	54%	64%	79%	79%	45%	223	78%	24%	42	64%	11%	252	90%	35%	132	99%	69%
Henrico County Public Schools	3,512	91%	76%	77%	84%	83%	57%	507	90%	33%	242	77%	34%	1,488	91%	42%	1,586	95%	74%
Henry County Public Schools	481	96%	65%	69%	78%	84%	49%	42	86%	25%	45	78%	29%	310	96%	41%	139	99%	69%
Highland County Public Schools	15	100%	100%	100%	100%	93%	93%	0	-	-	s	>95%	>95%	s	>95%	>95%	s	>95%	>95%
Hopewell City Public Schools	307	90%	58%	60%	78%	81%	43%	s	78%	71%	32	88%	32%	83	96%	48%	180	93%	43%
Isle of Wight County Public Schools	383	99%	85%	84%	82%	86%	65%	s	50%	>95%	22	100%	50%	85	100%	51%	275	100%	72%
King and Queen County Public Schools	50	96%	81%	74%	96%	98%	65%	0	-	-	s	>95%	33%	20	90%	61%	25	100%	68%
King George County Public Schools	312	94%	71%	74%	86%	90%	57%	s	80%	25%	40	83%	33%	44	91%	35%	231	99%	61%
King William County Public Schools	138	98%	70%	76%	82%	93%	60%	s	50%	<5%	s	>95%	<5%	50	100%	50%	68	99%	76%
Lancaster County Public Schools	58	100%	79%	78%	88%	83%	66%	0	-	-	s	>95%	33%	18	100%	72%	38	100%	66%
Lee County Public Schools	221	89%	54%	65%	85%	86%	41%	0	-	-	35	83%	31%	154	87%	35%	54	96%	62%
Lexington City Public Schools	54	96%	81%	94%	83%	74%	63%	s	>95%	<5%	s	60%	33%	17	88%	27%	37	100%	78%

Division	Total Students	% Complete Assessment	% Ready					English-learner students[a]			Students with a disability[b]			Students from low-income backgrounds[c]			Non-identified students[d]		
			Literacy	Math	Self-Reg	Social Skills	Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall
Loudoun County Public Schools	5,219	95%	84%	84%	86%	85%	66%	1,459	91%	51%	303	88%	34%	1,047	89%	39%	3,142	98%	77%
Louisa County Public Schools	362	92%	74%	82%	88%	90%	65%	14	71%	70%	36	89%	50%	164	92%	56%	170	96%	73%
Lunenburg County Public Schools	127	96%	67%	68%	87%	94%	51%	23	100%	52%	11	100%	45%	67	94%	49%	51	100%	53%
Lynchburg City Public Schools	566	95%	73%	73%	84%	87%	56%	23	87%	30%	63	86%	33%	372	95%	48%	154	97%	79%
Madison County Public Schools	105	98%	57%	83%	88%	93%	50%	s	>95%	<5%	s	75%	33%	58	97%	29%	46	100%	76%
Manassas City Public Schools	565	96%	44%	59%	79%	84%	34%	313	96%	23%	47	83%	38%	243	97%	31%	134	97%	50%
Manassas Park City Public Schools	231	95%	49%	49%	78%	81%	29%	140	98%	20%	22	82%	17%	135	96%	22%	45	98%	61%
Martinsville City Public Schools	119	90%	59%	66%	88%	90%	49%	11	91%	50%	10	80%	50%	84	89%	36%	28	89%	80%
Mathews County Public Schools	60	97%	66%	86%	78%	79%	52%	s	>95%	<5%	s	89%	50%	21	100%	33%	31	100%	65%
Mecklenburg County Public Schools	272	99%	82%	80%	88%	96%	68%	s	>95%	75%	15	87%	23%	108	98%	63%	151	100%	75%
Middlesex County Public Schools	87	100%	75%	80%	84%	93%	61%	0	-	-	16	100%	31%	49	100%	57%	29	100%	72%
Montgomery County Public Schools	673	98%	86%	85%	82%	86%	67%	48	98%	72%	50	82%	37%	255	97%	51%	359	100%	80%
Nelson County Public Schools	80	99%	61%	80%	76%	88%	51%	s	>95%	20%	s	>95%	40%	40	98%	49%	33	100%	55%
New Kent County Public Schools	252	98%	76%	83%	85%	80%	57%	s	>95%	>95%	24	96%	30%	61	97%	44%	172	99%	63%
Newport News City Public Schools	2,010	92%	72%	75%	82%	81%	53%	122	82%	29%	122	81%	23%	920	92%	51%	926	95%	58%
Norfolk City Public Schools	2,242	94%	65%	66%	80%	77%	42%	106	85%	13%	141	84%	28%	1,302	95%	36%	736	98%	58%
Northampton County Public Schools	82	100%	59%	48%	82%	83%	38%	s	>95%	43%	12	100%	8%	54	100%	33%	23	100%	52%
Northumberland County Public Schools	68	100%	71%	60%	76%	72%	51%	s	>95%	>95%	s	>95%	33%	45	100%	40%	22	100%	73%
Norton City Public Schools	68	96%	68%	86%	87%	87%	52%	s	>95%	50%	s	>95%	50%	s	>95%	25%	54	98%	55%
Nottoway County Public Schools	130	99%	57%	68%	87%	90%	48%	s	75%	67%	s	88%	<5%	82	99%	46%	45	100%	53%
Orange County Public Schools	339	99%	81%	85%	84%	86%	61%	16	100%	38%	12	92%	27%	65	97%	52%	236	100%	69%
Page County Public Schools	200	96%	68%	73%	83%	87%	57%	s	>95%	80%	22	68%	27%	115	96%	49%	75	99%	73%
Patrick County Public Schools	161	97%	67%	69%	81%	89%	53%	s	>95%	33%	38	92%	34%	93	95%	43%	50	100%	76%

Division	Total Students	% Complete Assessment	% Ready					English-learner students[a]			Students with a disability[b]			Students from low-income backgrounds[c]			Non-identified students[d]		
			Literacy	Math	Self-Reg	Social Skills	Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall
Petersburg City Public Schools	314	92%	65%	70%	82%	83%	50%	16	13%	50%	s	78%	14%	147	93%	57%	138	98%	47%
Pittsylvania County Public Schools	515	95%	75%	79%	88%	93%	63%	14	93%	38%	37	73%	30%	298	95%	55%	193	98%	79%
Poquoson City Public Schools	145	97%	92%	89%	94%	95%	81%	0	-	-	18	78%	71%	32	97%	65%	99	99%	88%
Portsmouth City Public Schools	1,059	92%	66%	75%	78%	78%	47%	17	71%	25%	56	77%	56%	236	94%	52%	728	94%	47%
Powhatan County Public Schools	272	98%	84%	87%	91%	92%	74%	s	>95%	<5%	21	90%	47%	56	100%	55%	199	98%	81%
Prince Edward County Public Schools	131	92%	66%	75%	79%	85%	54%	0	-	-	10	70%	71%	69	93%	44%	52	100%	65%
Prince George County Public Schools	476	97%	69%	77%	82%	83%	52%	11	100%	18%	45	89%	18%	252	97%	45%	191	98%	63%
Prince William County Public Schools	6,123	94%	73%	72%	86%	86%	55%	1,896	94%	33%	492	76%	37%	2,450	94%	41%	2,616	98%	73%
Pulaski County Public Schools	306	95%	60%	77%	81%	82%	48%	s	50%	<5%	27	74%	30%	128	94%	39%	161	99%	55%
Radford City Public Schools	91	99%	74%	73%	77%	80%	56%	0	-	-	14	93%	23%	48	98%	47%	40	100%	68%
Rappahannock County Public School	41	93%	51%	60%	85%	78%	37%	0	-	-	s	>95%	20%	22	86%	21%	18	100%	56%
Richmond City Public Schools	1,724	86%	62%	65%	78%	77%	43%	220	68%	24%	83	82%	13%	892	92%	38%	533	95%	59%
Richmond County Public Schools	94	98%	60%	71%	85%	83%	45%	11	100%	27%	s	88%	14%	55	100%	35%	31	100%	65%
Roanoke City Public Schools	1,055	93%	69%	67%	83%	80%	50%	152	87%	26%	97	77%	39%	656	95%	44%	258	98%	73%
Roanoke County Public Schools	937	97%	87%	86%	85%	88%	69%	50	96%	46%	96	92%	31%	361	98%	55%	502	98%	82%
Rockbridge County Public Schools	156	99%	72%	87%	85%	92%	66%	s	>95%	25%	19	95%	50%	72	99%	63%	74	100%	69%
Rockingham County Public Schools	783	97%	72%	78%	80%	82%	54%	119	90%	27%	63	86%	31%	351	96%	42%	373	99%	69%
Russell County Public Schools	253	97%	76%	84%	91%	92%	67%	s	>95%	<5%	15	93%	50%	168	97%	64%	73	100%	74%
Salem City Public Schools	231	99%	77%	85%	85%	86%	58%	10	100%	40%	22	95%	38%	107	98%	43%	106	100%	75%
Scott County Public Schools	255	94%	72%	79%	81%	88%	57%	s	>95%	>95%	38	89%	50%	249	94%	57%	0	-	-
Shenandoah County Public Schools	401	96%	67%	76%	77%	87%	53%	60	92%	25%	61	85%	37%	212	95%	43%	141	99%	71%
Smyth County Public Schools	274	94%	61%	75%	77%	81%	45%	s	>95%	50%	41	88%	44%	167	94%	38%	83	99%	55%
Southampton County Public Schools	158	98%	79%	82%	86%	85%	59%	0	-	-	s	86%	50%	53	96%	43%	99	99%	68%

Division	Total Students	% Complete Assessment	% Ready					English-learner students[a]			Students with a disability[b]			Students from low-income backgrounds[c]			Non-identified students[d]		
			Literacy	Math	Self-Reg	Social Skills	Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall
Spotsylvania County Public Schools	1,645	94%	66%	74%	79%	82%	49%	226	90%	25%	157	76%	27%	754	94%	35%	749	98%	64%
Stafford County Public Schools	2,112	89%	72%	74%	85%	86%	57%	293	79%	33%	168	60%	42%	770	86%	43%	1,113	97%	67%
Staunton City Public Schools	217	97%	69%	68%	87%	88%	52%	s	>95%	33%	14	93%	8%	15	100%	27%	170	100%	58%
Suffolk City	1,015	97%	79%	82%	81%	86%	61%	s	>95%	38%	75	84%	32%	231	97%	53%	707	99%	66%
Surry County Public Schools	43	98%	74%	83%	81%	90%	62%	0	-	-	s	>95%	<5%	29	100%	66%	10	100%	60%
Sussex County Public Schools	62	94%	59%	66%	78%	97%	40%	0	-	-	s	67%	<5%%	s	>95%	<5%	50	100%	44%
Tazewell County Public Schools	407	94%	70%	82%	84%	86%	58%	0	-	-	40	90%	39%	253	96%	49%	134	96%	77%
Virginia Beach City Public Schools	4,664	96%	81%	81%	82%	82%	61%	201	82%	33%	439	90%	38%	1,886	97%	50%	2,325	99%	74%
Warren County Public Schools	352	99%	71%	80%	84%	85%	56%	16	100%	31%	30	97%	28%	168	99%	44%	164	99%	73%
Washington County Public Schools	450	98%	89%	88%	90%	89%	75%	s	>95%	50%	37	89%	58%	187	98%	67%	235	100%	83%
Waynesboro City Public Schools	234	93%	62%	65%	80%	82%	46%	19	84%	19%	22	59%	0%	152	95%	36%	64	100%	73%
West Point Public Schools	64	100%	92%	89%	92%	91%	78%	0	-	-	s	>95%	>95%	22	100%	59%	38	100%	87%
Westmoreland County Public Schools	126	94%	75%	79%	88%	93%	57%	s	75%	67%	s	>95%	<5%	71	94%	55%	44	98%	65%
Williamsburg/James City Public Schools	789	96%	79%	78%	82%	82%	59%	57	91%	38%	102	82%	35%	220	95%	42%	467	99%	70%
Winchester City Public Schools	304	94%	56%	62%	83%	81%	42%	93	88%	17%	15	67%	20%	167	96%	29%	95	100%	69%
Wise County Public Schools	386	95%	69%	71%	77%	81%	50%	s	>95%	>95%	38	87%	36%	16	81%	54%	328	97%	51%
Wythe County Public Schools	276	99%	78%	79%	82%	81%	60%	0	-	-	38	97%	27%	150	100%	51%	106	99%	77%
York County Public Schools	938	97%	85%	84%	80%	83%	64%	39	97%	42%	56	73%	39%	84	98%	50%	764	99%	67%

Note 1. Assessment is considered complete if a student has a standard, submitted in-person or remote PALS (Literacy), English in-person or remote EMAS (Math), and CBRS (Self-Regulation and Social Skills) assessment. Students who are exempted or assessed in a non-standard or Spanish format are not included in these estimates.
Note 2. Suppression rules consistent with DOE policy have been applied. Top and bottom coding (e.g., <5%, >95%) has also been applied where cell totals are suppressed. s = suppressed due to cell size <10.

[a]Source: Student Record Collection (SRC) Limited English Proficiency (LEP) Status Code. Students are identified as English learners (EL) if code is, "*Identified as EL and receives EL services*," "*Identified as EL but has refused EL services*," or "*Identified as formerly EL for each of the four years after exiting EL services*."

[b]Source: SRC Primary Disability Code. Students are identified as having a disability if any code is present *except,* "*Qualified Individual under Section 504.*"

[c]Source: SRC Disadvantaged Status Flag. Students are identified as having a low-income background if, at any point during the school year, the student: 1) is eligible for Free/Reduced Meals, 2) receives TANF, or 3) is eligible for Medicaid.

[d]Non-identified students include students grouped as: 1) not English-learners, 2) students without a disability, and 3) not from a low-income background.

Division	Total Students	% Complete Assessment	% Ready					English-learner students[a]			Students with a disability[b]			Students from low-income backgrounds[c]			Non-identified students[d]		
			Literacy	Math	Self-Reg	Social Skills	Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall
Accomack County Public Schools	324	97%	57%	57%	75%	79%	38%	76	99%	39%	37	97%	14%	209	97%	33%	73	96%	60%
Albemarle County Public Schools	1,025	97%	70%	77%	81%	74%	53%	125	86%	26%	118	89%	22%	299	95%	28%	588	100%	70%
Alexandria City Public Schools	1,421	83%	72%	68%	81%	78%	52%	695	78%	33%	113	70%	24%	709	78%	39%	449	94%	78%
Alleghany County Public Schools	135	99%	63%	67%	87%	85%	54%	s	>95%	>95%	19	100%	16%	81	99%	43%	46	100%	76%
Amelia County Public Schools	121	95%	71%	42%	83%	79%	34%	s	>95%	<5%	10	70%	14%	62	94%	31%	52	98%	39%
Amherst County Public Schools	274	98%	75%	69%	82%	76%	50%	s	>95%	33%	34	91%	13%	145	99%	38%	112	100%	69%
Appomattox County Public Schools	179	93%	91%	57%	80%	83%	50%	s	>95%	50%	24	67%	19%	94	90%	41%	75	100%	63%
Arlington County Public Schools	2,021	95%	83%	87%	81%	79%	64%	595	88%	44%	199	79%	35%	588	91%	45%	1,120	99%	76%
Augusta County Public Schools	711	98%	83%	79%	83%	78%	59%	34	91%	42%	46	98%	18%	335	98%	47%	343	99%	73%
Bath County Public Schools	34	97%	67%	85%	91%	82%	58%	s	>95%	>95%	s	80%	50%	22	95%	48%	s	>95%	78%
Bedford County Public Schools	655	95%	83%	82%	86%	79%	61%	25	96%	63%	79	86%	31%	312	96%	49%	297	96%	75%
Bland County Public Schools	45	93%	77%	75%	81%	83%	62%	0	-	-	s	89%	25%	27	89%	50%	18	100%	78%
Botetourt County Public Schools	369	98%	89%	75%	83%	83%	59%	s	>95%	25%	66	97%	34%	111	97%	50%	213	100%	67%
Bristol City Public Schools	179	99%	81%	80%	77%	79%	60%	s	>95%	50%	22	100%	55%	80	98%	64%	83	100%	57%
Brunswick County Public Schools	126	82%	59%	63%	69%	79%	39%	0	-	-	s	60%	<5%	37	86%	41%	85	81%	38%
Buchanan County Public Schools	165	98%	74%	79%	79%	75%	53%	0	-	-	10	90%	11%	99	98%	43%	60	97%	74%
Buckingham County Public Schools	103	97%	83%	65%	88%	85%	56%	s	>95%	<5%	17	88%	27%	69	96%	44%	31	100%	77%
Buena Vista City Public Schools	59	97%	89%	81%	83%	78%	67%	0	-	-	s	67%	50%	12	83%	60%	42	100%	67%
Campbell County Public Schools	548	99%	89%	76%	83%	81%	62%	19	100%	47%	59	95%	45%	290	99%	50%	215	100%	79%
Caroline County Public Schools	325	98%	76%	73%	81%	80%	53%	18	94%	41%	34	85%	38%	160	98%	44%	133	100%	68%
Carroll County Public Schools	250	100%	82%	85%	82%	82%	59%	13	100%	62%	56	100%	30%	161	100%	56%	67	99%	73%

