

Appendix F

Student Outcomes

(F1)	Standards of Learning Assessments	Pages 1—28
(F2)	Impact Evaluation (Hanover Research)	Pages 29—49
(F3)	Advanced Placement Exams	Pages 50—57
(F4)	International Baccalaureate Exams	Pages 58—62
(F5)	Performance Assessment Tasks	Pages 63—71

Social Studies Standards of Learning Assessments

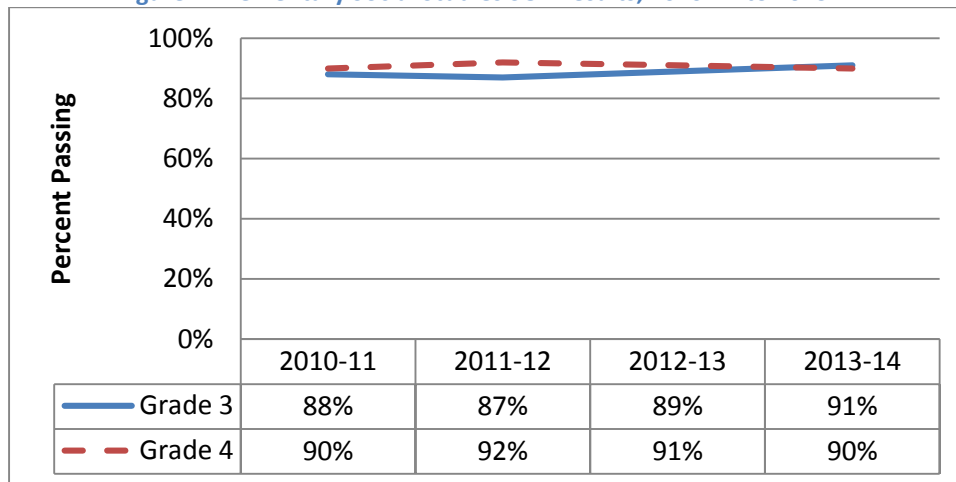
The Commonwealth of Virginia measures academic achievement through annual Standards of Learning (SOL) tests. In the four years covered by this evaluation, students were expected to take grade-level social studies assessments in grades 3, 4, 6, and 7. Starting in 2014-15, the 3rd grade SOL test has been eliminated. In addition, students take end-of-course (EOC) assessments after completing World Geography, World History I, World History II, or Virginia and U.S. History, which are taken in grades 8-12.

World Geography is the standard Grade 8 social studies course for all 8th graders in APS. Students earn high school credit for this course and there is an end of course exam. Students selecting World Geography in high school are traditionally new to the county. This course at the high school level serves a large number of students with LEP needs.

Students who wish to earn a standard diploma must earn three social studies credits, one of which must be verified by the passing of the associated SOL test. Students wishing to earn an advanced diploma must earn four social studies credits, two of which must be verified.

Section 1: Elementary Social Studies SOL Results

Figure 1: Elementary Social Studies SOL Results, 2010-11 to 2013-14



Elementary Social Studies SOLs by Race/Ethnicity

Figure 1: Grade 3 Social Studies SOL Results by Race/Ethnicity, 2010-11 to 2013-14

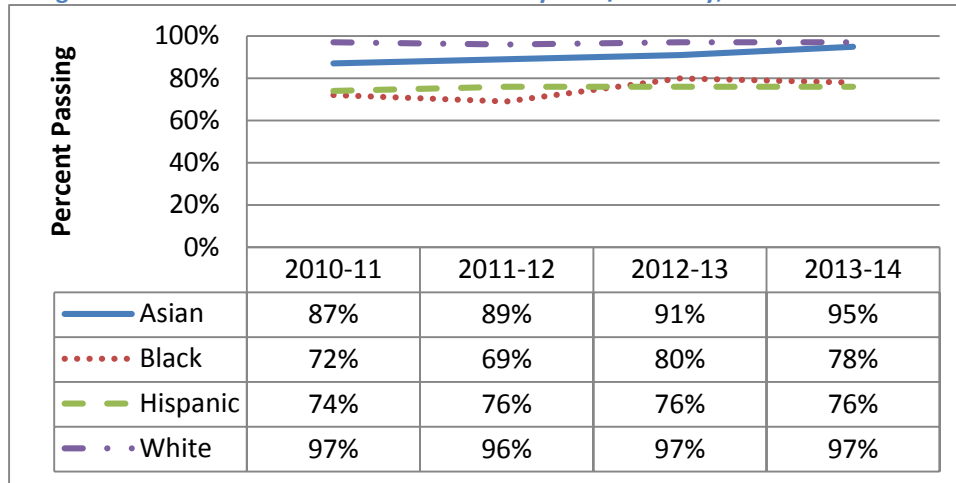


Table 1 : SOL Grade 3 Sample Sizes by Race/Ethnicity 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Asian	114	113	139	169
Black	154	169	166	141
Hispanic	370	402	402	392
White	776	824	881	995

Figure 2: Grade 4 Social Studies SOL Results by Race/Ethnicity, 2010-11 to 2013-14

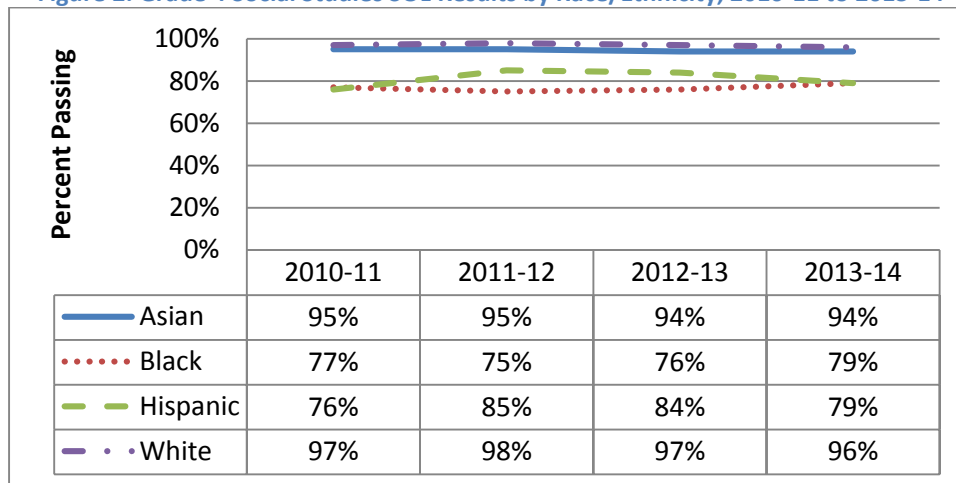


Table 2: SOL Grade 4 Sample Sizes by Race/Ethnicity 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Asian	151	112	112	139
Black	149	158	176	170
Hispanic	356	357	370	380
White	788	769	825	877

Elementary Social Studies SOLs by Gender

Figure 4: Grade 3 Social Studies SOL Results by Gender, 2010-11 to 2013-14

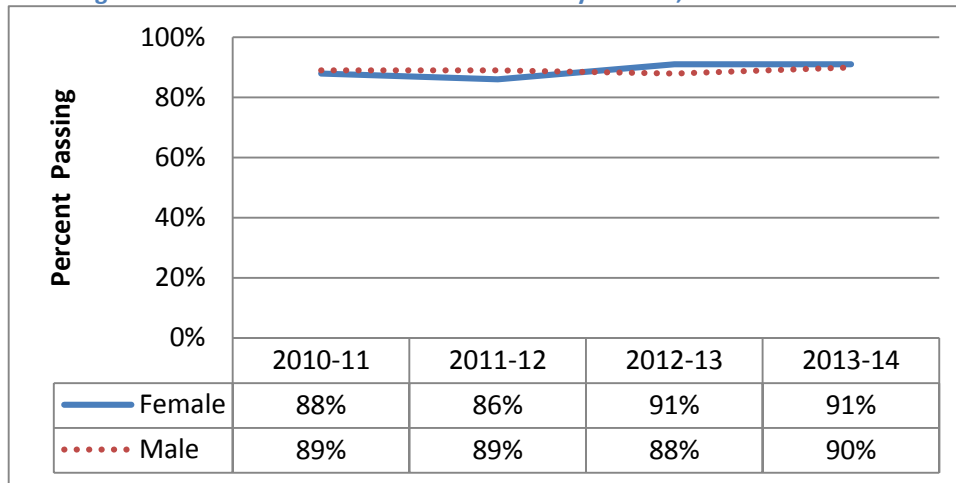


Table 3: SOL Grade 3 Sample Sizes by Gender, 2010-11 through 2013-14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Females	781	782	863	861
Males	735	827	832	941

Figure 5: Grade 4 Social Studies SOL Results by Gender, 2010-11 to 2013-14

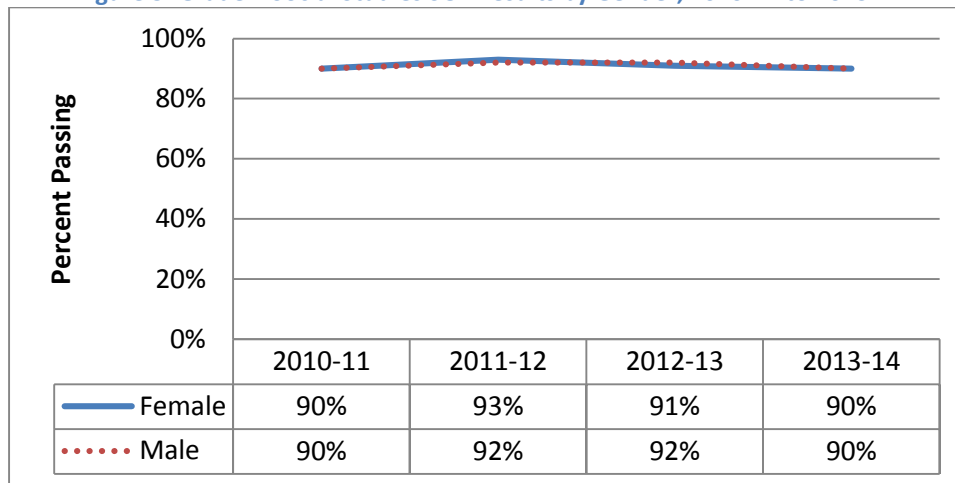


Table 4: SOL Grade 4 Sample Sizes by Gender, 2010-11 through 2013-14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Females	745	760	785	850
Males	789	740	806	815

Elementary Social Studies SOLs by Economic Status

Figure 6: Grade 3 Social Studies SOL Results by Economic Status, 2010-11 to 2013-14

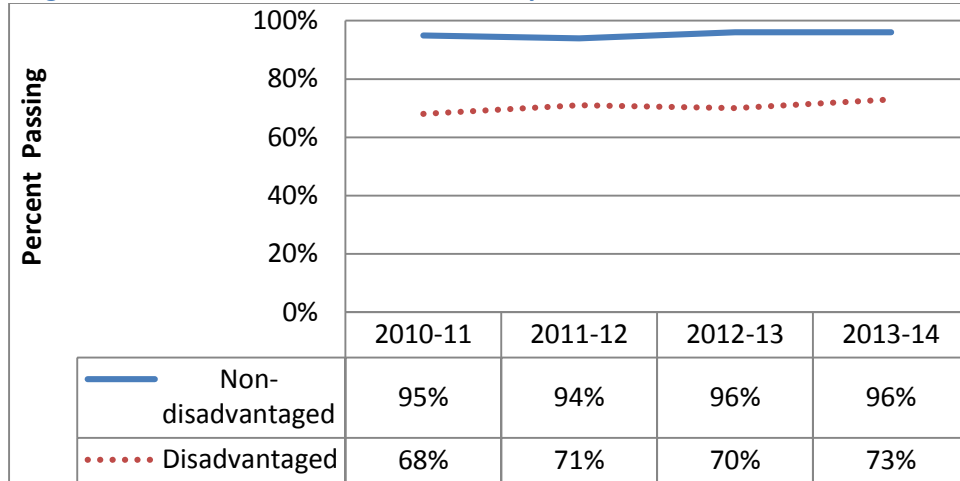


Table 5: SOL Grade 3 Sample Sizes by Economic Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-Disadvantaged	1,114	1,161	1,238	1,343
Disadvantaged	402	448	457	459

Figure 7: Grade 4 Social Studies SOL Results by Economic Status, 2010-11 to 2013-14

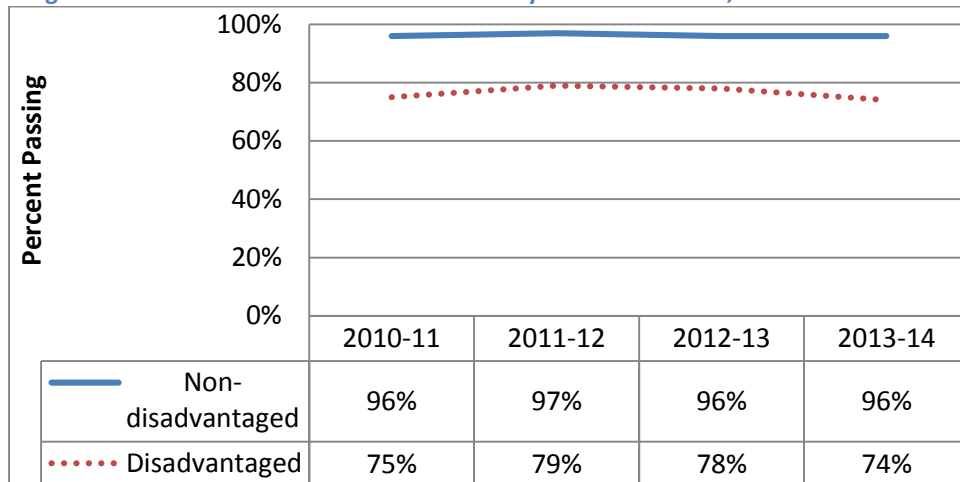


Table 6: SOL Grade 4 Sample Sizes by Economic Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-Disadvantaged	1,099	1,101	1,158	1,209
Disadvantaged	435	399	433	456

Elementary Social Studies SOLs by LEP Status

Figure 8: Grade 3 Social Studies SOL Results by LEP Status, 2010-11 to 2013-14

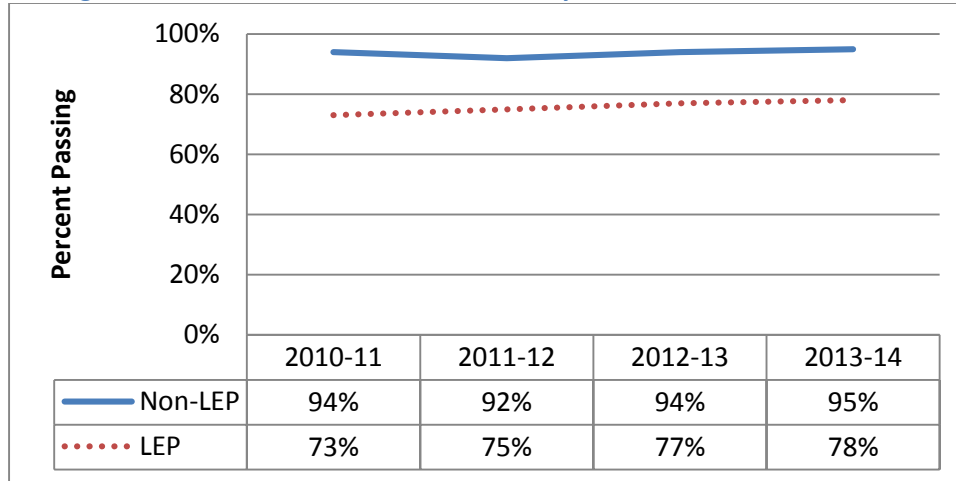


Table 7: SOL Grade 3 Sample Sizes by LEP Status, 2010-11 through 2013-14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-LEP	1,107	1,204	1,221	1,377
LEP	409	405	474	425

Figure 9: Grade 4 Social Studies SOL Results by LEP Status, 2010-11 to 2013-14

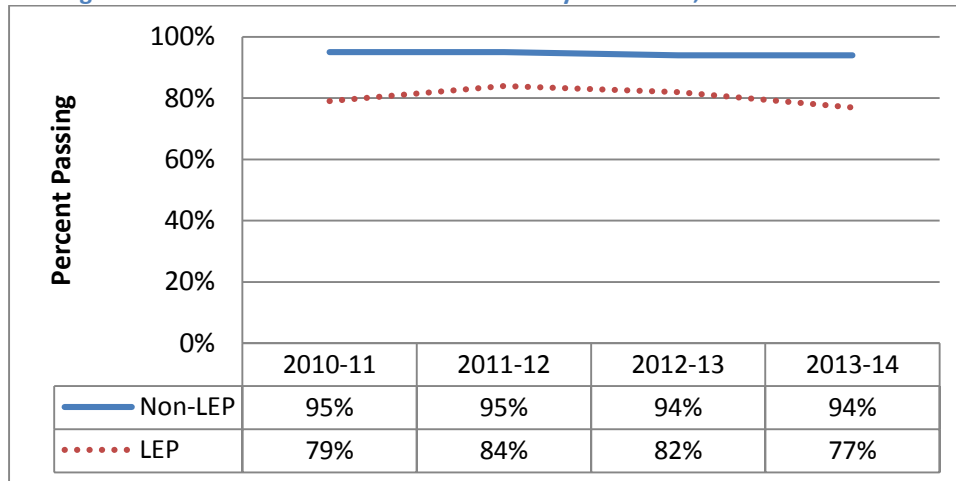


Table 8: SOL Grade 4 Sample Sizes by LEP Status, 2010-11 through 2013-14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-LEP	1,072	1,109	1,245	1,247
LEP	462	391	346	418

Elementary Social Studies SOLs by Disability Status

Figure 10: Grade 3 Social Studies SOL Results by Disability Status, 2010-11 to 2013-14

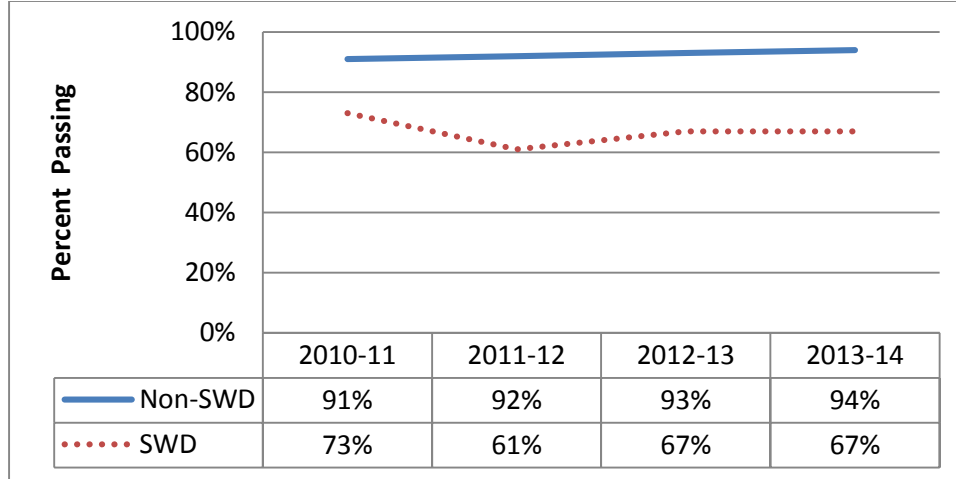


Table 9: SOL Grade 3 Sample Sizes by Disability Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-SWD	1,313	1,391	1,477	1,580
SWD	203	218	218	222

Figure 11: 4th Grade Social Studies SOL Results by Disability Status, 2010-11 to 2013-14

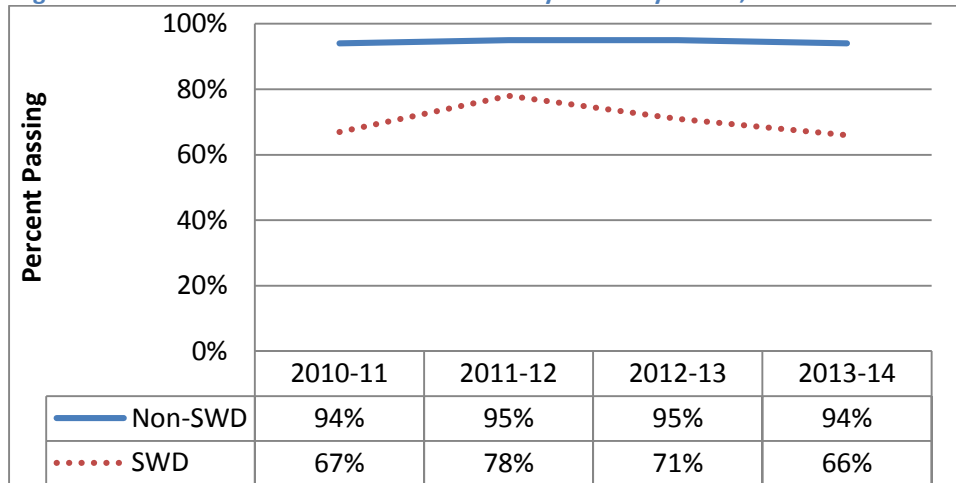
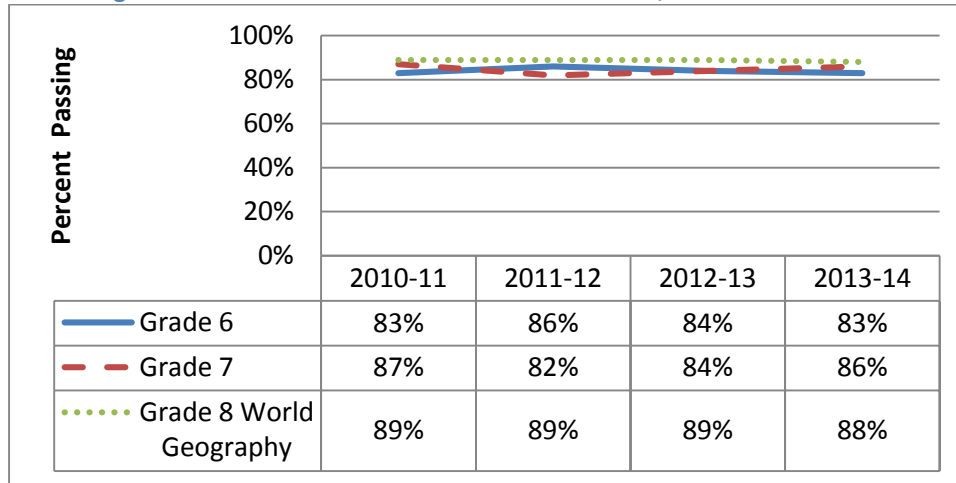


Table 10: SOL Grade 4 Sample Sizes by Disability Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-SWD	1,315	1,275	1,367	1,448
SWD	219	225	224	217

Section 2: Middle School Social Studies SOL Results

Figure 12: Middle School Social Studies SOL Results, 2010-11 to 2013-14



Middle School Social Studies SOLs by Race/Ethnicity

Figure 13: Grade 6 Social Studies SOL Results by Race/Ethnicity, 2010-11 to 2013-14

