

# United Parent Council: Developing a Guaranteed & Viable Curriculum in Mathematics

November 18, 2015

# Arizona

## State Highlights 2015

QUALITY COUNTS 2015 Grading Summary (<http://goo.gl/YxxgWD>)

Overall Grade		Arizona			
Arizona	D+		Grade	Rank	Average State Grade
Rank	47	Chances for Success	C-	45	C+
Nation	C	School Finance	D	46	C
A state's overall grade is the average of the scores for the three graded categories.		K-12 Achievement	D+	38	C-

# Education Rankings By State

## Overall Ranking

- |                  |                    |                          |
|------------------|--------------------|--------------------------|
| 1. Massachusetts | 18. Ohio           | 35. Utah                 |
| 2. New Jersey    | 19. Washington     | 36. Arkansas             |
| 3. Maryland      | 20. Kansas         | 37. Tennessee            |
| 4. Vermont       | 21. Colorado       | 38. District of Columbia |
| 5. New Hampshire | 22. Nebraska       | 39. Texas                |
| 6. Connecticut   | 23. Hawaii         | 40. South Dakota         |
| 7. Wyoming       | 24. Iowa           | 41. Oregon               |
| 8. Pennsylvania  | 25. Indiana        | 42. California           |
| 9. New York      | 26. Alaska         | 43. South Carolina       |
| 10. Minnesota    | 27. West Virginia  | 44. Louisiana            |
| 11. Wisconsin    | 28. Florida        | 45. Alabama              |
| 12. Virginia     | 29. Kentucky       | 46. Idaho                |
| 13. Rhode Island | 30. Montana        | <b>47. Arizona</b>       |
| 14. Maine        | 31. Georgia        | 48. Oklahoma             |
| 15. Delaware     | 32. Michigan       | 49. New Mexico           |
| 16. North Dakota | 33. Missouri       | 50. Nevada               |
| 17. Illinois     | 34. North Carolina | 51. Mississippi          |

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# School Finance vs K-12 Achievement

**Finance:** Data for these analyses were obtained from a variety of sources, including: US Census Bureau's Elementary-Secondary Education Finance data, US Department of Education, US Department School District Demographics, and much more.

**K-12 Achievement:** Data for these analyses were obtained from State Naep assessments, High School Graduation Rates, and Advanced Placement Summary Reports

# School Finance vs K-12 Achievement

Rank	State	Overall Grade	Score	Finance = (Equity/Spending)	K-12 Achievement =(Status/Change/Equity)	K-12 Achievement Ranking
1	Massachusetts	B	86.2	B ( 82 / 84)	B (94 / 78 / 76)	1
10	Minnesota	B-	79.9	C (88 / 63)	C+ (83 / 69 / 79)	6
20	Kansas	C	76	C (76 / 68)	D+ (69 / 63 / 78)	31
30	Montana	C	73	C- (79 / 64)	C- (67 / 63 / 88)	25
40	South Dakota	C-	70	D+ (85 / 49)	D (63 / 55 / 78)	43
47	Arizona	D+	68	D (89 / 41)	D+ (55 / 69 / 82)	38
51	Mississippi	D	64	D+ (84 / 50)	F (39 / 61 / 82)	51

# School Finance vs K-12 Achievement

Rank	State	Overall Grade	Score	Finance = (Equity/Spending)	K-12 Achievement =(Status / Change / Equity)	K-12 Achievement Ranking
41	Oregon	C-	70	D+ (87 / 51)	D (63 / 62 / 73)	40
42	California	D+	69	D+ (86 / 48)	D+ (58/ 71 / 79)	33
43	South Carolina	D+	69	C- (85/ 56)	D (56 / 62 / 76)	45
44	Louisiana	D+	69	C (76 / 68)	D- (47 / 68 / 79)	49
45	Alabama	D+	68	C- (89 / 51)	D- (47 / 68 / 79)	46
46	Idaho	D+	68	F (76/ 42)	C- (64 / 65 / 89)	23
47	Arizona	D+	68	D (89 / 41)	D+ (55 / 69 / 82)	38
51	Mississippi	D	64	D+ (84 / 50)	F (39 / 61 / 82)	51

## Questions to think about...

- Are our kids receiving the same educational experiences and minimum outcomes across all 31 elementary schools? Seven middle schools? 5 high schools?
- Is mobility a factor? How many kids are moving from one PVUSD school to another PVUSD school? Are current systems helping or hindering our students closing their learning gaps?
- How much money and time are schools and district allocating to train new staff members? Are those same staff members still at your school 3 years later? In the district 3 years later?



