

V K R P

Virginia Kindergarten Readiness Program



*Update*  
*September 11, 2017*



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# How VKRP Measures Kindergarten Readiness



Readiness is defined as having foundational skills in all areas



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# What is VKRP



VKRP is a set of coordinated **assessments**

Literacy, math, self-regulation, and social skills combined to provide teachers with a more comprehensive picture of students' skills at the beginning of kindergarten



VKRP is a **reporting system**

Provides detailed and integrated information about students' skills at the student, classroom, school, and division levels



VKRP is a set of **instructional resources**

Supports teachers to understand students' skill levels and to use instructional practices to support their learning and growth



# Reports: Classroom Overview

- Easy to Interpret
- Interactive
- Printable
- Exportable
- Linked to Instructional Resources

<b>1. CLASSROOM OVERVIEW</b>
2. DOMAIN - MATH
3. SUB-DOMAIN - NUMERACY
4. SUB-DOMAIN - COMPUTATION
5. SUB-DOMAIN - PATTERNING
6. SUB-DOMAIN - GEOMETRY AND SPATIAL SENSE
7. DOMAIN - SELF-REGULATION
8. DOMAIN - SOCIAL SKILLS
9. CBRS CLASSROOM SUMMARY
TEACHER DATA EXPORT
TEACHER EXPORT GUIDE

**Classroom Overview**

**Teacher:** Teacher A-1     **Class:** A1     **School:** \*2017 VKRP Test School 1

Not Tested (NT)   
  In Progress (IP)   
  Exempt (E)   
  Spanish (SP)

Below Benchmark   
  At or Above Benchmark

- To start or resume assessment: Click on the NT or IP
- View individual student report: Click on student's name or score
- To sort results: Click on each area header (e.g. Math)

Student	Math	Self-Reg	Social	Literacy
<b>Completion Status</b>	11/15	13/15	13/15	0/15
Student-01 Practice1	32	2.60	4.57	
Student-02 Practice1	30	2.80	3.86	
Student-03 Practice1	NT	NT	NT	
Student-04 Practice1	SP	4.40	3.43	
Student-05 Practice1	30	2.30	2.43	
Student-06 Practice1	31	2.50	4.00	
Student-07 Practice1	E	E	E	
Student-08 Practice1	24	2.80	2.57	
Student-09 Practice1	31	3.30	3.71	
Student-10 Practice1	26	3.40	3.00	
Student-11 Practice1	28	2.00	2.71	
Student-12 Practice1	SP	3.30	3.00	
Student-13 Practice1	31	3.60	4.00	
Student-14 Practice1	23	3.50	3.86	
Student-15 Practice1	IP	NT	NT	
<b>Benchmark</b>	25	2.90	3.71	
<b>Classroom Average*</b>	28.60	3.04	3.43	NaN

**Recommended Resources**

The following resources have been recommended for your classroom.

- [Numeracy](#)
- [Computation](#)
- [Patterning](#)
- [Geometry and Spatial Sense](#)
- [Self-Regulation](#)
- [Social Skills](#)

# Resources: Math Example

## NUMERACY

### SKILL: COUNTING AND CARDINALITY



#### WHAT IS IT?

Counting means telling how many things are in a group. This may seem simple, but it is actually fairly complex. Counting involves a variety of skills and concepts.



Cardinality is the idea that the final number of the sequence represents the amount of objects that were counted. The last number named when all objects in a set have been counted is the number that tells how many.

Key skills and concepts	Definitions
Providing the sequence of counting words in order	Saying numbers in order. For example, "one, two, three, four, five."
One-to-one correspondence	The understanding that one number word represents one object that is being counted.
Conservation of number	Recognizing that the number of objects stays the same regardless of how the objects are arranged.



#### WHY IS IT IMPORTANT?

Counting and cardinality is an essential skill, and we use it daily. Studies suggest that students' early counting skills are a really important predictor of later abilities. Students who can recite and count to 20 in preschool have the highest math skills in first grade. Counting and cardinality is related to many other important skills, like understanding order and sequence, and problem solving using a step-by-step procedure.



#### HOW DOES IT DEVELOP?

At this age	Children can typically:
4	<ul style="list-style-type: none"> <li>Accurately count up to 5 objects in a line.</li> <li>Provide the last number counted to answer the question of "how many?"</li> <li>Produce a group of objects of a certain quantity. (If you provide a student with a pile of blocks and ask him to give you 4, he can successfully give you 4 blocks.)</li> </ul>
5	<ul style="list-style-type: none"> <li>Count and produce up to 10 objects accurately, and then beyond to 30.</li> <li>Understand that numbers tell how many.</li> <li>Keep track of objects that have and have not been counted, even if those objects are in various arrangements.</li> <li>Begin to recognize errors in others' counting and eliminate most errors in their own counting.</li> <li>Count backwards from 10 to 1.</li> </ul>
6	<ul style="list-style-type: none"> <li>Begin to "count on." (This means they don't have to start at 1 when they count. They can start with another number such as, "7, 8, 9, 10.")</li> <li>Tell you the number immediately before or after another number without starting at 1.</li> <li>Start "skip counting." (counting by 2s, 5s, and 10s)</li> </ul>

**Counting with Gold Bars**

Skill Supported: Counting and Cardinality Small Group

<p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>Count with objects up to 5</li> <li>Produce a collection of up to 5 objects</li> </ul>	<p><b>Topic(s)</b></p> <p>Numbers Object Counting</p>	<p><b>Use the Lingo</b></p> <ul style="list-style-type: none"> <li>Number words 0-5</li> <li>More/most</li> <li>Largest</li> <li>Fewer/fewest</li> <li>Smallest</li> </ul>
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**Materials Needed:**

- Paper plates with numerals 0-5 and corresponding 5-frames glued to them
- 5-frames (one per student)
- Yellow Lego 'Gold Bars' (enough for each student to have at least five) (or substitute small yellow rectangular pieces of construction paper)
- Bowl or basket for the "central bank" (one per small group)

**Additional Preparation Required:**

- None

**Teaching Tip: Be the Best**

Stack two 5-frames vertically, and draw students' attention to the similarity between the 5-frame they are using and the 10-frame on the Number Chart.

Place two 5-frames *side-by-side* like this → to help students compare amounts in each of the 5-frame "banks."