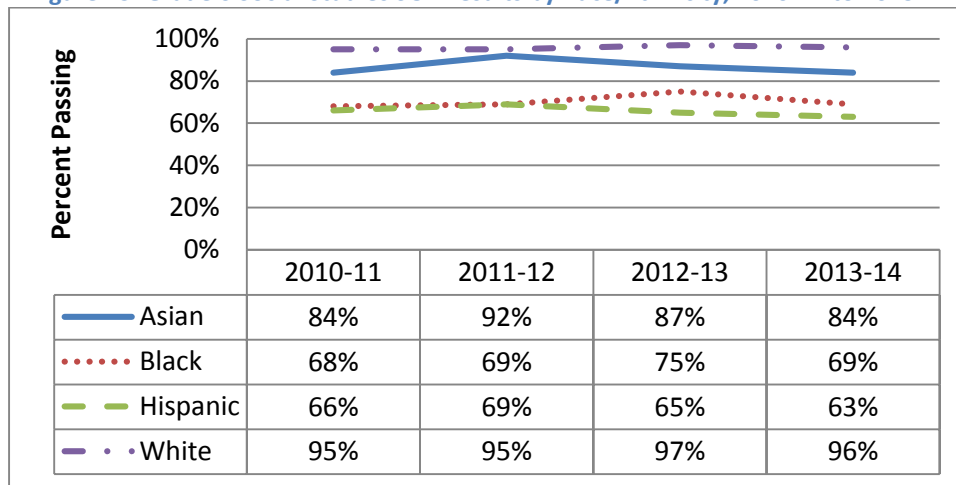


Table 11: SOL Grade 6 Sample Sizes by Race/Ethnicity 2010-11 through 2013-14

	2010-11	2011-12	2012-13	2013-14
Asian	109	129	156	129
Black	154	149	153	166
Hispanic	362	387	401	420
White	647	646	760	737

Figure 14: Grade 7 Social Studies SOL Results by Race/Ethnicity, 2010-11 to 2013-14

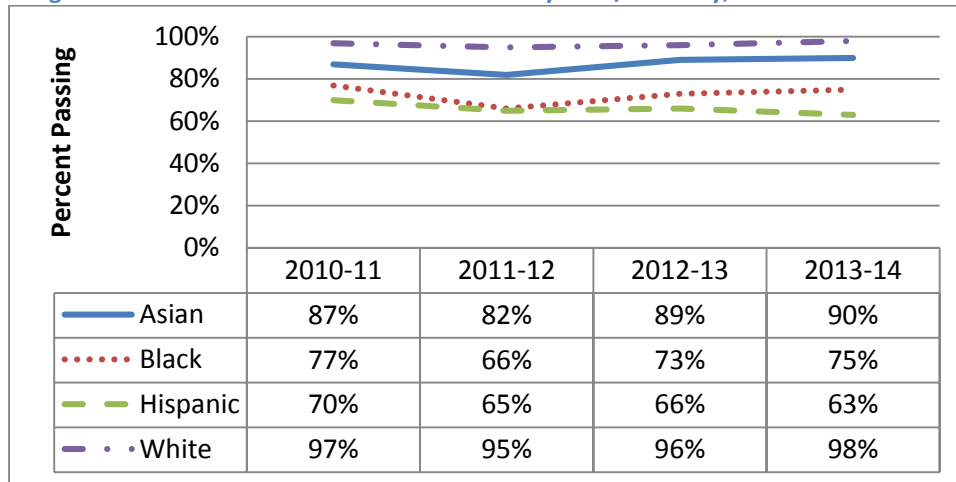


Table 12: SOL Grade 7 Sample Sizes by Race/Ethnicity 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Asian	119	120	142	155
Black	158	165	158	152
Hispanic	319	368	401	382
White	587	636	648	769

Figure 15: Grade 8 World Geography SOL Results by Race/Ethnicity, 2010-11 to 2013-14

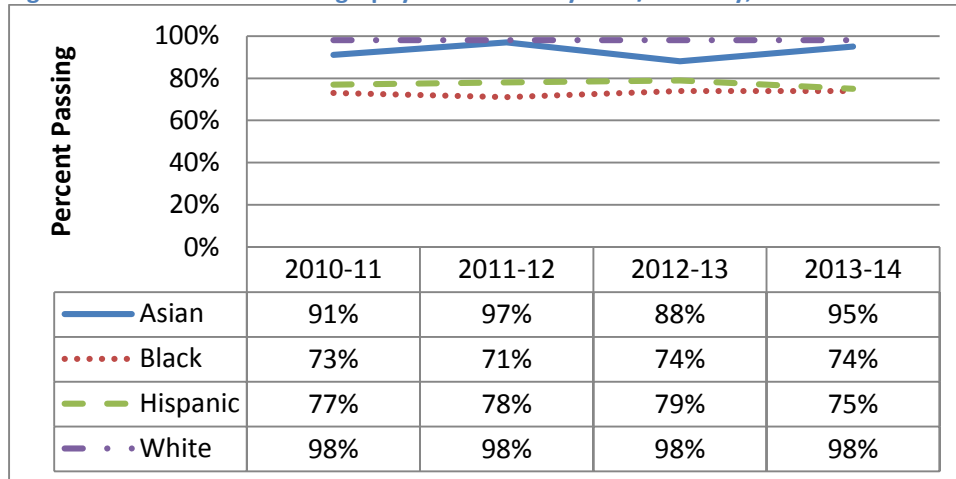


Table 13: SOL Grade 8 World Geography Sample Sizes by Race/Ethnicity 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Asian	113	119	114	136
Black	150	164	158	158
Hispanic	368	320	356	393
White	621	583	627	643

Middle School Social Studies SOLs by Gender

Figure 16: Grade 6 Social Studies SOL Results by Gender, 2010-11 to 2013-14

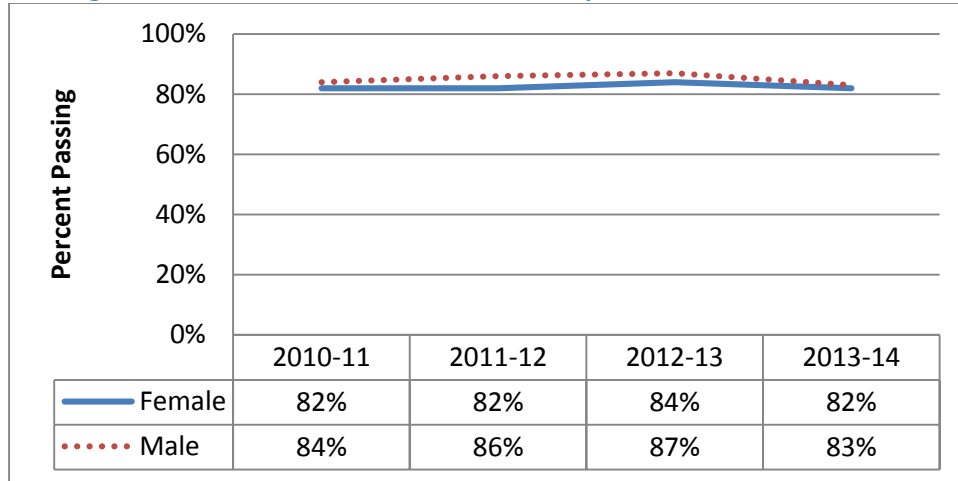


Table 14: SOL Grade 6 Sample Sizes by Gender 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Females	676	696	742	780
Males	685	685	820	773

Figure 17: Grade 7 Social Studies SOL Results by Gender, 2010-11 to 2013-14

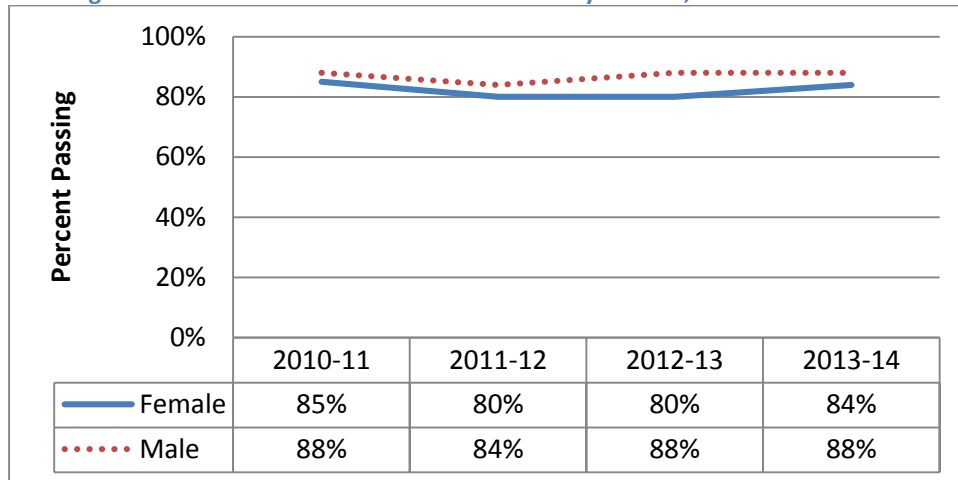


Table 15: SOL Grade 7 Sample Sizes by Gender 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Females	580	682	718	742
Males	668	692	699	808

Figure 18: 8th Grade World Geography SOL Results by Gender, 2010-11 to 2013-14

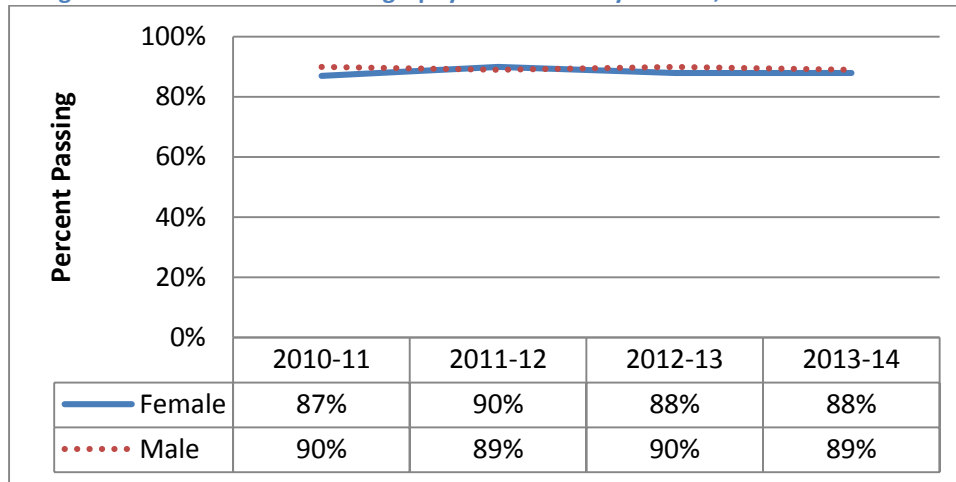


Table 16: SOL Grade 8 Sample Sizes by Gender 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Females	653	578	671	699
Males	678	669	668	699

Middle School Social Studies SOLs by Economic Status

Figure 19: 6th Grade Social Studies SOL Results by Economic Status, 2010-11 to 2013-14

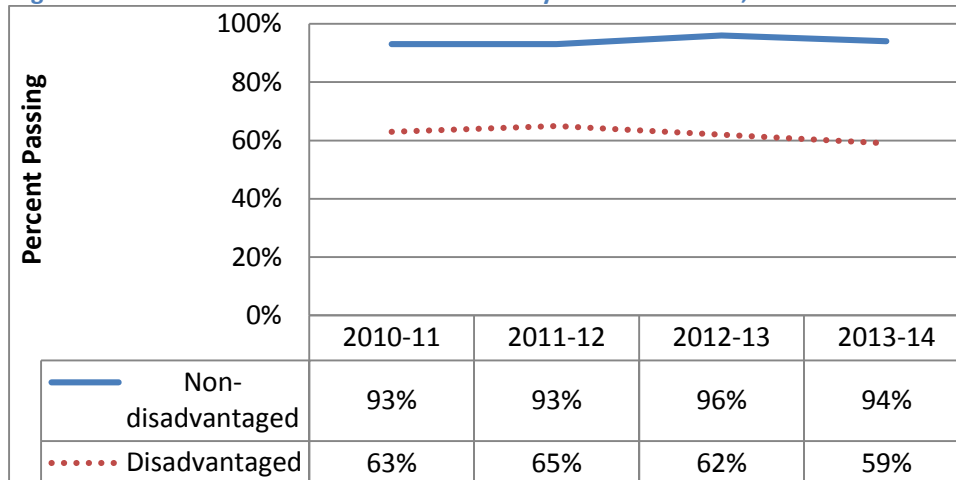


Table 17: SOL Grade 6 Sample Sizes by Economic Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-Disadvantaged	929	955	1,075	1,069
Disadvantaged	432	426	487	484

Figure 20: Grade 7 Social Studies SOL Results by Economic Status, 2010-11 to 2013-14

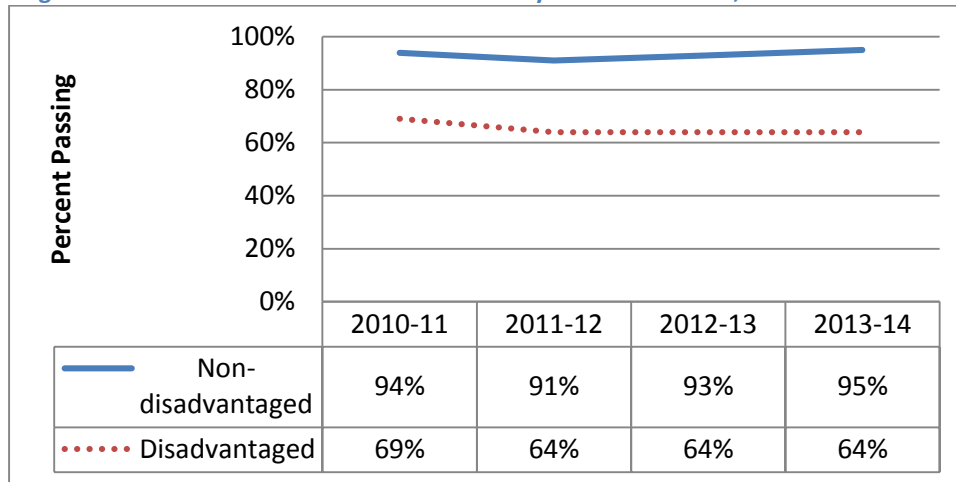


Table 18: SOL Grade 7 Sample Sizes by Economic Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-Disadvantaged	862	918	976	1,081
Disadvantaged	386	456	441	469

Figure 21: 8th Grade World Geography SOL Results by Economic Status, 2010-11 to 2013-14

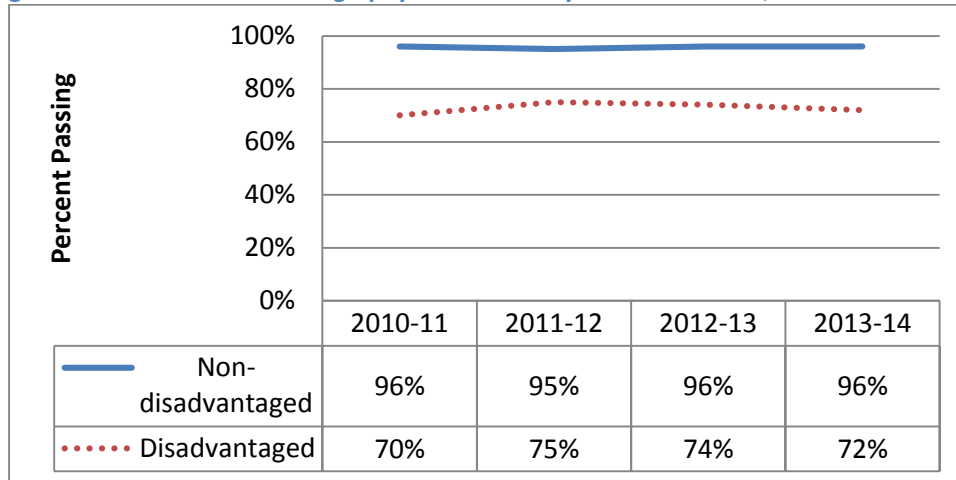


Table 19: SOL Grade 8 Sample Sizes by Economic Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-Disadvantaged	951	872	909	964
Disadvantaged	380	375	430	434

Middle School Social Studies SOLs by LEP Status

Figure 22: Grade 6 Social Studies SOL Results by LEP Status, 2010-11 to 2013-14

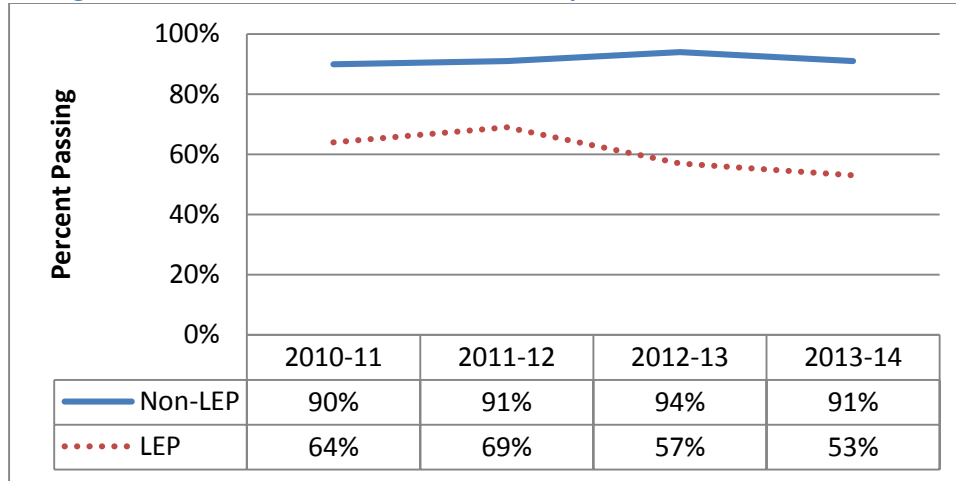


Table 20: SOL Grade 6 Sample Sizes by LEP Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-LEP	981	949	1,196	1,215
LEP	380	432	366	338

Figure 23: Grade 7 Social Studies SOL Results by LEP Status, 2010-11 to 2013-14

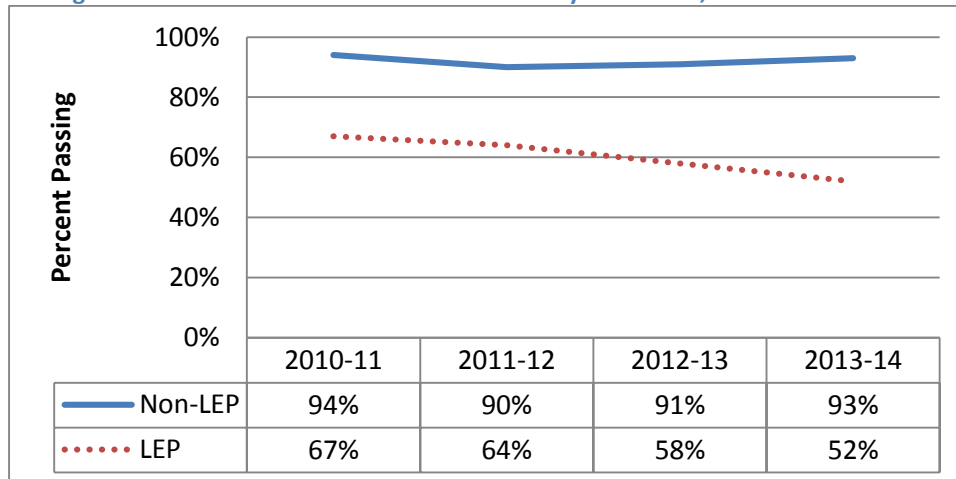


Table 21: SOL Grade 7 Sample Sizes by LEP Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-LEP	908	981	1,115	1,269
LEP	340	393	302	281

Figure 24: Grade 8 World Geography SOL Results by LEP Status, 2010-11 to 2013-14

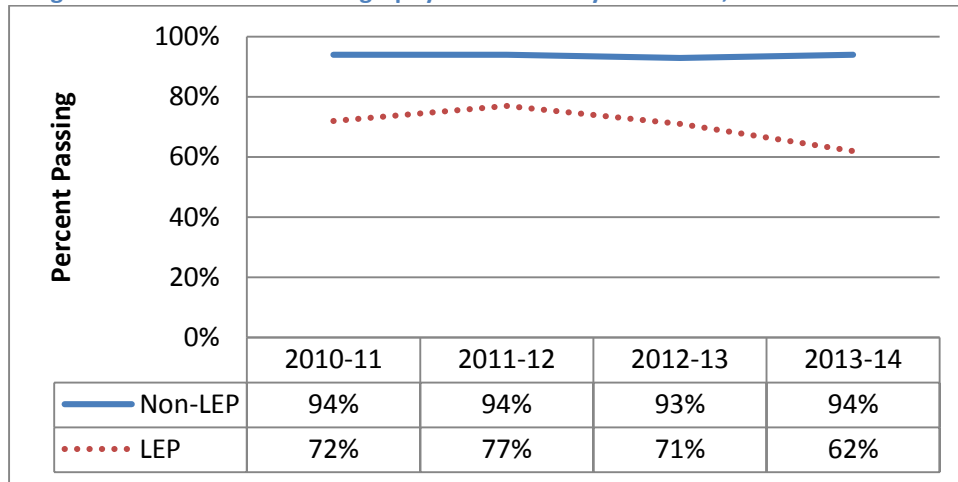


Table 21: SOL Grade 8 Sample Sizes by LEP Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-LEP	1,011	922	1,082	1,168
LEP	320	325	257	230

Middle School Social Studies SOLs by Disability Status

Figure 25: Grade 6 Social Studies SOL Results by Disability Status, 2010-11 to 2013-14

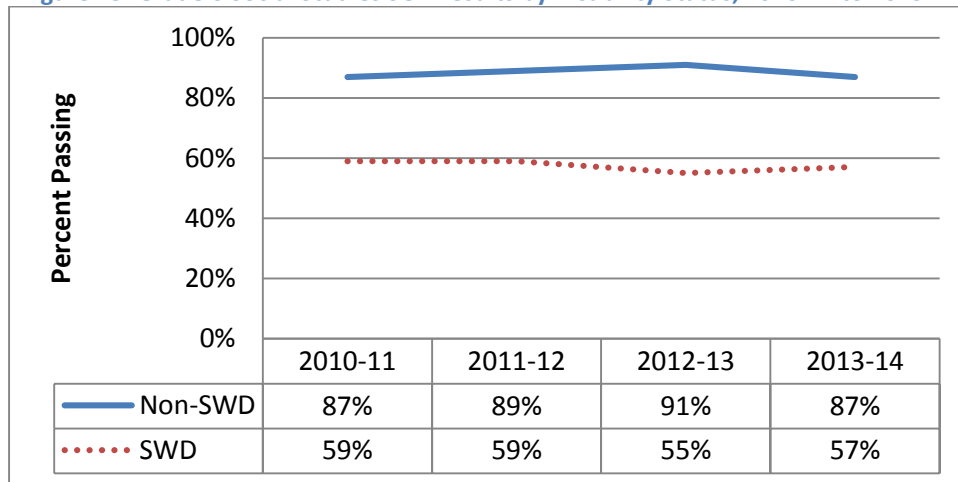


Table 22: SOL Grade 6 Sample Sizes by Disability Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-SWD	1,165	1,156	1,318	1,313
SWD	196	225	244	240

Figure 26: Grade 7 Social Studies SOL Results by Disability Status, 2010-11 to 2013-14

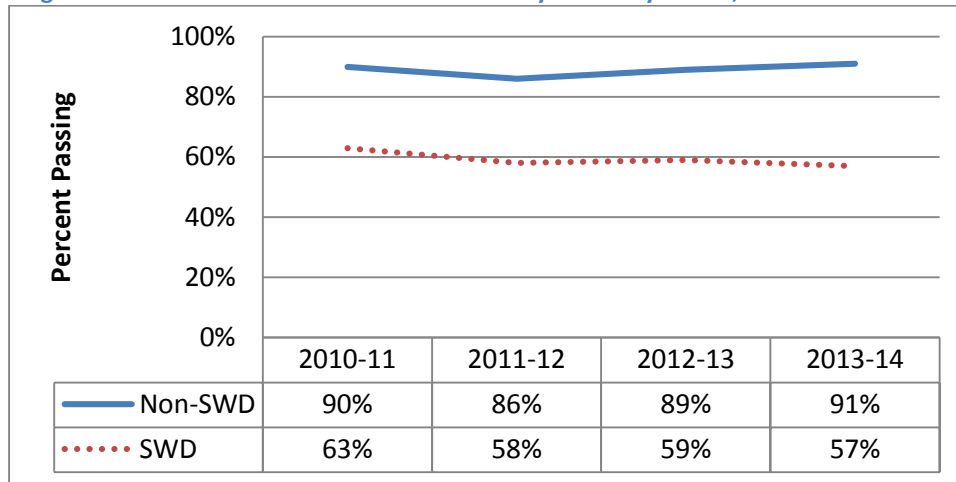


Table 23: SOL Grade 7 Sample Sizes by Disability Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-SWD	1,076	1,173	1,178	1,300
SWD	172	201	239	250