Division	Total Students	% Complete Assessment	% Ready					English-learner students[a]			Students with a disability[b]			Students from low-income backgrounds[c]			Non-identified students[d]		
			Literacy	Math	Self-Reg	Social Skills	Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall
Charles City County Public Schools	35	97%	91%	89%	83%	91%	71%	0	-	-	s	83%	<5%	19	100%	68%	13	100%	77%
Charlotte County Public Schools	140	100%	73%	74%	86%	86%	55%	s	>95%	<5%	s	>95%	<5%	91	100%	45%	48	100%	75%
Charlottesville City Public Schools	310	96%	80%	77%	83%	81%	60%	49	88%	40%	23	83%	42%	84	94%	39%	193	98%	71%
Chesapeake City Public Schools	2,739	99%	89%	79%	80%	81%	61%	161	97%	54%	365	95%	35%	1,049	99%	49%	1,381	100%	73%
Chesterfield County Public Schools	4,420	92%	79%	72%	83%	80%	56%	636	88%	31%	491	84%	38%	649	89%	37%	2,936	94%	65%
Clarke County Public Schools	131	99%	79%	87%	90%	79%	64%	10	90%	56%	10	100%	30%	38	100%	58%	80	100%	71%
Colonial Beach Public Schools	46	93%	53%	56%	71%	69%	33%	0	-	-	10	90%	22%	23	96%	32%	18	94%	35%
Colonial Heights City Public Schools	207	95%	74%	62%	80%	73%	44%	23	96%	9%	36	81%	21%	102	93%	42%	79	99%	56%
Covington City Public Schools	70	100%	83%	74%	89%	91%	70%	s	>95%	<5%	11	100%	45%	32	100%	53%	29	100%	86%
Craig County Public Schools	33	100%	79%	79%	79%	82%	61%	0	-	-	s	>95%	50%	20	100%	55%	11	100%	82%
Culpeper County Public Schools	576	97%	71%	64%	86%	81%	49%	99	98%	25%	82	89%	48%	270	97%	41%	220	98%	61%
Cumberland County Public Schools	79	96%	75%	69%	81%	84%	53%	0	-	-	s	67%	<5%	50	96%	58%	25	100%	48%
Danville City Public Schools	380	91%	76%	76%	69%	69%	49%	30	80%	50%	39	90%	34%	309	91%	49%	38	95%	56%
Dickenson County Public Schools	139	99%	66%	69%	76%	74%	41%	0	-	-	13	92%	8%	88	100%	31%	44	100%	61%
Dinwiddie County Public Schools	332	100%	75%	75%	86%	80%	54%	s	>95%	11%	11	100%	27%	129	100%	49%	192	100%	60%
Essex County Public Schools	79	97%	75%	62%	88%	88%	53%	s	>95%	50%	14	86%	25%	s	>95%	<5%	62	100%	58%
Fairfax County Public Schools	12,376	94%	73%	78%	83%	79%	56%	3,634	88%	30%	1,574	80%	34%	3,851	91%	33%	6,259	99%	74%
Falls Church City Public Schools	158	94%	89%	88%	92%	84%	73%	14	93%	15%	21	76%	69%	s	>95%	40%	121	98%	79%
Fauquier County Public Schools	771	91%	86%	80%	83%	82%	64%	112	89%	37%	88	77%	46%	242	88%	47%	438	94%	76%
Floyd County Public Schools	112	96%	81%	85%	79%	73%	63%	s	80%	50%	19	95%	28%	54	96%	58%	44	98%	74%
Fluvanna County Public Schools	201	96%	91%	90%	80%	81%	67%	s	>95%	>95%	24	79%	42%	97	97%	54%	91	98%	81%

Division	Total Students	% Complete Assessment	% Ready					English-learner students[a]			Students with a disability[b]			Students from low-income backgrounds[c]			Non-identified students[d]		
			Literacy	Math	Self-Reg	Social Skills	Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall
Franklin City Public Schools	68	100%	54%	76%	74%	69%	31%	0	-	-	s	>95%	<5%	52	100%	31%	14	100%	36%
Franklin County Public Schools	443	94%	90%	82%	85%	82%	64%	19	100%	79%	72	82%	34%	208	95%	59%	189	96%	70%
Frederick County Public Schools	1,050	92%	84%	79%	83%	82%	63%	101	42%	43%	120	78%	35%	392	86%	52%	548	98%	74%
Fredericksburg City Public Schools	262	95%	67%	58%	68%	71%	36%	53	96%	33%	25	92%	13%	137	95%	24%	87	98%	56%
Galax City Public Schools	104	99%	88%	68%	77%	79%	53%	16	94%	13%	11	100%	9%	64	100%	47%	31	100%	81%
Giles County Public Schools	176	98%	89%	73%	82%	77%	54%	s	>95%	>95%	24	88%	38%	90	97%	54%	79	100%	57%
Gloucester County Public Schools	342	99%	82%	60%	83%	85%	49%	s	>95%	<5%	42	93%	33%	157	99%	39%	170	100%	59%
Goochland County Public Schools	154	97%	88%	88%	83%	89%	72%	s	>95%	75%	13	85%	18%	44	100%	55%	101	98%	82%
Grayson County Public Schools	132	100%	90%	88%	90%	88%	78%	s	>95%	>95%	18	100%	39%	70	100%	71%	56	100%	91%
Greene County Public Schools	180	99%	85%	76%	83%	87%	61%	13	100%	46%	17	88%	27%	89	98%	55%	78	100%	71%
Greensville County Public Schools	154	99%	67%	53%	66%	72%	35%	s	>95%	56%	12	100%	0%	41	100%	39%	93	98%	34%
Halifax County Public Schools	361	96%	78%	59%	78%	84%	45%	s	>95%	17%	39	97%	16%	217	94%	39%	121	98%	59%
Hampton City Public Schools	1,415	93%	79%	68%	78%	77%	52%	30	77%	26%	86	69%	29%	838	94%	45%	500	94%	65%
Hanover County Public Schools	1,127	98%	89%	84%	83%	81%	65%	64	100%	34%	168	92%	39%	311	98%	49%	673	100%	77%
Harrisonburg City Public Schools	508	97%	53%	57%	76%	73%	38%	235	97%	19%	42	79%	6%	259	97%	30%	131	100%	67%
Henrico County Public Schools	3,550	94%	76%	71%	79%	78%	53%	568	94%	36%	336	80%	25%	1,591	93%	38%	1,494	96%	73%
Henry County Public Schools	480	98%	74%	73%	81%	81%	54%	44	91%	38%	77	91%	31%	309	98%	50%	136	100%	69%
Highland County Public Schools	16	100%	88%	94%	88%	100%	88%	0	-	-	s	>95%	>95%	s	>95%	>95%	10	100%	100%
Hopewell City Public Schools	290	79%	63%	53%	76%	72%	39%	s	63%	60%	41	78%	13%	253	77%	39%	27	96%	35%
Isle of Wight County Public Schools	386	99%	89%	81%	77%	76%	59%	s	83%	40%	36	100%	31%	150	100%	53%	206	100%	67%
King and Queen County Public Schools	52	100%	56%	75%	94%	85%	46%	0	-	-	s	>95%	13%	33	100%	42%	14	100%	64%
King George County Public Schools	303	97%	82%	71%	91%	87%	59%	s	>95%	75%	49	82%	40%	104	95%	44%	172	100%	70%

Division	Total Students	% Complete Assessment	% Ready					English-learner students[a]			Students with a disability[b]			Students from low-income backgrounds[c]			Non-identified students[d]		
			Literacy	Math	Self-Reg	Social Skills	Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall
King William County Public Schools	139	99%	84%	80%	86%	90%	71%	s	>95%	<5%	11	100%	45%	61	100%	66%	69	100%	80%
Lancaster County Public Schools	63	100%	84%	73%	79%	84%	59%	0	-	-	s	>95%	43%	42	100%	48%	20	100%	85%
Lee County Public Schools	223	91%	62%	60%	82%	81%	43%	0	-	-	41	85%	26%	170	90%	36%	41	98%	75%
Lexington City Public Schools	51	94%	83%	94%	78%	69%	60%	s	-	-	s	40%	<5%	15	80%	17%	35	100%	77%
Loudoun County Public Schools	5,402	94%	87%	83%	85%	84%	66%	1,591	91%	53%	439	74%	33%	1,152	91%	43%	3,116	96%	77%
Louisa County Public Schools	368	95%	88%	74%	85%	86%	62%	15	93%	43%	41	95%	31%	184	94%	48%	159	97%	81%
Lunenburg County Public Schools	126	99%	77%	75%	87%	86%	57%	22	100%	45%	19	100%	42%	95	99%	51%	26	100%	77%
Lynchburg City Public Schools	561	97%	83%	73%	82%	76%	57%	26	92%	42%	67	93%	24%	389	97%	49%	140	97%	82%
Madison County Public Schools	108	98%	80%	85%	79%	79%	59%	s	>95%	<5%	s	89%	25%	65	97%	46%	40	100%	83%
Manassas City Public Schools	574	97%	71%	75%	80%	79%	53%	337	96%	47%	48	90%	37%	272	95%	54%	120	100%	62%
Manassas Park City Public Schools	234	98%	50%	54%	75%	81%	33%	146	98%	24%	36	92%	15%	135	99%	28%	43	100%	60%
Martinsville City Public Schools	123	99%	60%	63%	76%	74%	41%	12	100%	25%	s	>95%	56%	89	99%	36%	28	100%	54%
Mathews County Public Schools	61	97%	75%	88%	73%	72%	49%	s	>95%	>95%	10	80%	25%	24	96%	43%	31	100%	55%
Mecklenburg County Public Schools	277	98%	89%	70%	90%	93%	66%	s	>95%	43%	22	95%	33%	187	99%	63%	80	99%	76%
Middlesex County Public Schools	87	99%	79%	85%	78%	89%	65%	0	-	-	20	100%	40%	54	98%	58%	23	100%	83%
Montgomery County Public Schools	676	97%	88%	84%	79%	76%	61%	50	98%	67%	69	75%	38%	399	96%	54%	221	100%	72%
Nelson County Public Schools	78	100%	92%	82%	77%	88%	68%	s	>95%	20%	s	>95%	50%	46	100%	63%	25	100%	80%
New Kent County Public Schools	259	99%	75%	78%	75%	72%	51%	s	>95%	50%	26	92%	13%	60	100%	37%	179	100%	59%
Newport News City Public Schools	1,994	97%	75%	66%	76%	72%	45%	147	87%	30%	147	86%	14%	1,268	97%	37%	626	98%	63%
Norfolk City Public Schools	2,237	96%	70%	66%	76%	72%	44%	153	93%	21%	172	90%	22%	1,402	96%	36%	675	98%	64%
Northampton County Public Schools	80	99%	49%	48%	81%	76%	33%	s	>95%	14%	13	100%	15%	62	98%	31%	13	100%	54%
Northumberland County Public Schools	67	97%	77%	64%	72%	73%	49%	s	>95%	67%	14	86%	25%	43	95%	37%	20	100%	75%
Norton City Public Schools	67	99%	72%	80%	79%	70%	52%	s	>95%	50%	12	100%	42%	s	86%	33%	48	100%	54%

Division	Total Students	% Complete Assessment	% Ready					English-learner students[a]			Students with a disability[b]			Students from low-income backgrounds[c]			Non-identified students[d]		
			Literacy	Math	Self-Reg	Social Skills	Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall
Nottoway County Public Schools	135	98%	67%	66%	87%	84%	50%	s	80%	50%	17	88%	0%	94	97%	41%	35	100%	80%
Orange County Public Schools	338	99%	87%	84%	84%	81%	62%	20	95%	68%	23	96%	18%	69	99%	46%	233	99%	68%
Page County Public Schools	203	94%	86%	79%	79%	78%	59%	s	83%	80%	28	68%	42%	122	94%	55%	70	100%	66%
Patrick County Public Schools	161	98%	81%	67%	79%	83%	54%	s	>95%	50%	43	93%	35%	97	97%	39%	48	100%	88%
Petersburg City Public Schools	311	97%	49%	63%	77%	75%	35%	21	71%	53%	10	90%	0%	265	98%	33%	31	100%	48%
Pittsylvania County Public Schools	503	100%	87%	75%	85%	87%	65%	13	100%	38%	64	100%	42%	284	100%	59%	188	100%	75%
Poquoson City Public Schools	144	98%	93%	85%	92%	87%	72%	0	-	-	22	91%	40%	36	97%	66%	95	100%	77%
Portsmouth City Public Schools	1,052	91%	55%	66%	72%	69%	36%	22	82%	22%	83	87%	35%	708	94%	29%	287	89%	53%
Powhatan County Public Schools	276	98%	88%	83%	86%	91%	73%	s	-	-	25	88%	41%	68	97%	61%	191	100%	80%
Prince Edward County Public Schools	129	97%	70%	75%	77%	71%	50%	s	>95%	>95%	10	90%	44%	74	99%	47%	48	96%	57%
Prince George County Public Schools	468	97%	74%	72%	77%	76%	47%	17	100%	18%	64	91%	21%	254	97%	41%	167	99%	61%
Prince William County Public Schools	6,208	97%	81%	76%	84%	83%	59%	2,072	97%	45%	634	83%	38%	2,614	97%	50%	2,487	99%	75%
Pulaski County Public Schools	306	91%	74%	66%	81%	79%	49%	s	>95%	>95%	44	73%	28%	130	86%	28%	153	95%	65%
Radford City Public Schools	90	97%	88%	66%	72%	69%	48%	0	-	-	13	100%	23%	47	96%	38%	38	97%	62%
Rappahannock County Public School	38	97%	76%	81%	76%	68%	51%	0	-	-	s	>95%	38%	21	95%	55%	15	100%	53%
Richmond City Public Schools	1,756	94%	62%	60%	74%	71%	39%	389	84%	31%	125	80%	15%	1,194	95%	32%	340	99%	68%
Richmond County Public Schools	92	100%	67%	68%	84%	75%	45%	11	100%	36%	11	100%	9%	57	100%	33%	27	100%	74%
Roanoke City Public Schools	1,052	95%	72%	68%	80%	74%	48%	160	99%	35%	142	82%	31%	733	94%	43%	205	99%	76%
Roanoke County Public Schools	947	99%	84%	81%	83%	82%	61%	58	95%	40%	135	96%	28%	364	98%	50%	490	100%	74%
Rockbridge County Public Schools	161	96%	76%	76%	75%	81%	54%	s	>95%	25%	23	100%	39%	103	94%	45%	48	100%	71%
Rockingham County Public Schools	789	97%	85%	70%	80%	76%	52%	128	89%	23%	74	85%	22%	368	95%	41%	361	99%	66%

Division	Total Students	% Complete Assessment	% Ready					English-learner students[a]			Students with a disability[b]			Students from low-income backgrounds[c]			Non-identified students[d]		
			Literacy	Math	Self-Reg	Social Skills	Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall
Russell County Public Schools	249	100%	80%	74%	85%	86%	60%	s	>95%	<5%	28	100%	46%	171	99%	52%	68	100%	78%
Salem City Public Schools	236	97%	86%	79%	84%	76%	59%	12	92%	45%	34	91%	39%	116	96%	45%	101	100%	75%
Scott County Public Schools	251	99%	70%	65%	77%	83%	51%	s	>95%	>95%	57	95%	30%	134	98%	44%	95	100%	65%
Shenandoah County Public Schools	398	98%	80%	78%	75%	78%	57%	62	97%	38%	67	91%	31%	223	98%	52%	129	100%	72%
Smyth County Public Schools	276	94%	80%	75%	79%	76%	52%	s	50%	50%	47	91%	33%	172	94%	50%	78	97%	61%
Southampton County Public Schools	162	98%	86%	74%	80%	73%	55%	s	>95%	50%	s	86%	50%	86	97%	45%	70	100%	67%
Spotsylvania County Public Schools	1,666	97%	77%	68%	77%	75%	49%	254	92%	30%	205	85%	19%	805	96%	38%	696	100%	65%
Stafford County Public Schools	2,150	93%	78%	71%	82%	80%	52%	341	85%	34%	245	74%	34%	840	92%	42%	1,034	96%	63%
Staunton City Public Schools	207	100%	89%	78%	87%	84%	65%	s	>95%	75%	18	100%	17%	14	93%	62%	166	100%	70%
Suffolk City	1,038	98%	76%	79%	79%	81%	57%	13	85%	45%	86	90%	39%	454	98%	47%	511	100%	69%
Surry County Public Schools	42	98%	76%	74%	71%	81%	66%	0	-	-	s	>95%	25%	35	97%	68%	s	>95%	67%
Sussex County Public Schools	69	100%	59%	78%	84%	81%	52%	s	>95%	>95%	s	>95%	17%	56	100%	45%	10	100%	90%
Tazewell County Public Schools	390	97%	76%	69%	83%	82%	54%	0	-	-	51	90%	26%	252	97%	46%	126	98%	67%
Virginia Beach City Public Schools	4,673	98%	85%	81%	79%	78%	59%	231	89%	39%	476	91%	27%	1,893	98%	48%	2,364	99%	71%
Warren County Public Schools	353	99%	68%	67%	80%	75%	46%	14	100%	21%	38	97%	11%	164	99%	33%	169	100%	61%
Washington County Public Schools	454	99%	90%	79%	86%	85%	67%	s	>95%	>95%	56	93%	46%	240	100%	60%	185	100%	77%
Waynesboro City Public Schools	231	94%	72%	73%	79%	73%	49%	20	95%	21%	32	69%	14%	165	93%	42%	53	100%	75%
West Point Public Schools	60	100%	92%	78%	78%	75%	55%	0	-	-	s	>95%	33%	21	100%	33%	34	100%	68%
Westmoreland County Public Schools	127	99%	90%	78%	89%	90%	68%	s	>95%	67%	s	83%	20%	86	100%	63%	36	100%	83%
Williamsburg/James City Public Schools	807	97%	85%	80%	78%	78%	59%	68	93%	43%	113	84%	37%	308	96%	45%	424	100%	71%
Winchester City Public Schools	306	95%	64%	61%	77%	76%	39%	104	92%	21%	23	91%	14%	174	97%	27%	86	99%	67%
Wise County Public Schools	387	99%	78%	75%	76%	79%	55%	s	>95%	>95%	54	94%	37%	266	98%	47%	101	100%	78%
Wythe County Public Schools	272	100%	83%	76%	81%	80%	61%	0	-	-	55	98%	33%	145	99%	54%	105	100%	78%

Division	Total Students	% Complete Assessment	% Ready					English-learner students[a]			Students with a disability[b]			Students from low-income backgrounds[c]			Non-identified students[d]		
			Literacy	Math	Self-Reg	Social Skills	Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall	Total Students	% Complete Assessment	% Ready Overall
York County Public Schools	926	98%	93%	86%	79%	82%	65%	37	100%	62%	81	85%	29%	242	99%	51%	597	99%	74%

Note 1. Assessment is considered complete if a student has a standard, submitted in-person or remote PALS (Literacy), English in-person or remote EMAS (Math), and CBRS (Self-Regulation and Social Skills) assessment. Students who are exempted or assessed in a non-standard or Spanish format are not included in these estimates.
Note 2. Suppression rules consistent with DOE policy have been applied. Top and bottom coding (e.g., <5%, >95%) has also been applied where cell totals are suppressed.
s = suppressed due to cell size <10.