Sample activity to support the skill



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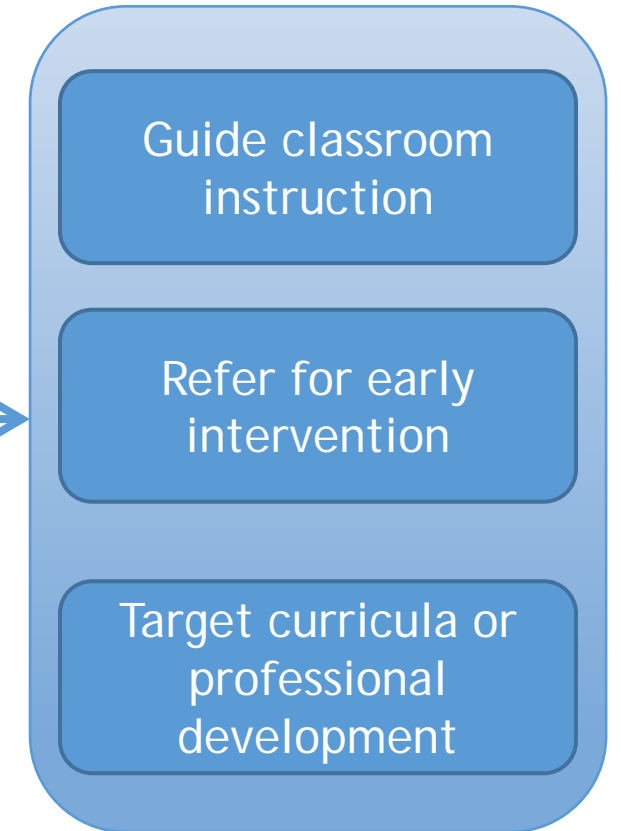
## Before Kindergarten



Actionable Data  
Better Decision-Making



## Kindergarten and Beyond



## Before Kindergarten



"VKRP is a very useful assessment tool, as it provides coverage in areas we know are critical to student outcomes as they enter the K-12 education system."

- Division Administrator

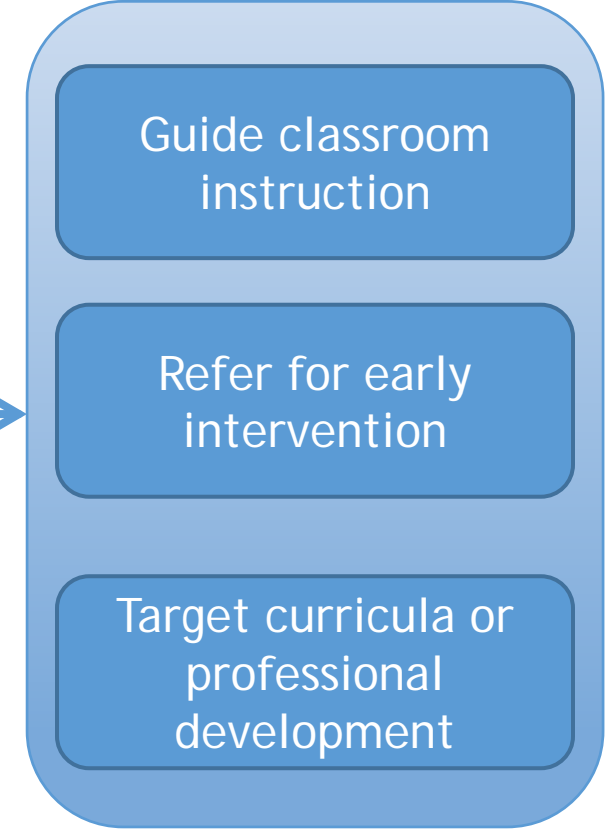
Actionable Data  
Better Decision-Making



"We used the VKRP data to make professional development decisions and to direct resources to high-need children, classrooms, or schools."