Figure 27: Grade 8 World Geography SOL Results Disability Status, 2010-11 to 2013-14

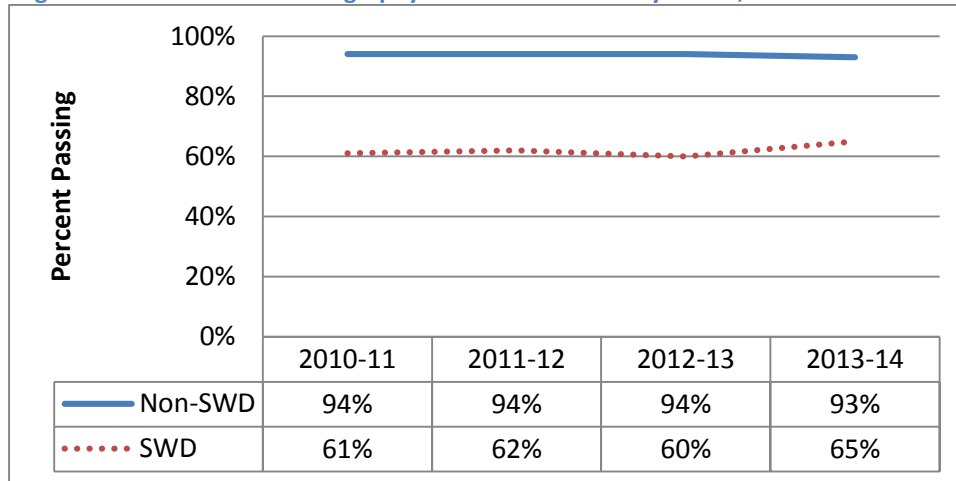
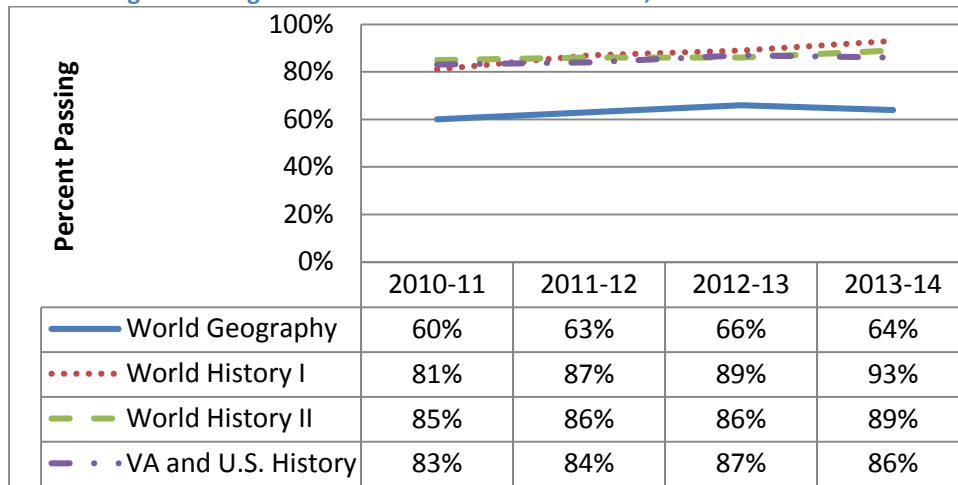


Table 24: SOL Grade 8 Sample Sizes by Disability Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-SWD	1,126	1,055	1,131	1,159
SWD	205	192	208	239

Section 3: High School Social Studies SOL Results

Figure 28: High School Social Studies SOL Results, 2010-11 to 2013-14



High School Social Studies SOLs by Ethnicity/Race

Figure 29: World Geography SOL Results by Ethnicity, 2010-11 to 2013-14

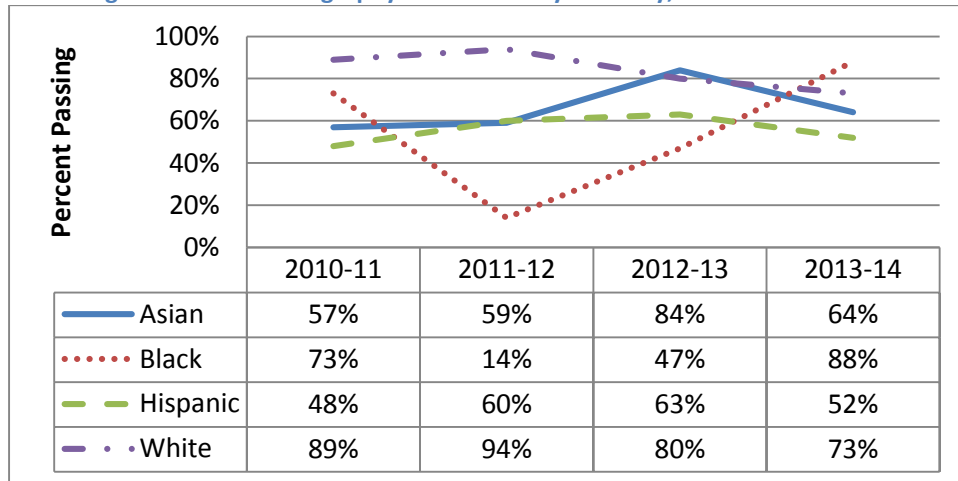


Table 25: SOL World Geography Sample Sizes by Race/Ethnicity 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Asian	23	27	19	14
Black	22	7	17	8
Hispanic	65	65	54	46
White	18	17	15	11

Figure 30: World History I SOL Results by Ethnicity, 2010-11 to 2013-14

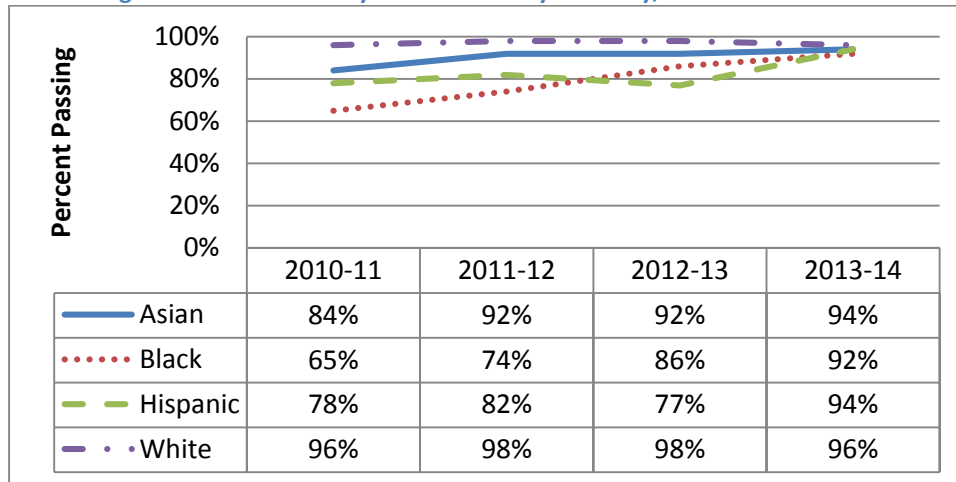


Table 26: SOL World History I Sample Sizes by Race/Ethnicity 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Asian	38	50	36	32
Black	76	78	36	50
Hispanic	139	148	91	97
White	95	132	100	90

Figure 31: World History II SOL Results by Ethnicity, 2010-11 to 2013-14

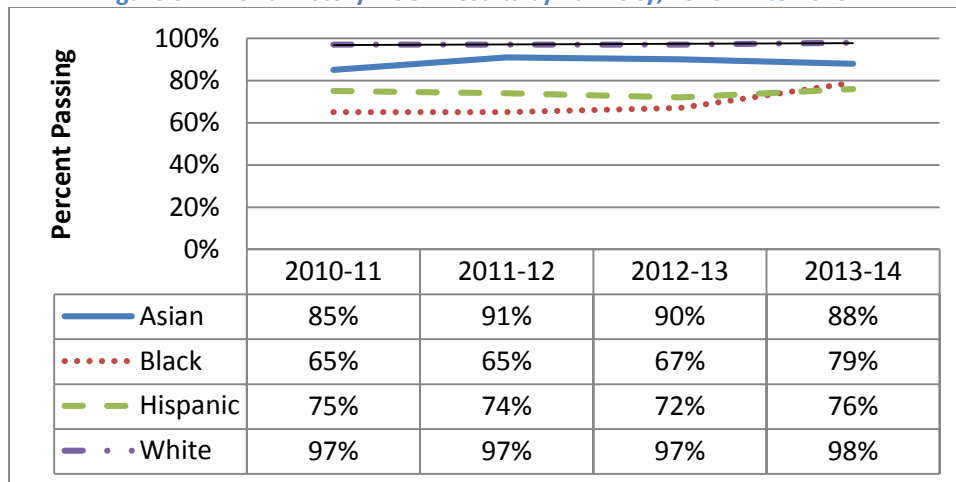


Table 27: SOL World History II Sample Sizes by Race/Ethnicity 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Asian	138	121	132	129
Black	166	161	177	177
Hispanic	342	383	336	383
White	588	632	628	638

Figure 32: Virginia and U.S. History SOL Results by Ethnicity, 2010-11 to 2013-14

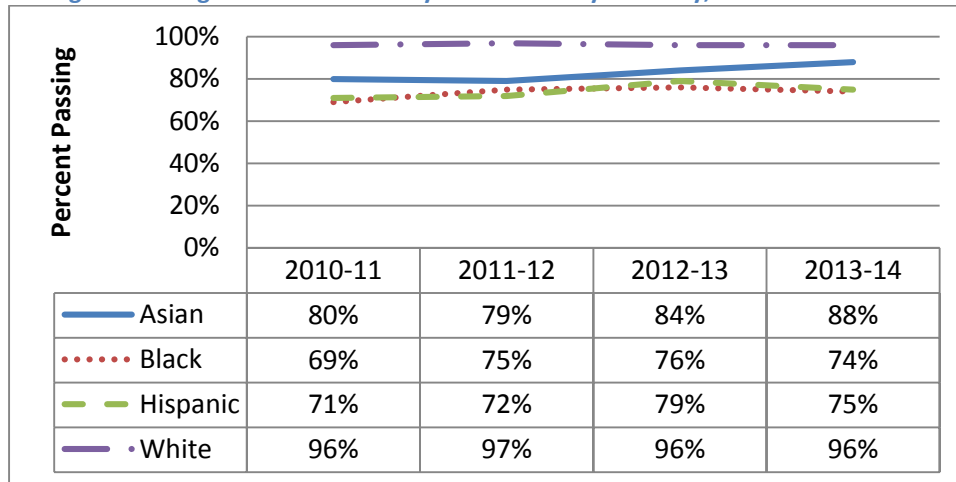


Table 28: SOL Virginia and U.S. History Sample Sizes by Race/Ethnicity 2010–11 through 2013–14

	2010-11	2011-12	2012-13	2013-14
Asian	141	162	166	138
Black	183	179	189	156
Hispanic	370	389	366	407
White	553	535	596	618

High School Social Studies SOLs by Gender

Figure 33: World Geography SOL Results by Gender, 2010-11 to 2013-14

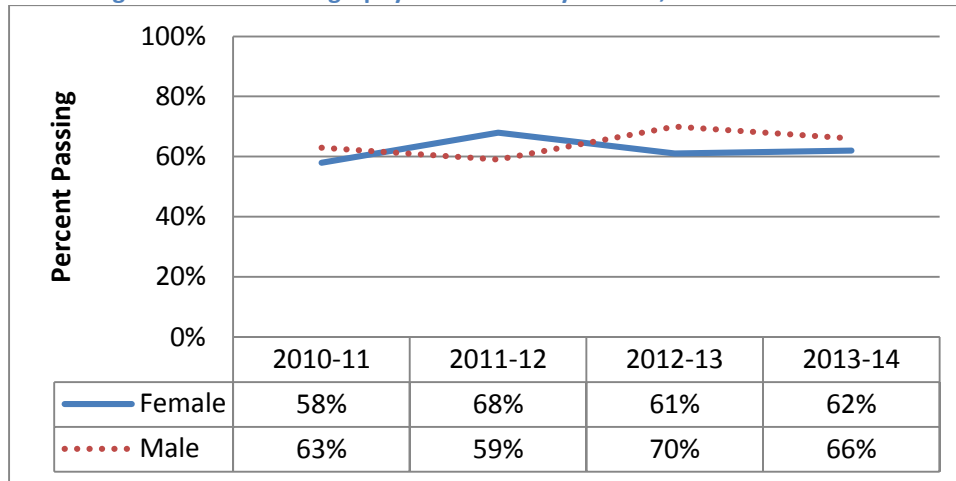


Table 29: SOL World Geography Sample Sizes by Gender 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Females	67	53	41	39
Males	64	66	66	47

Figure 34: World History I SOL Results by Gender, 2010-11 to 2013-14

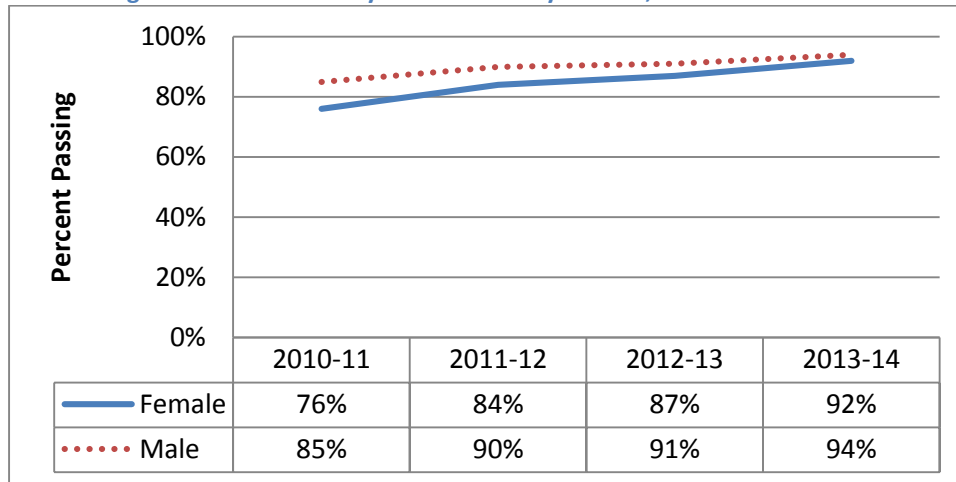


Table 30: SOL World History I Sample Sizes by Gender 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Females	171	194	134	115
Males	190	227	142	168

Figure 35: World History II SOL Results by Gender, 2010-11 to 2013-14

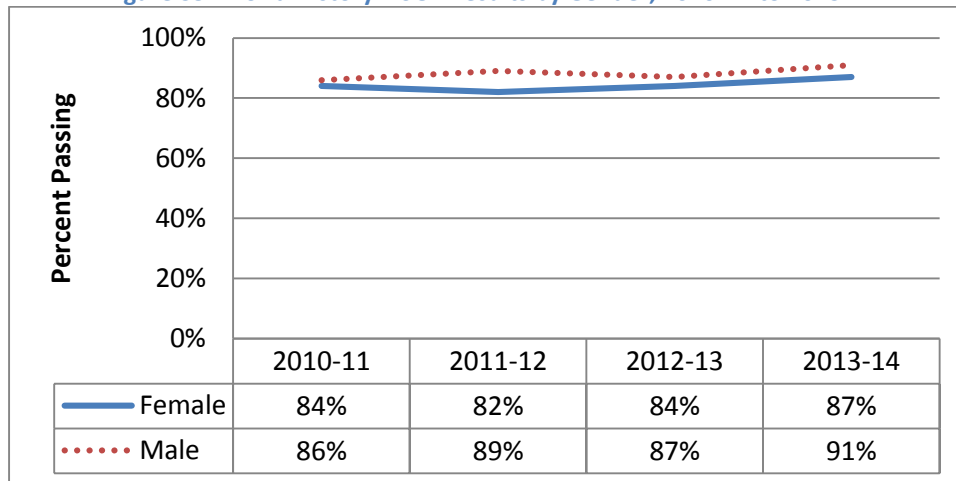


Table 31: SOL World History II Sample Sizes by Gender 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Females	626	682	634	712
Males	668	686	707	705

Figure 35: Virginia and U.S. History SOL Results by Gender, 2010-11 to 2013-14

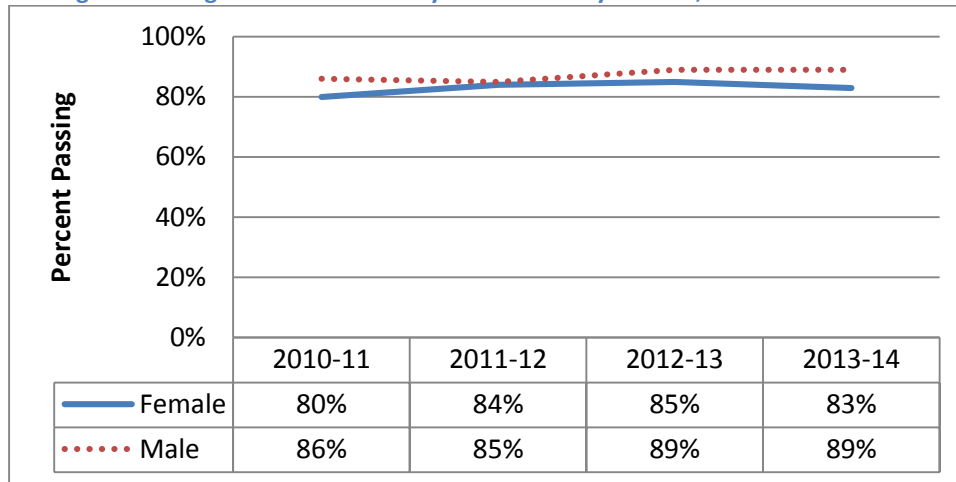


Table 32: SOL Virginia and U.S. History Sample Sizes by Gender 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Females	653	690	684	683
Males	646	637	691	720

High School Social Studies SOLs by Economic Status

Figure 36: World Geography SOL Results by Economic Status, 2010-11 to 2013-14

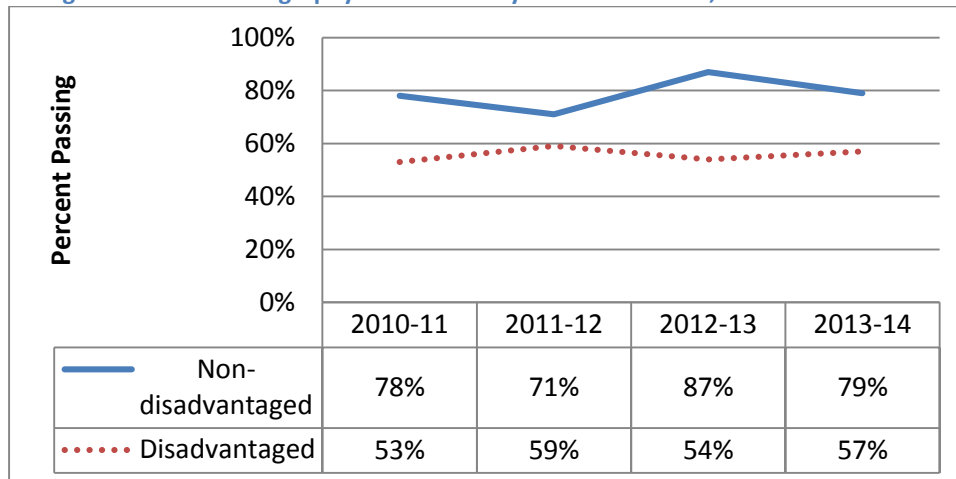


Table 33: SOL World Geography Sample Sizes by Economic Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-Disadvantaged	40	38	39	28
Disadvantaged	91	81	68	58

Figure 37: World History I SOL Results by Economic Status, 2010-11 to 2013-14

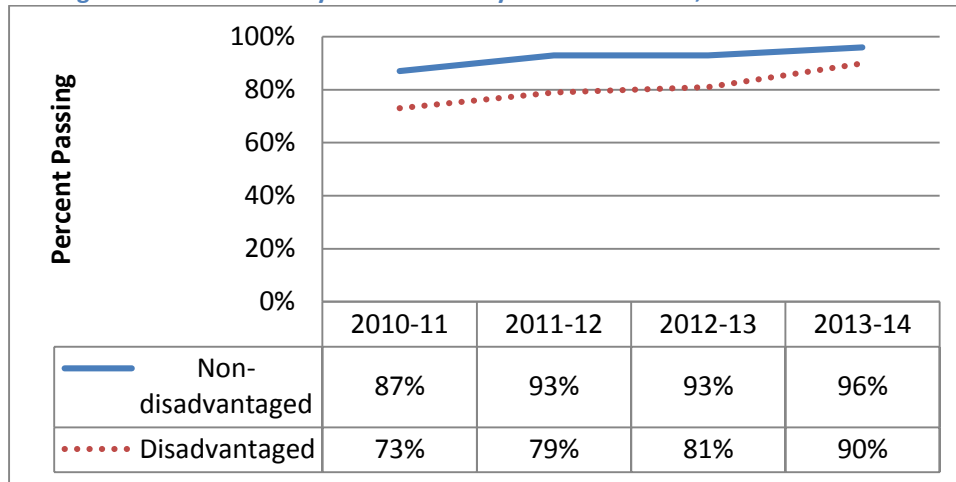


Table 34: SOL World History I Sample Sizes by Economic Status, 2010–11 through 2013–14

	2010-11	2011-12	2012-13	2013-14
Non-Disadvantaged	205	254	176	162
Disadvantaged	156	167	100	121

Figure 38: World History II SOL Results by Economic Status, 2010-11 to 2013-14

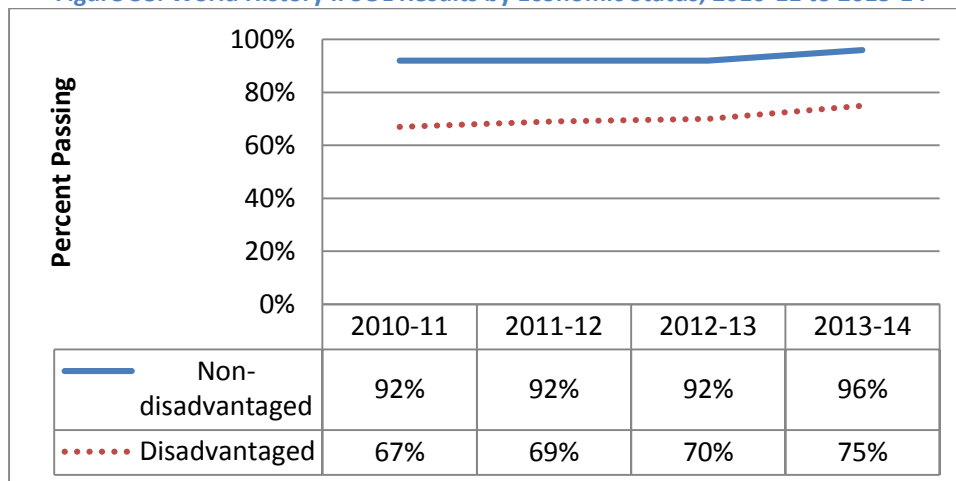


Table 35: SOL World History II Sample Sizes by Economic Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-Disadvantaged	927	983	948	933
Disadvantaged	367	385	393	484

Figure 39: Virginia and U.S. History SOL Results by Economic Status, 2010-11 to 2013-14