District / School Mobility Data School	# of students who withdrew from the school between September-May, 2015	# of students who withdrew from the school and then immediately entered another PVUSD between September-May, 2015	% of students who withdrew and transferred from one PVUSD school to another during the 2014-2015 school year
Campo Bello Elementary	41	7	17%
Desert Cove Elementary	32	11	34%
Grayhawk Elementary	30	7	23%
Indian Bend Elementary	52	14	27%
Larkspur Elementary	64	13	20%
Quail Run Elementary	43	7	16%
<b>Total Elementary (6)</b>	<b>262</b>	<b>59</b>	<b>23%</b>
Desert Shadows MS	24	1	4%
Shea Middle School	54	11	20%
Vista Verde Middle School	61	11	18%
<b>Total Middle School (3)</b>	<b>139</b>	<b>23</b>	<b>17%</b>
Horizon High School	152	12	8%
North Canyon HS	261	31	12%
<b>Total High School (2)</b>	<b>413</b>	<b>43</b>	<b>10%</b>
<b>Total (11 Schools)</b>	<b>814</b>	<b>125</b> *3 students transferred again in 14-15	<b>15%</b>

## District Statistics ~ Teacher Mobility

Are we developing a highly skilled teaching force in PVUSD?

- # of teachers who retired
  - 2013-2014      31 Teachers
  - 2014-2015      31 Teachers
- # of teacher who transferred schools
  - 2013-2014      39 Teachers
  - 2014-2015      55 Teachers
- # of new teachers hired into the district
  - 2013-2014      201 Teachers
  - 2014-2015      226 Teachers

# Teacher Shortage in Arizona

- In 2014-2015, over 70% of all districts in the state of Arizona began the school year with teacher vacancies.
- In 2015-2016, the percentage of teacher vacancies in Arizona districts rose to over 80%.
- Paradise Valley currently has 7 math positions vacant.

## Purpose: Guaranteed & Viable Curriculum

A **guaranteed and viable curriculum** is one that **guarantees equal opportunity for learning for all students.**

Similarly, it guarantees **adequate time** for teachers **to teach essential content** and for students to learn that content.

A guaranteed and viable curriculum is one that guarantees that the **curriculum being taught is the curriculum being assessed.**

# GVC Mathematics Outcomes

- › GVC Mathematics Essential Learning Curricular Maps
- › Aligned Essential Learning Assessments
  - › Pre-assessment
  - › Benchmark (K-8)
  - › Summative (K-8 / HS End of Course)
- › Aligned Formative Assessment Bank
- › Recommend Aligned & Focused Professional Development

# AZCCRS Major & Supporting Clusters

**Major Clusters** as groups of related standards that require greater emphasis than some of the others due to the depth of the ideas and the time it takes to master these groups of related standards.

**Supporting Clusters** as groups of related standards that support standards within the major cluster in and across grade levels. Supporting clusters also encompass pre-requisite and extension of grade level content.

Instructional time:	<b>Major Clusters</b>	<b>65%-75%</b>
	<b>Supporting Clusters</b>	<b>25%-35%</b>

Grade 3		
Domain	Min.	Max.
Operations and Algebraic Thinking & Numbers in Base Ten	49%	53%
Number and Operations-Fractions	18%	22%
Measurement and Data & Geometry	26%	30%

Grade 6		
Domain	Min.	Max.
Ratio and Proportional Relationships	19%	23%
Expressions and Equations	29%	33%
Geometry & Statistics and Probability	17%	21%
The Number System	25%	29%

Algebra I		
Conceptual Categories	Min.	Max.
Algebra	40%	44%
Functions	36%	40%
Statistics	17%	21%

Percentage of Points by Depth of Knowledge Level			
Grade	DOK Level 1	DOK Level 2	DOK Level 3
3-11	10%-20%	60%-70%	12%-30%

Grade 4		
Domain	Min.	Max.
Operations and Algebraic Thinking	22%	26%
Number and Operations in Base Ten	24%	28%
Number and Operations-Fractions	29%	33%
Measurement and Data & Geometry	15%	19%

Grade 7		
Domain	Min.	Max.
Ratio and Proportional Relationships	19%	23%
The Number System	19%	23%
Expressions and Equations	23%	27%
Geometry	12%	16%
Statistics and Probability	15%	19%

Geometry		
Domain	Min.	Max.
Congruence	23%	27%
Similarity, Right Triangles, and Trigonometry	27%	31%
Circles & Geometric Measurement & Geometric Properties with Equations	23%	27%
Modeling with Geometry	17%	21%

Within a test, approximately 70% of the assessment will be on major content within that grade or course.