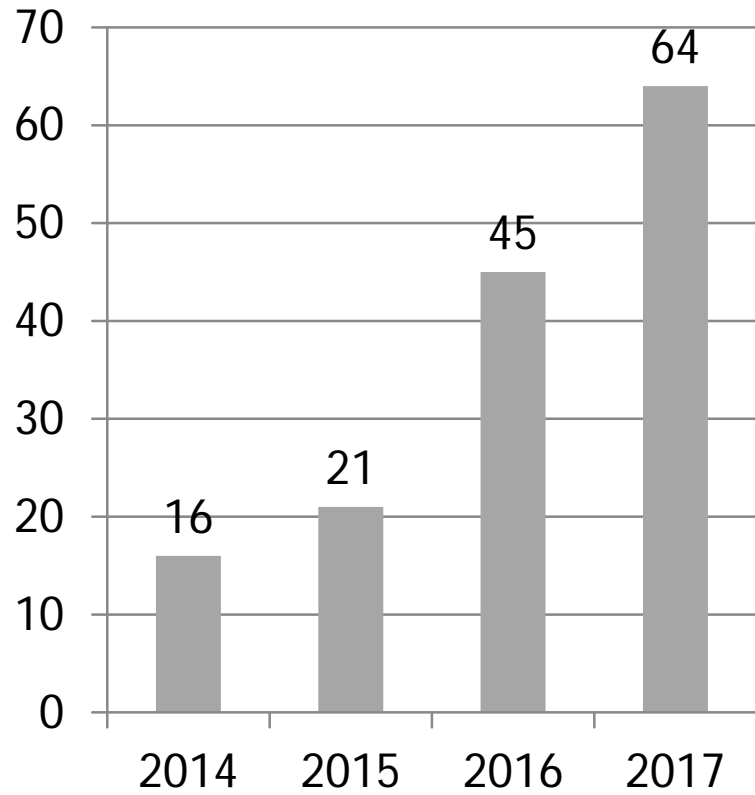
- Division Administrator

## Kindergarten and Beyond

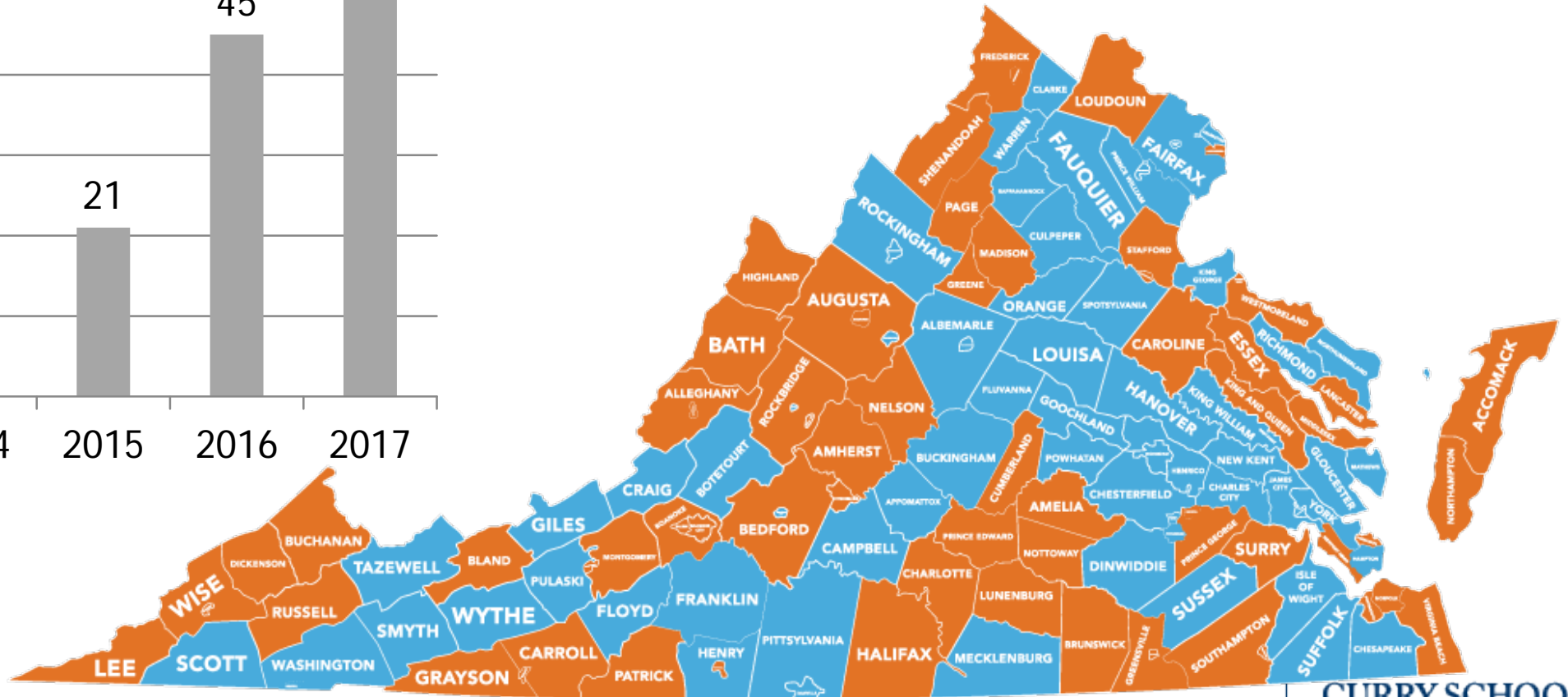


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# VKRP Expansion Over Time



Divisions



Divisions Recruited for 2017 in Orange

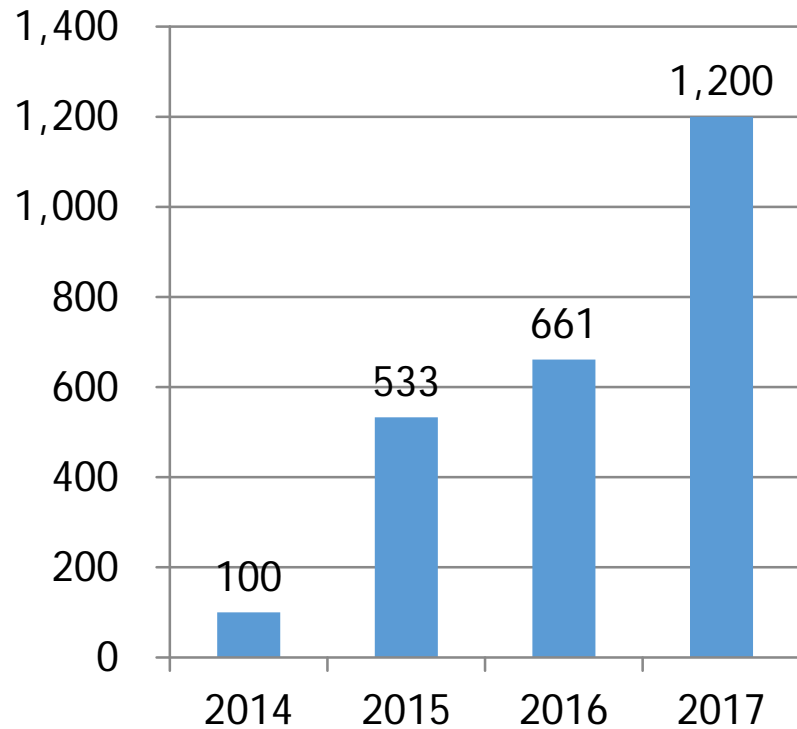


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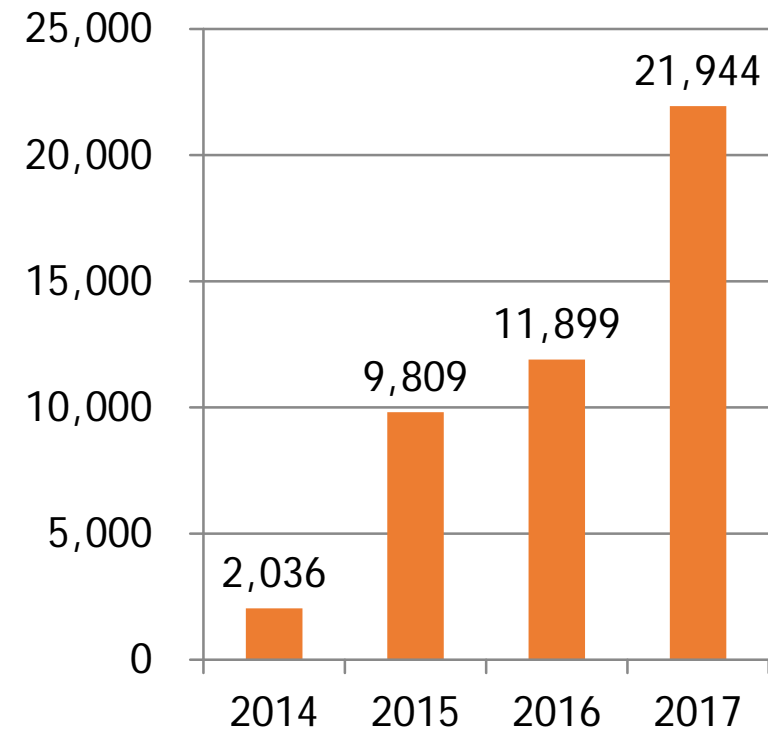
# VKRP Expansion Over Time

