

Harrisonburg City Public Schools Science and English Language Learners



At your table discuss the current “status” of English language learners and science instruction, and professional development in your school, school System? You have 2 minutes.

Harrisonburg City Public Schools

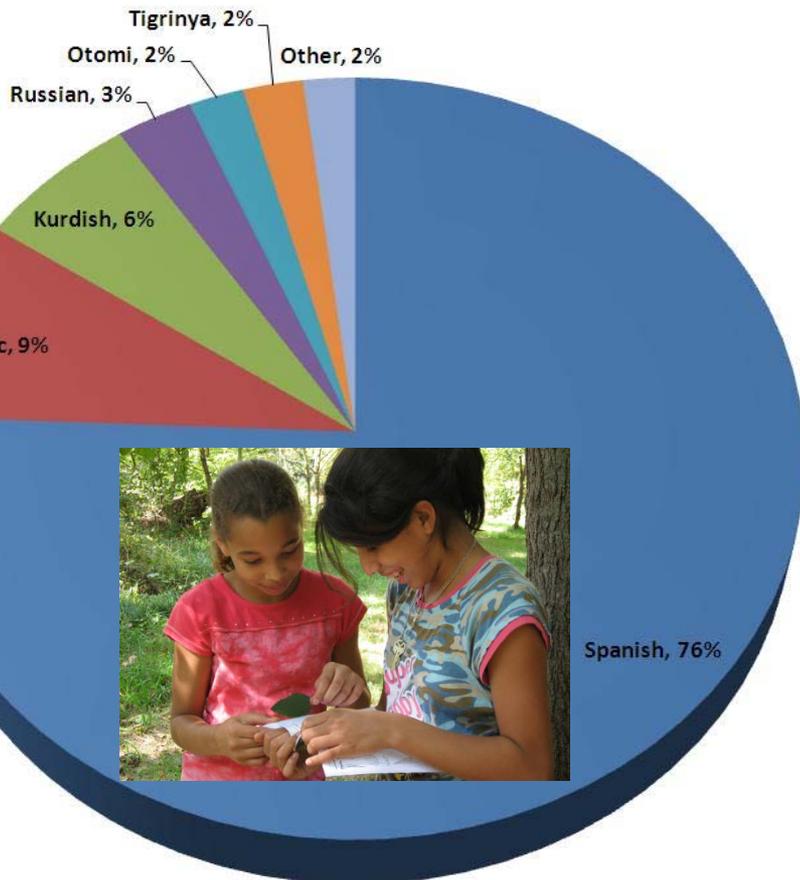
Science and English Language Learners



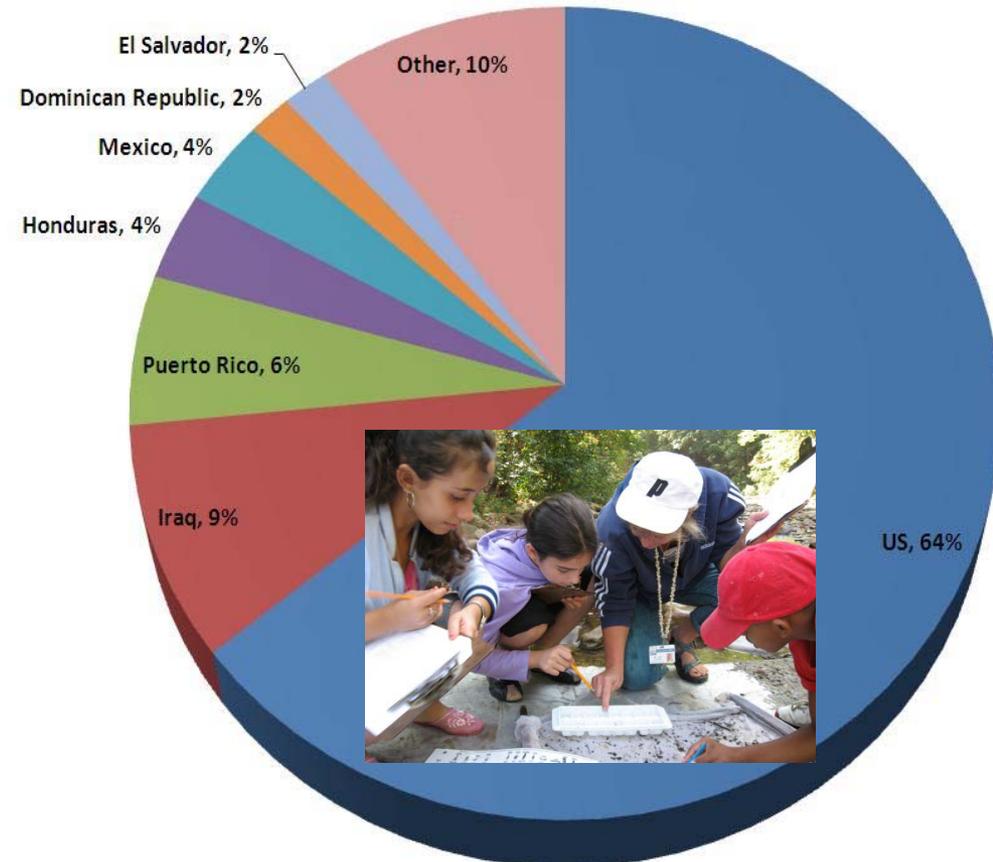
HCPS' diverse community is home to one of Virginia's larger populations of Limited English Proficient populations. Approximately **36%** of our students are LEP. Our student body represents **47** Different countries of origin with **49** different first languages.

Where do we come from and what do we speak.