[a]Source: Student Record Collection (SRC) Limited English Proficiency (LEP) Status Code. Students are identified as English learners (EL) if code is, "*Identified as EL and receives EL services*," "*Identified as EL but has refused EL services*," or "*Identified as formerly EL for each of the four years after exiting EL services*."
[b]Source: SRC Primary Disability Code. Students are identified as having a disability if any code is present *except,* "*Qualified Individual under Section 504.*"
[c]Source: SRC Disadvantaged Status Flag. Students are identified as having a low-income background if, at any point during the school year, the student: 1) is eligible for Free/Reduced Meals, 2) receives TANF, or 3) is eligible for Medicaid.
[d]Non-identified students include students grouped as: 1) not English-learners, 2) students without a disability, and 3) not from a low-income background.

Appendix B. VDOE Codes

English Language (EL)/Multilingual Learners	
Yes	If VODE EL Code is: 1) Identified as EL and receives EL services, 2) Identified as EL but has refused EL services, or 3) Identified as formerly EL for each of the two years after exiting EL services or 4) Identified as formerly EL for each of the four years after exiting EL services.
No	If VDOE demographic data is present but EL Code is not present.

Students With a Disability (SWD)	
Yes	If any VDOE Disability Code is present except "*Qualified individual under Section 504*"
No	If VDOE demographic data is present but Disability Code is not present or if Disability Code is "*Qualified individual under Section 504*".

Economically Disadvantaged Status	
Yes	If the student meets any one of the following: 1) is eligible for Free/Reduced Meals, or 2) receives TANF, or 3) is eligible for Medicaid, or 4) identified as either Migrant or experiencing Homelessness.
No	

All public preschool students must be reported to the Student Record Collection (SRC) system when the school division is the fiscal agent, grantee, or sub-grantee. All public preschool students receive both a Preschool Funding Code and a Preschool Experience Code assigned by school divisions in the preschool year. Non-public preschoolers are not captured in the SRC system, and their Preschool Experience Code is parent-reported at kindergarten entry. If parent-reported preschool experience does not match the SRC system, the Preschool Experience Code will default to division records. This information comes from the Guidance for PK Funding and PK Experience Codes posted on the VPI website.[1]

Preschool Experience Code	
Head Start	The preschool classroom for at-risk four-year-olds is funded by the federal Head Start grant in a community-based organization.
Public Preschool	A preschool program operated in the public school. This would include VPI, VPI+, Title I, ECSE, and Head Start programs – both in the public school and if the public school is the fiscal agent; and locally funded public preschool program.
Private Preschool/Daycare	The student is served by a preschool, child daycare, or other program provided by a private provider. This includes programs for-profit and non-profit providers, including faith-based programs and commercial daycare centers.
Department of Defense Child Development Program	A preschool program operated by the Department of Defense on a military installation.
Family Home Daycare Provider	The student was served by a preschool or child daycare provided in a home.
No Preschool Experience	The student has not had a formal classroom preschool experience. The student was at home with a parent, family member, caregiver, nanny, etc.

[1] Guidance for PK Funding and PK Experience Codes posted on the VPI website: http://www.doe.virginia.gov/early-childhood/preschool/vpi/index.shtml

Preschool Funding Code	
Head Start	Select Head Start as the funding source code if the student slot is fully funded with federal Head Start funds administered by the school division as the Head Start grantee.
Virginia Preschool Initiative (VPI)	Select VPI as the funding source code if the student slot is fully funded by the state Virginia Preschool Initiative.
VPI Plus (VPI+)	Select VPI+ as the funding source code if the student slot is fully funded by the federal Preschool Development Grant.
Special Education Preschool (Part B, 619)	Select Special Education Preschool as the funding source code if the student slot is fully funded with federal Special Education Preschool funds. This code may apply to students with Individualized Education Programs who receive special education and related services in a public special education early childhood classroom, regular early childhood program, or in a service-provider location (e.g., therapist's office). This code may also apply to students in a private community-based program if services are funded with federal Special Education Preschool funds. This funding code is not be used if the student slot is funded by Head Start, VPI, or VPI+.
Title I Preschool	Select Title I Preschool as the funding source code if the student slot is fully funded with federal Title I, Part A funds, not mixed with state or other funding sources. *Ex. A student slot funded with VPI state funds in a classroom where the teaching assistant's salary is paid out of Title I funds would not be labeled with this funding code because the student slot is not fully funded by Title I. Instead, the slot would receive a #3 funding code as a VPI state funded slot.*
Local Funding for VPI Placement	Select local funding for VPI student placement if VPI local match is used. This funding code is typically used when a school division has been allocated state VPI funds for less than a full classroom of 18 students. *Ex. The division may be allocated 11 VPI funded slots. In order to maximize services for students, the school divisions places 7 more students in the room and provides local funds to account for the additional student slots. Seven students would be coded #8 in this scenario.*
Local Funding for Other Public Preschool Program	Select local funding that supports any other public preschool program not identified in this list.

Note. Further documentation of these codes is available here:

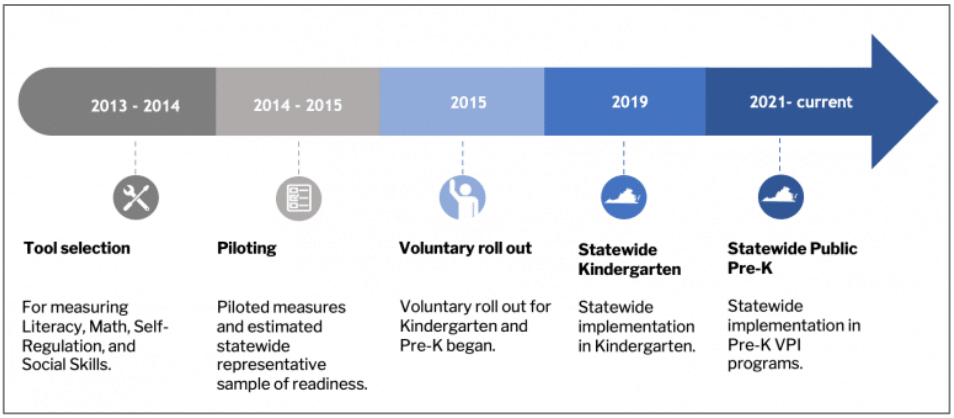
- Virginia Department of Education Data Elements
- Virginia Department of Education Guidance for PK Funding and PK Experience Codes
- Virginia Department of Education Student Records Code Values

Appendix C. VKRP History

The Virginia Kindergarten Readiness Program was initiated by Elevate Early Education (E3), a statewide bipartisan issue-advocacy organization dedicated to early childhood education. E3, in partnership with the University of Virginia's Center for Advanced Study of Teaching and Learning (CASTL) and with guidance from the Virginia Department of Education, launched a four-phased approach to create a statewide comprehensive kindergarten assessment. While VKRP began with a focus on assessing skills at kindergarten entry, assessment data and feedback from the field prompted VKRP to add timepoints in both the Fall and Spring of Kindergarten and Pre-Kindergarten.

Figure C1

Timeline of VKRP from 2013 to present



Kindergarten Timeline

Phase 1: Selecting Assessment Tools (2013-2014)

Phase 1 consisted of piloting potential measures to be used as part of VKRP.

Phase 2: A Snapshot of Kindergarten Readiness (2014-2015)

In Phase 2, the goal was to provide an estimate of the readiness gap at the start of kindergarten in Virginia using a small but representative sample of students. A battery of assessments was used to provide a more comprehensive estimate of readiness in the state, revealing a larger proportion of students who arrived at kindergarten without key readiness skills than had previously been estimated using the literacy data alone.[1]

VKRP chose a set of **coordinated assessments**. Literacy (leveraging the state adopted literacy assessment, PALS-K), mathematics, self-regulation, and social skills assessments were combined to provide teachers with a more comprehensive picture of students' readiness skills at the start of kindergarten. In addition to establishing a statewide estimate of readiness in Virginia, the report to the Virginia General Assembly made several recommendations for the statewide roll-out of a more comprehensive readiness assessment system.[2] This included building off of Virginia's state literacy assessment in order to provide teachers, administrators, and policymakers with a more streamlined experience and useful data across multiple readiness skills, providing comprehensive training and support to educators and leaders on how to administer the new assessments,

[1] Williford, Downer, and Hamre, Virginia Kindergarten Readiness Project—Phase 2; Martha B. Bronson et al., "Child Behavior Rating Scale." Cambridge, MA: Abt Associates (1990); Herbert P. Ginsburg and Sandra Pappas. "Invitation to the Birthday Party: Rationale and Description." ZDM 48, no. 7 (2016): 947-960.

[2] Williford, et al., *Virginia Kindergarten Readiness. Project—Phase 2.*

interpret, and use the new data coming from VKRP, and providing instructional resources tied to the assessment data for teachers.[3]

Phase 3: Voluntary Rollout (2015-2019)

Phase 3 included a gradual statewide roll-out of VKRP, allowing for input from administrators and teachers, as well as the expansion of VKRP to include the beginning and end of kindergarten.

From 2014 through 2019, CASTL implemented VKRP in kindergarten classrooms through a voluntary rollout where, each year, an increasing number of divisions elected to implement VKRP in kindergarten classrooms. During this pilot period, CASTL utilized an iterative design approach to regularly gather feedback from teachers, divisions, and VDOE, and used it to revise and improve the assessment system, online application, reports, and resources. For example, instructional strategies were linked directly to data reports for easy teacher access. In addition, teachers and division leaders repeatedly asked for a spring assessment to measure growth, which CASTL created. Thus, VKRP has been continually revised to improve the feasibility and utility of the data for kindergarten teachers, school and division administrators, and policymakers.

Based on preliminary data, statewide implementation of VKRP was a key recommendation made in the 2017 Joint Legislative Audit and Review Commission (JLARC) report, *Improving Virginia's Early Childhood Development Programs*.[4] This allowed Virginia, for the first time, to have a comprehensive understanding of children's school readiness upon entering kindergarten.

Statewide Implementation (2019 and beyond)

VKRP began statewide kindergarten implementation in the 2019-20 school year. 132 school divisions completed the VKRP assessments in the fall of the kindergarten school year. Due to the coronavirus pandemic, the spring window for VKRP was suspended and therefore, only fall 2019 data is reported. During the 2020-21 and 2021-22 school-years, uptake of VKRP has continued to be at or near 100%. Tables C1 and C2 summarize the uptake of VKRP.

Table C1

Kindergarten VKRP Expansion 2014-2022: Classrooms

	Fall 2014-15	Fall 2015-16	Fall 2016-17	Fall 2017-18	Fall 2018-19	Statewide Implementation Fall 2019-present
Total number of estimated classrooms	5,212	5,055	5,047	5,059	5,055	~5,000
Total of VKRP classrooms	100	533	661	1,200	1,660	
% of total*	1.9	10.5	13.1	21.6	34.2	100

*Estimated percentage of classrooms

[3] Williford, et al., *Virginia Kindergarten Readiness. Project—Phase 2.*

[4] Assembly, V. G. (2017). Joint Legislative Audit and Review Commission. *Improving Virginia's Early Childhood Development Programs.* Retrieved from http://jlarc.virginia.gov/2017-early-childhood-programs.asp.

Table C2

Kindergarten VKRP Expansion 2014-2022: Students

	Fall 2014-15	Fall 2015-16	Fall 2016-17	Fall 2017-18	Fall 2018-19	Statewide Implementation Fall 2019-present
Total number of estimated students	93,807	90,991	90,850	91,053	91,002	~90,000
Total of VKRP students	2,036	9,809	11,899	20,039	30,666	
% of total*	2.2	10.8	13.1	22.0	34.2	100

*Estimated percentage of students

Pre-Kindergarten Timeline

Since VKRP began its voluntary rollout in 2015, division leaders, principals, and teachers repeatedly asked for early learning assessments that measure pre-kindergarten children's growth over time. In 2018, the VKRP team began developing a preschool extension of the assessment system.

Laying the Groundwork (2015-2020)

Since VKRP began its voluntary rollout in 2015, division leaders, principals, and teachers repeatedly asked for early learning assessments that measure pre-kindergarten children's growth over time.

In 2018, the VKRP team began developing a pre-kindergarten extension of the assessment system.

Voluntary Pre-K Pilot (2020-2021)

In 2020-2021, VKRP implemented a voluntary pilot of VKRP assessments with a sample of Pre-Kindergarten classrooms in the fall and spring. 350 classrooms, including more than 4,000 4-year-old preschoolers within 142 early childhood education programs participated.

Although the pilot sample was small relative to Virginia's public pre-k population and not representative of that population, the results indicated that teachers were able to administer the assessments with high levels of fidelity, that the measures function well for pre-kindergarten students, and that the system would be ready for scale in the 2021-22 school year for 4-year-old children.

Pre-K Expansion (2021 and Beyond)

In the 2021-2022 school year, VKRP became available to all publicly funded pre-kindergarten programs to assess four-year-old children's skills in fall and spring. Additionally, the VKRP team is working to expand VKRP to three-year-old children in publicly funded pre-kindergarten classrooms in the 2022-2023 school year.

Table C3

VKRP Expansion to Pre-Kindergarten

	Fall 2019-20	Fall 2020-21	Spring 2020-21	Fall 2021-22
Total VKRP Pre-K classrooms	147	590	630	2,251
Total VKRP Pre-K students	2,280	6,289	6,755	27,547

Appendix D. Description of the VKRP Measures

VKRP provides assessments of mathematics, self-regulation, and social skills to complement Virginia's longstanding literacy screeners (PALS-K and PALS-PreK). The 2021-2022 literacy data gathered from the PALS-K and PALS-PreK measures come directly from the Virginia Literacy Partnerships (VLP), formerly known as the PALS office. Below, we provide a detailed description of the measures used, in addition to PALS-K and PALS-PreK, that make up VKRP.

Phonological Awareness Literacy Screening (PALS)

PALS provides a comprehensive assessment of young children's knowledge of the important literacy fundamentals that are predictive of future reading success. PALS-K is the state-provided screening tool for Virginia's Early Intervention Reading Initiative (EIRI) and is used by 99% of school divisions in the state on a voluntary basis. PALS consists of three instruments, PALS-PreK (for preschool students), PALS-K (for kindergartners), and PALS 1-3 (for students in grades 1-3). Starting in the 2022-23 school-year, PALS-PreK will be retired and the VLP Pre-K Language & Literacy screener will be used. PALS assessments are designed to identify students in need of additional reading instruction beyond that provided to typically developing readers. The PALS-K assessment measures rhyme awareness, beginning sound awareness, spelling, letter knowledge, letter sound knowledge, and concept of word. PALS-K informs teachers' instruction by providing them with explicit information about their students' knowledge of literacy fundamentals.

Early Mathematics Assessment System (EMAS)

The EMAS is a reliable and valid research-based assessment of early mathematical thinking that draws on modern cognitive science as well as developmental and educational research.[1] Created by Dr. Herb Ginsburg and colleagues at Teachers College, Columbia University, and expanded and adapted by researchers at CASTL, the EMAS is designed to measure a broad range of mathematical content in the areas of numeracy, computation, geometry, and patterning. It is aligned with Virginia's Early Learning and Development Standards (ELDS; 2021)[2], Virginia Standards of Learning (2016)[3], and Clements and Sarama's Mathematics Learning Trajectories (2009).[4]

Teachers administer the EMAS to students individually using a flip book and manipulatives. It takes approximately 20-25 minutes per student to administer in the fall and spring. Items are designed to capture a wide range and variety of early math skills.

The EMAS was designed with three purposes in mind. First, it has applications as a formative assessment, meaning that teachers can use EMAS data to provide students with differentiated, appropriate instruction tailored to their individual needs. Second, it can be used to broadly evaluate programs or assess needs across a large group of classrooms; for example, EMAS data could help identify school divisions in need of additional support around early math. Third, it can be used as a screening tool to identify students at risk for difficulties in math.

Item-response theory (IRT) is an advanced statistical approach that allows us to determine whether the range of difficulty of the items is appropriate for the students being assessed and provides an additional estimate of the

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[1] Ginsburg, H. P., Pappas, S., & Lee, Y. (2010). Early Mathematics Assessment System. An unpublished assessment measure created as part of the NIH supported project Computer Guided Comprehensive Mathematics Assessment for Young Children (Project number 1 RO1 HD051538-01).

[2] Virginia Department of Education. *Virginia's Early Learning & Development Standards (ELDS).*

[3] Virginia Department of Education. (2016). *Mathematics Standards of Learning for Virginia Public Schools*. Retrieved from: http://www.doe.virginia.gov/testing/sol/standards_docs/mathematics/2016/stds/k-12-math-sol.pdf

[4] Clements, D. H., & Sarama, J. (2009). *Learning and teaching early math: The learning trajectories approach*. New York: Routledge.

measure's reliability. Using IRT, we have designed the EMAS to be a vertically aligned measure from pre-k through kindergarten, meaning that it is capable of capturing students' growth across time. For the EMAS, students' raw scores on the assessment are converted to scaled scores to allow for meaningful comparisons across time points even through items differ based on grade level and from the fall to the spring. At each age level and timepoint, the EMAS has strong reliability.