## Classrooms



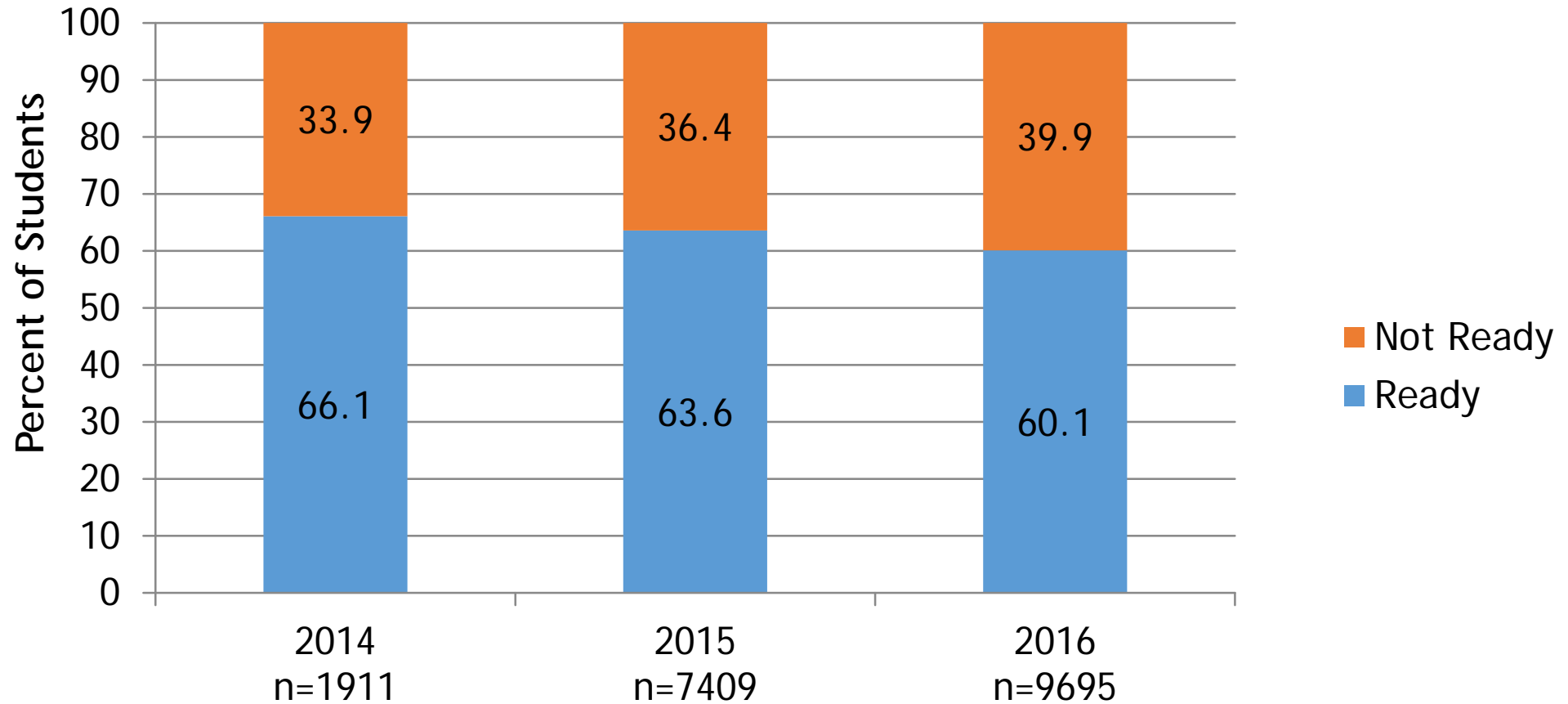
Total number of estimated classrooms	5,209	5,055	5,044	5,044
% of total	1.9	10.5	13.1	23.8

## Students



Total number of Kindergarten students	93,758	90,984	90,800	90,800
% of total	2.2	10.8	13.1	24.2