Grade 5		
Domain	Min.	Max.
Numbers and Operations - Fractions	31%	35%
Number and Operations in Base Ten & Algebraic Thinking	38%	42%
Measurement and Data & Geometry	24%	28%

Grade 8		
Domain	Min.	Max.
Functions	21%	25%
Expressions and Equations	32%	36%
Geometry	23%	27%
Statistics and Probability & The Number System	15%	19%

Algebra II		
Conceptual Categories	Min.	Max.
Algebra	34%	38%
Functions	32%	36%
Statistics	27%	31%

# Sample: GVC Mathematics Process

- › **5<sup>th</sup> AZCCRS: Number and Operations in Base Ten (NBT)**  
**Understand the place value system.**  
~ **5.NBT.A.3.** Read, write, and compare decimals to thousandths.
- › **AZCCRS Major & Supporting Cluster: Number & Operations - Fractions (NF)**  
~ Understand the place value system.  
~ Perform operations with multi-digit whole numbers and with decimals to hundredths.
- › **AzMERIT Mathematics Assessment Blueprint**  
~ Number & Operations in Base Ten & Algebraic Thinking (**Min. 38% - Max 42%**)
- › **Essential Learning Targets (5.NBT.A.3.b.)**  
~ Compare two decimals to thousandths based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.



# 5<sup>th</sup> Grade Projection Map (17 Major & 9 Supporting=26 Standards)

(Approximately 34 Learning Targets ~ 25 Major & 9 Supporting Learning Targets)

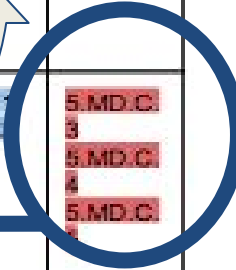
5th Grade 2015-16	Chapter 1 Place Value 12 Days	Chapter 2 Multiply Whole Numbers 12 Days	Chapter 3 Divide by a One-Digit Divisor 16 Days	Chapter 4 Multiply with Two-Digit Divisor 8 Days	Chapter 5 Add and Subtract Decimals 12 Days	Chapter 6 Multiply and Divide Decimals 17 Days	Chapter 7 Expressions & Patterns 11 Days	Chapter 8 Fractions and Decimals 10 Days	Chapter 9 Add and Subtract Fractions 16 Days	Chapter 10 Multiply and Divide Fractions 15 Days	Chapter 11 Measurement 16 Days	Chapter 12 Geometry 15 Days
OA							5.OA.A1 5.OA.A2 5.OA.B.3					
NBT	5.NBT.A.1 5.NBT.A.3	5.NBT.A.2 5.NBT.B.5	5.NBT.B.6	5.NBT.B.6	5.NBT.A.4 5.NBT.B.7	5.NBT.A.2 5.NBT.A.4 5.NBT.B.5 5.NBT.B.6 5.NBT.B.7		5.NBT.B.5				
NF								5.NF.B.3 5.NF.B.4	5.NF.A.1 5.NF.A.2	5.NF.B.4 5.NF.B.5 5.NF.B.6 5.NF.B.7		
MD											5.MD.A.1 5.MD.B.2	5.MD.C.3 5.MD.C.4 5.MD.C.5
G							5.G.A.1 5.G.A.2					5.G.B.3 5.G.B.4

5.NBT.A.3 is a **Major Cluster**. It is only intentionally addressed in Chapter 1

# 5<sup>th</sup> Grade Projection Map (17 Major & 9 Supporting=26 Standards)

(Approximately 34 Learning Targets ~ 25 Major & 9 Supporting Learning Targets)