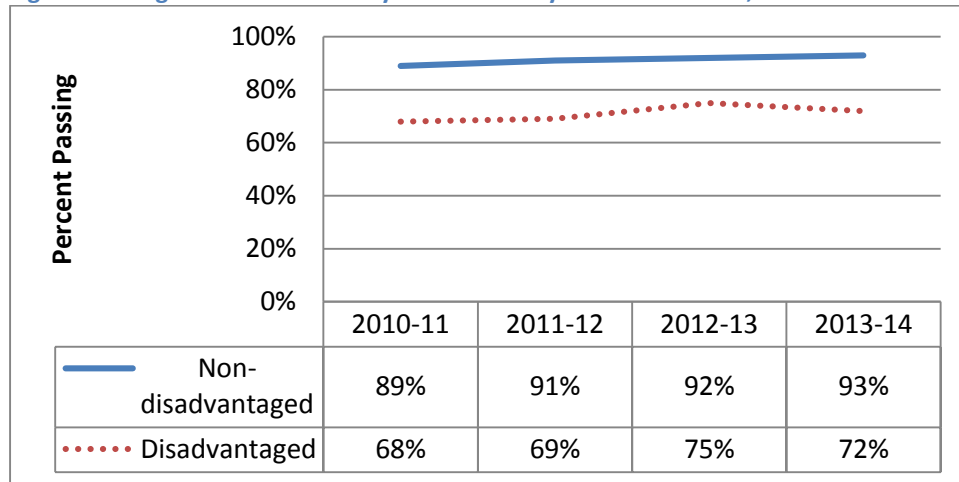


Table 36: SOL VA and U.S. History I Sample Sizes by Economic Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-Disadvantaged	930	925	970	971
Disadvantaged	369	402	405	432

High School Social Studies SOLs by LEP Status

Figure 40: World Geography SOL Results by LEP Status, 2010-11 to 2013-14

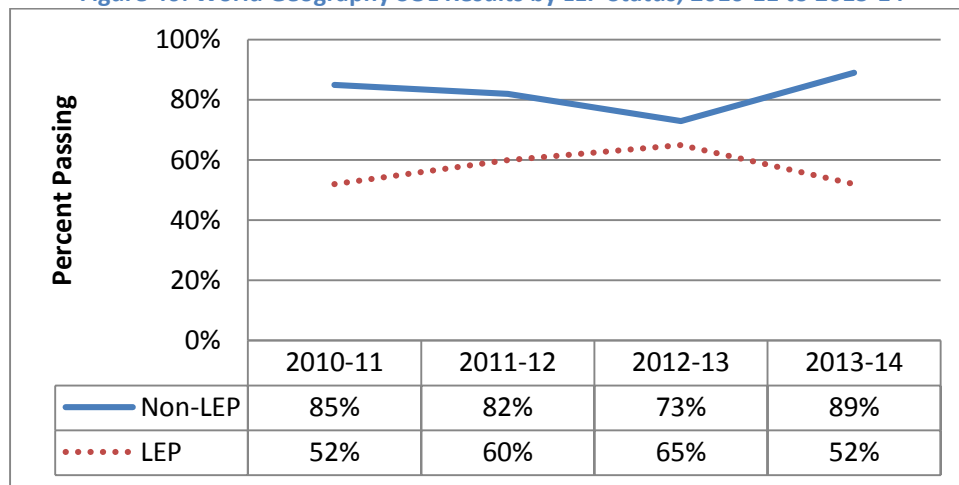


Table 37: SOL World Geography Sample Sizes by LEP Status, 2010–11 through 2013–14

	2010-11	2011-12	2012-13	2013-14
Non-LEP	34	17	22	28
LEP	97	102	85	58

Figure 41: World History I SOL Results by LEP Status, 2010-11 to 2013-14

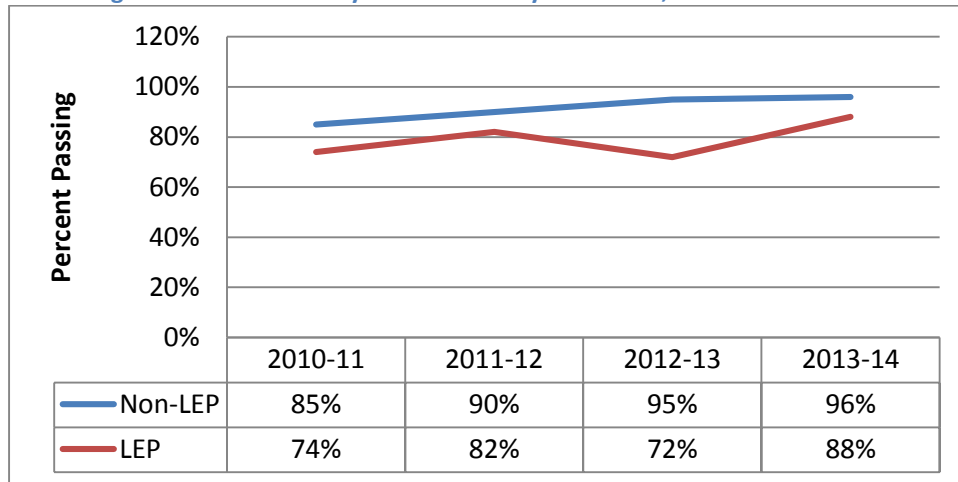


Table 38: SOL World History I Sample Sizes by LEP Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-LEP	239	291	201	198
LEP	122	130	75	85

Figure 42: World History II SOL Results by LEP Status, 2010-11 to 2013-14

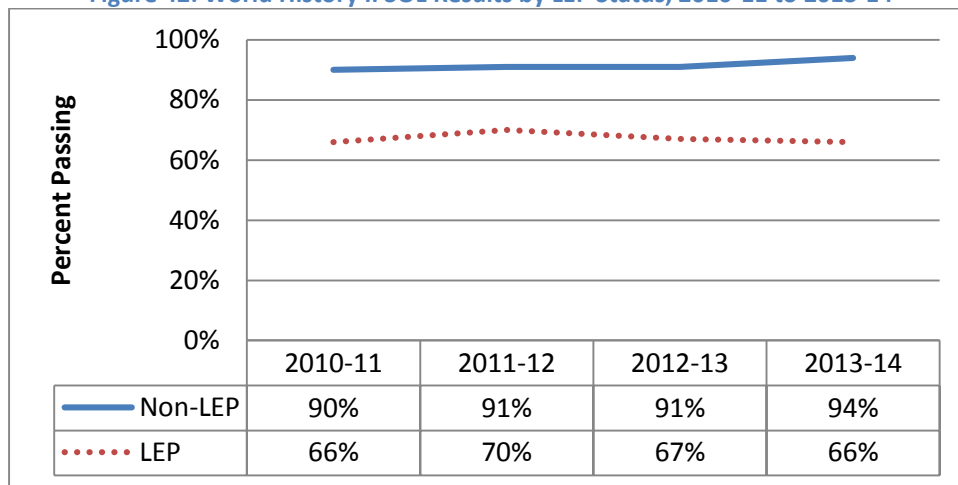


Table 39: SOL World History II Sample Sizes by LEP Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-LEP	1,014	1,038	1,056	1,149
LEP	280	330	285	268

Figure 43: Virginia and U.S. History SOL Results by LEP Status, 2010-11 to 2013-14

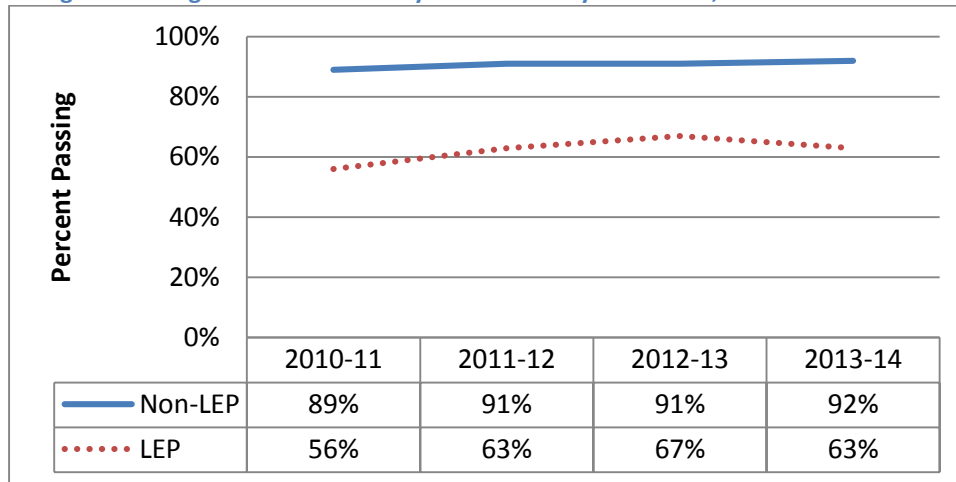


Table 40: SOL Virginia and U.S. History Sample Sizes by LEP Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-LEP	1,088	1,008	1,137	1,138
LEP	211	319	238	265

High School Social Studies SOLs by Disability Status

Figure 44: World Geography SOL Results by Disability Status, 2010-11 to 2013-14

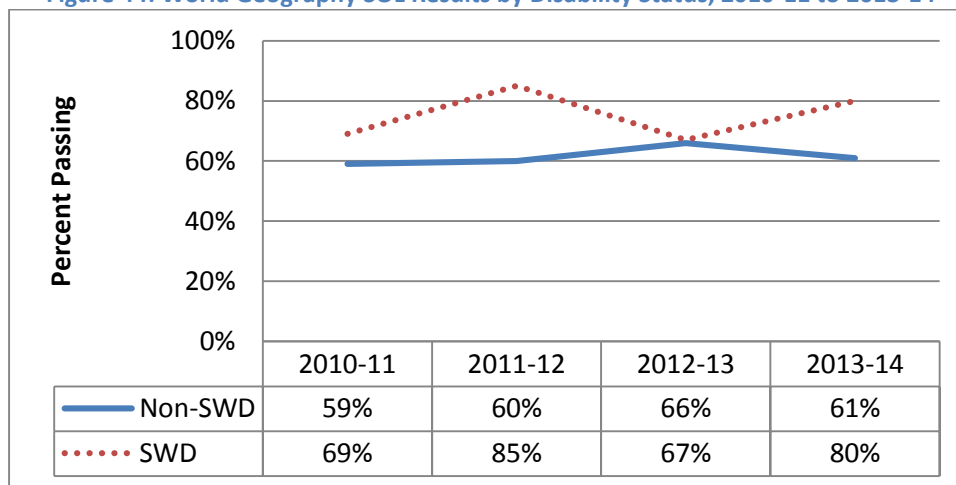


Table 41: SOL World Geography Sample Sizes by Disability Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-SWD	115	106	98	71
SWD	16	13	9	15

Figure 45: World History I SOL Results by Disability Status, 2010-11 to 2013-14

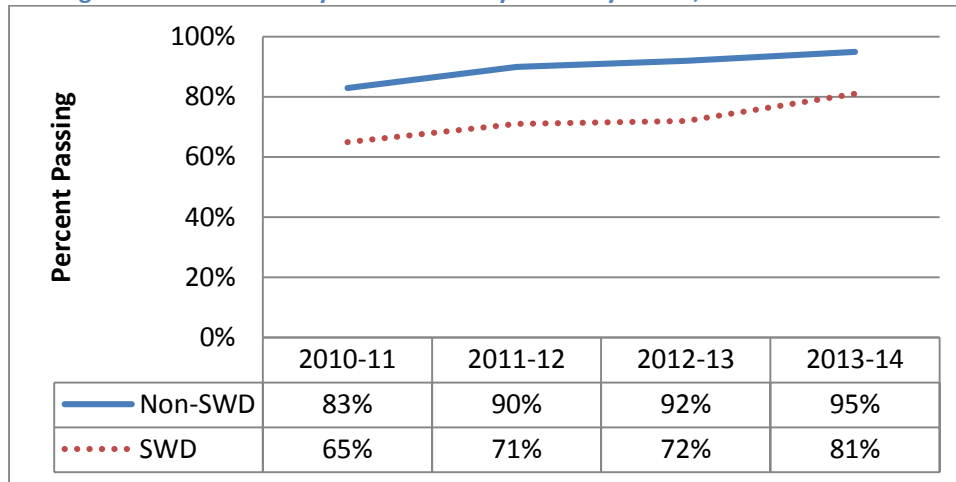


Table 42: SOL World History I Sample Sizes by Disability Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-SWD	318	366	233	246
SWD	43	55	43	37

Figure 46: World History II SOL Results by Disability Status, 2010-11 to 2013-14

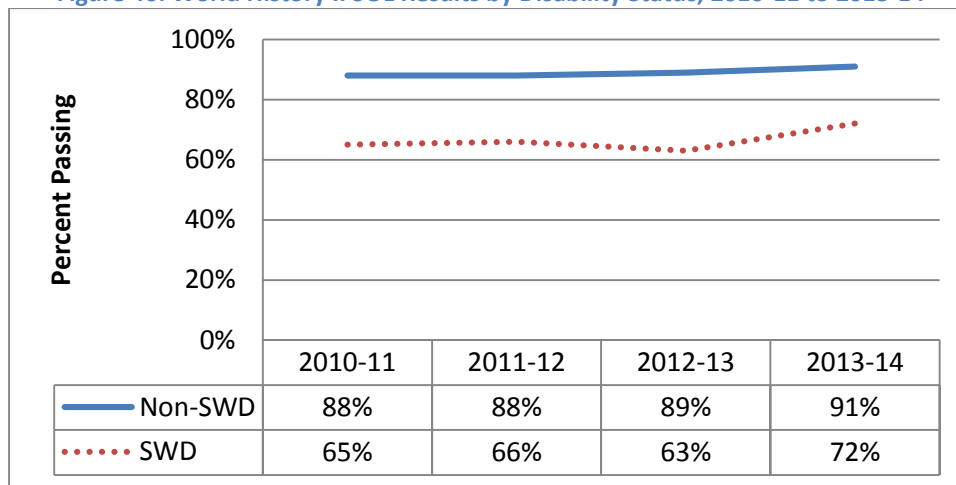


Table 43: SOL World History II Sample Sizes by Disability Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-SWD	1,146	1,208	1,154	1,229
SWD	148	160	187	188

Figure 47: Virginia and U.S. History SOL Results by Disability Status, 2010-11 to 2013-14

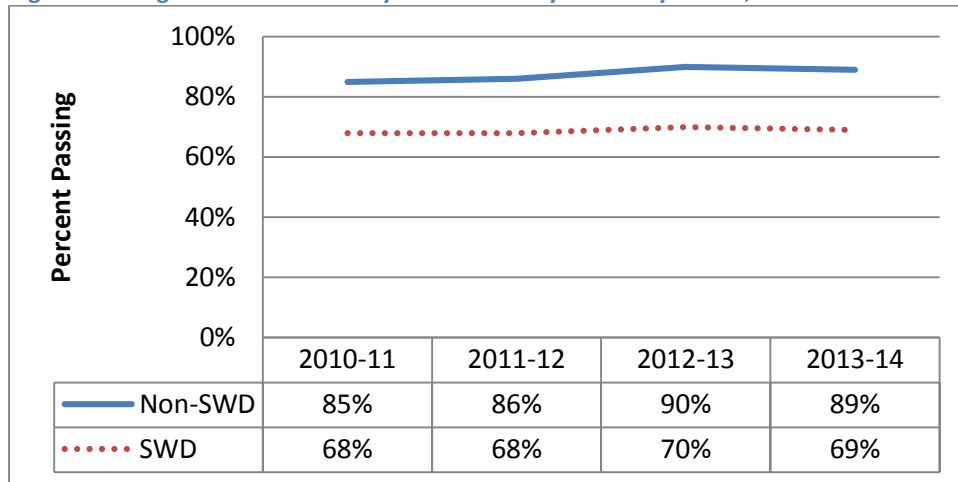


Table 44: SOL Virginia and U.S. History Sample Sizes by Disability Status, 2010–11 through 2013–14

Group	Number of Students Tested			
	2010-11	2011-12	2012-13	2013-14
Non-SWD	1,149	1,188	1,204	1,237
SWD	150	139	171	166

Section 4: Reporting Category Results

Table 45: Grade 3 Social Studies SOL Reporting Category Results, 2009-10 to 2013-14

Grade 3 SOL Reporting Category	2010-11		2011-12		2012-13		2013-14	
	# Tested	% At or Above 30	# Tested	% At or Above 30	# Tested	% At or Above 30	# Tested	% At or Above 30
Civics	1,524	85%	1,614	85%	1,703	87%	1,811	87%
Economics	1,524	79%	1,614	85%	1,703	88%	1,811	89%
Geography	1,524	87%	1,614	87%	1,703	87%	1,811	87%
History	1,524	88%	1,614	86%	1,703	88%	1,811	90%

Table 46: Grade 4 Social Studies SOL Reporting Category Results, 2009-10 to 2013-14

Grade 4 SOL Reporting Category	2010-11		2011-12		2012-13		2013-14	
	# Tested	% At or Above 30	# Tested	% At or Above 30	# Tested	% At or Above 30	# Tested	% At or Above 30
Civics	1,542	85%	1,502	93%	1,595	86%	1,684	93%
Economics	1,542	91%	1,502	91%	1,595	87%	1,684	88%
Geography	1,542	92%	1,502	87%	1,595	88%	1,684	88%
History	1,542	87%	1,502	91%	1,595	89%	1,684	90%

Table 47: Grade 6 Social Studies SOL Reporting Category Results, 2009-10 to 2013-14

Grade 6 SOL Reporting Category	2010-11		2011-12		2012-13		2013-14	
	# Tested	% At or Above 30	# Tested	% At or Above 30	# Tested	% At or Above 30	# Tested	% At or Above 30
Civics & Economics	1,369	79%	1,384	86%	1,566	86%	1,562	84%
Expansion, Reform and The Civil War	1,369	83%	1,384	90%	1,566	81%	1,562	81%
Geography	1,369	82%	1,384	87%	1,566	85%	1,562	82%
Pre-Columbian Time to the 1770s	1,369	76%	1,384	81%	1,566	84%	1,562	80%
Revolution and the New Nation	1,369	80%	1,384	82%	1,566	82%	1,562	83%

Table 48: Grade 7 Social Studies SOL Reporting Category Results, 2010-11 to 2013-14

Grade 7 SOL Reporting Category	2010-11		2011-12		2012-13		2013-14	
	# Tested	% At or Above 30	# Tested	% At or Above 30	# Tested	% At or Above 30	# Tested	% At or Above 30
Civics and Economics	1,254	87%	1,383	85%	1,423	85%	1,556	84%
Geography	1,254	80%	1,383	76%	1,423	76%	1,556	72%
Reconstruction to Modern America	1,254	80%	1,383	79%	1,423	71%	1,556	79%
Turmoil and Change	1,254	83%	1,383	77%	1,423	82%	1,556	84%
United States since World War II	1,254	81%	1,383	89%	1,423	86%	1,556	89%

Table 49: World Geography Grade 8 SOL Reporting Category Results, 2010-11 to 2013-14

World Geography SOL Reporting Category	2010-11		2011-12		2012-13		2013-14	
	# Tested	% At or Above 30	# Tested	% At or Above 30	# Tested	% At or Above 30	# Tested	% At or Above 30
Economic Geography	1,459	75%	1,378	84%	1,485	76%	1,547	75%
Human Geography	1,459	78%	1,378	82%	1,485	82%	1,547	77%
*Physical Geography			1,378	84%	1,485	77%	1,547	80%
Political and Urban Geography	1,459	78%	1,378	75%	1,485	78%	1,547	76%
*Regional Geography			1,378	81%	1,485	87%	1,547	84%

*Data for the Physical and Regional Geography Reporting category is currently not available

Table 50: World Geography SOL Reporting Category Results, 2010-11 to 2013-14

World Geography SOL Reporting Category	2010-11		2011-12		2012-13		2013-14	
	# Tested	% At or Above 30	# Tested	% At or Above 30	# Tested	% At or Above 30	# Tested	% At or Above 30
Economic Geography	231	39%	208	45%	186	46%	240	28%
Human Geography	231	45%	208	52%	186	53%	240	35%
*Physical Geography								
Political and Urban Geography	231	44%	208	37%	186	44%	240	35%
*Regional Geography								

*Data for the Physical and Regional Geography Reporting category is currently not available

Table 51: World History I SOL Reporting Category Results, 2010-11 to 2013-14

World History I SOL Reporting Category	2010-11		2011-12		2012-13		2013-14	
	# Tested	% At or Above 30	# Tested	% At or Above 30	# Tested	% At or Above 30	# Tested	% At or Above 30
Civics and Economics	435	74%	487	80%	327	69%	324	74%
Classical Civilizations and Rise of Religious Traditions	435	70%	487	71%	327	65%	324	84%
Geography	435	68%	487	77%	327	79%	324	82%
Human Origins and Early Civilizations	435	64%	487	73%	327	78%	324	81%
Postclassical Civilizations	435	62%	487	76%	327	73%	324	73%
Regional Interactions	435	72%	487	80%	327	82%	324	81%

Table 52: World History II SOL Reporting Category Results, 2010-11 to 2013-14

World History II SOL Reporting Category	2010-11		2011-12		2012-13		2013-14	
	# Tested	% At or Above 30	# Tested	% At or Above 30	# Tested	% At or Above 30	# Tested	% At or Above 30
Age of Revolutions	1,517	78%	1,659	76%	1,611	73%	1,699	78%
Civics and Economics	1,517	71%	1,659	70%	1,611	73%	1,699	75%
Emergence of a Global Age	1,517	70%	1,659	70%	1,611	68%	1,699	72%
Era of Global Age Wars	1,517	70%	1,659	72%	1,611	71%	1,699	75%
Geography	1,517	75%	1,659	69%	1,611	73%	1,699	79%
Post World War II Period	1,517	85%	1,659	80%	1,611	80%	1,699	80%

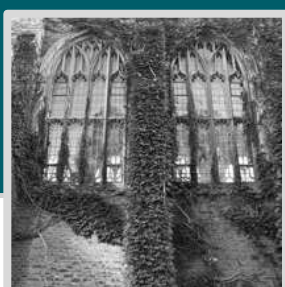
Table 53: VA and U.S. History SOL Reporting Category Results, 2009-10 to 2013-14

VA and U.S. History SOL Reporting Category	2010-11		2011-12		2012-13		2012-14	
	# Tested	% At or Above 30	# Tested	% At or Above 30	# Tested	% At or Above 30	# Tested	% At or Above 30
Civics	1,575	68%	1,676	72%	1,659	72%	1,728	74%
Early America Through the Founding of the New Nation	1,575	71%	1,676	64%	1,659	64%	1,728	64%
Emergence of Modern America and World Conflict: 1877-1945	1,575	69%	1,676	69%	1,659	72%	1,728	74%
Expansion, Reform, Civil War and Reconstruction: 1801-1877	1,575	68%	1,676	63%	1,659	73%	1,728	78%
Geography and Economics	1,575	72%	1,676	74%	1,659	77%	1,728	72%
The United States since World War II	1,575	72%	1,676	70%	1,659	79%	1,728	77%

Social Studies Impact Evaluation

Prepared for Arlington Public School

April 2015



In the following report, Hanover Research investigates the instructional and demographic factors that predict student performance on the Virginia Standards of Learning (SOL) exam in social studies for Grade 3 and Grade 4 students in Arlington Public Schools (APS).

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EXECUTIVE SUMMARY AND KEY FINDINGS

INTRODUCTION

In this report, Hanover Research analyzes Arlington Public Schools' (APS) Grade 3 and Grade 4 student performance on the Virginia Standards of Learning (SOL) exam in social studies. We use a linear regression model to measure the effect of various instructional and demographic factors on student outcomes, and we detail the regression analysis methodology in the Appendix. The main independent variables of interest are instructional: delivery model, delivery model time, and average hours of instruction. Using data on Grade 3 and Grade 4 students, we examine SOL scale scores, proficiency ratings, and advanced score ratings.