Child Behavior Rating Scale (CBRS)

The Child Behavior Rating Scale is a teacher report measure of two areas of students' social-emotional skills: self-regulation and social skills. Self-regulation includes the skills that support students to manage their attention, emotions, and behaviors to adapt to the demands of the school environment.[5] Examples include being able to listen to others, following expectations and multi-step directions, and staying focused on tasks. Social skills include the skills to successfully navigate interactions and build relationships with peers and adults. Examples include cooperating in a group, expressing emotions, and resolving conflicts in a positive way.

The CBRS is a short rating scale that teachers complete outside of instructional time. It includes a set of 17 items that are assessed with a rating scale from 1 to 5 to determine the frequency of certain behaviors. It takes approximately 1 to 3 minutes to complete per student using the online system. It is completed twice during the school year, in the fall and in the spring.

VKRP uses the CBRS because it is reliable and valid across culturally diverse contexts. Additionally, studies have repeatedly identified the significant association between children's scores on the CBRS and their development of a wide range of outcomes. For example, CBRS scores have been associated with children's overall cognitive achievement, math, vocabulary, and literacy outcomes.[6] [7] [8] [9] Studies have also identified the relationship between children's CBRS scores and other important domains of children's early learning, including attentional and inhibitory control.[10] [11]

The self-regulation and social skills assessment (CBRS) has been validated for use with children ages three to ten years, with most studies focusing on those in preschool or kindergarten.

Well-Being Items

Having an understanding of children's social-emotional skills and well-being can help teachers, schools, and divisions better individualize support for students' developmental needs. Teachers report on five items that focus on children's well-being.

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[5] Bronson, M. B., Goodson, B. D., Layzer, J. I., & Love, J. M. (1990). *Child Behavior Rating Scale*. Cambridge, MA: Abt Associates.

[6] Lee, V. E., Loeb, S., & Lubeck, S. (1998). Contextual effects of prekindergarten classrooms for disadvantaged children on cognitive development: The case of chapter 1. *Child Development, 69*(2), 479-494.

[7] Wanless, S. B., McClelland, M. M., Acock, A. C., Chen, F., & Chen, J. (2011). Behavioral regulation and early academic achievement in Taiwan. *Early Education and Development, 22*(1), 1-28.

[8] Gestsdottir, S., von Suchodoletz, A., Wanless, S. B., Hubert, B., Guimard, P., Birgisdottir, F., & McClelland M. (2014). Early behavioral self-regulation, academic achievement, and gender: Longitudinal findings from France, Germany, and Iceland. *Applied Developmental Science, 18*(2), 90-109.

[9] Ponitz, C. C., McClelland, M. M., Matthew, J. S., & Morrison, F. J. (2009). Structured observation of behavioral self-regulation and its contribution to Kindergarten outcomes. *Developmental Psychology, 25*(3), 605-619.

[10] Kim, H. Byers, A. I., Cameron, C. E., Brock, L. L., Cottone, E. A., & Grissmer, D. W. (2016). Unique contributions of attentional control and visuomotor integration on concurrent teacher-reported classroom functioning in early elementary students. *Early Childhood Research Quarterly, 36*, 379-390.

[11] Yang, P., & Lamb, M. E. (2014). Factors influencing classroom behavioral engagement during the first year at school. *Applied Developmental Science, 18*(4), 189-200.

There is also an item that allows teachers to indicate whether or not they have concerns about a student's well-being. Teachers will also record how many days per week they are interacting with students in person and how many days in a virtual context.

These items, along with the Well-Being Summary Report, are designed to provide standardized information about teacher perceptions of students' well-being. This information can help facilitate conversations between teachers, instructional leaders, and families on how to best support students.

Appendix E. How VKRP Defines Readiness and Benchmark Estimates for Summative Purposes

Virginia defines school readiness as, "the capabilities of children, their families, schools, and communities that best promote student success in kindergarten and beyond." The VKRP readiness and/or benchmark estimates are calculated based upon the expected skill levels of a kindergarten student at the beginning (fall) and end (spring) of the school year. There are separate kindergarten benchmarks for fall and spring with spring benchmarks being higher than fall benchmarks.

For summative purposes, kindergarten students are categorized as ready or meeting the benchmark (fall) and meeting the benchmark (spring) if they demonstrate minimally expected skills for the fall or the spring (depending upon the data timepoint) of kindergarten for literacy, mathematics, self-regulation, and social skills. If a kindergarten student does not demonstrate the minimally expected skill in one or more areas at the respective timepoint (fall or spring), they are categorized as not ready or below the benchmark (fall) and below the benchmark (spring).

The VKRP assessment tools measure students' skills along a developmental continuum. However, it is common practice to establish benchmarks, often called thresholds or cut-points, to help determine where students fall related to a standard. For VKRP, a benchmark at the fall and spring of kindergarten were established to estimate students' skills relative to developmentally-appropriate expectations in each area.

Benchmarks for the mathematics (EMAS), self-regulation, and social skills (CBRS) assessments were established using developmental expectations in conjunction with students' scores across the Commonwealth. Students scoring below the benchmark on a specific assessment are most likely not demonstrating the level of skills one would expect for a kindergarten student in the fall or spring of kindergarten. The benchmarks vary from the fall to the spring based on increased skill level expectations.

A Note on Using Benchmarks:

Benchmarks can provide a quick, first-pass means of interpreting a student's scores. For instance, a student who scores well above the benchmark in a given early learning area likely possesses a high level of skill and could benefit from additional challenge. For students whose scores are falling well below the established benchmark for a given early learning area, additional support may be needed to help the student's skill development. Similarly, teachers will likely need to provide additional scaffolding to students whose scores are falling close to the benchmark, including those who are slightly above it.

Although derived theoretically, it is important to recognize that imposing a benchmark on a measure that assesses students' skills provides only a rough, imprecise estimate, which can be particularly problematic for students who score just above or below a particular threshold. For these reasons, it is not recommended to use whether or not a student is above or below the benchmark as the sole criterion for understanding his or her skills within an early learning domain. For all students, continual progress monitoring is critical as students develop skills at different rates and respond differently to instruction and scaffolding.

Appendix F. Domain and Demographic Tables

Table F1

Fall 2021 Overall Kindergarten Readiness by Preschool Experience

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
Head Start	2,201 (45.9)	2,596 (54.1)	4,797 (100.0)
VPI, VPI+, local funding for VPI Placement, VPI Pilot, SpEd funding for VPI	10,624 (57.1)	7,982 (42.9)	18,606 (100.0)
Special Education Preschool	1,224 (37.8)	2,014 (62.2)	3,238 (100.0)
Title I	379 (69.5)	166 (30.5)	545 (100.0)
Local funding for other public preschool	540 (64.0)	304 (36.0)	844 (100.0)
Private Preschool/Daycare	18,853 (74.9)	6,311 (25.1)	25,164 (100.0)
Department of Defense Child Development Program	308 (66.0)	159 (34.0)	467 (100.0)
Family Home Daycare	1,434 (64.7)	782 (35.3)	2,216 (100.0)
No Preschool Experience	11,683 (45.3)	14,130 (54.7)	25,813 (100.0)
Mixed Delivery Grant Program	6 (54.5)	5 (45.5)	11 (100.0)
Missing	317 (33.3)	636 (66.7)	953 (100.0)
Total	**47,569 (57.6)**	**35,085 (42.4)**	**82,654 (100.0)**

$\chi^2(10, N = 82{,}654) = 5{,}826.277$, $p = .000$

Table F2

Fall 2021 Kindergarten Literacy Benchmark Status by Preschool Experience

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
Head Start	3,266 (68.1)	1,531 (31.9)	4,797 (100.0)
VPI, VPI+, local funding for VPI Placement, VPI Pilot, SpEd funding for VPI	14,396 (77.4)	4,210 (22.6)	18,606 (100.0)
Special Education Preschool	2,340 (72.3)	898 (27.7)	3,238 (100.0)
Title I	463 (85.0)	82 (15.0)	545 (100.0)
Local funding for other public preschool	688 (81.5)	156 (18.5)	844 (100.0)
Private Preschool/Daycare	22,994 (91.4)	2,170 (8.6)	25,164 (100.0)
Department of Defense Child Development Program	412 (88.2)	55 (11.8)	467 (100.0)
Family Home Daycare	1,793 (80.9)	423 (19.1)	2,216 (100.0)
No Preschool Experience	15,675 (60.7)	10,138 (39.3)	25,813 (100.0)
Mixed Delivery Grant Program	9 (81.8)	2 (18.2)	11 (100.0)
Missing	477 (50.1)	476 (49.9)	953 (100.0)
Total	**62,513 (75.6)**	**20,141 (24.4)**	**82,654 (100.0)**

$\chi^2(10, N = 82{,}654) = 7{,}149.573$, $p = .000$

Table F3

Fall 2021 Kindergarten Mathematics Benchmark Status by Preschool Experience

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
Head Start	3,233 (67.4)	1,564 (32.6)	4,797 (100.0)
VPI, VPI+, local funding for VPI Placement, VPI Pilot, SpEd funding for VPI	14,287 (76.8)	4,319 (23.2)	18,606 (100.0)
Special Education Preschool	2,043 (63.1)	1,195 (36.9)	3,238 (100.0)
Title I	454 (83.3)	91 (16.7)	545 (100.0)
Local funding for other public preschool	698 (82.7)	146 (17.3)	844 (100.0)
Private Preschool/Daycare	23,232 (92.3)	1,932 (7.7)	25,164 (100.0)
Department of Defense Child Development Program	416 (89.1)	51 (10.9)	467 (100.0)
Family Home Daycare	1,813 (81.8)	403 (18.2)	2,216 (100.0)
No Preschool Experience	17,356 (67.2)	8,457 (32.8)	25,813 (100.0)
Mixed Delivery Grant Program	8 (72.7)	3 (27.3)	11 (100.0)
Missing	558 (58.6)	395 (41.4)	953 (100.0)
Total	**64,098 (77.5)**	**18,556 (22.5)**	**82,654 (100.0)**

$\chi^2(10, N = 82{,}654) = 5{,}689.556, p = 000$

Table F4

Fall 2021 Kindergarten Self-Regulation Benchmark Status by Preschool Experience

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
Head Start	3,825 (79.7)	972 (20.3)	4,797 (100.0)
VPI, VPI+, local funding for VPI Placement, VPI Pilot, SpEd funding for VPI	15,678 (84.3)	2,928 (15.7)	18,606 (100.0)
Special Education Preschool	2,013 (62.2)	1,225 (37.8)	3,238 (100.0)
Title I	495 (90.8)	50 (9.2)	545 (100.0)
Local funding for other public preschool	717 (85.0)	127 (15.0)	844 (100.0)
Private Preschool/Daycare	22,765 (90.5)	2,399 (9.5)	25,164 (100.0)
Department of Defense Child Development Program	406 (86.9)	61 (13.1)	467 (100.0)
Family Home Daycare	1,927 (87.0)	289 (13.0)	2,216 (100.0)
No Preschool Experience	20,903 (81.0)	4,910 (19.0)	25,813 (100.0)
Mixed Delivery Grant Program	9 (81.8)	2 (18.2)	11 (100.0)
Missing	686 (72.0)	267 (28.0)	953 (100.0)
Total	**69,424 (84.0)**	**13,230 (16.0)**	**82,654 (100.0)**

$\chi^2(10, N = 82{,}654) = 2{,}310.965, p = .000$

Table F5

Fall 2021 Kindergarten Social Skills Benchmark Status by Preschool Experience

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
Head Start	3,898 (81.3)	899 (18.7)	4,797 (100.0)
VPI, VPI+, local funding for VPI Placement, VPI Pilot, SpEd funding for VPI	15,602 (83.9)	3,004 (16.1)	18,606 (100.0)
Special Education Preschool	2,200 (67.9)	1,038 (32.1)	3,238 (100.0)
Title I	489 (89.7)	56 (10.3)	545 (100.0)
Local funding for other public preschool	718 (85.1)	126 (14.9)	844 (100.0)
Private Preschool/Daycare	21,856 (86.9)	3,308 (13.1)	25,164 (100.0)
Department of Defense Child Development Program	362 (77.5)	105 (22.5)	467 (100.0)
Family Home Daycare	1,947 (87.9)	269 (12.1)	2,216 (100.0)
No Preschool Experience	21,868 (84.7)	3,945 (15.3)	25,813 (100.0)
Mixed Delivery Grant Program	8 (72.7)	3 (27.3)	11 (100.0)
Missing	761 (79.9)	192 (20.1)	953 (100.0)
Total	**69,709 (84.3)**	**12,945 (15.7)**	**82,654 (100.0)**

$\chi^2(10, N = 82{,}654) = 885.283$, $p < .001$

Table F6

Spring 2022 Overall Kindergarten Benchmark Status by Preschool Experience

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
Head Start	2,116 (42.3)	2,881 (57.7)	4,997 (100.0)
VPI, VPI+, local funding for VPI Placement, VPI Pilot, SpEd funding for VPI	9,865 (51.7)	9,212 (48.3)	19,077 (100.0)
Special Education Preschool	1,111 (33.9)	2,162 (66.1)	3,273 (100.0)
Title I	336 (60.1)	223 (39.9)	559 (100.0)
Local funding for other public preschool	503 (59.9)	337 (40.1)	840 (100.0)
Private Preschool/Daycare	17,972 (70.5)	7,514 (29.5)	25,486 (100.0)
Department of Defense Child Development Program	287 (59.8)	193 (40.2)	480 (100.0)
Family Home Daycare	1,399 (62.6)	835 (37.4)	2,234 (100.0)
No Preschool Experience	13,416 (49.3)	13,792 (50.7)	27,208 (100.0)
Mixed Delivery Grant Program	5 (45.5)	6 (54.5)	11 (100.0)
Missing	213 (41.3)	303 (58.7)	516 (100.0)
Total	**47,223 (55.8)**	**37,458 (44.2)**	**84,681 (100.0)**

$\chi^2(10, N = 84{,}681) = 3{,}931.985$, $p = .000$

Table F7

Spring 2022 Kindergarten Literacy Benchmark Status by Preschool Experience

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
Head Start	3,531 (70.7)	1,466 (29.3)	4,997 (100.0)
VPI, VPI+, local funding for VPI Placement, VPI Pilot, SpEd funding for VPI	14,680 (77.0)	4,397 (23.0)	19,077 (100.0)
Special Education Preschool	2,059 (62.9)	1,214 (37.1)	3,273 (100.0)
Title I	463 (82.8)	96 (17.2)	559 (100.0)
Local funding for other public preschool	684 (81.4)	156 (18.6)	840 (100.0)
Private Preschool/Daycare	23,359 (91.7)	2,127 (8.3)	25,486 (100.0)
Department of Defense Child Development Program	424 (88.3)	56 (11.7)	480 (100.0)
Family Home Daycare	1,930 (86.4)	304 (13.6)	2,234 (100.0)
No Preschool Experience	19,434 (71.4)	7,774 (28.6)	27,208 (100.0)
Mixed Delivery Grant Program	9 (81.8)	2 (18.2)	11 (100.0)
Missing	303 (58.7)	213 (41.3)	516 (100.0)
Total	**66,876 (79.0)**	**17,805 (21.0)**	**84,681 (100.0)**

$\chi^2(10, N = 84{,}681) = 4{,}399.516$, $p = .000$

Table F8

Spring 2022 Kindergarten Mathematics Benchmark Status by Preschool Experience

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
Head Start	3,225 (64.5)	1,772 (35.5)	4,997 (100.0)
VPI, VPI+, local funding for VPI Placement, VPI Pilot, SpEd funding for VPI	13,824 (72.5)	5,253 (27.5)	19,077 (100.0)
Special Education Preschool	1,895 (57.9)	1,378 (42.1)	3,273 (100.0)
Title I	445 (79.6)	114 (20.4)	559 (100.0)
Local funding for other public preschool	652 (77.6)	188 (22.4)	840 (100.0)
Private Preschool/Daycare	22,775 (89.4)	2,711 (10.6)	25,486 (100.0)
Department of Defense Child Development Program	407 (84.8)	73 (15.2)	480 (100.0)
Family Home Daycare	1,796 (80.4)	438 (19.6)	2,234 (100.0)
No Preschool Experience	18,430 (67.7)	8,778 (32.3)	27,208 (100.0)
Mixed Delivery Grant Program	9 (81.8)	2 (18.2)	11 (100.0)
Missing	311 (60.3)	205 (39.7)	516 (100.0)
Total	63,769 (75.3)	20,912 (24.7)	84,681 (100.0)

$\chi^2(10, N = 84{,}681) = 4{,}599.024$, $p = .000$

Table F9

Spring 2022 Kindergarten Self-Regulation Benchmark Status by Preschool Experience

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
Head Start	3,800 (76.0)	1,197 (24.0)	4,997 (100.0)
VPI, VPI+, local funding for VPI Placement, VPI Pilot, SpEd funding for VPI	15,348 (80.5)	3,729 (19.5)	19,077 (100.0)
Special Education Preschool	2,005 (61.3)	1,268 (38.7)	3,273 (100.0)
Title I	479 (85.7)	80 (14.3)	559 (100.0)
Local funding for other public preschool	690 (82.1)	150 (17.9)	840 (100.0)
Private Preschool/Daycare	22,505 (88.3)	2,981 (11.7)	25,486 (100.0)
Department of Defense Child Development Program	396 (82.5)	84 (17.5)	480 (100.0)
Family Home Daycare	1,871 (83.8)	363 (16.2)	2,234 (100.0)
No Preschool Experience	21,558 (79.2)	5,650 (20.8)	27,208 (100.0)
Mixed Delivery Grant Program	10 (90.9)	1 (9.1)	11 (100.0)
Missing	390 (75.6)	126 (24.4)	516 (100.0)
Total	69,052 (81.5)	15,629 (18.5)	84,681 (100.0)