5th Grade 2015-16	Chapter 1 12 Days	Chapter 2 12 Days	Chapter 3 16 Days	Chapter 4 8 Days	Chapter 5 12 Days	Chapter 6 17 Days	Chapter 7 11 Days	Chapter 8 10 Days	Chapter 9 16 Days	Chapter 10 15 Days	Chapter 11 16 Days	Chapter 12 15 Days				
Month	August		September		October		November		December		January		Feb	March	April	May
OA							5.OA.A.1 5.OA.A.2 5.OA.B.3									
NBT	5.NBT.A.1 5.NBT.A.3	5.NBT.A.2 5.NBT.B.5	5.NBT.B.6	5.NBT.B.6	5.NBT.A.4 5.NBT.B.6	5.NBT.A.2 5.NBT.A.4 5.NBT.B.5 5.NBT.B.5	5.NBT.B.8									
NF	5.NBT.A.3	5.NBT.A.3	5.NBT.A.3	5.NBT.A.3	5.NBT.A.3	5.NBT.A.3	5.NBT.A.3	5.NBT.A.3	5.NBT.A.3	5.NBT.A.3	5.NBT.A.3	5.NBT.A.3	5.NBT.A.3	5.NBT.A.3	5.NBT.A.3	5.NBT.A.3
MD																5.MD.C.3 5.MD.C.4 5.MD.C.4
G							5.G.A.1 5.G.A.2									5.G.B.3 5.G.B.4



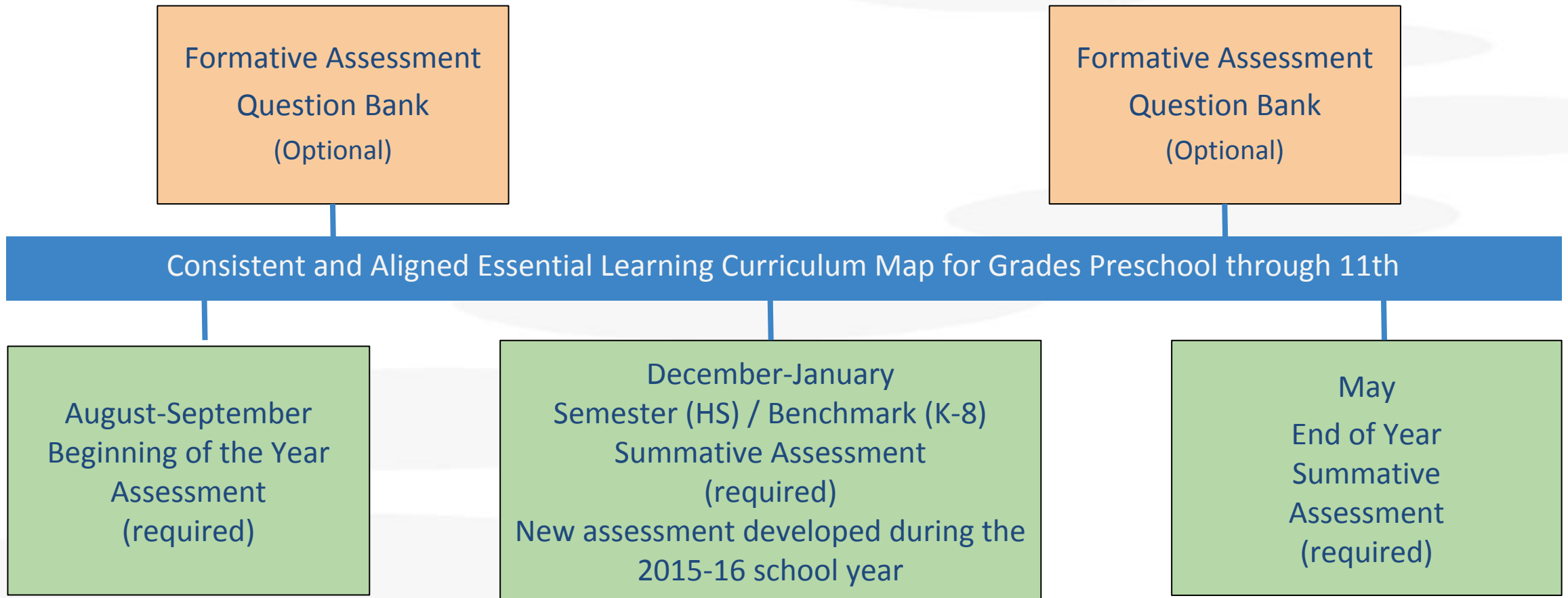
# AzMerit: Did you know....