KEY FINDINGS

Instructional Variables

- **On average, Grade 4 students with departmentalized instruction or a greater number of instruction hours have significantly higher social studies SOL scores.** However, receiving social studies instruction weekly or on a schedule that alternates with Science does not have a significant effect on Grade 4 student performance.
 - Grade 4 students who receive departmentalized instruction have higher SOL scores, on average, compared to students with a classroom teacher by approximately 22 points. In addition, departmentalized instruction has a much larger effect on the probability of earning an advanced score compared to just passing. Specifically, students who receive departmentalized instruction have a higher probability of passing by 4 percentage points, but a higher probability of earning an *advanced* score by 14 percentage points, on average.
 - Similarly, for every additional hour of instruction, a Grade 4 student's SOL score is expected to increase by approximately 13 points, their probability of passing increases by approximately 3 percentage points, and their probability of earning an *advanced* score increases by approximately 7 percentage points, on average.
 - The estimated coefficients for instructional delivery model and average hours of instruction are significant across all Grade 4 models at the 99 percent confidence level.

- **In Grade 3, there was no significant effect of delivery model, delivery model time, or number of instruction hours on SOL scaled scores or the probability of earning an advanced rating, but we do find some effect on passing.** Specifically, Grade 3 students with a classroom teacher or weekly social studies instruction are significantly more likely to pass compared to Grade 3 students with departmentalized instruction or social studies instruction that alternates with science. This means that a classroom teacher delivery model and weekly instruction delivery had an impact on Grade 3 students with SOL scores near the passing threshold, but not in other SOL score ranges.

Demographic Variables

- **Male students generally have significantly higher social studies SOL scores.** Grade 3 female students have *lower* SOL scores by approximately 9 points compared to male students, on average, while Grade 4 female students have lower SOL scores by approximately 7 points.
- **LEP students and special education students generally have significantly *lower* social studies SOL scores.** Compared to non-LEP students, LEP students have lower SOL scores by approximately 9 points in Grade 3 and *18 points* in Grade 4, on average. Similarly, special education students have lower SOL scores by approximately 54 points in Grade 3 and 60 points in Grade 4 compared to students who are not enrolled in special education, on average.
- **Economically disadvantaged students have significantly *lower* social studies SOL scores.** Compared to students with no economic disadvantage, economically disadvantaged students have lower SOL scores by approximately 44 points in Grade 3 and 37 points in Grade 4, on average.

Figures ES.1 and ES.2 present a summary of all statistically significant predictors of SOL scaled scores, probability of passing, and probability of receiving an advanced rating that are positively associated with student outcomes in Grades 3 and 4, respectively. Statistically significant predictors are those that will have a positive effect on outcomes at least 90 percent of the time. Further, these findings are based on results of regression model analyses which enable us to account for varying student characteristics simultaneously. As such, each effect is computed as the average of students' outcomes conditional on all other factors included in the model. A full description of these characteristics can be found in the methodology section of the appendix

Figure ES.1: Summary of Predictor Variables – Grade 3

PREDICTED RELATIONSHIP WITH DEPENDENT VARIABLE	SOL SCALED SCORE	PASSING RATING	ADVANCED RATING
Significantly Higher Performance	<ul style="list-style-type: none"> Ethnicity (<i>White compared to Asian, black, Hispanic</i>): +12.5%, +34.7%, and +39.2% Gender (Male): +8.7% Non-LEP: +8.6% Not Special Education: +54.4% No Economic Disadvantage: +44.2% 	<ul style="list-style-type: none"> Delivery Model (<i>Classroom Teacher</i>): +3.9% Delivery Model Time (<i>Weekly Social Studies Instruction</i>): +3.0% Ethnicity (<i>White compared to black, Hispanic</i>): +9.3% and +9.1% Gender (Male): +2.1% Not Special Education: +25.8% No Economic Disadvantage: +14.7% 	<ul style="list-style-type: none"> Ethnicity (<i>White compared to Asian, black, Hispanic</i>): +8.8%, +24.3%, and +25.2% Gender (Male): +4.4% Non-LEP: +9.2% Not Special Education: +26.7% No Economic Disadvantage: +25.7%
Not Significant	<ul style="list-style-type: none"> Delivery Model Delivery Model Time Average Hours of Instruction Ethnicity (<i>Multiple or other ethnicity compared to white</i>) 	<ul style="list-style-type: none"> Average Hours of Instruction Ethnicity (<i>Asian, multiple or other ethnicity compared to white</i>) LEP Status 	<ul style="list-style-type: none"> Delivery Model Delivery Model Time Average Hours of Instruction Ethnicity (<i>Multiple or other ethnicity compared to white</i>)

Note: Magnitudes of predicted relationships between predictors and outcomes reflect conditional averages. That is, each predicted effect is the average difference in outcomes between students with the same set of factors and characteristics.

Figure ES.2: Summary of Predictor Variables – Grade 4

PREDICTED RELATIONSHIP WITH DEPENDENT VARIABLE	SOL SCALED SCORE	PASSING RATING	ADVANCED RATING
Significantly Higher Performance	<ul style="list-style-type: none"> Delivery Model (<i>Departmentalized Instruction</i>): +22.3% Greater Average Hours of Instruction: +13.1% Ethnicity (<i>White compared to black, Hispanic, multiple or other ethnicity</i>): +24.4%, +26.1%, and +13.5% Gender (Male): +6.8% Non-LEP: +17.6% Not Special Education: +59.7% No Economic Disadvantage: +37.1% 	<ul style="list-style-type: none"> Delivery Model (<i>Departmentalized Instruction</i>): +3.6% Greater Average Hours of Instruction: +2.9% Ethnicity (<i>White compared to Hispanic, multiple or other ethnicity</i>): +6.4% and +5.9% Ethnicity (<i>Asian compared to white</i>): +4.6% Non-LEP: +5.0% Not Special Education: +24.3% No Economic Disadvantage: +14.0% 	<ul style="list-style-type: none"> Delivery Model (<i>Departmentalized Instruction</i>): +14.3% Greater Average Hours of Instruction: +6.9% Ethnicity (<i>White compared to black, Hispanic</i>): +14.8% and +11.7% Non-LEP: +13.5% Not Special Education: +27.5% No Economic Disadvantage: +39.5%

Appendix F2

PREDICTED RELATIONSHIP WITH DEPENDENT VARIABLE	SOL SCALED SCORE	PASSING RATING	ADVANCED RATING
Not Significant	<ul style="list-style-type: none"> ▪ Delivery Model Time ▪ Ethnicity (<i>Asian compared to white</i>) 	<ul style="list-style-type: none"> ▪ Delivery Model Time ▪ Ethnicity (<i>Black compared to white</i>) ▪ Gender 	<ul style="list-style-type: none"> ▪ Delivery Model Time ▪ Ethnicity (<i>Asian, multiple or other ethnicity compared to white</i>) ▪ Gender

Note: Magnitudes of predicted relationships between predictors and outcomes reflect conditional averages. That is, each predicted effect is the average difference in outcomes between students with the same set of factors and characteristics.

SECTION I: DATA AND DESCRIPTIVE STATISTICS

In this section, we describe the data and methodology used to examine the potential instructional and demographic predictors of student performance on the Virginia Standards of Learning (SOL) exam in social studies.

DATA

Arlington Public Schools provided Hanover Research with data on student SOL scores and additional variables for 3,529 students during the 2013-14 school year, representing a total of 22 schools. There were no duplicate values by student number. Of these students, 37 were recorded as taking the Virginia Alternative Assessment Program (VAAP). Since these students' test scores are reported on a different scale than those of the SOL assessment, we omit these students to ensure uniformity in our student outcome measures. Further, creating a separate analysis for VAAP students is not feasible given the relatively small sample sizes. This restriction enables us to maintain the sample size and reliability of our analyses. We also exclude one student with an invalid score of zero from the analysis. As a result, the final analytic sample comprises 3,491 students in Grades 3 and 4.

Dependent Variables

The four dependent variables used for analysis in this report are displayed in Figure 1.1 below. First, we model the determinants of student performance on the SOL based on scaled scores. Second, we examine the determinants of the probability that a student passed the SOL assessment. Lastly, we create an additional model to predict whether a student earned an advanced rating on the SOL assessment.

Figure 1.1: Dependent Variables - Definitions

VARIABLE NAME	VARIABLE DESCRIPTION
SOL Scaled Score	A student's SOL score in social studies, on a 200 to 600 scale.
Passing Rating	Takes on a value of 1 if the student earned a proficient or advanced rating on the SOL in social studies, 0 otherwise.
Advanced Rating	Takes on a value of 1 if the student earned an advanced rating on the SOL in social studies, 0 otherwise.

Below, Figure 1.2 shows histograms of SOL scaled scores by grade level.

Figure 1.2: Histogram of Social Studies SOL Scaled Scores, by Grade Level

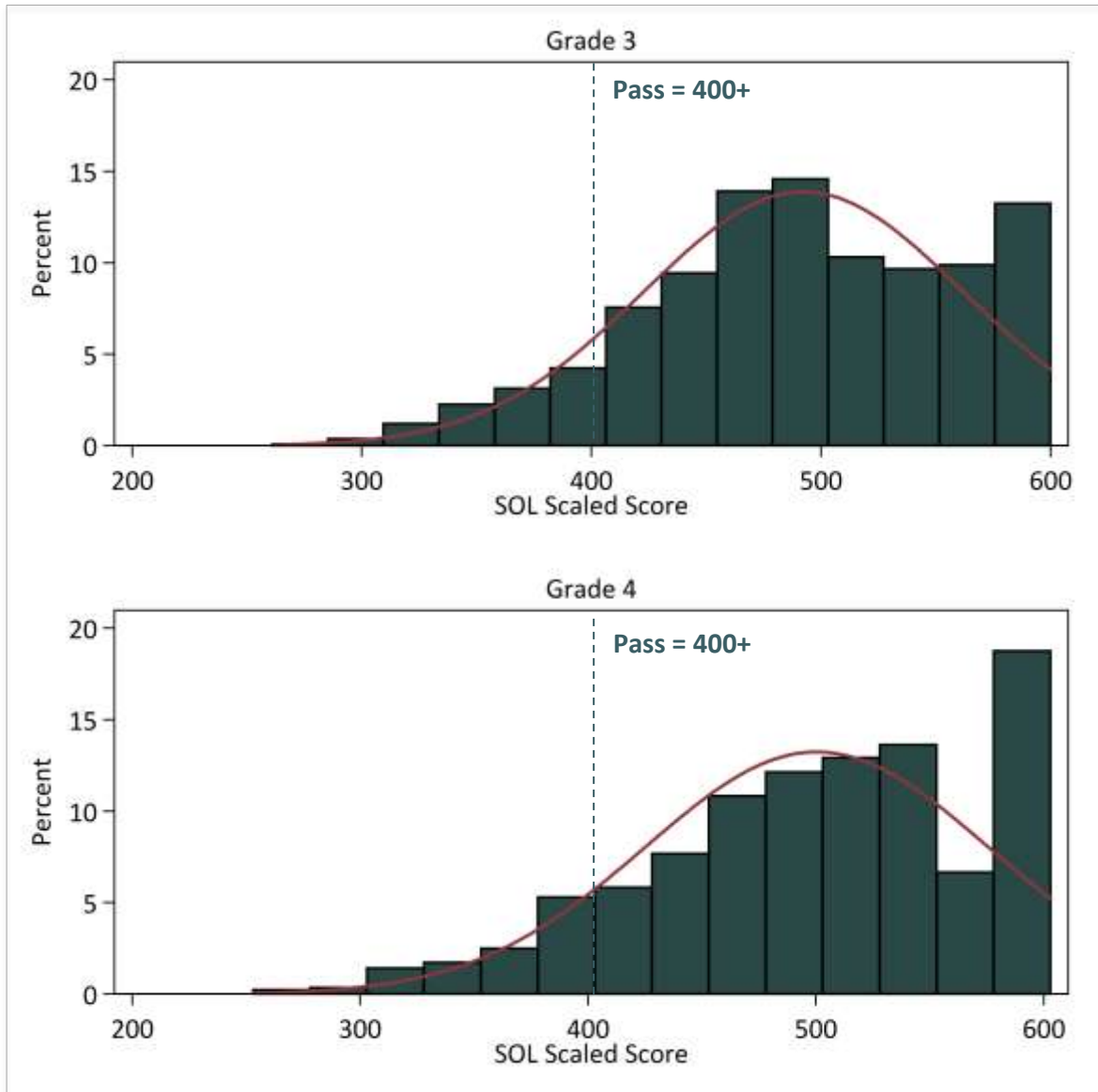


Figure 1.3, below, shows the distribution and summary statistics of SOL scores by grade level.

Figure 1.3: Summary Statistics – Social Studies Standards of Learning Scale Scores by Grade Level

GRADE	N	MEAN	STD. DEV.	MIN	MAX
Grade 3	1,811	492.34	69.58	261	600
Grade 4	1,680	500.36	75.33	253	600

Figure 1.4 defines pass/fail indicators and proficiency ratings and shows the proficiency level distributions by grade level.

Figure 1.4: Virginia Standards of Learning Tests Cut Scores, Pass/Fail Indicators, Proficiency Ratings¹ and Distribution by Grade Level

	CUT SCORE	PASS/FAIL INDICATOR	PROFICIENCY RATING	GRADE 3 (N=1,811)	GRADE 4 (N=1,680)
SCORE RANGE (LOW)	200 – 399	Fail	Fail	9.8%	10.7%
SCORE RANGE (MID)	400 – 499	Pass	Proficient	38.3%	36.8%
SCORE RANGE (HIGH)	500 – 600	Pass	Advanced	51.8%	52.5%

Independent Variables

Figure 1.5 lists all of the independent (explanatory) variables used for the analysis in this report. This table provides a summary of each independent variable examined in the analysis and the variable type. Transformations of each categorical variable were performed by recoding the variable into a binary indicator (i.e., recoded as 0 or 1) when appropriate.

Figure 1.5: Independent Variables Examined

VARIABLE (SOURCE)	SUMMARY	TYPE
Instructional Variables		
Delivery Model	An indicator variable that takes on a value of 1 if a student was taught under a departmentalized delivery model configuration, and 0 if a student was taught under a classroom teacher configuration.	Categorical
Delivery Model Time	An indicator variable that takes on a value of 1 if a student was taught social studies on a weekly basis, and 0 if instruction in social studies alternated with Science.	Categorical

¹ Source: “Virginia Standards of Learning (SOL) Tests Cut Scores as Adopted by the Virginia Board of Education.” Virginia Department of Education. http://www.doe.virginia.gov/testing/scoring/cut_scores.pdf

VARIABLE (SOURCE)	SUMMARY	TYPE
Average Hours of Instruction	Denotes the average hours of instruction in social studies per week for a student.	Continuous
Demographic Variables		
Gender	Female, Male	Categorical
Ethnicity	White, Hispanic, black, Asian, and multiple or other ethnicity. Multiple ethnicity, American Indian, and Pacific Islander were combined into one "multiple or other ethnicity" category.	Categorical
LEP	Whether a student is Limited English Proficient (LEP)	Categorical
Special Education	Whether a student is a special education student	Categorical
Economically Disadvantaged	Whether a student is economically disadvantaged	Categorical

Figures 1.6 and 1.7, below, show the distributions of delivery model and delivery model time by grade level.

Figure 1.6: Delivery Model Distribution by Grade Level

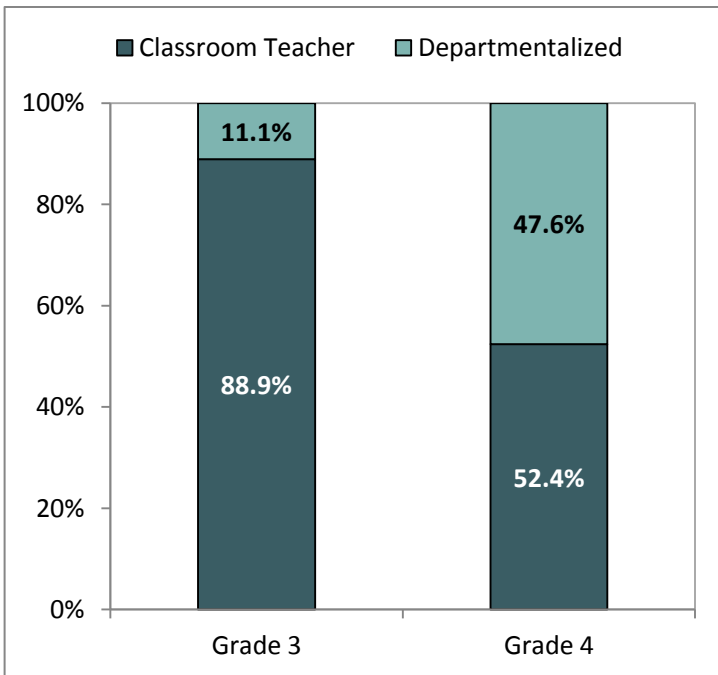


Figure 1.7: Delivery Model Time Distribution by Grade Level

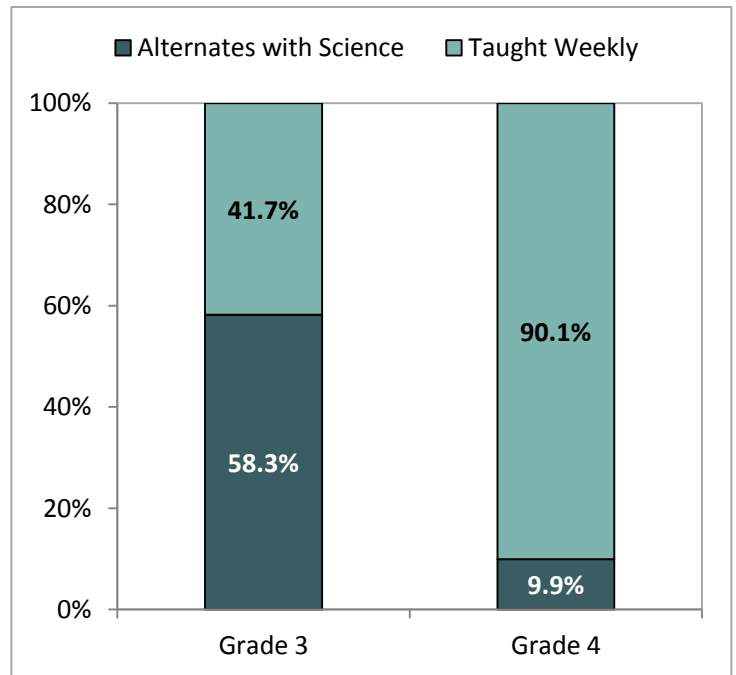
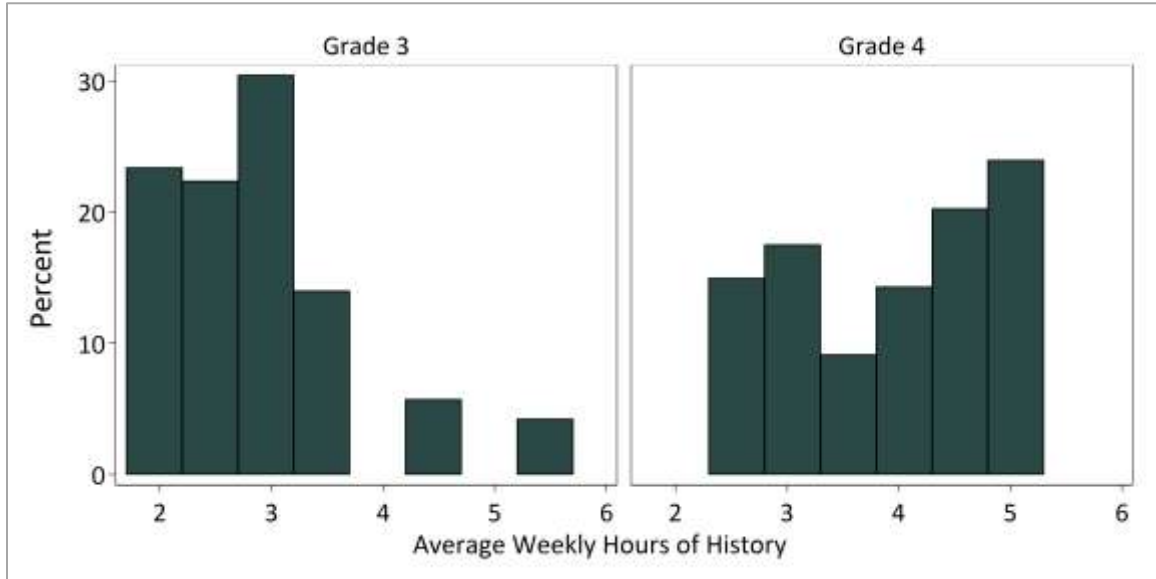


Figure 1.8 displays the distribution of the average number of hours of instruction per week by grade level.

Figure 1.8: Average Number of Hours of Instruction per Week by Grade Level



SECTION II: REGRESSION ANALYSIS

In this section, we present the results of our regression analyses estimating the various impacts of delivery model, delivery model time, and student demographic characteristics on scaled scores, probability of passing, and probability of receiving an advanced rating on the social studies SOL assessment in Grades 3 and 4. The methodology employed in this study to estimate the impact of differences in delivery model and deliver model time is explained in methodology appendix. Further, the full regression tables along with a more detailed analysis of the regressions results are presented in the regression results section of the appendix.

MAIN TAKEAWAYS

- **Departmentalized instruction and a greater number of instruction hours significantly improve student performance in Grade 4**, though instructional variables generally do not have an effect on Grade 3 student performance.
 - On average, Grade 4 students with departmentalized social studies instruction or with a greater number of hours of instruction have higher SOL scores compared to Grade 4 students who receive social studies instruction via the classroom teacher or fewer hours of instruction, respectively. Whether instruction is delivered weekly or on an alternating schedule with Science does not have a significant effect on Grade 4 students, though this may be due to low variation in the delivery model time in Grade 4.²
 - The social studies delivery model and the delivery model time did not have a significant effect on SOL scaled scores or the probability of earning an advanced rating in Grade 3, but did estimate a significant effect on the probability of passing. Specifically, Grade 3 students with a classroom teacher or weekly social studies instruction were significantly more likely to pass compared to Grade 3 students with departmentalized instruction or social studies instruction that alternates with science, respectively. However, these relationships are only weakly correlated, which may be due to low variation in the type of instruction delivery model provided in Grade 3.³ There was no significant relationship between delivery model or delivery model time and SOL scale scores on the probability of earning an advanced score.
- **Female students often have significantly *lower* social studies SOL scores, on average, compared to male students, particularly in Grade 3.**
- **Students who are LEP, enrolled in special education, or are economically disadvantaged consistently receive lower social studies SOL scores, on average, compared to students who are non-LEP, not special education, or not economically disadvantaged, respectively.**

² Only two schools provide Grade 4 instruction that alternates with Science. These distributions are available upon request.

³ Only two schools provide Grade 3 departmentalized instruction. These distributions are available upon request.

- **The difference in SOL performance between LEP students, economically disadvantaged, and racial/ethnic minorities are often much larger when examining the probability of receiving an “Advanced” rating, than when examining the probability of receiving a “Passing” rating.** For example, Grade 3 economically disadvantaged students have a lower probability of passing compared to students who are not economically disadvantaged by approximately 15 percentage points, on average, but a lower probability of earning an *advanced* rating by approximately 26 percentage points. This indicates that students who are not LEP or economically disadvantaged are much more likely to receive an advanced rating on the SOL history and social studies assessments than their counterparts.

APPENDIX

REGRESSION METHODOLOGY

In order to examine the factors correlated with the three outcome variables, we employ linear regression models to estimate the effect of each independent variable on the outcome variable. The effects of each independent variable on the continuous dependent variable (SOL scaled score) are estimated using Ordinary Least Squares (OLS) regression, while effects on each dichotomous dependent variable (passing and advanced) are estimated using Linear Probability Models (LPM), both using robust standard errors.