$\chi^2(10, N = 84{,}681) = 1{,}907.471$, $p = .000$

Table F10

Spring 2022 Kindergarten Social Skills Benchmark Status by Preschool Experience

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
Head Start	3,700 (74.0)	1,297 (26.0)	4,997 (100.0)
VPI, VPI+, local funding for VPI Placement, VPI Pilot, SpEd funding for VPI	14,870 (77.9)	4,207 (22.1)	19,077 (100.0)
Special Education Preschool	2,073 (63.3)	1,200 (36.7)	3,273 (100.0)
Title I	463 (82.8)	96 (17.2)	559 (100.0)
Local funding for other public preschool	691 (82.3)	149 (17.7)	840 (100.0)
Private Preschool/Daycare	21,159 (83.0)	4,327 (17.0)	25,486 (100.0)
Department of Defense Child Development Program	357 (74.4)	123 (25.6)	480 (100.0)
Family Home Daycare	1,851 (82.9)	383 (17.1)	2,234 (100.0)
No Preschool Experience	21,824 (80.2)	5,384 (19.8)	27,208 (100.0)
Mixed Delivery Grant Program	5 (45.5)	6 (54.5)	11 (100.0)
Missing	415 (80.4)	101 (19.6)	516 (100.0)
Total	**67,408 (79.6)**	**17,273 (20.4)**	**84,681 (100.0)**

$\chi^2(10, N = 84{,}681) = 888.358, p < .001$

Table F11

Fall 2021 Public Preschool Experience and Kindergarten Benchmark Status

		Public Preschool N=25,105	No Preschool Experience N=25,813	Total N=50,918
		n (%)	n (%)	n (%)
Overall[a]	Meeting Benchmark	13,654 (54.4)	11,683 (45.3)	25,337 (49.8)
	Below Benchmark	11,451 (45.6)	14,130 (54.7)	25,581 (50.2)
Literacy[b]	Meeting Benchmark	19,194 (76.5)	15,675 (60.7)	34,869 (68.5)
	Below Benchmark	5,911 (23.5)	10,138 (39.3)	16,049 (31.5)
Mathematics[c]	Meeting Benchmark	18,735 (74.6)	17,356 (67.2)	36,091 (70.9)
	Below Benchmark	6,370 (25.4)	8,457 (32.8)	14,827 (29.1)
Self-Regulation[d]	Meeting Benchmark	20,443 (81.4)	20,903 (81.0)	41,346 (81.2)
	Below Benchmark	4,662 (18.6)	4,910 (19.0)	9,572 (18.8)
Social Skills[e]	Meeting Benchmark	20,522 (81.7)	21,868 (84.7)	42,390 (83.3)
	Below Benchmark	4,583 (18.3)	3,945 (15.3)	8,528 (16.7)

[a] $\chi^2(1, N = 50{,}918) = 424.126$, $p < .001$

[b] $\chi^2(1, N = 50{,}918) = 1{,}458.888$, $p = .000$

[c] $\chi^2(1, N = 50{,}918) = 336.670$, $p < .001$

[d] $\chi^2(1, N = 50{,}918) = 1.699$, $p = .192$

[e] $\chi^2(1, N = 50{,}918) = 80.641$, $p < .001$

Table F12

Spring 2022 Public Preschool Experience and Kindergarten Benchmark Status

		Public Preschool N=25,647	No Preschool Experience N=27,208	Total N=52,855
		n (%)	n (%)	n (%)
Overall[a]	Meeting Benchmark	12,594 (49.1)	13,416 (49.3)	26,010 (49.2)
	Below Benchmark	13,053 (50.9)	13,792 (50.7)	26,845 (50.8)
Literacy[b]	Meeting Benchmark	19,183 (74.8)	19,434 (71.4)	38,617 (73.1)
	Below Benchmark	6,464 (25.2)	7,774 (28.6)	14,238 (26.9)
Mathematics[c]	Meeting Benchmark	18,030 (70.3)	18,430 (67.7)	36,460 (69.0)
	Below Benchmark	7,617 (29.7)	8,778 (32.3)	16,395 (31.0)
Self-Regulation[d]	Meeting Benchmark	19,987 (77.9)	21,558 (79.2)	41,545 (78.6)
	Below Benchmark	5,660 (22.1)	5,650 (20.8)	11,310 (21.4)
Social Skills[e]	Meeting Benchmark	19,488 (76.0)	21,824 (80.2)	41,312 (78.2)
	Below Benchmark	6,159 (24.0)	5,384 (19.8)	11,543 (21.8)

[a] $\chi^2(1, N = 52{,}855) = .220$, $p = .639$

[b] $\chi^2(1, N = 52{,}855) = 76.125$, $p < .001$

[c] $\chi^2(1, N = 52{,}855) = 40.537$, $p < .001$

[d] $\chi^2(1, N = 52{,}855) = 13.325$, $p < .001$

[e] $\chi^2(1, N = 52{,}855) = 138.142$, $p < .001$

Table F13

Fall 2021 Family Income Status and Kindergarten Benchmark Status

		Missing N=953	Not Low-Income N=51,146	Low-Income N=30,555	Total N=82,654
		n (%)	n (%)	n (%)	n (%)
Overall[a]	Meeting Benchmark	317 (33.3)	33,895 (66.3)	13,357 (43.7)	47,569 (57.6)
	Below Benchmark	636 (66.7)	17,251 (33.7)	17,198 (56.3)	35,085 (42.4)
Literacy[b]	Meeting Benchmark	477 (50.1)	42,490 (83.1)	19,546 (64.0)	62,513 (75.6)
	Below Benchmark	476 (49.9)	8,656 (16.9)	11,009 (36.0)	20,141 (24.4)
Mathematics[c]	Meeting Benchmark	558 (58.6)	43,369 (84.8)	20,171 (66.0)	64,098 (77.5)
	Below Benchmark	395 (41.4)	7,777 (15.2)	10,384 (34.0)	18,556 (22.5)
Self-Regulation[d]	Meeting Benchmark	686 (72.0)	44,522 (87.0)	24,216 (79.3)	69,424 (84.0)
	Below Benchmark	267 (28.0)	6,624 (13.0)	6,339 (20.7)	13,230 (16.0)
Social Skills[e]	Meeting Benchmark	761 (79.9)	44,177 (86.4)	24,771 (81.1)	69,709 (84.3)
	Below Benchmark	192 (20.1)	6,969 (13.6)	5,784 (18.9)	12,945 (15.7)

[a] $\chi^2(2, N = 82{,}654) = 4{,}216.553$, $p = .000$

[b] $\chi^2(2, N = 82{,}654) = 4{,}130.928$, $p = .000$

[c] $\chi^2(2, N = 82{,}654) = 4{,}074.371$, $p = .000$

[d] $\chi^2(2, N = 82{,}654) = 967.934$, $p < .001$

[e] $\chi^2(2, N = 82{,}654) = 422.089$, $p < .001$

Table F14

Spring 2022 Family Income Status and Kindergarten Benchmark Status

		Missing N=516	Not Low-Income N=48,653	Low-Income N=35,512	Total N=84,681
		n (%)	n (%)	n (%)	n (%)
Overall[a]	Meeting Benchmark	213 (41.3)	31,801 (65.4)	15,209 (42.8)	47,223 (55.8)
	Below Benchmark	303 (58.7)	16,852 (34.6)	20,303 (57.2)	37,458 (44.2)
Literacy[b]	Meeting Benchmark	303 (58.7)	42,007 (86.3)	24,566 (69.2)	66,876 (79.0)
	Below Benchmark	213 (41.3)	6,646 (13.7)	10,946 (30.8)	17,805 (21.0)
Mathematics[c]	Meeting Benchmark	311 (60.3)	40,553 (83.4)	22,905 (64.5)	63,769 (75.3)
	Below Benchmark	205 (39.7)	8,100 (16.6)	12,607 (35.5)	20,912 (24.7)
Self-Regulation[d]	Meeting Benchmark	390 (75.6)	41,857 (86.0)	26,805 (75.5)	69,052 (81.5)
	Below Benchmark	126 (24.4)	6,796 (14.0)	8,707 (24.5)	15,629 (18.5)
Social Skills[e]	Meeting Benchmark	415 (80.4)	40,271 (82.8)	26,722 (75.2)	67,408 (79.6)
	Below Benchmark	101 (19.6)	8,382 (17.2)	8,790 (24.8)	17,273 (20.4)

[a] $\chi^2(2, N = 84{,}681) = 4{,}270.329$, $p = .000$

[b] $\chi^2(2, N = 84{,}681) = 3{,}770.069$, $p = .000$

[c] $\chi^2(2, N = 84{,}681) = 3{,}986.314$, $p = .000$

[d] $\chi^2(2, N = 84{,}681) = 1{,}530.489$, $p = .000$

[e] $\chi^2(2, N = 84{,}681) = 715.951$, $p < .001$

Table F15

Fall 2021 Public or No Preschool Experience and Kindergarten Benchmark Status for Students from Low-Income Backgrounds

		Public Preschool N=13,869	No Preschool Experience N=11,264	Total N=25,133
		n (%)	n (%)	n (%)
Overall[a]	Meeting Benchmark	6,779 (48.9)	3,806 (33.8)	10,585 (42.1)
	Below Benchmark	7,090 (51.1)	7,458 (66.2)	14,548 (57.9)
Literacy[b]	Meeting Benchmark	9,955 (71.8)	5,608 (49.8)	15,563 (61.9)
	Below Benchmark	3,914 (28.2)	5,656 (50.2)	9,570 (38.1)
Mathematics[c]	Meeting Benchmark	9,681 (69.8)	6,498 (57.7)	16,179 (64.4)
	Below Benchmark	4,188 (30.2)	4,766 (42.3)	8,954 (35.6)
Self-Regulation[d]	Meeting Benchmark	11,112 (80.1)	8,728 (77.5)	19,840 (78.9)
	Below Benchmark	2,757 (19.9)	2,536 (22.5)	5,293 (21.1)
Social Skills[e]	Meeting Benchmark	11,156 (80.4)	9,248 (82.1)	20,404 (81.2)
	Below Benchmark	2,713 (19.6)	2,016 (17.9)	4,729 (18.8)

[a] $\chi^2(1, N = 25{,}133) = 580.565$, $p < .001$

[b] $\chi^2(1, N = 25{,}133) = 1{,}274.972$, $p < .001$

[c] $\chi^2(1, N = 25{,}133) = 397.792$, $p < .001$

[d] $\chi^2(1, N = 25{,}133) = 25.966$, $p < .001$

[e] $\chi^2(1, N = 25{,}133) = 11.265$, $p < .001$

Table F16

Spring 2022 Public or No Preschool Experience and Kindergarten Benchmark Status for Students from Low-Income Backgrounds

		Public Preschool N=15,380	No Preschool Experience N=13,565	Total N=28,945
		n (%)	n (%)	n (%)
Overall[a]	Meeting Benchmark	6,618 (43.0)	5,489 (40.5)	12,107 (41.8)
	Below Benchmark	8,762 (57.0)	8,076 (59.5)	16,838 (58.2)
Literacy[b]	Meeting Benchmark	10,783 (70.1)	8,752 (64.5)	19,535 (67.5)
	Below Benchmark	4,597 (29.9)	4,813 (35.5)	9,410 (32.5)
Mathematics[c]	Meeting Benchmark	10,048 (65.3)	8,245 (60.8)	18,293 (63.2)
	Below Benchmark	5,332 (34.7)	5,320 (39.2)	10,652 (36.8)
Self-Regulation[d]	Meeting Benchmark	11,626 (75.6)	10,183 (75.1)	21,809 (75.3)
	Below Benchmark	3,754 (24.4)	3,382 (24.9)	7,136 (24.7)
Social Skills[e]	Meeting Benchmark	11,358 (73.8)	10,478 (77.2)	21,836 (75.4)
	Below Benchmark	4,022 (26.2)	3,087 (22.8)	7,109 (24.6)

[a] $\chi^2(1, N = 28{,}945) = 19.497$, $p < .001$

[b] $\chi^2(1, N = 28{,}945) = 102.710$, $p < .001$

[c] $\chi^2(1, N = 28{,}945) = 64.164$, $p < .001$

[d] $\chi^2(1, N = 28{,}945) = 1.063$, $p = .302$

[e] $\chi^2(1, N = 28{,}945) = 44.805$, $p < .001$

Table F17

Fall 2021 Disability Status and Kindergarten Benchmark Status

		Missing N=1,116	No Disability N=75,416	Students With a Disability N=6,122	Total N=82,654
		n (%)	n (%)	n (%)	n (%)
Overall[a]	Meeting Benchmark	408 (36.6)	44,960 (59.6)	2,201 (36.0)	47,569 (57.6)
	Below Benchmark	708 (63.4)	30,456 (40.4)	3,921 (64.0)	35,085 (42.4)
Literacy[b]	Meeting Benchmark	603 (54.0)	57,705 (76.5)	4,205 (68.7)	62,513 (75.6)
	Below Benchmark	513 (46.0)	17,711 (23.5)	1,917 (31.3)	20,141 (24.4)
Mathematics[c]	Meeting Benchmark	696 (62.4)	59,688 (79.1)	3,714 (60.7)	64,098 (77.5)
	Below Benchmark	420 (37.6)	15,728 (20.9)	2,408 (39.3)	18,556 (22.5)
Self-Regulation[d]	Meeting Benchmark	810 (72.6)	64,724 (85.8)	3,890 (63.5)	69,424 (84.0)
	Below Benchmark	306 (27.4)	10,692 (14.2)	2,232 (36.5)	13,230 (16.0)
Social Skills[e]	Meeting Benchmark	885 (79.3)	64,548 (85.6)	4,276 (69.8)	69,709 (84.3)
	Below Benchmark	231 (20.7)	10,868 (14.4)	1,846 (30.2)	12,945 (15.7)

[a] $\chi^2(2, N = 82{,}654) = 1{,}501.985$, $p = .000$
[b] $\chi^2(2, N = 82{,}654) = 474.693$, $p < .001$
[c] $\chi^2(2, N = 82{,}654) = 1{,}260.348$, $p < .001$
[d] $\chi^2(2, N = 82{,}654) = 2{,}200.517$, $p = .000$
[e] $\chi^2(2, N = 82{,}654) = 1{,}084.156$, $p < .001$

Table F18

Spring 2022 Disability Status and Kindergarten Benchmark Status

		Missing N=922	No Disability N=75,510	Students With a Disability N=8,249	Total N=84,681
		n (%)	n (%)	n (%)	n (%)
Overall[a]	Meeting Benchmark	399 (43.3)	44,252 (58.6)	2,572 (31.2)	47,223 (55.8)
	Below Benchmark	523 (56.7)	31,258 (41.4)	5,677 (68.8)	37,458 (44.2)
Literacy[b]	Meeting Benchmark	639 (69.3)	61,398 (81.3)	4,839 (58.7)	66,876 (79.0)
	Below Benchmark	283 (30.7)	14,112 (18.7)	3,410 (41.3)	17,805 (21.0)
Mathematics[c]	Meeting Benchmark	626 (67.9)	58,624 (77.6)	4,519 (54.8)	63,769 (75.3)
	Below Benchmark	296 (32.1)	16,886 (22.4)	3,730 (45.2)	20,912 (24.7)
Self-Regulation[d]	Meeting Benchmark	673 (73.0)	63,439 (84.0)	4,940 (59.9)	69,052 (81.5)
	Below Benchmark	249 (27.0)	12,071 (16.0)	3,309 (40.1)	15,629 (18.5)
Social Skills[e]	Meeting Benchmark	682 (74.0)	61,395 (81.3)	5,331 (64.6)	67,408 (79.6)
	Below Benchmark	240 (26.0)	14,115 (18.7)	2,918 (35.4)	17,273 (20.4)

[a] $\chi^2(2, N = 84{,}681) = 2{,}326.359$, $p = .000$
[b] $\chi^2(2, N = 84{,}681) = 2{,}349.936$, $p = .000$
[c] $\chi^2(2, N = 84{,}681) = 2{,}116.348$, $p = .000$
[d] $\chi^2(2, N = 84{,}681) = 2{,}921.890$, $p = .000$
[e] $\chi^2(2, N = 84{,}681) = 1{,}292.645$, $p < .001$

Table F19

Fall 2021 English Language/Multilingual Learner Status and Kindergarten Benchmark Status

		Missing N=966	Not English Language/ Multilingual Learner N=70,659	English Language/ Multilingual Learner N=11,029	Total N=82,654
		n (%)	n (%)	n (%)	n (%)
Overall[a]	Meeting Benchmark	324 (33.5)	43,559 (61.6)	3,686 (33.4)	47,569 (57.6)
	Below Benchmark	642 (66.5)	27,100 (38.4)	7,343 (66.6)	35,085 (42.4)
Literacy[b]	Meeting Benchmark	484 (50.1)	56,264 (79.6)	5,765 (52.3)	62,513 (75.6)
	Below Benchmark	482 (49.9)	14,395 (20.4)	5,264 (47.7)	20,141 (24.4)
Mathematics[c]	Meeting Benchmark	568 (58.8)	57,842 (81.9)	5,688 (51.6)	64,098 (77.5)
	Below Benchmark	398 (41.2)	12,817 (18.1)	5,341 (48.4)	18,556 (22.5)
Self-Regulation[d]	Meeting Benchmark	697 (72.2)	60,022 (84.9)	8,705 (78.9)	69,424 (84.0)
	Below Benchmark	269 (27.8)	10,637 (15.1)	2,324 (21.1)	13,230 (16.0)
Social Skills[e]	Meeting Benchmark	772 (79.9)	59,866 (84.7)	9,071 (82.2)	69,709 (84.3)
	Below Benchmark	194 (20.1)	10,793 (15.3)	1,958 (17.8)	12,945 (15.7)