Native Languages - September 30, 2013

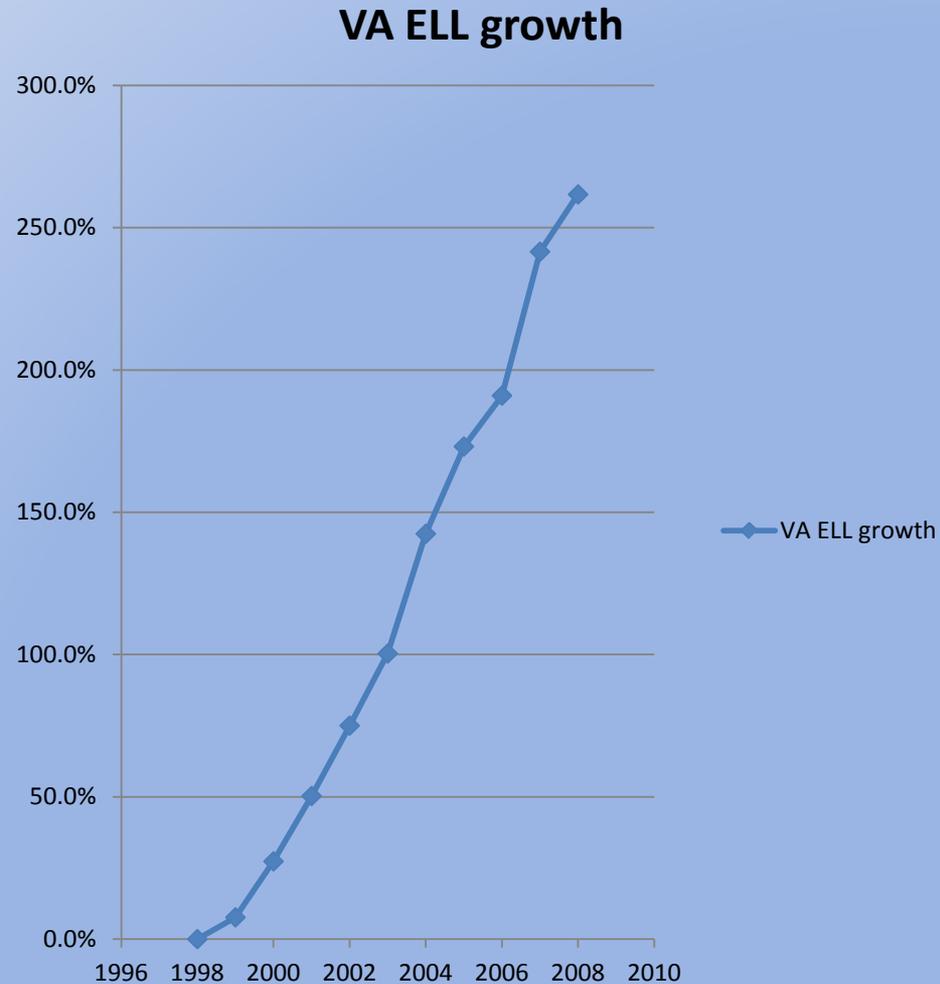


Countries of Birth - September 30, 2013



Always growing, always learning?

Virginia				
	Total Enrollment	Percent Change in Total Enrollment from 1997-1998	ELL Enrollment	Percent Change in ELL Enrollment from 1997-1998
1997-1998	1,110,815	0.0%	24,876	0.0%
1998-1999	1,124,022	1.2%	26,779	7.6%
1999-2000	1,133,994	2.1%	31,675	27.3%
2000-2001	1,144,915	3.1%	37,385	50.3%
2001-2002	1,162,780	4.7%	43,535	75.0%
2002-2003	1,176,557	5.9%	49,840	100.4%
2003-2004	1,192,539	7.4%	60,306	142.4%
2004-2005	1,203,847	8.4%	67,933	173.1%
2005-2006	1,214,411	9.3%	72,380	191.0%
2006-2007	1,220,440	9.9%	84,959	241.5%
2007-2008	1,230,857	10.8%	89,968	261.7%