Below, we analyze six separate regression models – one for each dependent variable and each grade level:

- **Model 1** – Predicts the SOL scaled score in social studies for Grade 3 students.
- **Model 2** – Predicts the probability of passing the SOL in social studies for Grade 3 students.
- **Model 3** – Predicts the probability of receiving an advanced rating on the SOL in social studies for Grade 3 students.
- **Model 4** – Predicts the SOL scaled score in social studies for Grade 4 students.
- **Model 5** – Predicts the probability of passing the SOL in social studies for Grade 4 students.
- **Model 6** – Predicts the probability of an advanced rating on the SOL in social studies for Grade 4 students.

The models presented in Section II display coefficients for each predictor variable, along with asterisks indicating the level of statistical significance. For example, coefficients that are significant at the 0.01 level (three asterisks) indicate a strong relationship, meaning there is only a 1 percent probability that the estimated relationship is zero. However, coefficients that are significant at the 0.1 level (one asterisk) indicate that there is a 10 percent probability that the estimated relationship could be zero, as such is associated with a lower level of confidence.

Coefficients in an OLS regression model indicate the estimated unit change in a continuous dependent variable given a one-unit change in the independent variable (holding all other predictor variables constant), while an LPM indicates the estimated change in the *probability* that the dependent variable will occur (holding all other predictor variables constant), expressed in percentage points. For both regression model types, a positive coefficient indicates a positive relationship – when a continuous predictor variable increases (decreases), the estimated change increases (decreases). We interpret the coefficient of a categorical predictor variable relative to the designated reference group. For instance, a

positive coefficient for *female* in Model 1 (using OLS) indicates that females have higher SOL scaled scores compared to males, while a positive coefficient for *female* in Model 2 (using LPM) indicates that females are more likely to pass compared to males.

REGRESSION RESULTS

Grade 3 Results

Figure A.1 shows the independent variables that were included in the final models for Grade 3 students, along with their coefficients and significance levels.

Figure A.1: Regression Results – Grade 3

INDEPENDENT VARIABLES	OLS		LPM	
	MODEL 1	MODEL 2	MODEL 3	
	SOL SCALED SCORE	PASSING RATING	ADVANCED RATING	
Instructional Variables				
Departmentalized⁴	-4.408 (4.570)	-0.039* (0.023)	-0.033 (0.036)	
Weekly⁵	0.705 (3.162)	0.030* (0.016)	0.001 (0.024)	
Average Hours of Instruction	-1.108 (1.741)	-0.003 (0.010)	-0.004 (0.012)	
Ethnicity⁶				
Asian	-12.532** (4.974)	0.020 (0.020)	-0.088** (0.042)	
Black	-34.737*** (6.437)	-0.093*** (0.036)	-0.243*** (0.044)	
Hispanic	-39.235*** (4.467)	-0.091*** (0.022)	-0.252*** (0.037)	
Multiple or other ethnicity	-8.245 (6.753)	-0.025 (0.025)	-0.058 (0.048)	

⁴ Reference category: Classroom Teacher

⁵ Reference category: Alternates with Science

⁶ Reference category for all ethnicity variables: White

INDEPENDENT VARIABLES	OLS	LPM	
	MODEL 1	MODEL 2	MODEL 3
	SOL SCALED SCORE	PASSING RATING	ADVANCED RATING
Additional Demographic Variables			
Female⁷	-8.664*** (2.615)	-0.021* (0.012)	-0.044** (0.020)
LEP⁸	-8.623* (4.591)	-0.016 (0.026)	-0.092*** (0.034)
Special Education⁹	-54.387*** (4.850)	-0.258*** (0.030)	-0.267*** (0.030)
Economically Disadvantaged¹⁰	-44.180*** (4.744)	-0.147*** (0.027)	-0.257*** (0.035)
Constant	533.074*** (4.847)	1.012*** (0.024)	0.762*** (0.035)
Observations	1,811	1,811	1,811
R-squared	0.348	0.213	0.257

Note: Coefficients are estimated using Ordinary Least Squares or Linear Probability Models; robust standard errors are in parentheses. Asterisks denote statistical significance as follows. * p<0.10, ** p<0.05, *** p<0.01

MODEL 1

We do not find any statistically significant differences in SOL performance between students who received departmentalized instruction and students who received instruction via the classroom teacher. Similarly, we find no effect of the average hours of instruction on SOL social studies performance. This is largely an indication that the delivery model implemented in Grade 3 had no impact on student SOL test score performance in social studies.

MODEL 2

Several of the variables included in the model are statistically significant predictors of a higher probability of passing the Grade 3 social studies SOL assessment. We estimate that students who received social studies instruction on a weekly basis, relative to alternating with Science, were 3 percentage points more likely to pass the SOL social studies assessment. Students who received departmentalized instruction in Grade 3 were 3.9 percentage points less likely to pass the social studies SOL assessment.

MODEL 3

⁷ Reference category: Male

⁸ Reference category: Not LEP

⁹ Reference category: Not a special education student

¹⁰ Reference category: Not economically disadvantaged

When examining the impact of instruction delivery model and delivery model time on the probability of receiving an advanced rating on the SOL assessment, we do not find any statistically significant effects. As such, we estimate that students who receive departmentalized instruction are as likely to receive an advanced rating on the SOL assessment as students who receive instruction via the classroom teacher. Similarly, we do not find any significant difference in the probability of receiving an advanced rating between students receiving social studies instruction on a weekly basis and students whose schedule alternates with Science. Lastly, the average weekly hours of instruction does not affect students' probability of receiving an advanced rating, holding all other factors constant.

Grade 4 Results

Figure A.2 shows the independent variables that were included in the final models for Grade 4 students, along with their coefficients and significance levels.

Figure 2.2: Regression Results – Grade 4

INDEPENDENT VARIABLES	OLS	LPM	
	MODEL 4	MODEL 5	MODEL 6
	SOL SCALED SCORE	PASSING RATING	ADVANCED RATING
Instructional Variables			
Departmentalized¹¹	22.288*** (3.245)	0.036*** (0.014)	0.143*** (0.024)
Weekly¹²	-1.364 (5.414)	0.013 (0.029)	-0.039 (0.039)
Average Hours of Instruction	13.102*** (1.738)	0.029*** (0.008)	0.069*** (0.013)
Ethnicity¹³			
Asian	2.265 (6.087)	0.046* (0.025)	0.017 (0.047)
Black	-24.352*** (6.122)	-0.044 (0.030)	-0.148*** (0.044)
Hispanic	-26.136*** (5.212)	-0.064*** (0.022)	-0.117*** (0.036)
Multiple or other ethnicity	-13.547** (6.796)	-0.059** (0.028)	-0.050 (0.048)

¹¹ Reference category: Classroom Teacher

¹² Reference category: Alternates with Science

¹³ Reference category for all ethnicity variables: White

INDEPENDENT VARIABLES	OLS	LPM	
	MODEL 4	MODEL 5	MODEL 6
	SOL SCALED SCORE	PASSING RATING	ADVANCED RATING
Additional Demographic Variables			
Female ¹⁴	-6.830** (3.056)	-0.022 (0.014)	-0.034 (0.022)
LEP ¹⁵	-17.569*** (5.987)	-0.050* (0.030)	-0.135*** (0.038)
Special Education ¹⁶	-59.659*** (5.187)	-0.243*** (0.030)	-0.275*** (0.031)
Economically Disadvantaged ¹⁷	-37.126*** (5.990)	-0.140*** (0.031)	-0.153*** (0.038)
Constant	475.252*** (8.124)	0.865*** (0.039)	0.395*** (0.059)
Observations	1,680	1,680	1,680
R-squared	0.329	0.206	0.193

Note: Coefficients are estimated using Ordinary Least Squares or Linear Probability Models; robust standard errors are in parentheses. Asterisks denote statistical significance as follows. * p<0.10, ** p<0.05, *** p<0.01

MODEL 4

When estimating the impact of delivery model, delivery model time, and average hours of instruction, we find large impacts of delivering departmentalized instruction and average weekly hours of instruction on SOL social studies test scores. However, we do not find any statistically significant differences in SOL performance between students who receive social studies instruction weekly and those whose schedule alternates with Science. Specifically, we find that students who receive departmentalized instruction have higher SOL scores, on average, compared to students with a classroom teacher by approximately 22.3 points. Students who receive a greater number of instruction hours have higher SOL scores compared to students who receive fewer hours of instruction. On average, for every additional hour of instruction, a student's SOL score is expected to increase by approximately 13.1 points. Lastly, we observe that students who are LEP, economically disadvantaged, and enrolled in special education have lower SOL test scores than their counterparts.

MODEL 5

In this model, we examine the impact of delivery model, delivery model time, and average number of weekly instruction hours on the probability of passing the social studies SOL

¹⁴ Reference category: Male

¹⁵ Reference category: Not LEP

¹⁶ Reference category: Not a special education student

¹⁷ Reference category: Not economically disadvantaged

assessment. We estimate that students who receive departmentalized instruction have a higher probability of passing compared to students with a classroom teacher by approximately 3.6 percentage points. Further, students who receive a greater number of instruction hours have a higher probability of passing. For each additional hour of instruction, the probability of passing increases by approximately 2.9 percentage points, on average. Similar to Models 5 and 6, we do not find any statistically significant effect of receiving instruction weekly relative to alternating with Science.

MODEL 6

In this model, the outcome of interest is the probability that a student will receive an advanced rating on the social studies SOL assessment. We find that students who receive departmentalized instruction have a higher probability of earning an advanced score compared to students with a classroom teacher by approximately 14.3 percentage points, on average. Students who receive a greater number of instruction hours have a higher probability of earning an advanced score. For each additional hour of instruction, the probability of earning an advanced score increases by approximately 6.9 percentage points, on average.

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AP Social Studies Results

High school students enrolled in Advanced Placement (AP) Social Studies classes are required to participate in the corresponding AP exam. APS offers eight courses to high school students: Comparative Government and Politics, European History, Macroeconomics, Microeconomics, Psychology, U.S. Government and Politics, and U.S. History and World History.

Starting in 2012-13, students in Virginia are required to take an Economics and Personal Finance course. The Microeconomics and Macroeconomics courses fulfill this requirement, which has led to an increase in enrollment in these courses. This is reflected in the increase in participation in these tests in the period covered by this evaluation.

AP exams are scored on a scale of 1 to 5, with 3 or above considered a passing score. For purposes of this Social Studies Evaluation, five years of AP data were examined.

Figure 1 shows the pass rates for all eight AP Social Studies exams over a five year period.

Figure 1: AP Social Studies Exam Pass Rates, 2009–10 through 2013–14

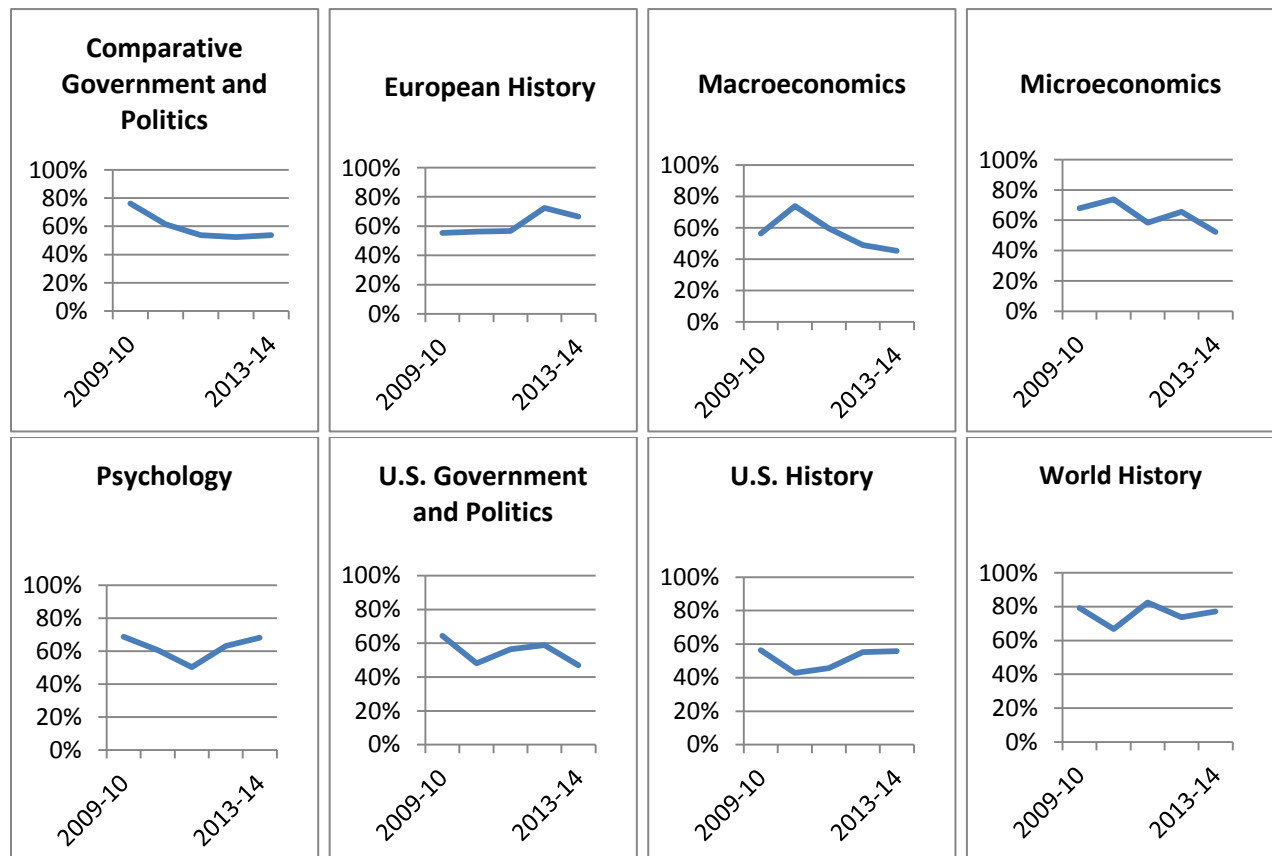


Figure 2 shows the number of students enrolled in Social Studies AP courses for 2009-10 and 2013-14.

Figure 2: AP Social Studies Enrollment 2009-10 and 2013-14

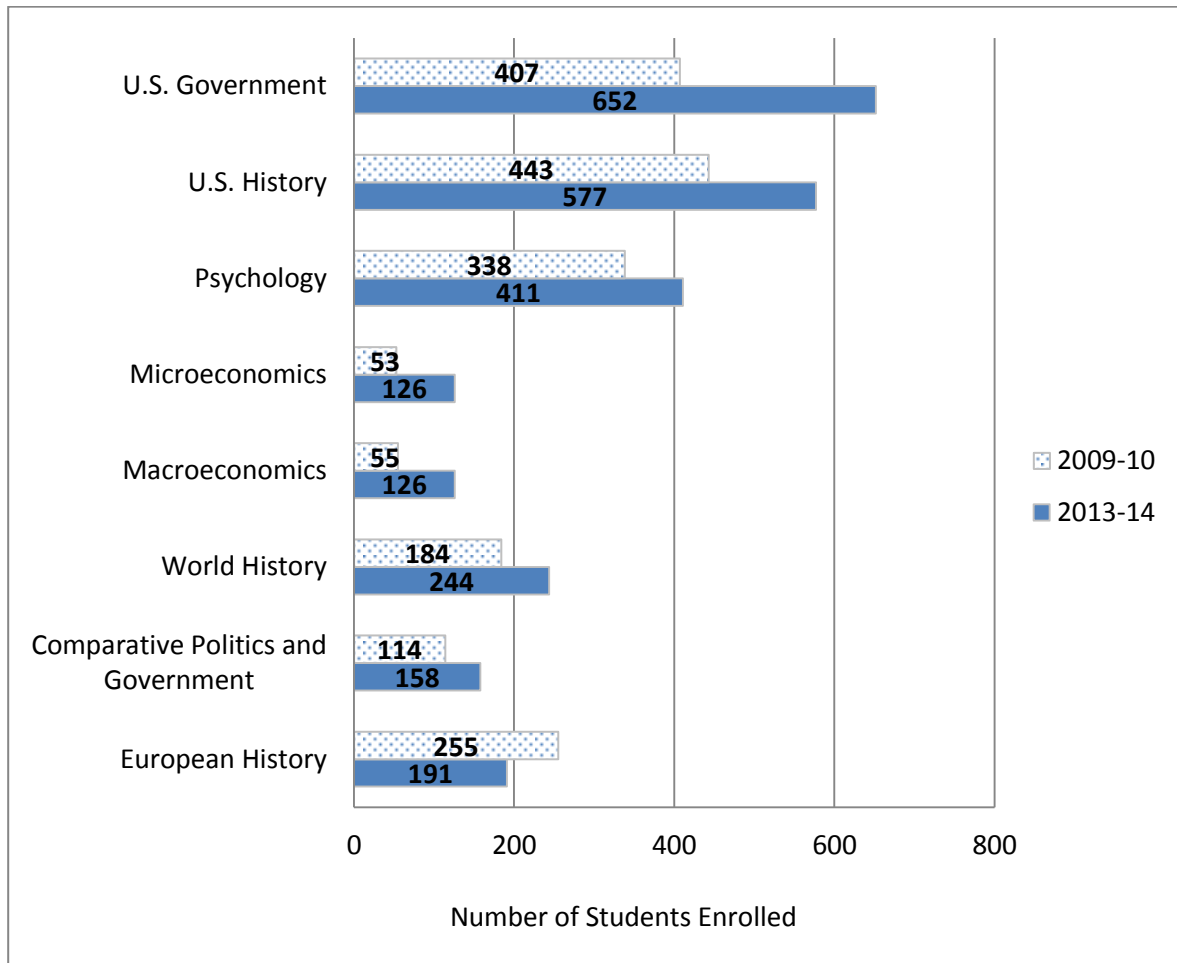


Table 1 shows the number of students tested and the percent passing the Comparative Politics and Government exam. State and national data is provided for comparison purposes.

Table 1: AP Comparative Politics and Government Exam Pass Rates, 2009–10 through 2013–14

Group	2009-10		2010-11		2011-12		2012-13		2013-14	
	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed
APS	114	76%	189	61%	199	54%	149	52%	158	54%
Virginia	2,459	51%	2,543	50%	3,058	54%	3,591	53%	3,232	59%
National	16,054	59%	16,191	59%	17,462	61%	19,255	59%	19,394	61%

Table 2 shows the number of students tested and the percent passing the European History exam. State and national data is provided for comparison purposes.

Table 2: AP European History Exam Pass Rates, 2009–10 through 2013–14

Group	2009-10		2010-11		2011-12		2012-13		2013-14	
	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed
APS	255	55%	249	56%	210	57%	163	72%	191	66%
Virginia	4,263	63%	4,323	63%	4,103	63%	3,865	65%	3,880	59%
National	100,660	65%	105,469	65%	106,870	66%	108,019	64%	108,554	59%

Table 3 shows the number of students tested and the percent passing Macroeconomics the exam. State and national data is provided for comparison purposes.

Table 3: AP Macroeconomics Exam Pass Rates, 2009–10 through 2013–14

Group	2009-10		2010-11		2011-12		2012-13		2013-14	
	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed
APS	55	56%	23	74%	37	59%	139	49%	126	45%
Virginia	1,333	59%	1,225	59%	1,636	58%	1,950	63%	2,754	56%
National	78,026	54%	83,966	52%	92,666	55%	100,496	53%	109,251	57%

Table 4 shows the number of students tested and the percent passing the Microeconomics exam. State and national data is provided for comparison purposes.

Table 4: AP Microeconomics Exam Pass Rates, 2009–10 through 2013–14

Group	2009-10		2010-11		2011-12		2012-13		2013-14	
	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed
APS	53	68%	23	74%	36	58%	137	66%	126	52%
Virginia	1,171	63%	1,018	61%	1,578	57%	1,739	66%	2,576	56%
National	46,347	62%	49,794	62%	54,257	65%	58,503	66%	65,346	64%

Table 5 shows the number of students tested and the percent passing Psychology the exam. State and national data is provided for comparison purposes.

Table 5: AP Psychology Exam Pass Rates, 2009–10 through 2013–14

Group	2009-10		2010-11		2011-12		2012-13		2013-14	
	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed
APS	338	69%	349	60%	394	50%	379	63%	411	68%
Virginia	8,372	71%	9,152	70%	10,499	68%	10,406	71%	9,967	70%
National	173,468	66%	193,162	66%	214,759	66%	232,588	67%	252,673	65%

Table 6 shows the number of students tested and the percent passing the U.S. Government and Politics exam. State and national data is provided for comparison purposes.

Table 6: AP U.S. Government and Politics Exam Pass Rates, 2009–10 through 2013–14

Group	2009-10		2010-11		2011-12		2012-13		2013-14	
	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed
APS	407	64%	514	48%	631	56%	534	59%	652	47%
Virginia	15,199	58%	15,964	57%	16,593	59%	15,794	60%	15,889	61%
National	210,847	51%	224,851	52%	238,507	52%	254,573	52%	269,850	51%

Table 7 shows the number of students tested and the percent passing the U.S. History exam. State and national data is provided for comparison purposes.

Table 7: AP U.S. History Exam Pass Rates, 2009–10 through 2013–14

Group	2009-10		2010-11		2011-12		2012-13		2013-14	
	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed
APS	443	56%	476	43%	451	46%	515	55%	577	56%
Virginia	15,441	60%	16,369	58%	17,207	60%	16,890	61%	17,113	60%
National	384,566	53%	402,947	53%	424,542	55%	439,552	54%	459,197	52%

Table 8 shows the number of students tested and the percent passing the World History exam. State and national data is provided for comparison purposes.

Table 8: AP World History Exam Pass Rates, 2009–10 through 2013–14

Group	2009-10		2010-11		2011-12		2012-13		2013-14	
	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed
APS	184	79%	235	67%	193	82%	244	74%	240	77%
Virginia	7,004	69%	8,479	62%	10,150	64%	9,735	59%	9,788	67%
National	166,023	49%	186,430	48%	208,327	53%	227,350	49%	242,793	54%

Table 9 shows the pass rates for all AP Social Studies exams disaggregated by race/ethnicity over a five year period.

Table 9: AP Social Studies Exam Pass Rates by Race/Ethnicity, 2009–10 through 2013–14

Group	2009-10		2010-11		2011-12		2012-13		2013-14	
	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed
Asian	215	55%	240	45%	231	43%	257	52%	238	45%
Black	120	35%	140	26%	129	33%	135	38%	159	33%
Hispanic	226	44%	278	38%	316	34%	342	42%	392	38%
White	1,222	73%	1,304	62%	1,369	64%	1,404	70%	1,543	67%

Figure 3 shows the pass rates for all AP Social Studies exams disaggregated by race/ethnicity over a five year period.

Figure 3: AP Social Studies Exam Pass Rates by Race/Ethnicity, 2009–10 through 2013–14

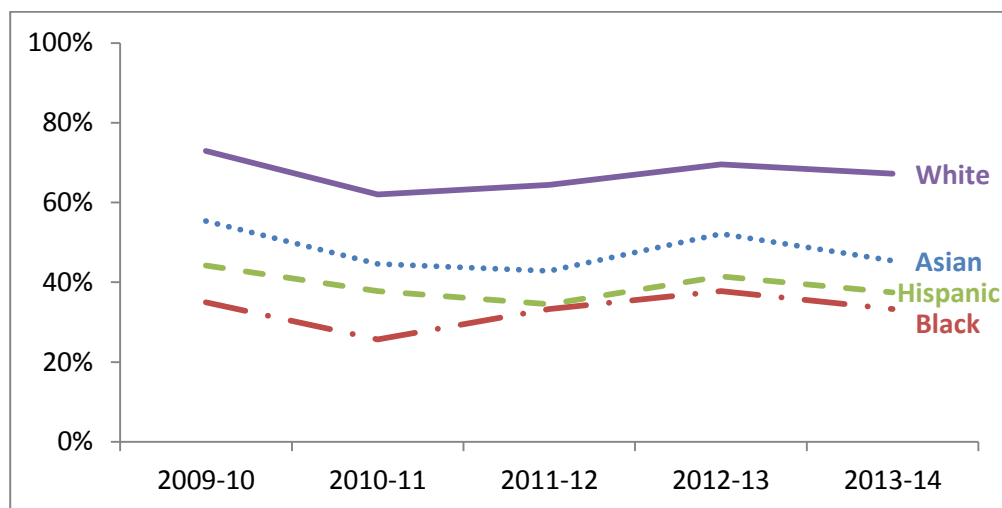


Table 10 shows the pass rates for all AP Social Studies exams disaggregated by four demographics over a five year period.