[a] $\chi^2(2, N = 82,654) = 3,341.823, p = .000$

[b] $\chi^2(2, N = 82,654) = 4,219.404, p = .000$

[c] $\chi^2(2, N = 82,654) = 5,223.995, p = .000$

[d] $\chi^2(2, N = 82,654) = 358.884, p < .001$

[e] $\chi^2(2, N = 82,654) = 58.828, p < .001$

Table F20

Spring 2022 English Language/Multilingual Learner Status and Kindergarten Benchmark Status

		Missing N=527	Not English Language/ Multilingual Learner N=71,264	English Language/ Multilingual Learner N=12,890	Total N=84,681
		n (%)	n (%)	n (%)	n (%)
Overall[a]	Meeting Benchmark	217 (41.2)	42,145 (59.1)	4,861 (37.7)	47,223 (55.8)
	Below Benchmark	310 (58.8)	29,119 (40.9)	8,029 (62.3)	37,458 (44.2)
Literacy[b]	Meeting Benchmark	313 (59.4)	59,016 (82.8)	7,547 (58.5)	66,876 (79.0)
	Below Benchmark	214 (40.6)	12,248 (17.2)	5,343 (41.5)	17,805 (21.0)
Mathematics[c]	Meeting Benchmark	318 (60.3)	56,238 (78.9)	7,213 (56.0)	63,769 (75.3)
	Below Benchmark	209 (39.7)	15,026 (21.1)	5,677 (44.0)	20,912 (24.7)
Self-Regulation[d]	Meeting Benchmark	395 (75.0)	58,600 (82.2)	10,057 (78.0)	69,052 (81.5)
	Below Benchmark	132 (25.0)	12,664 (17.8)	2,833 (22.0)	15,629 (18.5)
Social Skills[e]	Meeting Benchmark	424 (80.5)	56,677 (79.5)	10,307 (80.0)	67,408 (79.6)
	Below Benchmark	103 (19.5)	14,587 (20.5)	2,583 (20.0)	17,273 (20.4)

[a] $\chi^2(2, N = 84,681) = 2,077.551, p = .000$

[b] $\chi^2(2, N = 84,681) = 3,992.626, p = .000$

[c] $\chi^2(2, N = 84,681) = 3,157.291, p = .000$

[d] $\chi^2(2, N = 84,681) = 143.721, p < .001$

[e] $\chi^2(2, N = 84,681) = 1.482, p = .477$

Table F21

Fall 2021 Overall Kindergarten Readiness and Race/Ethnicity

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
American Indian or Alaska Native	126 (61.5)	79 (38.5)	205 (100.0)
Asian	4,043 (71.5)	1,615 (28.5)	5,658 (100.0)
Black, not of Hispanic origin	8,048 (48.1)	8,697 (51.9)	16,745 (100.0)
Hispanic	5,852 (39.9)	8,822 (60.1)	14,674 (100.0)
White, not of Hispanic origin	25,232 (66.4)	12,781 (33.6)	38,013 (100.0)
Native Hawaiian or Pacific Islander	72 (62.1)	44 (37.9)	116 (100.0)
Non-Hispanic, two or more races	3,879 (61.7)	2,411 (38.3)	6,290 (100.0)
Missing	317 (33.3)	636 (66.7)	953 (100.0)
Total	**47,569 (57.6)**	**35,085 (42.4)**	**82,654 (100.0)**

$\chi^2(7, N = 82{,}654) = 4{,}428.857, p = .000$

Table F22

Fall 2021 Kindergarten Literacy Benchmark Status and Race/Ethnicity

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
American Indian or Alaska Native	162 (79.0)	43 (21.0)	205 (100.0)
Asian	5,035 (89.0)	623 (11.0)	5,658 (100.0)
Black, not of Hispanic origin	12,103 (72.3)	4,642 (27.7)	16,745 (100.0)
Hispanic	8,328 (56.8)	6,346 (43.2)	14,674 (100.0)
White, not of Hispanic origin	31,301 (82.3)	6,712 (17.7)	38,013 (100.0)
Native Hawaiian or Pacific Islander	87 (75.0)	29 (25.0)	116 (100.0)
Non-Hispanic, two or more races	5,020 (79.8)	1,270 (20.2)	6,290 (100.0)
Missing	477 (50.1)	476 (49.9)	953 (100.0)
Total	**62,513 (75.6)**	**20,141 (24.4)**	**82,654 (100.0)**

$\chi^2(7, N = 82{,}654) = 4{,}815.683, p = .000$

Table F23

Fall 2021 Kindergarten Mathematics Benchmark Status and Race/Ethnicity

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
American Indian or Alaska Native	162 (79.0)	43 (21.0)	205 (100.0)
Asian	4,807 (85.0)	851 (15.0)	5,658 (100.0)
Black, not of Hispanic origin	11,394 (68.0)	5,351 (32.0)	16,745 (100.0)
Hispanic	8,899 (60.6)	5,775 (39.4)	14,674 (100.0)
White, not of Hispanic origin	32,979 (86.8)	5,034 (13.2)	38,013 (100.0)
Native Hawaiian or Pacific Islander	92 (79.3)	24 (20.7)	116 (100.0)
Non-Hispanic, two or more races	5,207 (82.8)	1,083 (17.2)	6,290 (100.0)
Missing	558 (58.6)	395 (41.4)	953 (100.0)
Total	**64,098 (77.5)**	**18,556 (22.5)**	**82,654 (100.0)**

$\chi^2(7, N = 82{,}654) = 5{,}604.091, p = .000$

Table F24

Fall 2021 Kindergarten Self-Regulation Benchmark Status and Race/Ethnicity

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
American Indian or Alaska Native	165 (80.5)	40 (19.5)	205 (100.0)
Asian	4,938 (87.3)	720 (12.7)	5,658 (100.0)
Black, not of Hispanic origin	13,165 (78.6)	3,580 (21.4)	16,745 (100.0)
Hispanic	12,020 (81.9)	2,654 (18.1)	14,674 (100.0)
White, not of Hispanic origin	32,997 (86.8)	5,016 (13.2)	38,013 (100.0)
Native Hawaiian or Pacific Islander	102 (87.9)	14 (12.1)	116 (100.0)
Non-Hispanic, two or more races	5,351 (85.1)	939 (14.9)	6,290 (100.0)
Missing	686 (72.0)	267 (28.0)	953 (100.0)
Total	**69,424 (84.0)**	**13,230 (16.0)**	**82,654 (100.0)**

$\chi^2(7, N = 82{,}654) = 786.407$, $p < .001$

Table F25

Fall 2021 Kindergarten Social Skills Benchmark Status and Race/Ethnicity

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
American Indian or Alaska Native	179 (87.3)	26 (12.7)	205 (100.0)
Asian	5,042 (89.1)	616 (10.9)	5,658 (100.0)
Black, not of Hispanic origin	13,343 (79.7)	3,402 (20.3)	16,745 (100.0)
Hispanic	12,249 (83.5)	2,425 (16.5)	14,674 (100.0)
White, not of Hispanic origin	32,719 (86.1)	5,294 (13.9)	38,013 (100.0)
Native Hawaiian or Pacific Islander	101 (87.1)	15 (12.9)	116 (100.0)
Non-Hispanic, two or more races	5,315 (84.5)	975 (15.5)	6,290 (100.0)
Missing	761 (79.9)	192 (20.1)	953 (100.0)
Total	**69,709 (84.3)**	**12,945 (15.7)**	**82,654 (100.0)**

$\chi^2(7, N = 82{,}654) = 483.908$, $p < .001$

Table F26

Spring 2022 Overall Kindergarten Benchmark Status and Race/Ethnicity

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
American Indian or Alaska Native	126 (62.4)	76 (37.6)	202 (100.0)
Asian	4,116 (69.9)	1,775 (30.1)	5,891 (100.0)
Black, not of Hispanic origin	7,388 (42.6)	9,944 (57.4)	17,332 (100.0)
Hispanic	6,807 (42.8)	9,092 (57.2)	15,899 (100.0)
White, not of Hispanic origin	24,689 (64.4)	13,646 (35.6)	38,335 (100.0)
Native Hawaiian or Pacific Islander	74 (62.2)	45 (37.8)	119 (100.0)
Non-Hispanic, two or more races	3,810 (59.7)	2,577 (40.3)	6,387 (100.0)
Missing	213 (41.3)	303 (58.7)	516 (100.0)
Total	**47,223 (55.8)**	**37,458 (44.2)**	**84,681 (100.0)**

$\chi^2(7, N = 84{,}681) = 4{,}017.268, p = .000$

Table F27

Spring 2022 Kindergarten Literacy Benchmark Status and Race/Ethnicity

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
American Indian or Alaska Native	159 (78.7)	43 (21.3)	202 (100.0)
Asian	5,088 (86.4)	803 (13.6)	5,891 (100.0)
Black, not of Hispanic origin	12,520 (72.2)	4,812 (27.8)	17,332 (100.0)
Hispanic	10,225 (64.3)	5,674 (35.7)	15,899 (100.0)
White, not of Hispanic origin	33,157 (86.5)	5,178 (13.5)	38,335 (100.0)
Native Hawaiian or Pacific Islander	95 (79.8)	24 (20.2)	119 (100.0)
Non-Hispanic, two or more races	5,329 (83.4)	1,058 (16.6)	6,387 (100.0)
Missing	303 (58.7)	213 (41.3)	516 (100.0)
Total	**66,876 (79.0)**	**17,805 (21.0)**	**84,681 (100.0)**

$\chi^2(7, N = 84{,}681) = 4{,}235.308, p = .000$

Table F28

Spring 2022 Kindergarten Mathematics Benchmark Status and Race/Ethnicity

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
American Indian or Alaska Native	162 (80.2)	40 (19.8)	202 (100.0)
Asian	4,891 (83.0)	1,000 (17.0)	5,891 (100.0)
Black, not of Hispanic origin	11,113 (64.1)	6,219 (35.9)	17,332 (100.0)
Hispanic	9,921 (62.4)	5,978 (37.6)	15,899 (100.0)
White, not of Hispanic origin	32,204 (84.0)	6,131 (16.0)	38,335 (100.0)
Native Hawaiian or Pacific Islander	95 (79.8)	24 (20.2)	119 (100.0)
Non-Hispanic, two or more races	5,072 (79.4)	1,315 (20.6)	6,387 (100.0)
Missing	311 (60.3)	205 (39.7)	516 (100.0)
Total	**63,769 (75.3)**	**20,912 (24.7)**	**84,681 (100.0)**

$\chi^2(7, N = 84{,}681) = 4{,}464.324, p = .000$

Table F29

Spring 2022 Kindergarten Self-Regulation Benchmark Status and Race/Ethnicity

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
American Indian or Alaska Native	167 (82.7)	35 (17.3)	202 (100.0)
Asian	5,205 (88.4)	686 (11.6)	5,891 (100.0)
Black, not of Hispanic origin	12,775 (73.7)	4,557 (26.3)	17,332 (100.0)
Hispanic	12,634 (79.5)	3,265 (20.5)	15,899 (100.0)
White, not of Hispanic origin	32,493 (84.8)	5,842 (15.2)	38,335 (100.0)
Native Hawaiian or Pacific Islander	100 (84.0)	19 (16.0)	119 (100.0)
Non-Hispanic, two or more races	5,288 (82.8)	1,099 (17.2)	6,387 (100.0)
Missing	390 (75.6)	126 (24.4)	516 (100.0)
Total	**69,052 (81.5)**	**15,629 (18.5)**	**84,681 (100.0)**

$\chi^2(7, N = 84{,}681) = 1{,}217.525$, $p < .001$

Table F30

Spring 2022 Kindergarten Social Skills Benchmark Status and Race/Ethnicity

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
American Indian or Alaska Native	169 (83.7)	33 (16.3)	202 (100.0)
Asian	5,187 (88.0)	704 (12.0)	5,891 (100.0)
Black, not of Hispanic origin	12,461 (71.9)	4,871 (28.1)	17,332 (100.0)
Hispanic	12,693 (79.8)	3,206 (20.2)	15,899 (100.0)
White, not of Hispanic origin	31,327 (81.7)	7,008 (18.3)	38,335 (100.0)
Native Hawaiian or Pacific Islander	107 (89.9)	12 (10.1)	119 (100.0)
Non-Hispanic, two or more races	5,049 (79.1)	1,338 (20.9)	6,387 (100.0)
Missing	415 (80.4)	101 (19.6)	516 (100.0)
Total	**67,408 (79.6)**	**17,273 (20.4)**	**84,681 (100.0)**

$\chi^2(7, N = 84{,}681) = 1{,}010.397$, $p < .001$

Table F31

Fall 2021 Sex/Gender and Kindergarten Benchmark Status

		Missing N=967	Female N=40,326	Male N=41,361	Total N=82,654
		n (%)	n (%)	n (%)	n (%)
Overall[a]	Meeting Benchmark	324 (33.5)	25,521 (63.3)	21,724 (52.5)	47,569 (57.6)
	Below Benchmark	643 (66.5)	14,805 (36.7)	19,637 (47.5)	35,085 (42.4)
Literacy[b]	Meeting Benchmark	485 (50.2)	31,147 (77.2)	30,881 (74.7)	62,513 (75.6)
	Below Benchmark	482 (49.8)	9,179 (22.8)	10,480 (25.3)	20,141 (24.4)
Mathematics[c]	Meeting Benchmark	569 (58.8)	31,716 (78.6)	31,813 (76.9)	64,098 (77.5)
	Below Benchmark	398 (41.2)	8,610 (21.4)	9,548 (23.1)	18,556 (22.5)
Self-Regulation[d]	Meeting Benchmark	697 (72.1)	36,306 (90.0)	32,421 (78.4)	69,424 (84.0)
	Below Benchmark	270 (27.9)	4,020 (10.0)	8,940 (21.6)	13,230 (16.0)
Social Skills[e]	Meeting Benchmark	773 (79.9)	36,142 (89.6)	32,794 (79.3)	69,709 (84.3)
	Below Benchmark	194 (20.1)	4,184 (10.4)	8,567 (20.7)	12,945 (15.7)

[a] $\chi^2(2, N = 82{,}654) = 1{,}199.948$, $p < .001$

[b] $\chi^2(2, N = 82{,}654) = 418.108$, $p < .001$

[c] $\chi^2(2, N = 82{,}654) = 231.939$, $p < .001$

[d] $\chi^2(2, N = 82{,}654) = 2{,}163.099$, $p = .000$

[e] $\chi^2(2, N = 82{,}654) = 1{,}666.210$, $p = .000$

Table F32

Spring 2022 Sex/Gender and Kindergarten Benchmark Status

		Missing N=527	Female N=41,495	Male N=42,659	Total N=84,681
		n (%)	n (%)	n (%)	n (%)
Overall[a]	Meeting Benchmark	217 (41.2)	25,365 (61.1)	21,641 (50.7)	47,223 (55.8)
	Below Benchmark	310 (58.8)	16,130 (38.9)	21,018 (49.3)	37,458 (44.2)
Literacy[b]	Meeting Benchmark	313 (59.4)	33,748 (81.3)	32,815 (76.9)	66,876 (79.0)
	Below Benchmark	214 (40.6)	7,747 (18.7)	9,844 (23.1)	17,805 (21.0)
Mathematics[c]	Meeting Benchmark	318 (60.3)	31,368 (75.6)	32,083 (75.2)	63,769 (75.3)
	Below Benchmark	209 (39.7)	10,127 (24.4)	10,576 (24.8)	20,912 (24.7)
Self-Regulation[d]	Meeting Benchmark	395 (75.0)	36,483 (87.9)	32,174 (75.4)	69,052 (81.5)
	Below Benchmark	132 (25.0)	5,012 (12.1)	10,485 (24.6)	15,629 (18.5)
Social Skills[e]	Meeting Benchmark	424 (80.5)	35,418 (85.4)	31,566 (74.0)	67,408 (79.6)
	Below Benchmark	103 (19.5)	6,077 (14.6)	11,093 (26.0)	17,273 (20.4)

[a] $\chi^2(2, N = 84{,}681) = 967.639$, $p < .001$

[b] $\chi^2(2, N = 84{,}681) = 368.397$, $p < .001$

[c] $\chi^2(2, N = 84{,}681) = 65.539$, $p < .001$

[d] $\chi^2(2, N = 84{,}681) = 2{,}199.149$, $p = .000$

[e] $\chi^2(2, N = 84{,}681) = 1{,}671.658$, $p = .000$

Table F33

Fall 2021 Overall Kindergarten Readiness and Student Age

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
<= 63.31 months	10,454 (51.8)	9,720 (48.2)	20,174 (100.0)
63.32-66.56 months	8,811 (42.9)	11,740 (57.1)	20,551 (100.0)
66.57-69.82 months	8,125 (39.1)	12,663 (60.9)	20,788 (100.0)
69.83+ months	7,059 (35.0)	13,129 (65.0)	20,188 (100.0)
Missing	636 (66.7)	317 (33.3)	953 (100.0)
Total	**35,085 (42.4)**	**47,569 (57.6)**	**82,654 (100.0)**

$\chi^2(4, N = 82{,}654) = 1{,}515.669$, $p = .000$

Table F34

Fall 2021 Kindergarten Literacy Benchmark Status and Student Age

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
<= 63.31 months	13,834 (68.6)	6,340 (31.4)	20,174 (100.0)
63.32-66.56 months	15,435 (75.1)	5,116 (24.9)	20,551 (100.0)
66.57-69.82 months	16,276 (78.3)	4,512 (21.7)	20,788 (100.0)
69.83+ months	16,491 (81.7)	3,697 (18.3)	20,188 (100.0)
Missing	477 (50.1)	476 (49.9)	953 (100.0)
Total	**62,513 (75.6)**	**20,141 (24.4)**	**82,654 (100.0)**

$\chi^2(4, N = 82{,}654) = 1{,}368.436$, $p < .001$

Table F35

Fall 2021 Kindergarten Mathematics Benchmark Status and Student Age

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
<= 63.31 months	13,959 (69.2)	6,215 (30.8)	20,174 (100.0)
63.32-66.56 months	15,742 (76.6)	4,809 (23.4)	20,551 (100.0)
66.57-69.82 months	16,817 (80.9)	3,971 (19.1)	20,788 (100.0)
69.83+ months	17,022 (84.3)	3,166 (15.7)	20,188 (100.0)
Missing	558 (58.6)	395 (41.4)	953 (100.0)
Total	**64,098 (77.5)**	**18,556 (22.5)**	**82,654 (100.0)**