# Readiness Estimates Over Time



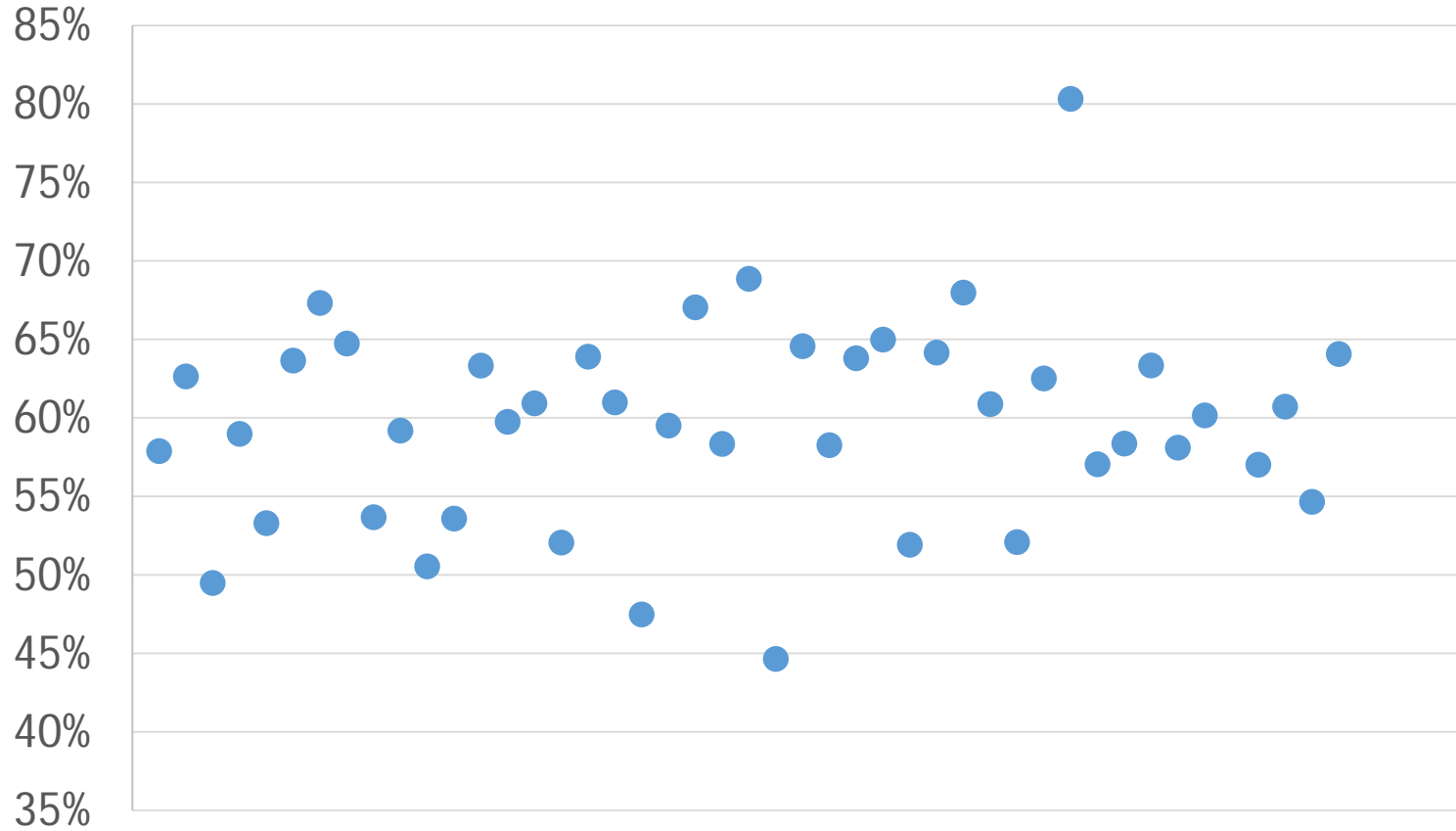
State  
Representative  
Sample



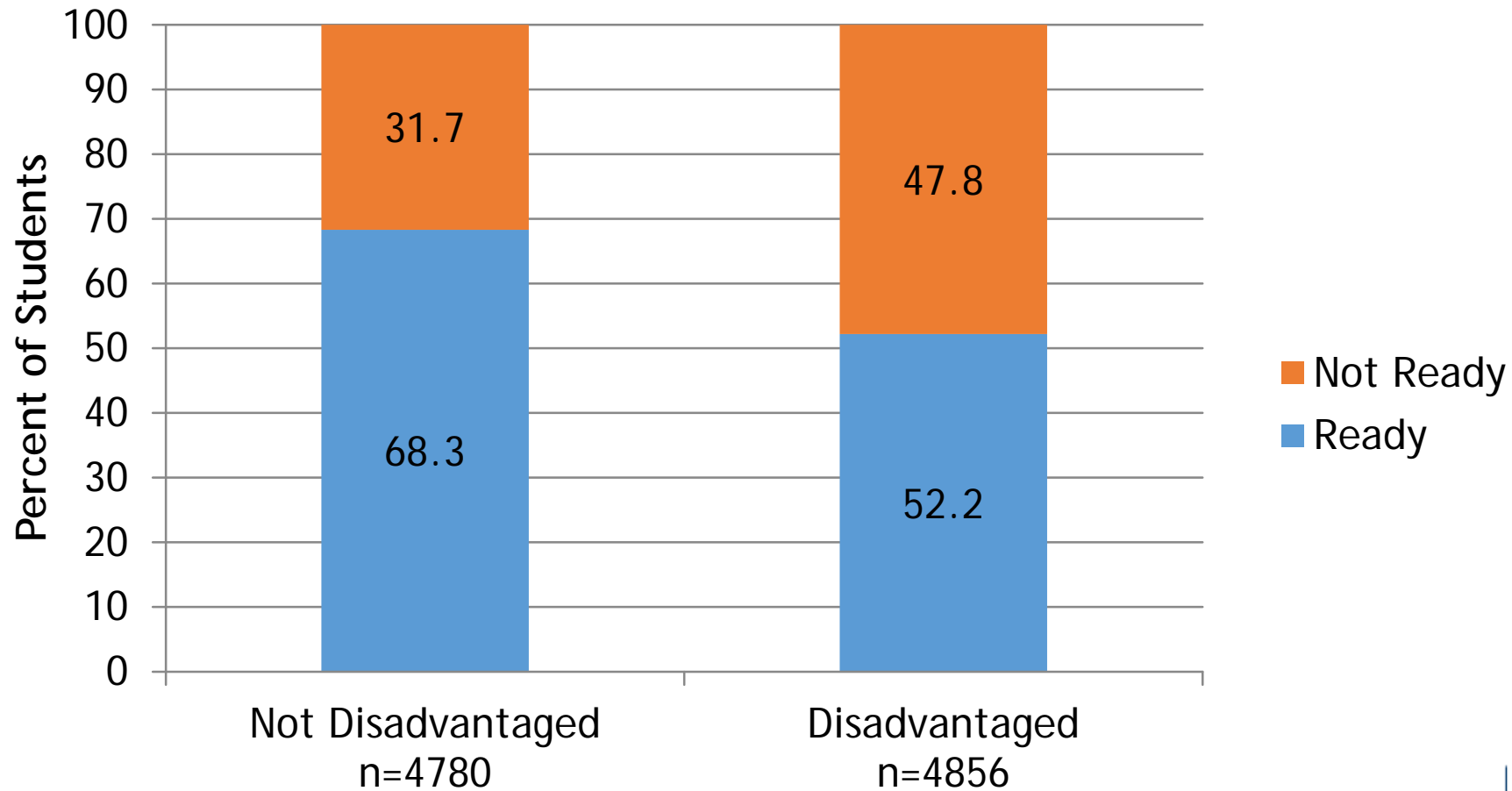
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# 2016 Data

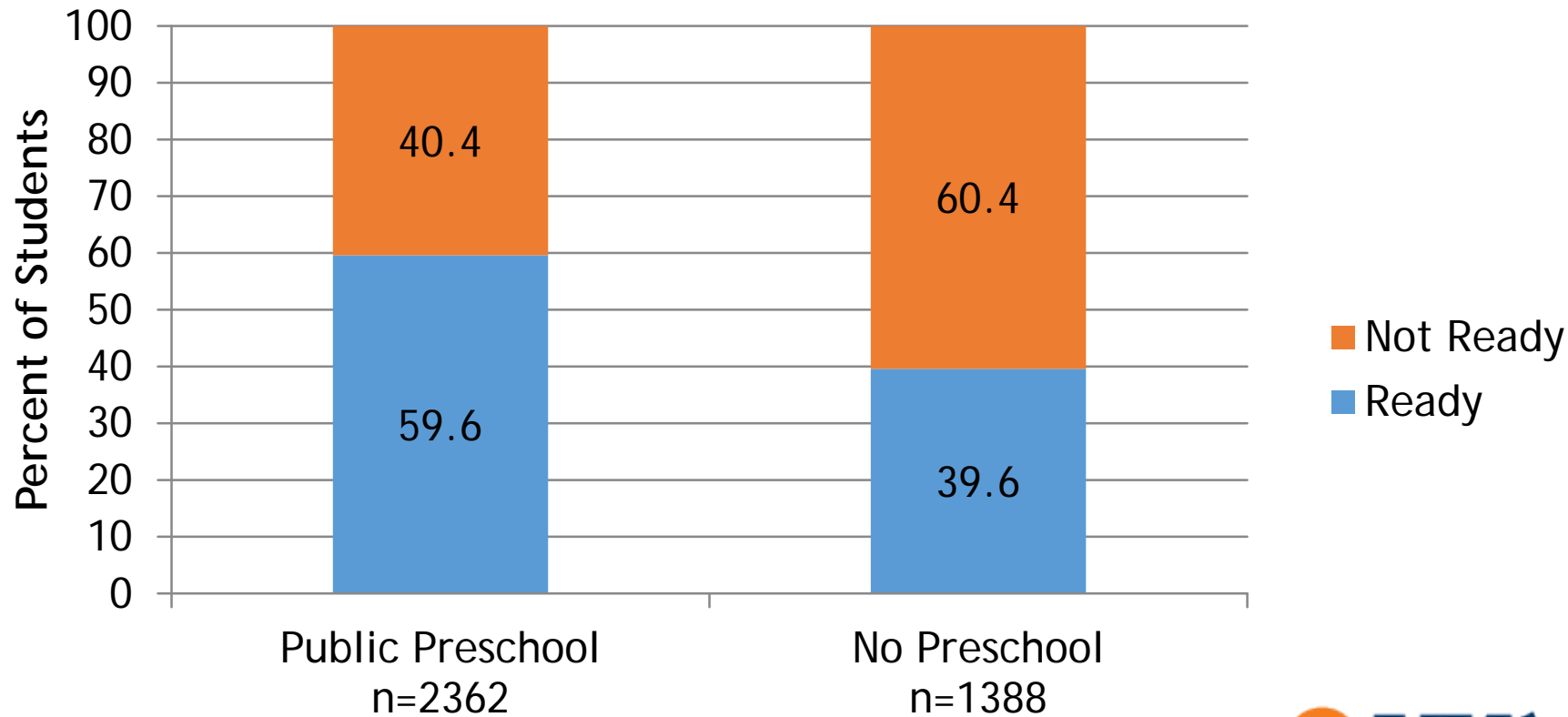
## Overall Readiness Variability Across Divisions