Table 10: AP Social Studies Exam Pass Rates by Gender, Economic Status, LEP Status, and Disability Status, 2009–10 through 2013–14

Group	2009-10		2010-11		2011-12		2012-13		2012-14	
	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed
Females	934	60%	1,047	54%	1,109	54%	1,142	60%	1,181	57%
Males	915	68%	1,011	54%	1,042	56%	1,118	62%	1,300	58%
Non-Disadvantaged	1,650	68%	1,824	57%	1,883	59%	1,935	65%	2,121	62%
Disadvantaged	199	36%	234	30%	268	27%	325	35%	360	32%
Non-LEP	1,764	65%	1,956	55%	1,994	57%	2,162	62%	2,360	59%
LEP	85	42%	102	32%	157	27%	98	37%	121	26%
Non-SWD	1,789	64%	1,991	54%	2,091	56%	2,180	61%	2,379	58%
SWD	61	59%	67	52%	61	43%	81	44%	102	37%

Figure 4 shows the pass rates for all AP Social Studies exams disaggregated by gender over a five year period.

Figure 4: AP Social Studies Exam Pass Rates by Gender, 2009–10 through 2013–14

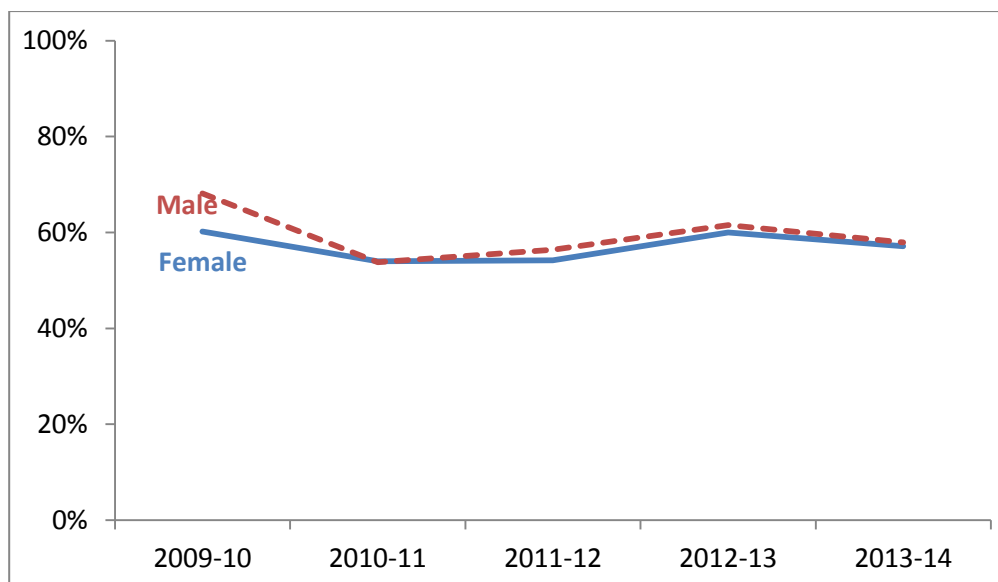


Figure 5 shows the pass rates for all AP Social Studies exams disaggregated by economic status over a five year period.

Figure 5: AP Social Studies Exam Pass Rates by Economic Status, 2009–10 through 2013–14

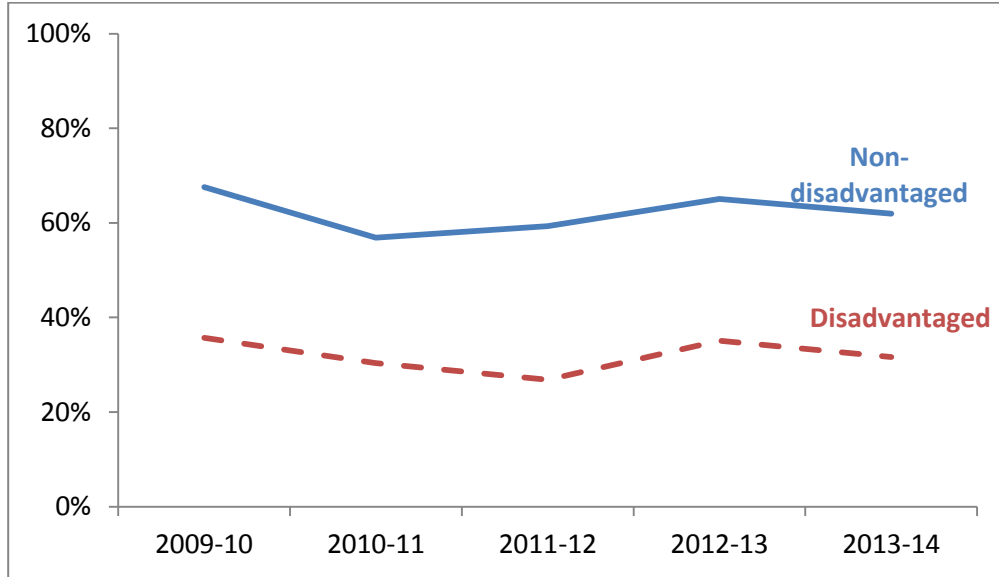


Figure 6 shows the pass rates for all AP Social Studies exams disaggregated by LEP status over a five year period.

Figure 6: AP Social Studies Exam Pass Rates by LEP Status, 2009–10 through 2013–14

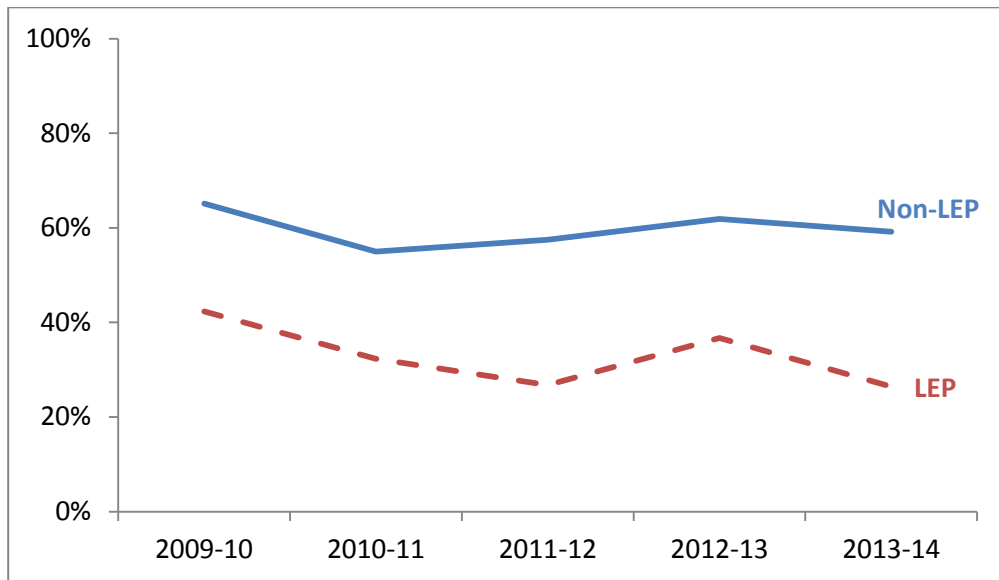
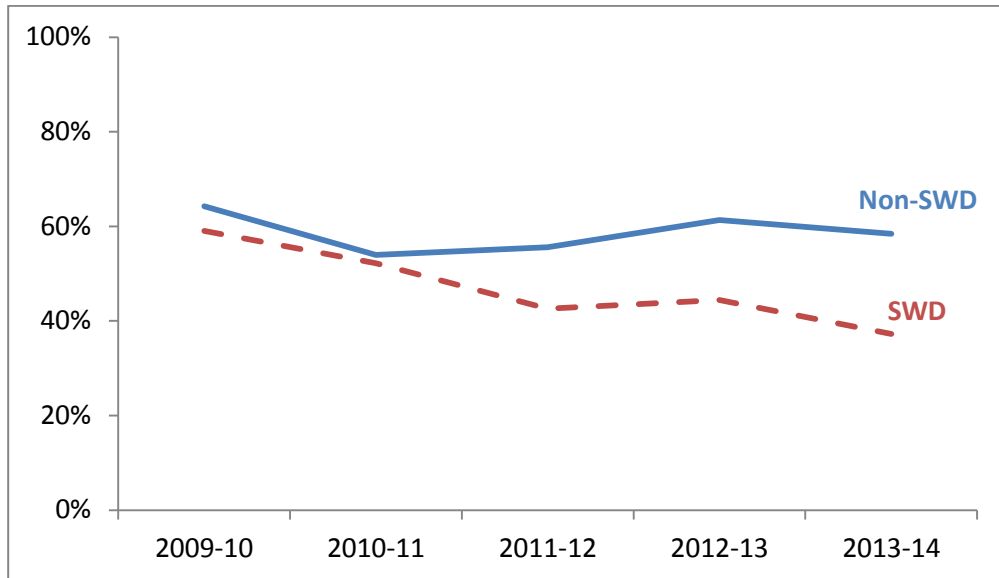


Figure 7 shows the pass rates for all AP Social Studies exams disaggregated by disability status over a five year period.

Figure 7: AP Social Studies Exam Pass Rates by Disability Status, 2009–10 through 2013–14



IB Social Studies Results

High school students enrolled in Washington-Lee High School are offered the opportunity to participate in International Baccalaureate (IB) Social Studies classes. Those who enroll in IB History of the Americas, IB Psychology (high level and standard level), IB Economics, IB Geography, IB Philosophy, IB European History or IB Social Anthropology are required to participate in the corresponding IB exam.

IB exams are scored on a scale of 1 to 7; a score of 4 or above is considered passing. For purposes of this Social Studies Evaluation, five years of IB data were examined.

Figure 1 shows the pass rates for all IB Social Studies exams offered in Arlington Public Schools over a five year period. Data for IB European History is not shown due to the small number of students enrolled in the course.

Figure 1: IB Social Studies Exam Pass Rates, 2009–10 through 2013–14

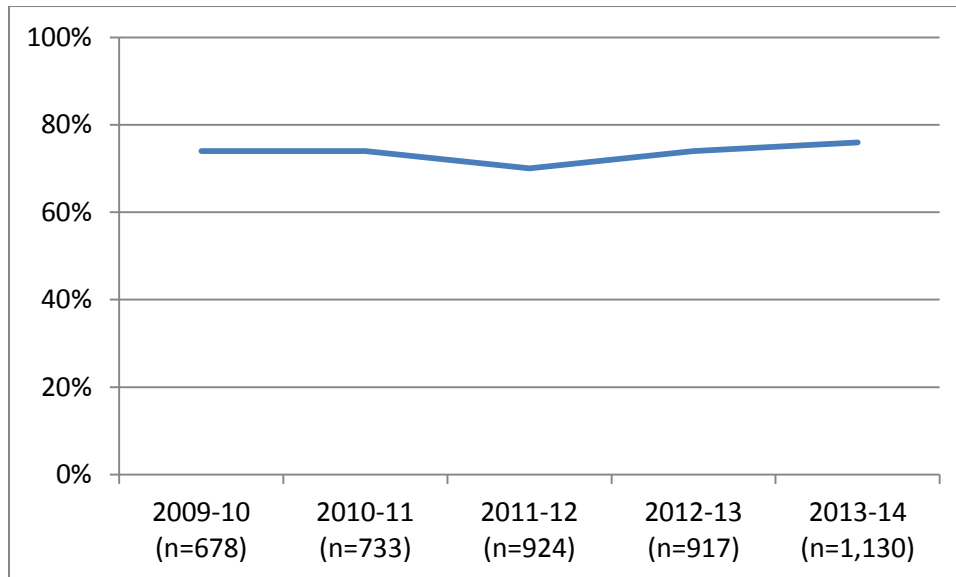


Table 1 shows the number of students tested and the percent passing for all IB exams.

Table 1: IB Exam Pass Rates, 2009–10 through 2013–14

	2009-10		2010-11		2011-12		2012-13		2013-14	
	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed
IB Pass Rates	678	74%	733	74%	924	70%	917	74%	1,130	76%

Table 2 shows the pass rates for all IB Social Studies exams disaggregated by race/ethnicity over a five year period.

Table 2: IB Social Studies Exam Pass Rates by Race/Ethnicity, 2009–10 through 2013–14

Group	2009-10		2010-11		2011-12		2012-13		2013-14	
	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed
Asian	24	92%	40	73%	56	55%	47	72%	56	66%
Black	18	56%	16	44%	37	38%	24	58%	38	58%
Hispanic	23	65%	41	59%	66	61%	79	72%	84	60%
White	139	83%	138	82%	201	76%	223	85%	294	74%

Figure 2 shows the pass rates for all IB Social Studies exams disaggregated by race/ethnicity over a five year period.

Figure 1: IB Social Studies Exam Pass Rates by Race/Ethnicity, 2009–10 through 2013–14

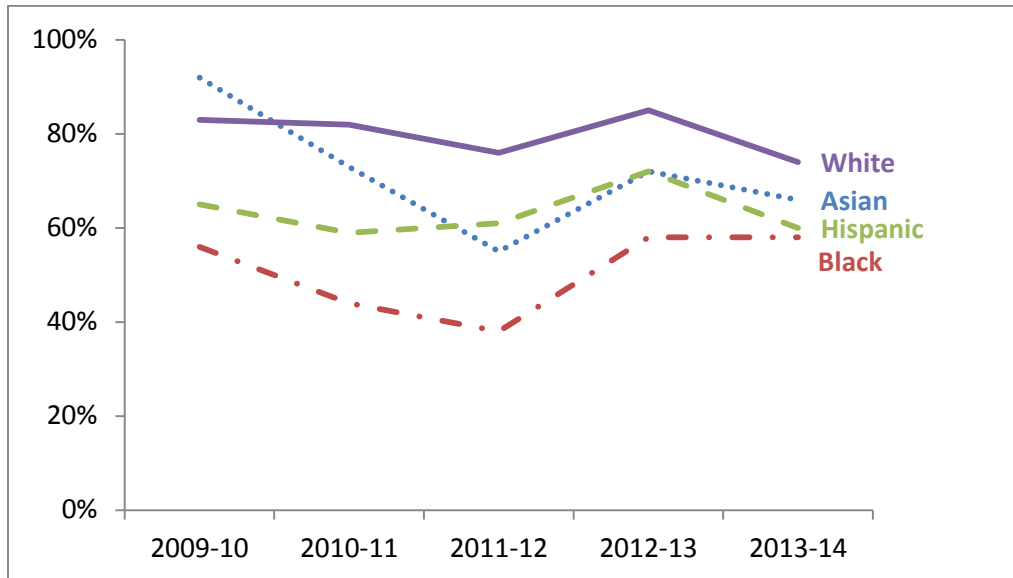


Table 3 shows the pass rates for all IB Social Studies exams disaggregated by four demographics over a five year period.

Table 2: IB Social Studies Exam Pass Rates by Gender, Economic Status, LEP Status, and Disability Status, 2009–10 through 2013–14

Group	2009-10		2010-11		2011-12		2012-13		2013-14	
	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed	# Tested	% Passed
Females	128	82%	157	73%	255	70%	255	85%	291	73%
Males	82	74%	93	75%	122	56%	150	68%	211	64%
Non-Disadvantaged	187	82%	212	78%	310	69%	349	81%	426	71%
Disadvantaged	23	57%	38	50%	67	46%	56	64%	76	55%
Non-LEP	204	78%	237	76%	358	67%	398	79%	487	70%
LEP	6	100%	13	46%	19	37%	7	71%	15	47%
Non-SWD	206	81%	248	74%	374	66%	402	79%	490	69%
SWD	*	n/a	*	n/a	*	n/a	*	n/a	12	58%

* Fewer than 5, not reported

Figure 3 shows the pass rates for all IB Social Studies exams disaggregated by gender over a five year period.

Figure 2: IB Social Studies Exam Pass Rates by Gender, 2009–10 through 2013–14

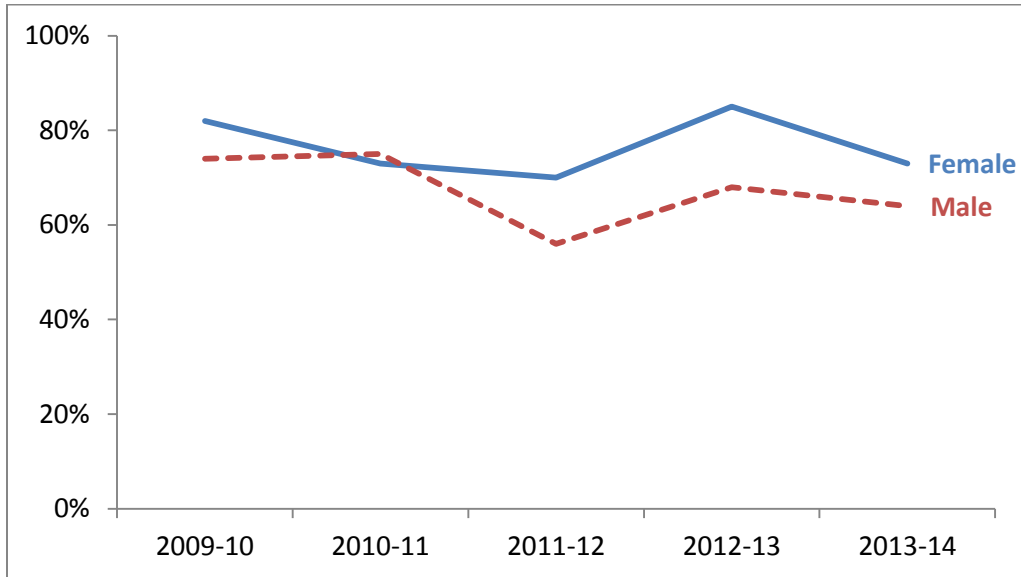


Figure 4 shows the pass rates for all IB Social Studies exams disaggregated by economic status over a five year period.

Figure 4: IB Social Studies Exam Pass Rates by Economic Status, 2009–10 through 2013–14

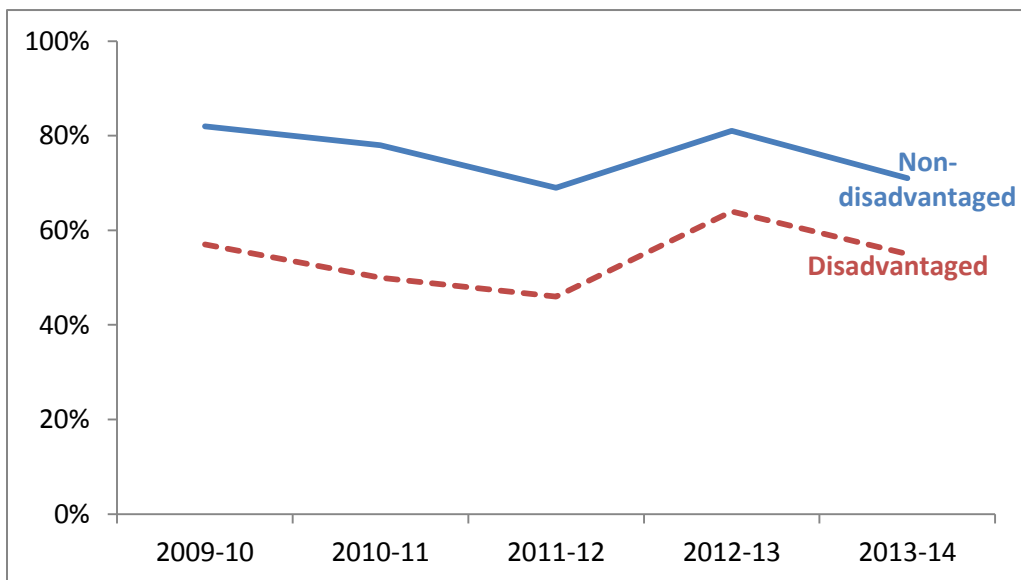


Figure 5 shows the pass rates for all IB Social Studies exams disaggregated by LEP status over a five year period.

Figure 5: IB Social Studies Exam Pass Rates by LEP Status, 2009–10 through 2013–14

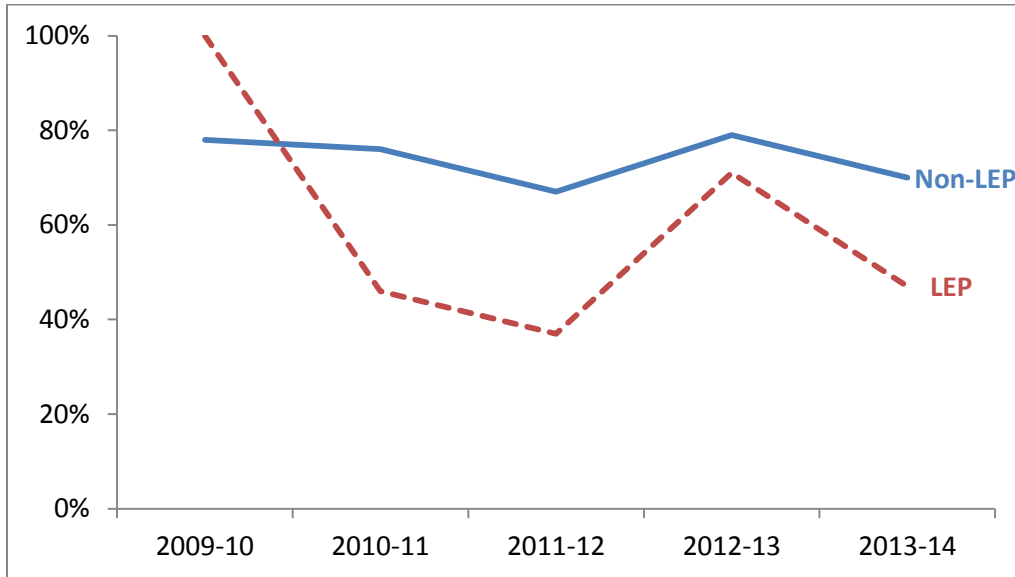
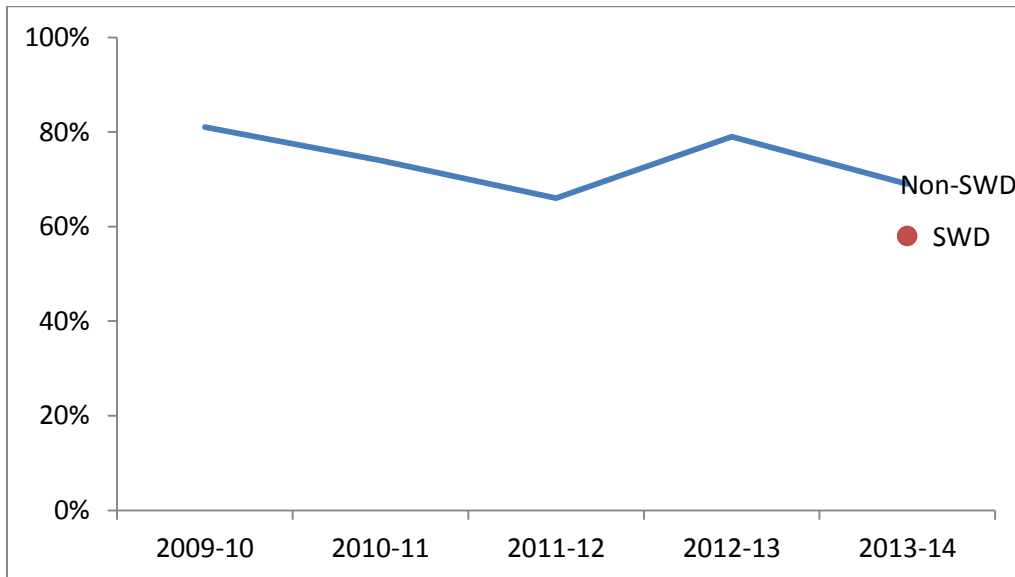


Figure 6 shows the pass rates for all IB Social Studies exams disaggregated by disability status over a five year period. No data is reported for the school years 2009–10 through 2012-13 because less than 5 students with disabilities participated in IB Social Studies testing those years.