$\chi^2(4, N = 82{,}654) = 1{,}682.351$, $p = .000$

Table F36

Fall 2021 Kindergarten Self-Regulation Benchmark Status and Student Age

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
<= 63.31 months	15,852 (78.6)	4,322 (21.4)	20,174 (100.0)
63.32-66.56 months	17,211 (83.7)	3,340 (16.3)	20,551 (100.0)
66.57-69.82 months	17,938 (86.3)	2,850 (13.7)	20,788 (100.0)
69.83+ months	17,737 (87.9)	2,451 (12.1)	20,188 (100.0)
Missing	686 (72.0)	267 (28.0)	953 (100.0)
Total	**69,424 (84.0)**	**13,230 (16.0)**	**82,654 (100.0)**

$\chi^2(4, N = 82{,}654) = 849.452, p < .001$

Table F37

Fall 2021 Kindergarten Social Skills Benchmark Status and Student Age

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
<= 63.31 months	16,675 (82.7)	3,499 (17.3)	20,174 (100.0)
63.32-66.56 months	17,335 (84.4)	3,216 (15.6)	20,551 (100.0)
66.57-69.82 months	17,675 (85.0)	3,113 (15.0)	20,788 (100.0)
69.83+ months	17,263 (85.5)	2,925 (14.5)	20,188 (100.0)
Missing	761 (79.9)	192 (20.1)	953 (100.0)
Total	**69,709 (84.3)**	**12,945 (15.7)**	**82,654 (100.0)**

$\chi^2(4, N = 82{,}654) = 86.195, p < .001$

Table F38

Spring 2022 Overall Kindergarten Benchmark Status and Student Age

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
<= 63.31 months	10,748 (51.8)	9,993 (48.2)	20,741 (100.0)
63.32-66.56 months	9,350 (44.4)	11,712 (55.6)	21,062 (100.0)
66.57-69.82 months	8,687 (40.9)	12,535 (59.1)	21,222 (100.0)
69.83+ months	8,370 (39.6)	12,770 (60.4)	21,140 (100.0)
Missing	303 (58.7)	213 (41.3)	516 (100.0)
Total	**37,458 (44.2)**	**47,223 (55.8)**	**84,681 (100.0)**

$\chi^2(4, N = 84{,}681) = 806.260$, $p < .001$

Table F39

Spring 2022 Kindergarten Literacy Benchmark Status and Student Age

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
<= 63.31 months	15,346 (74.0)	5,395 (26.0)	20,741 (100.0)
63.32-66.56 months	16,595 (78.8)	4,467 (21.2)	21,062 (100.0)
66.57-69.82 months	17,314 (81.6)	3,908 (18.4)	21,222 (100.0)
69.83+ months	17,318 (81.9)	3,822 (18.1)	21,140 (100.0)
Missing	303 (58.7)	213 (41.3)	516 (100.0)
Total	**66,876 (79.0)**	**17,805 (21.0)**	**84,681 (100.0)**

$\chi^2(4, N = 84{,}681) = 635.992$, $p < .001$

Table F40

Spring 2022 Kindergarten Mathematics Benchmark Status and Student Age

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
<= 63.31 months	14,143 (68.2)	6,598 (31.8)	20,741 (100.0)
63.32-66.56 months	15,713 (74.6)	5,349 (25.4)	21,062 (100.0)
66.57-69.82 months	16,670 (78.6)	4,552 (21.4)	21,222 (100.0)
69.83+ months	16,932 (80.1)	4,208 (19.9)	21,140 (100.0)
Missing	311 (60.3)	205 (39.7)	516 (100.0)
Total	**63,769 (75.3)**	**20,912 (24.7)**	**84,681 (100.0)**

$\chi^2(4, N = 84{,}681) = 1{,}014.098$, $p < .001$

Table F41

Spring 2022 Kindergarten Self-Regulation Benchmark Status and Student Age

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
<= 63.31 months	15,797 (76.2)	4,944 (23.8)	20,741 (100.0)
63.32-66.56 months	17,090 (81.1)	3,972 (18.9)	21,062 (100.0)
66.57-69.82 months	17,828 (84.0)	3,394 (16.0)	21,222 (100.0)
69.83+ months	17,947 (84.9)	3,193 (15.1)	21,140 (100.0)
Missing	390 (75.6)	126 (24.4)	516 (100.0)
Total	**69,052 (81.5)**	**15,629 (18.5)**	**84,681 (100.0)**

$\chi^2(4, N = 84{,}681) = 656.851, p < .001$

Table F42

Spring 2022 Kindergarten Social Skills Benchmark Status and Student Age

	Meeting Benchmark	Below Benchmark	Total
	n (%)	n (%)	n (%)
<= 63.31 months	16,140 (77.8)	4,601 (22.2)	20,741 (100.0)
63.32-66.56 months	16,815 (79.8)	4,247 (20.2)	21,062 (100.0)
66.57-69.82 months	17,078 (80.5)	4,144 (19.5)	21,222 (100.0)
69.83+ months	16,960 (80.2)	4,180 (19.8)	21,140 (100.0)
Missing	415 (80.4)	101 (19.6)	516 (100.0)
Total	**67,408 (79.6)**	**17,273 (20.4)**	**84,681 (100.0)**

$\chi^2(4, N = 84{,}681) = 56.635, p < .001$

Appendix G. Benchmark and Growth Descriptive Tables

Table G1

Overall Kindergarten Benchmark Demographic Summary

	Fall 2021 Benchmark Spring 2022 Benchmark	Below Below n=24,663	Met Below n=9,180	Below Met n=8,531	Met Met n=36,806	Total Sample N=79,180
		Mean (SD) or n (%)	Mean (SD) or n (%)	Mean (SD) or n (%)	Mean (SD) or n (%)	Mean (SD) or n (%)
Age	Age in months on September 30, 2021	66.19 (4.45)	66.94 (4.31)	66.36 (4.13)	67.20 (4.02)	66.77 (4.23)
Gender	Female	10,154 (41.3)	4,481 (48.9)	4,113 (48.4)	20,323 (55.3)	39,071 (49.5)
	Male	14,421 (58.7)	4,675 (51.1)	4,393 (51.6)	16,414 (44.7)	39,903 (50.5)
Race/Ethnicity	American Indian or Alaska Native	52 (0.2)	17 (0.2)	24 (0.3)	94 (0.3)	187 (0.2)
	Asian	991 (4.0)	508 (5.5)	549 (6.5)	3,371 (9.2)	5,419 (6.9)
	Black or African American	6,774 (27.6)	2,374 (25.9)	1,626 (19.1)	5,427 (14.8)	16,201 (20.5)
	Hispanic/Latino of any race	6,375 (25.9)	1,321 (14.4)	2,085 (24.5)	4,307 (11.7)	14,088 (17.8)
	White	8,662 (35.2)	4,216 (46.0)	3,594 (42.2)	20,429 (55.6)	36,901 (46.7)
	Native Hawaiian or other Pacific Islander	28 (0.1)	12 (0.1)	14 (0.2)	55 (0.1)	109 (0.1)
	Non-Hispanic/Latino of any race, two or more races	1,698 (6.9)	709 (7.7)	615 (7.2)	3,057 (8.3)	6,079 (7.7)
Family Income Status[a]	Students not from low-income backgrounds	10,017 (40.8)	5,129 (56.0)	4,393 (51.6)	26,272 (71.5	45,811 (58.0)
	Students from low-income backgrounds	14,563 (59.2)	4,028 (44.0)	4,114 (48.4)	10,468 (28.5)	33,173 (42.0)
Preschool Experience	Head Start	1,263 (5.1)	374 (4.1)	349 (4.1)	924 (2.5)	2,910 (3.7)
	Public preschool	8,689 (35.3)	3,448 (37.7)	2,301 (27.0)	9,868 (26.9)	24,306 (30.7)
	Private Preschool/Daycare	4,205 (17.1)	2,919 (31.9)	1,946 (22.9)	15,532 (42.3)	24,602 (31.1)
	Department of Defense Child Development Program	106 (0.4)	66 (0.7)	39 (0.5)	226 (0.6)	437 (0.6)
	Family Home Daycare	526 (2.1)	256 (2.8)	223 (2.6)	1,145 (3.1)	2,150 (2.7)
	No preschool	9,791 (39.8)	2,094 (22.9)	3,649 (42.9)	9,045 (24.6)	24,579 (31.0)
Disability[b]	Students without a disability	19,997 (81.9)	8,306 (91.2)	7,801 (92.1)	34,790 (95.1)	70,894 (90.2)
	Students with a disability	4,424 (18.1)	804 (8.8)	665 (7.9)	1,809 (4.9)	7,702 (9.8)
Language[c]	Not English language/multilingual learners	18,971 (77.2)	8,287 (90.5)	6,762 (79.5)	33,994 (92.5)	68,014 (86.1)
	English language/multilingual learners	5,604 (22.8)	869 (9.5)	1,744 (20.5)	2,743 (7.5)	10,960 (13.9)
Literacy	PALS Summed Score, fall	30.85 (22.11)	56.47 (16.75)	38.48 (22.32)	66.29 (16.38)	51.12 (24.87)
	PALS Summed Score, spring	75.11 (19.69)	87.63 (8.46)	91.07 (3.56)	93.07 (2.68)	86.63 (14.02)
Math	EMAS Scaled Score, fall	529.28 (72.03)	604.45 (47.39)	565.3 (59.40)	634.48 (54.25)	590.78 (76.04)
	EMAS Scaled Score, spring	641.19 (76.72)	692.97 (70.15)	719.11 (54.55)	756.02 (63.37)	708.97 (84.22)
	EMAS Growth	111.91 (59.69)	88.52 (56.33)	153.81 (59.48)	121.54 (57.95)	118.19 (60.63)
Self-Regulation	CBRS Self-Regulation Mean, fall	3.01 (0.79)	3.81 (0.56)	3.46 (0.72)	4.16 (0.56)	3.68 (0.83)
	CBRS Self-Regulation Mean, spring	3.24 (0.79)	3.68 (0.66)	4.11 (0.52)	4.39 (0.51)	3.92 (0.81)
	CBRS Self-Regulation Growth	0.23 (0.69)	-0.13 (0..62)	0.65 (0.68)	0.23 (0.52)	0.23 (0.63)
Social Skills	CBRS Social Skills Mean, fall	3.85 (0.78)	4.36 (0.40)	4.15 (0.63)	4.57 (0.38)	4.27 (0.65)
	CBRS Social Skills Mean, spring	3.93 (0.78)	4.05 (0.64)	4.57 (0.37)	4.67 (0.35)	4.36 (0.65)
	CBRS Social Skills Growth	0.09 (0.63)	-0.31 (0.59)	0.43 (0.57)	0.11 (0.38)	0.09 (0.55)

[a]Source: SRC Disadvantaged Status Flag. Students are identified as having a low-income background if, at any point during the school year, the student: 1) is eligible for Free/Reduced Meals, 2) receives TANF, or 3) is eligible for Medicaid.

[b]Source: SRC Primary Disability Code. Students are identified as having a disability if any code is present *except,* "*Qualified Individual under Section 504.*"

[c]Source: Student Record Collection (SRC) Limited English Proficiency (LEP) Status Code. Students are identified as English learners (EL) if code is, "*Identified as EL and receives EL services*," "*Identified as EL but has refused EL services*," or "*Identified as formerly EL for each of the four years after exiting EL services*."

Table G2

Kindergarten Literacy Benchmark Status Demographic Summary

	Fall 2021 Benchmark Spring 2022 Benchmark	Below Below n=11,850	Met Below n=4,991	Below Met n=8,813	Met Met n=57,277	Total Sample N=82,931
		Mean (SD) or n(%)	Mean (SD) or n(%)	Mean (SD) or n(%)	Mean (SD) or n(%)	Mean (SD) or n(%)
Age	Age in months on September 30, 2021	66.06 (4.48)	66.92 (4.72)	66.14 (4.39)	67.02 (4.12)	66.79 (4.26)
Gender	Female	5,203 (44.1)	2,174 (43.7)	4,445 (50.6)	29,000 (50.7)	40,822 (49.4)
	Male	6,593 (55.9)	2, 804 (56.3)	4,338 (49.4)	28,158 (49.3)	41,893 (50.6)
Race/Ethnicity	American Indian or Alaska Native	27 (0.2)	12 (0.2)	18 (0.2)	136 (0.2)	193 (0.2)
	Asian	357 (3)	323 (6.5)	286 (3.3)	4,694 (8.2)	5,660 (6.8)
	Black or African American	3,046 (25.8)	1,551 (31.2)	1,729 (19.7)	10,617 (18.6)	16,943 (20.5)
	Hispanic/Latino of any race	4,380 (37.1)	1,032 (20.7)	2,766 (31.5)	7,469 (13.1)	15,647 (18.9)
	White	3,297 (28)	1,698 (34.1)	3,368 (38.3)	29,518 (51.6)	37,881 (45.8)
	Native Hawaiian or other Pacific Islander	17 (0.1)	4 (0.1)	11 (0.1)	81 (0.1)	113 (0.1)
	Non-Hispanic/Latino of any race, two or more races	672 (5.7)	358 (7.2)	608 (6.9)	4,650 (8.1)	6,288 (7.6)
Family Income Status[a]	Students not from low-income backgrounds	3,918 (33.2)	2,206 (44.3)	3,561 (40.5)	37,881 (66.3)	47,566 (57.5)
	Students from low-income backgrounds	7,878 (66.8)	2,772 (55.7)	5,225 (59.5)	19,284 (33.7)	35,159 (42.5)
Preschool Experience	Head Start	599 (5.1)	246 (4.9)	420 (4.8)	1,791 (3.1)	3,056 (3.7)
	Public preschool	4,055 (34.4)	2,325 (46.7)	2,074 (23.6)	17,072 (29.9)	25,526 (30.9)
	Private Preschool/Daycare	1,027 (8.7)	1,025 (20.6)	1,161 (13.2)	22,037 (38.5)	25,250 (30.5)
	Department of Defense Child Development Program	19 (0.2)	26 (0.5)	35 (0.4)	366 (0.6)	446 (0.5)
	Family Home Daycare	209 (1.8)	93 (1.9)	222 (2.5)	1,710 (3.0)	2,234 (2.7)
	No preschool	5,887 (49.9)	1,263 (25.4)	4,874 (55.5)	14,189 (24.8)	26,213 (31.7)
Disability[b]	Students without a disability	9,493 (80.8)	3,855 (77.8)	8,061 (92.1)	52,736 (92.7)	74,145 (90.1)
	Students with a disability	2,259 (19.2)	1,100 (22.2)	690 (7.9)	4,129 (7.3)	8,178 (9.9)
Language[c]	Not English language/multilingual learners	7,782 (66.0)	4,074 (81.8)	6,476 (73.7)	51,927 (90.8)	70,259 (84.9)
	English language/multilingual learners	4,014 (34.0)	904 (18.2)	2,307 (26.3)	5,231 (9.2)	12,456 (15.1)
Literacy	PALS Summed Score, fall	14.09 (7.06)	43.08 (10.91)	19.23 (6.26)	63.5 (16.93)	50.51 (25.10)
	PALS Summed Score, spring	58.73 (19.61)	73.59 (8.57)	89.27 (3.69)	92.51 (3.08)	86.20 (14.60)
Math	EMAS Scaled Score, fall	497.07 (67.08)	558.68 (56.19)	537.87 (54.30)	619.21 (60.77)	590.41 (76.23)
	EMAS Scaled Score, spring	607.14 (68.28)	647.43 (63.73)	675.40 (58.70)	737.97 (71.42)	707.67 (84.71)
	EMAS Growth	110.50 (60.98)	88.84 (54.18)	137.71 (61.14)	118.93 (59.87)	117.98 (60.66)
Self-Regulation	CBRS Self-Regulation Mean, fall	3.03 (0.85)	3.31 (0.86)	3.43 (0.76)	3.88 (0.74)	3.68 (0.83)
	CBRS Self-Regulation Mean, spring	3.22 (0.84)	3.39 (0.83)	3.82 (0.73)	4.11 (0.70)	3.91 (0.81)
	CBRS Self-Regulation Growth	0.19 (0.72)	0.08 (0.70)	0.39 (0.67)	0.23 (0.60)	0.23 (0.63)
Social Skills	CBRS Social Skills Mean, fall	4.03 (0.74)	4.05 (0.74)	4.25 (0.62)	4.34 (0.61)	4.27 (0.65)
	CBRS Social Skills Mean, spring	4.10 (0.75)	4.08 (0.75)	4.38 (0.61)	4.43 (0.61)	4.36 (0.65)
	CBRS Social Skills Growth	0.08 (0.63)	0.03 (0.64)	0.13 (0.55)	0.09 (0.52)	0.09 (0.55)

[a]Source: SRC Disadvantaged Status Flag. Students are identified as having a low-income background if, at any point during the school year, the student: 1) is eligible for Free/Reduced Meals, 2) receives TANF, or 3) is eligible for Medicaid.

[b]Source: SRC Primary Disability Code. Students are identified as having a disability if any code is present *except,* "*Qualified Individual under Section 504.*"

[c]Source: Student Record Collection (SRC) Limited English Proficiency (LEP) Status Code. Students are identified as English learners (EL) if code is, "*Identified as EL and receives EL services*," "*Identified as EL but has refused EL services*," or "*Identified as formerly EL for each of the four years after exiting EL services*."