# 2016 Data— Relation between Economic Disadvantage and Readiness



# 2016 Data—Comparison between children from low income backgrounds who attend VPI compared to those with no preschool experience



# Continued Roll-out

- ▶ Expanded assessments
- ▶ Support for data use
- ▶ Support to improve instruction



For More Information

[www.vkrponline.org](http://www.vkrponline.org)

Practice the assessment system

<https://resources.vkrp.virginia.edu/practice-assessments/>



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# Virginia Kindergarten Readiness Program

## *Additional Information*

*September 11, 2017*

UVA VKRP Team



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The following slides provide updated answers to questions asked by the VPI Subcommittee during last year's meeting.

*Here we provide the information requested using Fall 2016 data.*



# Fall 2016 Results

- ▶ Slides (4-7) provide more detailed information on the progress between 2014 and 2017 as well as data from fall of 2016.



# VKRP Participation Fall 2014-2017

	State Representative 2014-15	Begin Statewide Rollout 2015-16	Statewide Rollout Cont. 2016-17	Statewide Rollout Cont. 2017-18
# Students	2,036	9,809	11,899	~21,994
# Classrooms	100	533	661	~1,200
# Schools	41	135	154	~294
# Divisions	16	21	45	64

- ~ 1/2 of Virginia divisions participating in the fall of 2017
- ~ 25% of kindergarten students



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# VKRP Sample Demographics 2014-2016

			2014 N=2036 students 100 classrooms, 41 schools 16 divisions	2015 N=9809 students 533 classrooms, 135 schools 21 divisions	2016 N=11899 students 661 classrooms, 154 schools 45 divisions
			Mean (SD) or N (%)	Mean (SD) or N (%)	Mean (SD) or N (%)
Demographics	Age	In months on Sept 1	65.0 (4.3)	65.1 (4.3)	65.0 (4.2)
	Gender	Female	965 (47.5%)	4799 (49.2%)	5787 (48.8%)
		Male	1068 (52.5%)	4946 (50.8%)	6072 (51.2%)
	Race	Black or African American	546 (28.2%)	2143 (22.0%)	3057 (25.8%)
		Non-Hispanic White	999 (51.5%)	5630 (57.8%)	6140 (51.8%)
		Hispanic	184 (9.5%)	1360 (14.0%)	1847 (15.6%)
		Asian	113 (5.8%)	189 (1.9%)	230 (1.9%)
		American Indian/Alaska Native	11 (0.6%)	63 (0.6%)	66 (0.6%)
		Multiple	86 (4.4%)	360 (3.7%)	519 (4.4%)
	Socio-Economic Status	Disadvantaged=Y <sup>a</sup>	419 (31.8%)	4531 (46.6%)	5851 (49.7%)
School-level %FRL <sup>b</sup>		0.439 (0.165)	0.412 (.190)	0.436 (18.7)	
Domain Scores	Literacy	PALS Total Score	63.80 (23.93)	61.43 (25.02)	57.62 (25.33)
	Math	TEAM-SF <sup>c</sup>	55.99 (15.62)		
		Birthday Party		30.34 (7.03)	29.06 (7.60)
	Self-Regulation	CBRS Self-Regulation	3.72 (0.88)	3.70 (0.87)	3.69 (0.88)
	Social Skills	CBRS Social Skills	4.24 (0.72)	4.23 (0.72)	4.20 (0.73)

**Note:**

<sup>a</sup>Students identified as disadvantaged 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;

<sup>b</sup>Percent free and reduced-price lunch;

<sup>c</sup>Tools for Early Assessment in Mathematics-Short Form

# Readiness Results from 2014-16

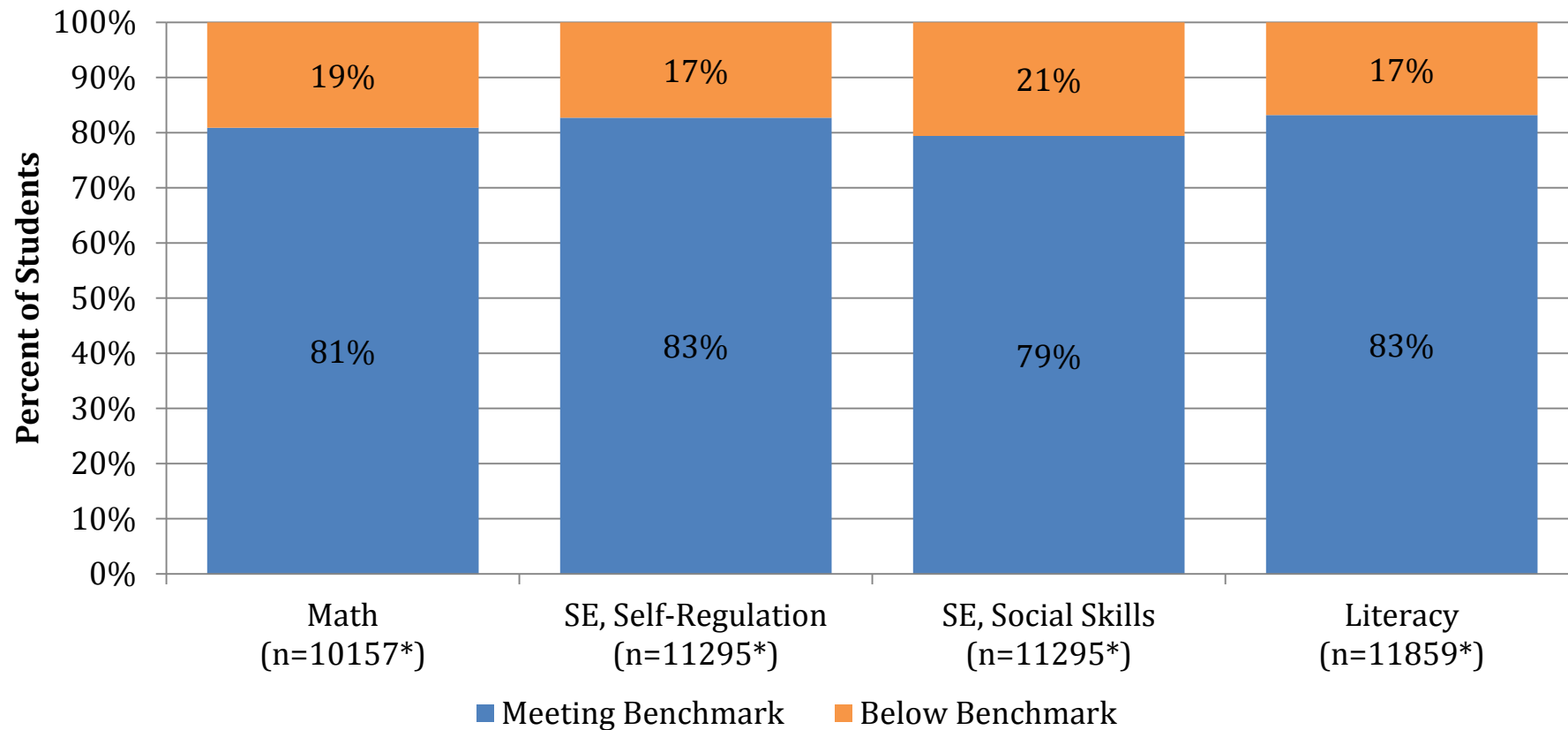
Estimates of readiness were similar to the statewide representative sample