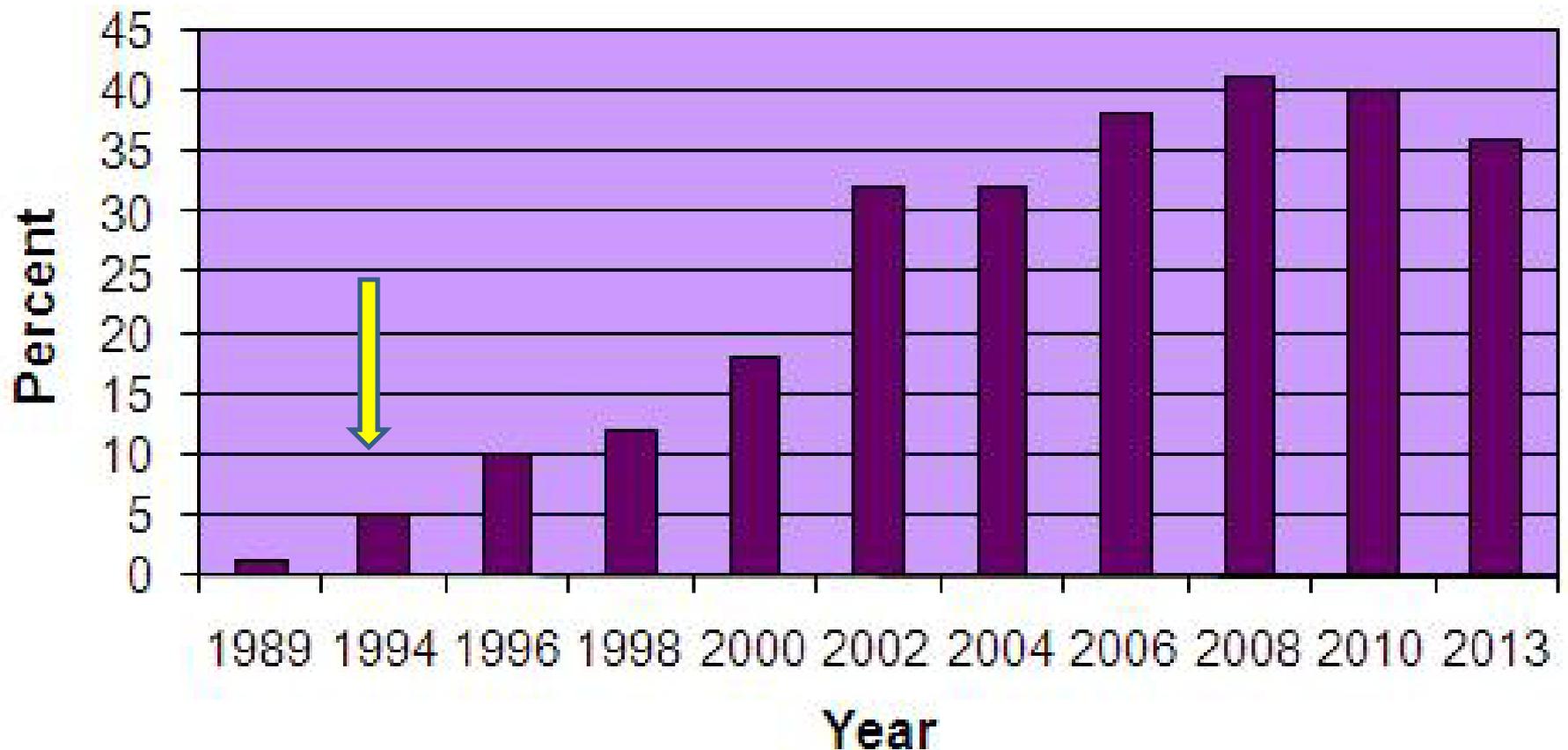


In Harrisonburg? How is that?

Year	Number of LEP Students	% LEP
1993-1994	160	5%
1994-1995	151	4%
1995-1996	158	4%
1996-1997	216	6%
1997-1998	353	10%
1998-1999	488	14%
1999-2000	535	15%
2000-2001	682	18%
2001-2002	850	22%
2002-2003	1,170	29%
2003-2004	1,285	32%
2004-2005	1,422	34%
2005-2006	1,558	36%
2006-2007	1,658	38%
2007-2008	1,704	38%
2008-2009	1,747	41%



How we've changed as we've changed



We all must become aware

- 2000 – all HCPS teachers must take 18+ hour introductory workshop to H'burg's ELL population.
- Every new teacher must take the workshop in her first three years of work.



End of year 2012-13

School	Level 1	Level 2	Level 3	Level 4	Level 5	TBD	Level 6
HHS	57	42	85	122	22	1	146
THMS	13	18	77	89	32	0	120
SKMS	49	14	51	63	19	0	57
Keister	31	42	64	51	7	5	32
Smithland	45	35	72	61	10	2	16
Spotswood	48	48	98	50	6	2	21
Stone Spring	23	20	34	41	3	1	11
Waterman	49	38	83	44	6	1	9
Total	315	257	564	521	105	12	412
%	14	12	26	24	5	0.5	19

2186

We are all ELL teachers

- 2007 – 3 hr credit course offered free of charge on teaching the English Language Learner.
- The course is centered around effective strategies for ELLs based on SIOP.



“front loading” is the answer

truth	of	propositions	an
state	any	atomic	Affairs
that	made	even	tables
are	functional	connectives	then
values	assumption	rudimentary	if
is	more	Accordance	a
the	possible	those	with
system	Even	assignment	nonatomic
being	to	Possible	standard
from	predictable	notion	

Language is complex and more than vocabulary

“If the assumption is made that the connectives are truth-functional, then an even more rudimentary notion of state of affairs is possible: a state of affairs is any assignment of truth values to the atomic propositions of the system, with the truth values of the nonatomic propositions being predictable from those of atomic propositions in accordance with the standard truth tables.”