Table G3

Kindergarten Math Benchmark Status Demographic Summary

	Fall 2021 Benchmark Spring 2022 Benchmark	Below Below n=12,355	Met Below n=7,042	Below Met n=5,988	Met Met n=56,105	Total Sample N=81,611
		Mean (SD) or n(%)	Mean (SD) or n(%)	Mean (SD) or n(%)	Mean (SD) or n(%)	Mean (SD) or n(%)
Age	Age in months on September 30, 2021	65.83 (4.35)	66.58 (4.49)	65.83 (4.34)	67.09 (4.12)	66.77 (4.23)
Gender	Female	5,797 (47.1)	3,633 (51.8)	2,857 (47.9)	27,852 (49.6)	40,139 (49.3)
	Male	6,508 (52.9)	3,383 (48.2)	3,112 (52.1)	28,253 (50.4)	41,256 (50.7)
Race/Ethnicity	American Indian or Alaska Native	27 (0.2)	11 (0.2)	14 (0.2)	143 (0.3)	195 (0.2)
	Asian	541 (4.4)	300 (4.3)	321 (5.4)	4,453 (7.9)	5,615 (6.9)
	Black or African American	3,872 (31.5)	2,142 (30.5)	1,567 (26.3)	9,291 (16.6)	16,872 (20.7)
	Hispanic/Latino of any race	3,895 (31.7)	1,320 (18.8)	1,954 (32.7)	7,470 (13.3)	14,639 (18)
	White	3,229 (26.2)	2,707 (38.6)	1,749 (29.3)	30,045 (53.5)	37,730 (46.3)
	Native Hawaiian or other Pacific Islander	13 (0.1)	7 (0.1)	11 (0.2)	80 (0.1)	111 (0.1)
	Non-Hispanic/Latino of any race, two or more races	729 (5.9)	531 (7.6)	353 (5.9)	4,630 (8.3)	6,243 (7.7)
Family Income Status[a]	Students not from low-income backgrounds	4,187 (34.0)	3,124 (44.5)	2,287 (38.3)	37,394 (66.6)	46,992 (57.7)
	Students from low-income backgrounds	8,119 (66.0)	3,894 (55.5)	3,682 (61.7)	18,718 (33.4)	34,413 (42.3)
Preschool Experience	Head Start	647 (5.3)	408 (5.8)	341 (5.7)	1,619 (2.9)	3,015 (3.7)
	Public preschool	4,596 (37.3)	2,844 (40.5)	1,849 (31.0)	15,916 (28.4)	25,205 (31.0)
	Private preschool/Daycare	1,190 (9.7)	1,415 (20.2)	746 (12.5)	21,751 (38.8)	25,102 (30.8)
	Department of Defense Child Development Program	32 (0.3)	31 (0.4)	16 (0.3)	363 (0.6)	442 (0.5)
	Family Home Daycare	245 (2.0)	180 (2.6)	158 (2.6)	1,641 (2.9)	2,224 (2.7)
	No preschool	5,596 (45.5)	2,140 (30.5)	2,859 (47.9)	14,822 (26.4)	25,417 (31.2)
Disability[b]	Students without a disability	9,449 (77.0)	6,061 (86.9)	5,339 (89.8)	51,962 (93.1)	72,811 (89.9)
	Students with a disability	2,817 (23.0)	914 (13.1)	609 (10.2)	3,858 (6.9)	8,198 (10.1)
Language[c]	Not English language/multilingual learners	8,535 (69.4)	6,056 (86.3)	4,089 (68.5)	51,221 (91.3)	69,901 (85.9)
	English language/multilingual learners	3,770 (30.6)	960 (13.7)	1,880 (31.5)	4,884 (8.7)	11,494 (14.1)
Literacy	PALS Summed Score, fall	21.81 (16.28)	40.55 (19.62)	30.02 (18.12)	60.77 (20.45)	51.00 (24.91)
	PALS Summed Score, spring	67.05 (22.37)	81.27 (14.29)	85.15 (11.20)	91.44 (6.07)	86.46 (14.24)
Math	EMAS Scaled Score, fall	477.93 (52.27)	572.38 (27.14)	505.83 (32.55)	625.49 (53.83)	589.79 (76.60)
	EMAS Scaled Score, spring	586.11 (51.35)	621.77 (24.26)	693.15 (38.62)	746.51 (63.15)	707.55 (85.06)
	EMAS Growth	108.18 (53.19)	49.38 (33.37)	187.31 (49.13)	121.02 (56.72)	117.76 (60.81)
Self-Regulation	CBRS Self-Regulation Mean, fall	2.96 (0.85)	3.49 (0.81)	3.32 (0.78)	3.89 (0.73)	3.68 (0.84)
	CBRS Self-Regulation Mean, spring	3.19 (0.85)	3.57 (0.81)	3.77 (0.75)	4.12 (0.69)	3.91 (0.81)
	CBRS Self-Regulation Growth	0.24 (0.70)	0.09 (0.68)	0.45 (0.70)	0.23 (0.60)	0.23 (0.63)
Social Skills	CBRS Social Skills Mean, fall	4.00 (0.76)	4.19 (0.68)	4.17 (0.67)	4.35 (0.60)	4.27 (0.65)
	CBRS Social Skills Mean, spring	4.09 (0.76)	4.20 (0.71)	4.34 (0.64)	4.43 (0.60)	4.35 (0.66)
	CBRS Social Skills Growth	0.09 (0.63)	0.02 (0.59)	0.17 (0.59)	0.09 (0.52)	0.09 (0.55)

[a]Source: SRC Disadvantaged Status Flag. Students are identified as having a low-income background if, at any point during the school year, the student: 1) is eligible for Free/Reduced Meals, 2) receives TANF, or 3) is eligible for Medicaid.

[b]Source: SRC Primary Disability Code. Students are identified as having a disability if any code is present *except,* "*Qualified Individual under Section 504.*"

[c]Source: Student Record Collection (SRC) Limited English Proficiency (LEP) Status Code. Students are identified as English learners (EL) if code is, "*Identified as EL and receives EL services*," "*Identified as EL but has refused EL services*," or "*Identified as formerly EL for each of the four years after exiting EL services*."

Table G4

Kindergarten Self-Regulation Benchmark Status Demographic Summary

	Fall 2021 Benchmark Spring 2022 Benchmark	Below Below n=8,510	Met Below n=6,655	Below Met n=4,974	Met Met n=62,188	Total Sample N=82,327
		Mean (SD) or n(%)	Mean (SD) or n(%)	Mean (SD) or n(%)	Mean (SD) or n(%)	Mean (SD) or n(%)
Age	Age in months on September 30, 2021	66.01 (4.62)	66.33 (4.37)	66.05 (4.30)	66.99 (4.17)	66.78 (4.26)
Gender	Female	2,385 (28.1)	2,489 (37.6)	1,814 (36.6)	33,790 (54.5)	40,478 (49.3)
	Male	6,099 (71.9)	4,139 (62.4)	3,142 (63.4)	28,260 (45.5)	41,640 (50.7)
Race/Ethnicity	American Indian or Alaska Native	22 (0.3)	12 (0.2)	19 (0.4)	142 (0.2)	195 (0.2)
	Asian	396 (4.7)	226 (3.4)	345 (7)	4,604 (7.4)	5,571 (6.8)
	Black or African American	2,510 (29.6)	1,870 (28.2)	1,139 (23)	11,233 (18.1)	16,752 (20.4)
	Hispanic/Latino of any race	1,844 (21.7)	1,381 (20.8)	1,179 (23.8)	11,308 (18.2)	15,712 (19.1)
	White	3,123 (36.8)	2,639 (39.8)	1,913 (38.6)	29,922 (48.2)	37,597 (45.8)
	Native Hawaiian or other Pacific Islander	6 (0.1)	12 (0.2)	8 (0.2)	86 (0.1)	112 (0.1)
	Non-Hispanic/Latino of any race, two or more races	587 (6.9)	489 (7.4)	353 (7.1)	4,760 (7.7)	6,189 (7.5)
Family Income Status[a]	Students not from low-income backgrounds	3,496 (41.2)	2,974 (44.9)	2,345 (47.3)	38,221 (61.6)	47,036 (57.3)
	Students from low-income backgrounds	4,992 (58.8)	3,655 (55.1)	2,611 (52.7)	23,834 (38.4)	35,092 (42.7)
Preschool Experience	Head Start	428 (5.0)	325 (4.9)	238 (4.8)	2,042 (3.3)	3,033 (3.7)
	Public preschool	3,349 (39.5)	2,402 (36.2)	1,564 (31.6)	18,179 (29.3)	25,494 (31.0)
	Private preschool/Daycare	1,365 (16.1)	1,516 (22.9)	1,036 (20.9)	20,959 (33.8)	24,876 (30.3)
	Department of Defense Child Development Program	34 (0.4)	43 (0.6)	19 (0.4)	343 (0.6)	439 (0.5)
	Family Home Daycare	185 (2.2)	165 (2.5)	96 (1.9)	1,746 (2.8)	2,192 (2.7)
	No preschool	3,127 (36.8)	2,178 (32.9)	2,003 (40.4)	18,786 (30.3)	26,094 (31.8)
Disability[b]	Students without a disability	5,842 (69.5)	5,656 (85.8)	4,097 (83.3)	57,693 (93.3)	73,288 (89.7)
	Students with a disability	2,564 (30.5)	933 (14.2)	820 (16.7)	4,122 (6.7)	8,439 (10.3)
Language[c]	Not English language/multilingual learners	6,811 (80.3)	5,547 (83.7)	3,798 (76.6)	53,393 (86.0)	69,549 (84.7)
	English language/multilingual learners	1,673 (19.7)	1,081 (16.3)	1,158 (23.4)	8,657 (14.0)	12,569 (15.3)
Literacy	PALS Summed Score, fall	31.46 (22.83)	39.49 (23.48)	38.39 (24.08)	55.25 (23.65)	50.60 (25.05)
	PALS Summed Score, spring	70.70 (23.64)	78.17 (18.88)	82.79 (15.91)	89.34 (10.06)	86.17 (14.64)
Math	EMAS Scaled Score, fall	516.24 (79.43)	559.26 (70.61)	546.84 (72.22)	606.06 (68.96)	589.71 (76.74)
	EMAS Scaled Score, spring	622.88 (87.43)	661.18 (78.01)	679.72 (77.20)	725.34 (76.79)	707.05 (85.31)
	EMAS Growth	107.75 (63.64)	102.54 (59.71)	133.27 (62.50)	119.77 (59.84)	118.00 (60.76)
Self-Regulation	CBRS Self-Regulation Mean, fall	2.21 (0.47)	3.37 (0.45)	2.47 (0.34)	3.99 (0.60)	3.67 (0.84)
	CBRS Self-Regulation Mean, spring	2.47 (0.50)	2.79 (0.33)	3.71 (0.44)	4.23 (0.54)	3.90 (0.82)
	CBRS Self-Regulation Growth	0.26 (0.51)	-0.58 (0.54)	1.24 (0.55)	0.24 (0.54)	0.24 (0.64)
Social Skills	CBRS Social Skills Mean, fall	3.44 (0.78)	4.06 (0.62)	3.71 (0.71)	4.44 (0.50)	4.26 (0.65)
	CBRS Social Skills Mean, spring	3.53 (0.79)	3.76 (0.72)	4.25 (0.59)	4.53 (0.50)	4.35 (0.66)
	CBRS Social Skills Growth	0.09 (0.68)	-0.30 (0.66)	0.54 (0.65)	0.09 (0.47)	0.09 (0.56)

[a]Source: SRC Disadvantaged Status Flag. Students are identified as having a low-income background if, at any point during the school year, the student: 1) is eligible for Free/Reduced Meals, 2) receives TANF, or 3) is eligible for Medicaid.

[b]Source: SRC Primary Disability Code. Students are identified as having a disability if any code is present *except,* "*Qualified Individual under Section 504.*"

[c]Source: Student Record Collection (SRC) Limited English Proficiency (LEP) Status Code. Students are identified as English learners (EL) if code is, "*Identified as EL and receives EL services*," "*Identified as EL but has refused EL services*," or "*Identified as formerly EL for each of the four years after exiting EL services*."

Table G5

Kindergarten Social Skills Benchmark Status Demographic Summary

	Fall 2021 Benchmark Spring 2022 Benchmark	Below Below n=8,563	Met Below n=8,342	Below Met n=4,491	Met Met n=60,931	Total Sample N=82,327
		Mean (SD) or n(%)	Mean (SD) or n(%)	Mean (SD) or n(%)	Mean (SD) or n(%)	Mean (SD) or n(%)
Age	Age in months on September 30, 2021	66.60 (4.58)	66.69 (4.38)	66.48 (4.22)	66.84 (4.19)	66.78 (4.26)
Gender	Female	2,567 (30.0)	3,392 (40.8)	1,705 (38.1)	32,814 (54.0)	40,478 (49.3)
	Male	5,978 (70.0)	4,923 (59.2)	2,770 (61.9)	27,969 (46.0)	41,640 (50.7)
Race/Ethnicity	American Indian or Alaska Native	16 (0.2)	18 (0.2)	11 (0.2)	150 (0.2)	195 (0.2)
	Asian	306 (3.6)	344 (4.1)	321 (7.2)	4,600 (7.6)	5,571 (6.8)
	Black or African American	2,424 (28.4)	2,308 (27.8)	1,019 (22.8)	11,001 (18.1)	16,752 (20.4)
	Hispanic/Latino of any race	1,615 (18.9)	1,553 (18.7)	1,040 (23.2)	11,504 (18.9)	15,712 (19.1)
	White	3,509 (41.1)	3,447 (41.5)	1,780 (39.8)	28,861 (47.5)	37,597 (45.8)
	Native Hawaiian or other Pacific Islander	8 (0.1)	4 (0)	8 (0.2)	92 (0.2)	112 (0.1)
	Non-Hispanic/Latino of any race, two or more races	668 (7.8)	641 (7.7)	298 (6.7)	4,582 (7.5)	6,189 (7.5)
Family Income Status[a]	Students not from low-income backgrounds	4,022 (47.1)	4,073 (49.0)	2,305 (51.5)	36,636 (60.3)	47,036 (57.3)
	Students from low-income backgrounds	4,524 (52.9)	4,242 (51.0)	2,172 (48.5)	24,154 (39.7)	35,092 (42.7)
Preschool Experience	Head Start	400 (4.7)	386 (4.6)	165 (3.7)	2,082 (3.4)	3,033 (3.7)
	Public preschool	3,356 (39.3)	2,937 (35.3)	1,441 (32.2)	17,760 (29.2)	25,494 (31.0)
	Private preschool/Daycare	2,081 (24.4)	2,130 (25.6)	1,211 (27.0)	19,454 (32.0)	24,876 (30.3)
	Department of Defense Child Development Program	61 (0.7)	52 (0.6)	34 (0.8)	292 (0.5)	439 (0.5)
	Family Home Daycare	162 (1.9)	214 (2.6)	100 (2.2)	1,716 (2.8)	2,192 (2.7)
	No preschool	2,486 (29.1)	2,596 (31.2)	1,526 (34.1)	19,486 (32.1)	26,094 (31.8)
Disability[b]	Students without a disability	6,325 (74.8)	7,284 (88.1)	3,807 (85.7)	55,872 (92.3)	73,288 (89.7)
	Students with a disability	2,131 (25.2)	981 (11.9)	637 (14.3)	4,690 (7.7)	8,439 (10.3)
Language[c]	Not English language/multilingual learners	7,208 (84.4)	7,133 (85.8)	3,513 (78.5)	51,695 (85.0)	69,549 (84.7)
	English language/multilingual learners	1,337 (15.6)	1,182 (14.2)	962 (21.5)	9,088 (15.0)	12,569 (15.3)
Literacy	PALS Summed Score, fall	42.84 (25.43)	46.54 (25.04)	44.27 (25.37)	52.67 (24.63)	50.60 (25.05)
	PALS Summed Score, spring	78.41 (20.96)	82.53 (17.32)	83.18 (17.14)	87.95 (12.34)	86.17 (14.64)
Math	EMAS Scaled Score, fall	556.06 (84.21)	576.77 (76.12)	565.21 (80.86)	597.90 (73.48)	589.71 (76.74)
	EMAS Scaled Score, spring	665.98 (95.82)	685.42 (85.65)	692.32 (87.33)	716.75 (81.09)	707.05 (85.31)
	EMAS Growth	110.58 (63.53)	109.31 (60.42)	127.82 (65.15)	119.47 (59.86)	117.99 (60.76)
Self-Regulation	CBRS Self-Regulation Mean, fall	2.64 (0.72)	3.40 (0.73)	2.87 (0.69)	3.90 (0.72)	3.67 (0.84)
	CBRS Self-Regulation Mean, spring	2.88 (0.74)	3.26 (0.71)	3.68 (0.71)	4.15 (0.67)	3.90 (0.82)
	CBRS Self-Regulation Growth	0.24 (0.62)	-0.14 (0.65)	0.81 (0.70)	0.24 (0.60)	0.24 (0.64)
Social Skills	CBRS Social Skills Mean, fall	3.00 (0.50)	4.19 (0.37)	3.29 (0.34)	4.52 (0.39)	4.26 (0.65)
	CBRS Social Skills Mean, spring	3.14 (0.55)	3.49 (0.39)	4.36 (0.33)	4.64 (0.36)	4.35 (0.66)
	CBRS Social Skills Growth	0.14 (0.57)	-0.70 (0.51)	1.07 (0.45)	0.12 (0.40)	0.09 (0.55)

[a]Source: SRC Disadvantaged Status Flag. Students are identified as having a low-income background if, at any point during the school year, the student: 1) is eligible for Free/Reduced Meals, 2) receives TANF, or 3) is eligible for Medicaid.

[b]Source: SRC Primary Disability Code. Students are identified as having a disability if any code is present *except,* "*Qualified Individual under Section 504.*"

[c]Source: Student Record Collection (SRC) Limited English Proficiency (LEP) Status Code. Students are identified as English learners (EL) if code is, "*Identified as EL and receives EL services*," "*Identified as EL but has refused EL services*," or "*Identified as formerly EL for each of the four years after exiting EL services*."