Readiness	State Representative 2014-15		<u>Begin Statewide Rollout</u> 2015-16		<u>Statewide Rollout Con't</u> 2016-17	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
"Not ready" in at least 1 domain	647	33.9%	2,694	36.4%	3,869	39.9%
<i>"Not Ready" in 1 domain</i>	374	19.6%	1,336	18.0%	1,848	19.1%
<i>"Not Ready" in 2 domains</i>	182	9.5%	806	11.0%	1,171	12.1%
<i>"Not ready" in 3 domains</i>	61	3.2%	394	5.3%	555	5.7%
<i>"Not ready" in 4 domains</i>	30	1.6%	158	2.1%	295	3.0%
"Ready" in all domains	1,264	66.1%	4,715	63.6%	5,826	60.1%
Sub Total	1,911	100.0%	7,409	100.0%	9,695	100.0%
Missing	125*		2,400*		2,204*	
Total	2,036		9,809		11,899	

Note.\* = Students who were missing at least one of the readiness assessments were not included.

# Readiness Results for 2016

Percent of Students “Ready” or “Not Ready” by Domain  
**Fall 2016**



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

# Readiness and Preschool Experience

This slide shows the rates of readiness by parent reported preschool experience codes

Fall 2016

Preschool Experience	Overall Readiness				Total	
	Not Ready		Ready		n	%
	n	%	n	%		
Head Start	388	48.3	415	51.7	803	100.0
Public Preschool	1,407	37.4	2,354	62.6	3,761	100.0
Private Preschool/Daycare	627	27.5	1,656	72.5	2,283	100.0
Dept of Defense Child Dev Prog	30	38.0	49	62.0	79	100.0
Family Home Daycare	67	37.0	114	63.0	181	100.0
No Preschool Experience	1,312	52.1	1,208	47.9	2,520	100.0
Missing	38	55.9	30	44.1	68	100.0
<b>Total</b>	<b>3,869</b>	<b>39.9</b>	<b>5826</b>	<b>60.1</b>	<b>9,695*</b>	<b>100.0</b>

- = Students who were missing at least one of the readiness assessments were not included.

Link to VDOE definitions of the preschool experience codes:

[http://www.doe.virginia.gov/info\\_management/data\\_collection/student\\_record\\_collection/code\\_values/pk-experience-codes-as-of-2016.pdf](http://www.doe.virginia.gov/info_management/data_collection/student_record_collection/code_values/pk-experience-codes-as-of-2016.pdf)

# Readiness and Economic Disadvantage

- ▶ Slide 10 shows how readiness rates vary by economic disadvantage



# Readiness by Disadvantage Status

The Disadvantage Status variable 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.

2016-2017 Readiness		Disadvantage Status						Total	
		Missing		Not Disadvantaged		Disadvantaged		n	%
		n	%	n	%	n	%		
Overall <sup>a</sup>	Not Ready	32	54.2	1515	31.7	2322	47.8	3869	39.9
	Ready	27	45.8	3265	68.3	2534	52.2	5826	60.1
Literacy <sup>b</sup>	Not Ready	20	33.9	543	11.4	1050	21.6	1613	16.6
	Ready	39	66.1	4267	88.6	3806	78.4	8082	83.4
Math <sup>c</sup>	Not Ready	21	35.6	592	12.4	1225	25.2	1838	19.0
	Ready	38	64.4	4188	87.6	3631	74.8	7857	81.0
Self-Regulation <sup>d</sup>	Not Ready	21	35.6	623	13.0	1010	20.8	1654	17.1
	Ready	38	64.4	4157	87.0	3846	79.2	8041	82.9
Social Skills <sup>e</sup>	Not Ready	16	27.1	794	16.6	1120	23.1	1930	19.9
	Ready	43	72.9	3986	83.4	3736	76.9	7765	80.1
<b>Total</b>		<b>59</b>	<b>100.0</b>	<b>4780</b>	<b>100.0</b>	<b>4856</b>	<b>100.0</b>	<b>9695*</b>	<b>100.0</b>

Note: \* = Students who were missing at least one of the readiness assessments were not included.

<sup>a</sup>  $\chi^2(2, N = 9695) = 266.18, p = .000$

<sup>d</sup>  $\chi^2(2, N = 9695) = 117.07, p = .000$

<sup>b</sup>  $\chi^2(2, N = 9695) = 195.69, p = .000$

<sup>e</sup>  $\chi^2(2, N = 9695) = 64.86, p = .000$

<sup>c</sup>  $\chi^2(2, N = 9695) = 269.24, p = .000$

# Participation in VPI and Readiness

- ▶ A question was asked about how children participating in VPI compared to children who did not participate in preschool on the readiness indicators.
  - ▶ We compared children who participated in Public Pre-K as compared to children who were reported as not participating in any formal preschool for all children and also within a sub-sample of children who were identified as economically disadvantaged.