Source: Macawley, James D. (1980). *Everything That Linguists have Always Wanted to Know About Logic*, Page 161. Chicago: University of Chicago Press.

Always growing, always learning

2013-14

- HCPS Receives a Governor's Strategic Compensation Grant (\$432,011.25)
- Nearly ALL secondary science teachers have now taken the 3 hr graduate credit SIOP course.
- DoE pilots ELL & Science professional development with HCPS



2014 and beyond!

Pairing sound, appropriate science experiences with research based language acquisition methods.



What our children are up against?

Word	Context	Easy definition
Produce	<i>Produced</i> by the friction of air particles	Create
Release	<i>Released</i> from Earth's interior	Let go
Absorb	<i>Absorbed</i> by Earth during daylight	Receive or suck up
Interactions	Faults and volcanoes are results of tectonic plate <i>interactions</i>	Actions and responses
Likely to occur	Which of these is <i>likely to occur</i> after moist air is cooled below its dew point?	Will probably happen
Composition	The breakdown of rocks and minerals into smaller particles without a change in <i>composition</i> is called	Basic structure and makeup
Deposition	<i>Deposition</i> of sediment in a lake bed	Matter that settles to the bottom
Recent	. . . <i>Recent</i> geologic processes	Not long ago
Commonly occur	Which geologic processes <i>commonly occur</i> in the coastal plain	Happen often
Dramatic variations	Dramatic variations in the polar ice caps . . .	Big differences
Except	All of the following may be found deep in a natural cave EXCEPT —	But one

Partnering with VDOE to form a pilot ELL & Sci. PD

- Margarita Calderon worked with all grade 5-12 science teachers for a day of PD centered around ExC-ELL and vocabulary acquisition.
- On a 2nd day of PD Margarita worked with HCPS academic coaches, ESL teachers, and lead science teachers.
- On a later PD day Margarita worked with HCPS science teachers on reading and argumentation strategies.



Strategies that work



A student constructs several terrariums like the one shown. Each terrarium is exposed to a different amount of sunlight each day. In order to determine the ideal amount of sunlight, which of the following variables must be held constant?

- A Type of plants
- B Growth rate of plants
- C Wavelengths of sunlight
- D Amount of sunlight received

Strategies that work



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Ideal

1. Ideal - Repeat three times with me.
2. “In order to determine the ideal amount of sunlight, which of the following variables must be held constant?” or “The weather is ideal for a picnic.”
3. Ideal – adjective - satisfying one's conception of what is perfect most suitable.
4. Ideal - Describing something as just right or perfect
5. synonyms: perfect, best possible, consummate, supreme, excellent, flawless. It can also be a noun – “Students learning language and science content together is the ideal situation.”
Cognate – Ideal – exactly the same in Spanish.
6. Turn to the person beside you and tell them “The ideal pet for me would be a _____ because....”
7. Exit ticket –Write “In my school system the ideal collaboration between science and ELL would ...”.

SOL Test questions & ELLs-biology

What do phototropism and geotropism enable plants to do?

- A Grow toward needed resources
- B Prevent invasion by insect colonies
- C Defend themselves against herbivores
- D Develop pesticide resistance by exchanging DNA

SOL Test questions & ELLs- 6th-8th grade

A car manufacturer reduces the mass of a car by 250 kg. If the new design is otherwise identical to the old design, how will the new car compare to the old car?

- F It will have a greater gravitational attraction to the road.
- G It will require more fuel to operate.
- H It will need less force to move.
- J It will release more gas emissions.

How's it working?

20 Level 1 and 2 students (in the fall) in an Earth science course – 17 passed last week and 3 took expedited retakes with 2 achieving a pass.

- Wide range of fidelity to strategies being promoted. Anecdotally, high fidelity seems to be yielding positive results.



And next?

SSELLSci Connects – an i3 grant proposal to further develop what HCPS has done with Winchester and Albemarle. Starting with Science and extending to Social Studies while developing materials to share.