## *AzMERIT: Did you know?*

~70% of the assessment is focused on Major Clusters

~75% of the assessment is at a Depth of Knowledge level 2 or 3

# Essential Learning Curriculum Map



# Student and Parent Math Supports

- ConnectEd
- SuccessNet
- FROST
- After the Bell
- Khan Academy
- Additional Outside Resources



# Education ConnectED

ConnectED is available to all PV students kindergarten through 8<sup>th</sup> grade. ConnectED gives students access to digital textbooks as well as ehelp with video tutors and lesson animations. Students love FACT Dash – a fast paced game of Math fluency that can be found in the site!

Get started by going to: [learn.pvschools.net](http://learn.pvschools.net)

Log in using the student's pv username and district other password. After logging in, scroll down and click on the ConnectED button.

# PEARSON

## SuccessNet

SuccessNet is available to all PV students enrolled in Algebra 1-2, Geometry, or Algebra 3-4. SuccessNet gives students access to digital textbooks, educational videos and supplemental exercises. The interactive digital path and virtual nerd video tutorials are especially helpful to struggling students or those needing a refresher.

Get started by going to: [pearsonsuccessnet.com](http://pearsonsuccessnet.com)

Log in using the student's pvlearners e-mail address and district other password.



## How It Works

1. Call 602-449-2395
2. An Information Technology department employee answers the phone and selects an available tutor
3. The student is connected with a NHS tutor
4. Tutoring session begins with the assigned NHS tutor
5. Shared tools are used to aid and enhance understanding of the concept
6. Review and reference the learning
7. Tutoring session results are emailed to student





# After the Bell



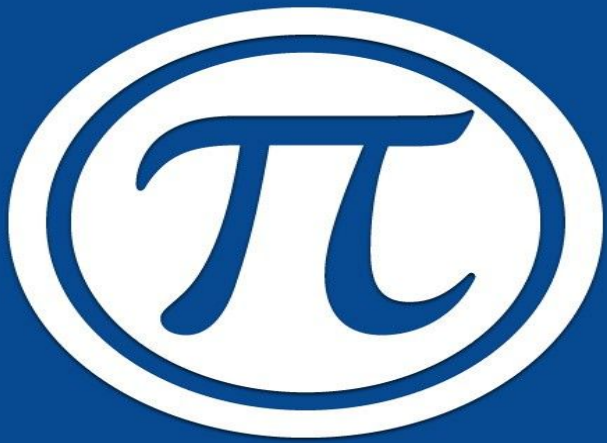
<b><u>School</u></b>	<b><u># of Math Classes</u></b>	<b><u># of Students</u></b>	<b><u>Curricular Materials Used</u></b>
Aire Libre	6	83	My Math Curriculum (including My Math Countdowns - Power up to the PARCC in My Math Online; and My Math 20 Week Countdown to AzMerit), and much more
Arrowhead	4	66	ST Math, Mastering Math Facts
Cactus View	6	42	ST Math, Math Pathways and Pitfalls, "Fishin" for Addition
Echo Mtn Int.	7	81	Teacher-led centers, Dreambox
Echo Mtn Primary	4	65	Teacher-led centers, Dreambox
Greenway Middle	1	21	ST Math, Khan Academy
Hidden Hills	4	39	MATH, IXL
Indian Bend	4	52	ST Math
North Canyon HS	4	50	Tutoring, Homework Assistance
Palomino Int.	13	240	Accelerated Math, ST Math
Palomino Primary	3	43	ST Math
Sunset Canyon	3	37	My Math, IXL Math



Khan Academy is a non-profit educational organization that offers practices exercises, instructional videos, and a personalized learning dashboard that allows learners to study at their own pace. They offer math, science, history, economics and much more. Students or parents can search the site for help with a specific topic or follow the path of one of many pre set grade levels.

Get started by going to: [www.khanacademy.org](http://www.khanacademy.org)





## Other Math Help Resources

Math teacher Mrs. Weigand website

<http://tinyurl.com/ovynmm6>

[www.freemathhelp.com](http://www.freemathhelp.com)

[www.mathplayground.com](http://www.mathplayground.com)

Thank you!