# Readiness by Pre-k Experience for All Students

Fall 2016 Readiness		Preschool Status				Total	
		Public preschool		No preschool experience			
		n	%	n	%	n	%
Overall <sup>a</sup>	Not Ready	1407	37.4	1312	52.1	2719	43.3
	Ready	2354	62.6	1208	47.9	3562	56.7
Literacy <sup>b</sup>	Not Ready	415	11.0	810	32.1	1225	19.5
	Ready	3346	89.0	1710	67.9	5056	80.5
Math <sup>c</sup>	Not Ready	632	16.8	761	30.2	1393	22.2
	Ready	3129	83.2	1759	69.8	4888	77.8
Self-Regulation <sup>d</sup>	Not Ready	627	16.7	538	21.3	1165	18.5
	Ready	3134	83.3	1982	78.7	5116	81.5
Social Skills <sup>e</sup>	Not Ready	822	21.9	452	17.9	1274	20.3
	Ready	2939	78.1	2068	82.1	5007	79.7
Total		3761	100.0	2520	100.0	6281*	100.0

These data show that children who had public preschool experience were more likely to be classified as ready at the beginning of kindergarten compared to students who have not had any preschool experience. This is true for the overall readiness score and for each subdomain, except social skills.

Note: \* = Students who were missing at least one of the readiness assessments or preschool status were not included.

<sup>a</sup>  $\chi^2(2, N = 6281) = 131.98, p = .000$

<sup>b</sup>  $\chi^2(2, N = 6281) = 428.26, p = .000$

<sup>c</sup>  $\chi^2(2, N = 6281) = 156.85, p = .000$

<sup>d</sup>  $\chi^2(2, N = 6281) = 21.86, p = .000$

<sup>e</sup>  $\chi^2(2, N = 6281) = 14.34, p = .000$



# Readiness by Pre-k Experience for Disadvantaged Students Only

Fall 2016 Readiness		Preschool Status				Total	
		Public preschool		No preschool experience			
		n	%	n	%	n	%
Overall <sup>a</sup>	Not Ready	955	40.4	838	60.4	1793	47.8
	Ready	1407	59.6	550	39.6	1957	52.2
Literacy <sup>b</sup>	Not Ready	286	12.1	551	39.7	837	22.3
	Ready	2076	87.9	837	60.3	2913	77.7
Math <sup>c</sup>	Not Ready	437	18.5	530	38.2	967	25.8
	Ready	1925	81.5	858	61.8	2783	74.2
Self-Regulation <sup>d</sup>	Not Ready	435	18.4	335	24.1	770	20.5
	Ready	1927	81.6	1053	75.9	2980	79.5
Social Skills <sup>e</sup>	Not Ready	567	24.0	288	20.7	855	22.8
	Ready	1795	76.0	1100	79.3	2895	77.2
<b>Total</b>		<b>2362</b>	<b>100.0</b>	<b>1388</b>	<b>100.0</b>	<b>3750*</b>	<b>100.0</b>

These data show that within a sample of children identified as disadvantaged, those who had public preschool experience were more likely to be classified as ready at the beginning of kindergarten compared to students who have not had any preschool experience. This is true for the overall readiness score and for each subdomain, except social skills.

Note: \* = Students who had Disadvantage Status=Y and preschool status data were included.

<sup>a</sup>  $\chi^2(2, N = 3750) = 139.35, p = .000$

<sup>b</sup>  $\chi^2(2, N = 3750) = 383.80, p = .000$

<sup>c</sup>  $\chi^2(2, N = 3750) = 176.99, p = .000$

<sup>d</sup>  $\chi^2(2, N = 3750) = 17.52, p = .000$

<sup>e</sup>  $\chi^2(2, N = 3750) = 5.27, p = .022$



# Breakdown of Readiness Fall 2016 Data

- ▶ The next slide shows the breakdown of the “not ready” category.

# Detailed Breakdown of Readiness Across Literacy, Math, Self-Regulation, & Social Skills Fall 2016

Ready or Not Ready	Literacy	Math	Self-Regulation	Social Skills	n	%
Ready	✓	✓	✓	✓	5826	60.1
Not Ready	✓	✓	✓	✗	794	8.2
	✗	✗	✓	✓	455	4.7
	✓	✗	✓	✓	417	4.3
	✓	✓	✗	✗	411	4.2
	✗	✓	✓	✓	368	3.8
	✗	✗	✗	✗	295	3.0
	✓	✓	✗	✓	269	2.8
	✗	✗	✗	✓	241	2.5
	✓	✗	✗	✗	166	1.7
	✓	✗	✗	✓	126	1.3
	✗	✓	✗	✗	83	0.9
	✓	✗	✓	✗	73	0.8
	✗	✗	✓	✗	65	0.7
	✗	✓	✗	✓	63	0.6
	✗	✓	✓	✗	43	0.4
Total Sample					9695*	100.0

This table shows the detailed breakdown of children who were classified as ready (the first row, 60.1%) or not ready (39.9%).

Note: ✓ = Ready ✗ = Not Ready

\* = Students who were missing at least one of the readiness assessments were not included.

# Breakdown of Readiness

- ▶ There was a request to see how many children would be identified as ready if only some of the readiness measures were used.
  - ▶ On slide 17, we provide a breakdown using:
    - ▶ Only Literacy (PALS)
    - ▶ Only Math and Literacy
    - ▶ Only Math, Literacy and Self-regulation
    - ▶ Math, Literacy, Self-Regulation, and Social Skills

# Number of Children Identified as “Ready” as a Function of the Assessments Included Fall 2016

These data show the percent of students who would be identified as ready when using a specific combination of readiness measures. Students are classified as ready if they meet or exceed the benchmark on all of the included measures. VKRP uses all measures (literacy, math, self-regulation, and social skills) to provide an estimate of readiness.

Ready On...	n	%
Literacy	8082	83.4
Literacy and Math	7300	75.3
Literacy, Math, and Self-Regulation	6620	68.3
<b>Literacy, Math, Self-Regulation, and Social Skills</b>	<b>5826</b>	<b>60.1</b>
Total Sample	9695*	100.0

Note: \* = Students who were missing at least one of the readiness assessments were not included.



# Association among Readiness Measures

## Fall 2016

- ▶ There was a request to see the association among the readiness measures.
  - ▶ On slide 19, we provide a correlation matrix of the measures using their continuous score.

# Assessment correlations Fall 2016

	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Correlations</i>			
				1	2	3	4
1. Literacy Score	9695	57.65	25.26	1			
2. Math Score	9695	29.07	7.58	.72*	1		
3. Self-Regulation Score	9695	3.69	0.88	.44*	.50*	1	
4. Social Skills Score	9695	4.21	0.71	.16*	.21*	.65*	1

Note: \* $p < 0.01$ .

- A **weak correlation** (.10) means that someone who is above average on one measure has a slightly higher chance of being above average on the other measure.
- A **moderate correlation** (.30) means that someone who is above average on one measure has a pretty good chance of being above average on the other measure.
- A **strong correlation** (.50) means that someone who is above average on one measure has a very good chance of being above average on the other measure.