Figure 6: IB Social Studies Exam Pass Rates by Disability Status, 2009–10 through 2013–14



Performance Assessment Tasks (PATs)

Performance Assessment Tasks (PATs) are curriculum embedded products that give evidence of students' deeper understanding of content and application of higher order thinking skills. These PATs allow students to demonstrate their understanding of the "big idea" or core concepts of the subject by

- Completing an assessment based on a scenario,
- Analyzing primary and secondary source documents,
- Communicating a course of action through an oral, written, visual or kinesthetic product, and
- Reflecting on the learning value of the task.

PATs are scored on a 4-point rubric for five categories: Content, Basic Skills, Analysis, Application, and Communication for a total of 20 points for the task. The categories represent critical historical thinking skills and include:

- Content- Does the student product demonstrate student understanding of content?
- Basic Skills- Does the student product demonstrate basic social studies skills such as sequencing, using social studies resources, identifying cause and effect?
- Analysis/interpretation- Does the student product demonstrate the analysis and interpretation of skills such as historical patterns, perspectives, and connections?
- Application/Synthesis- Does the student product demonstrate that knowledge was reinterpreted and constructed to achieve a higher level of understanding?
- Communication- Does the student product effectively communicate the intended message

During the 2013-14 school year, the Social Studies Office collected information from elementary and middle school teachers to determine which teachers were planning to use PATs in their instruction that year. In spring 2014, the Office of Planning and Evaluation sent a request to all of those teachers asking them to submit the PAT scores for their class. Due primarily to the number of snow days that had occurred since the initial inquiry had been sent, many teachers ended up not submitting PATs, but Planning and Evaluation was able to collect a representative number of PATs for 4th and 6th grade. PATs were submitted from six elementary schools, two of which were Title I, and two middle schools.

Table 1 shows the total number of PAT scores that were collected for grades 4 and 6. Because some of the 4th grade PAT results were submitted with total scores only and no sub-scores, the margin of error is presented for the number of overall scores available for analysis, and for the number of PATs with sub-scores. While a request went out to 8th grade teachers as well, not enough PAT scores were returned to include in the analysis.

Table 1: Performance Assessment Task Sample Size, 2013-14

Grade	APS Enrollment (Sept 2013)	PATs collected	Overall margin of error	PATS collected with sub-scores available	Sub-score margin of error
4	1,830	306	5.1	284	5.4
6	1,598	459	3.9	459	3.9

The margin of error is calculated at a 95% confidence interval, meaning that we can be 95% confident that the results reflect the actual population within the margin of error. In other words, in 19 out of 20 cases the data obtained would not differ by any more than the percentage points in the margin of error in either direction if the PATs were repeated multiple times employing the same methodology and sampling method across the same population. When the margin of error is greater than 5, the results should be interpreted with caution since they may not reflect the whole population.

Figure 1 shows the average total PAT scores for students in grades 4 and 6.

Figure 1: Average Total PAT Scores

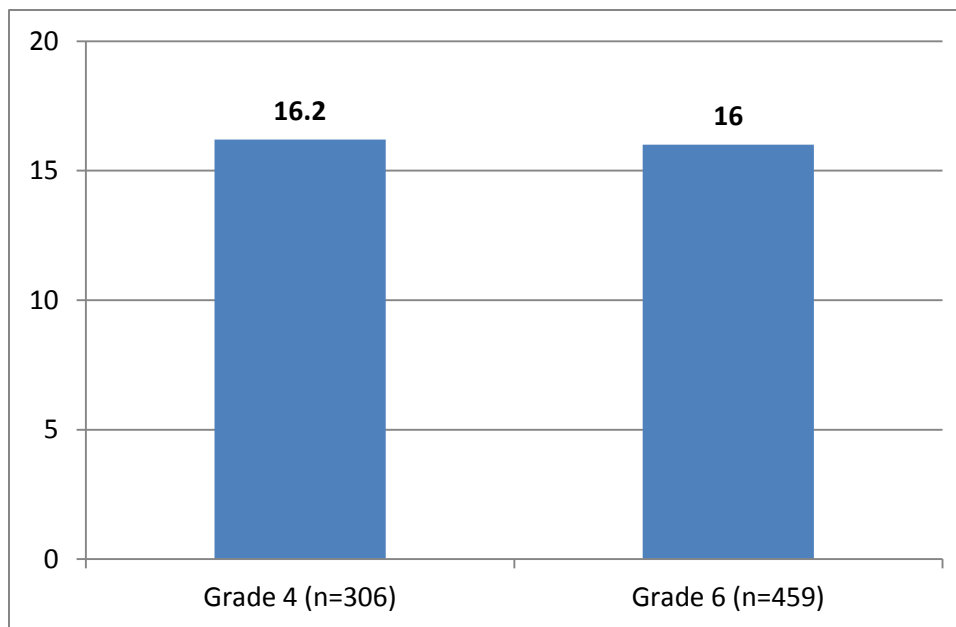
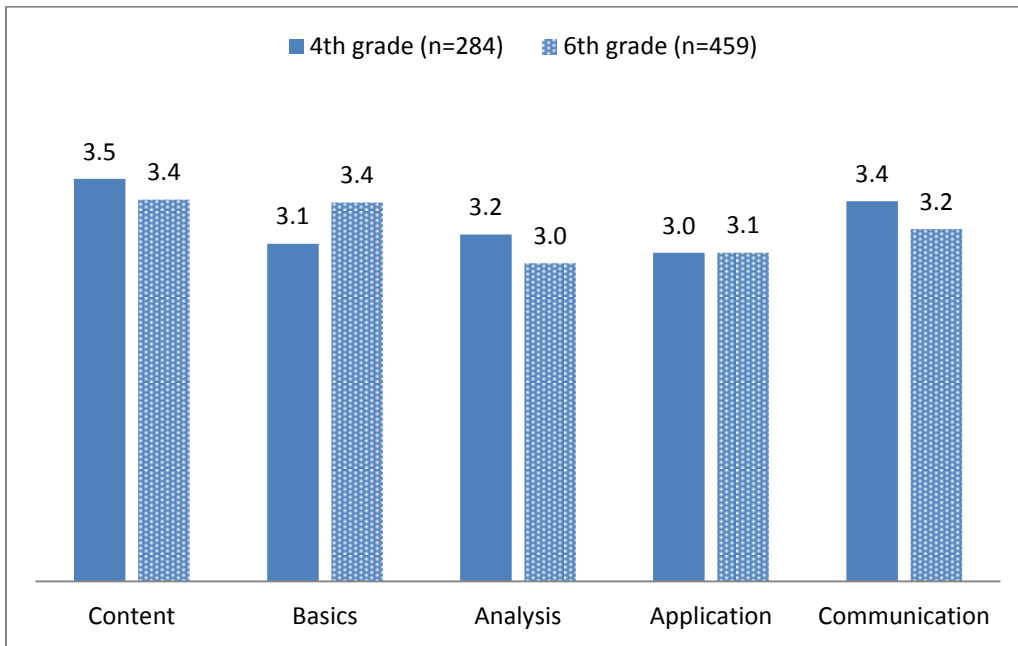


Figure 2 shows the average PAT scores by grade and assessment category.

Figure 2: PAT Results by Grade and Category



Figures 4 and 5 display score distribution within the Content category for grade 4 and 6 students.

Figure 4: Grade 4 PATs Content Score Distribution

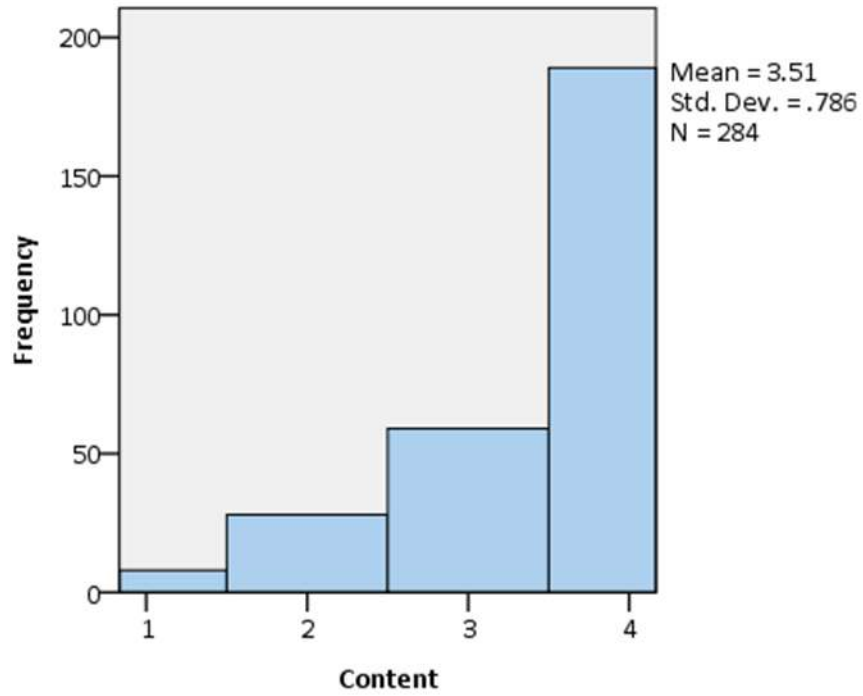
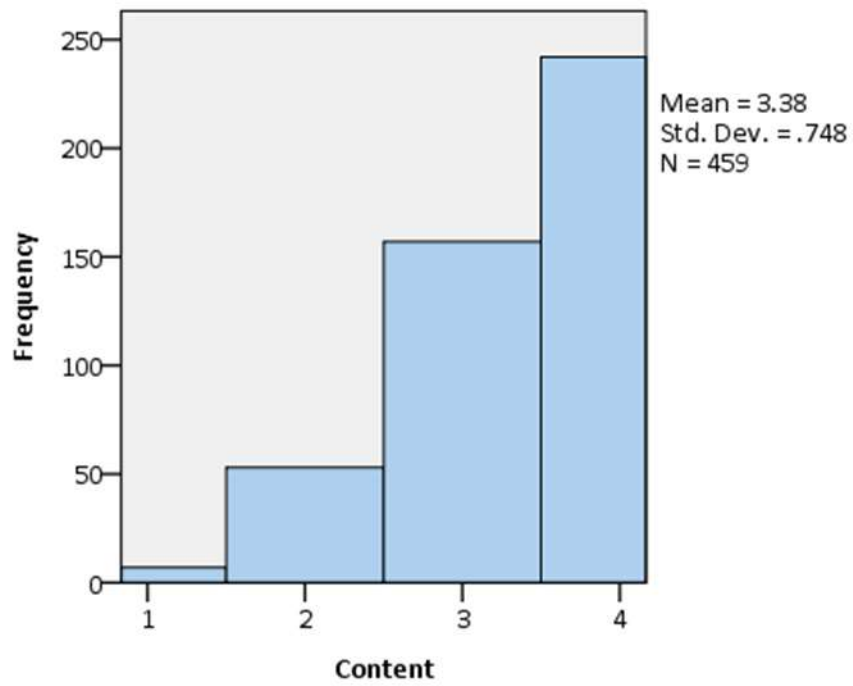


Figure 4: Grade 6 PATs Content Score Distribution



Figures 6 and 7 display score distribution within the Basics category for grade 4 and 6 students.

Figure 6: Grade 4 PATs Basics Score Distribution

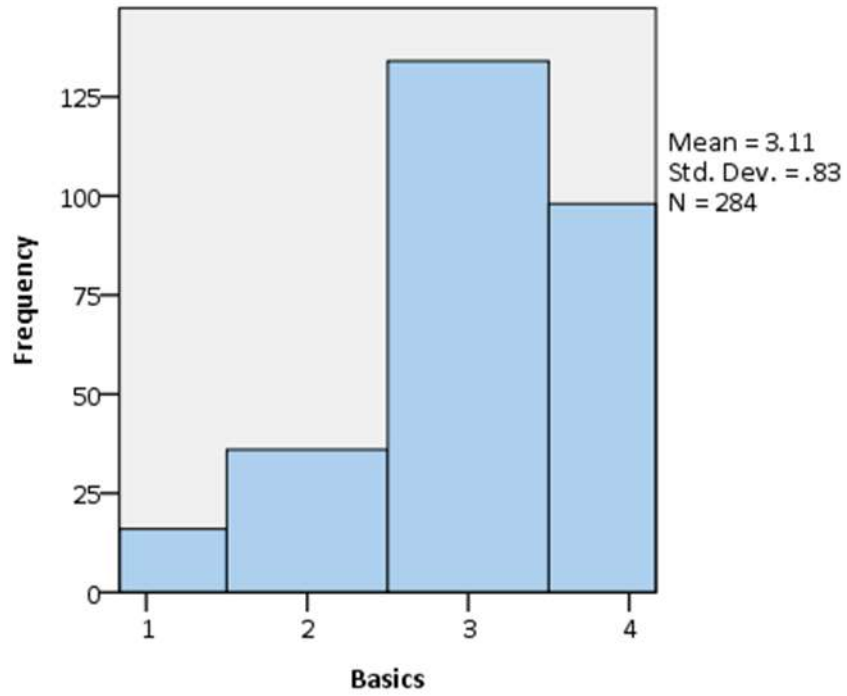
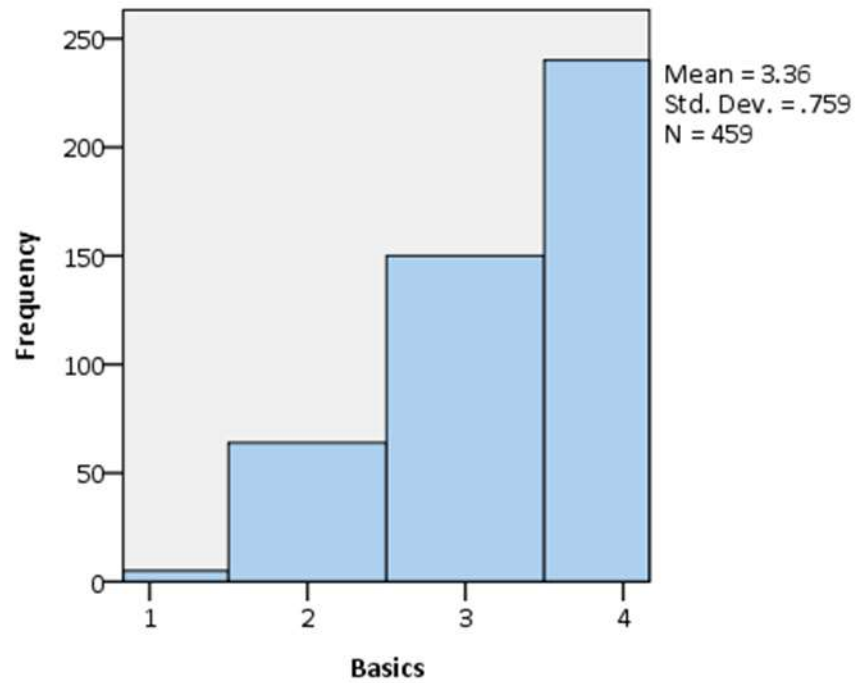


Figure 7: Grade 6 PATs Basics Score Distribution



Figures 8 and 9 display score distribution within the Analysis category for grade 4 and 6 students.

Figure 8: Grade 4 PATs Analysis Score Distribution

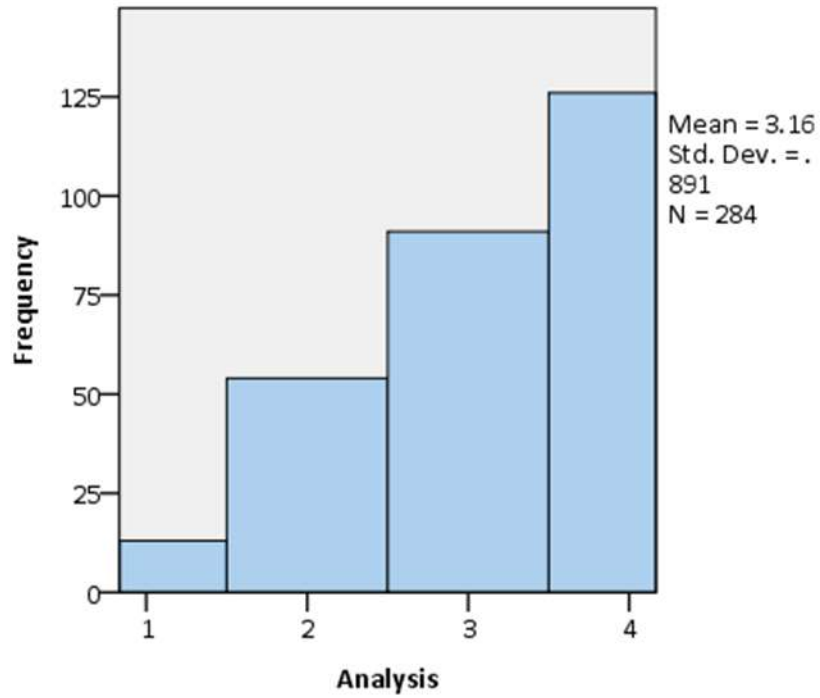
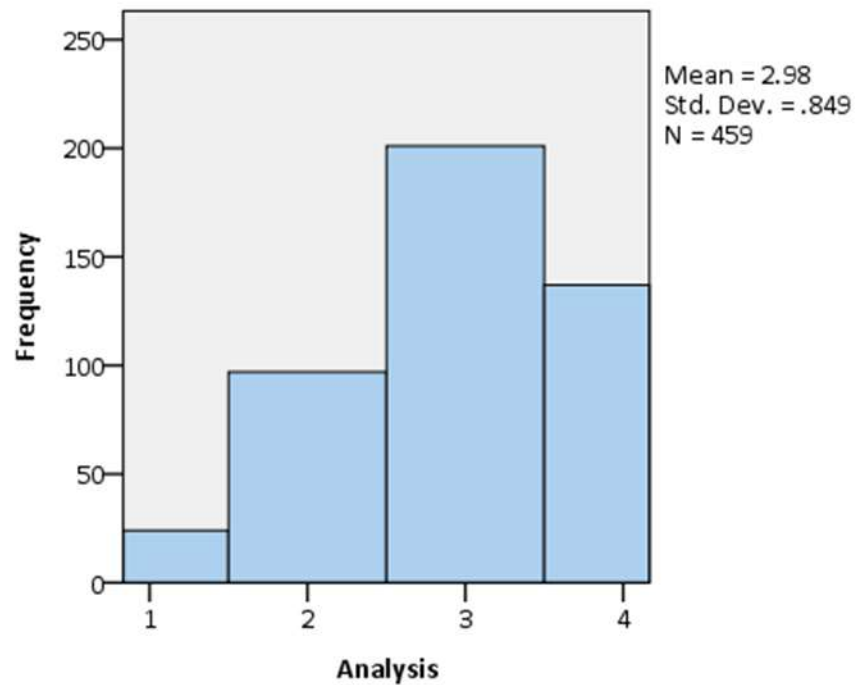


Figure 9: Grade 6 PATs Analysis Score Distribution



Figures 10 and 11 display score distribution within the Application category for grade 4 and 6 students.

Figure 10: Grade 4 PATs Application Score Distribution

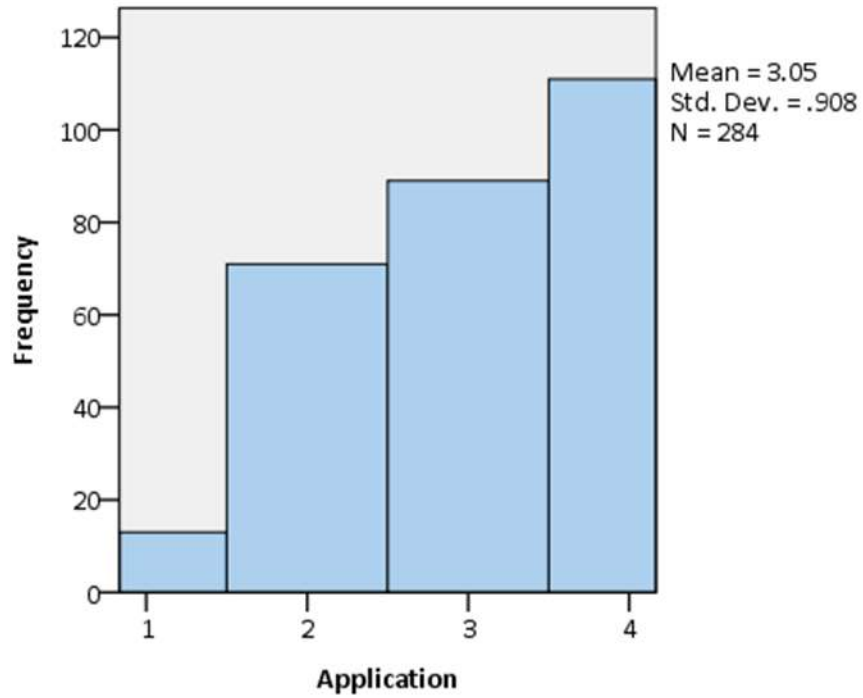
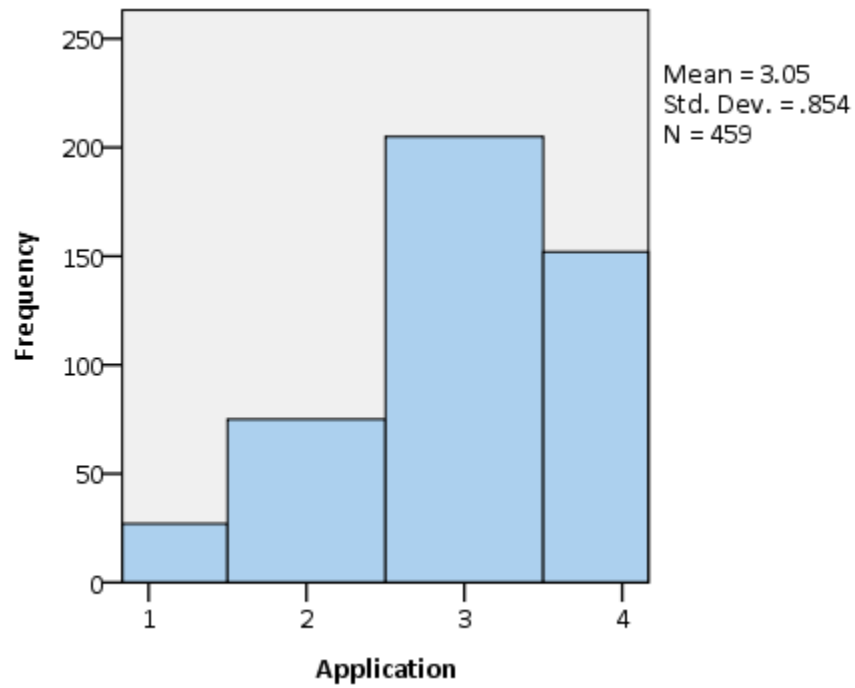


Figure 11: Grade 6 PATs Application Score Distribution



Figures 12 and 13 display score distribution within the Communication category for grade 4 and 6 students.

Figure 12: Grade 4 PATs Communication Score Distribution

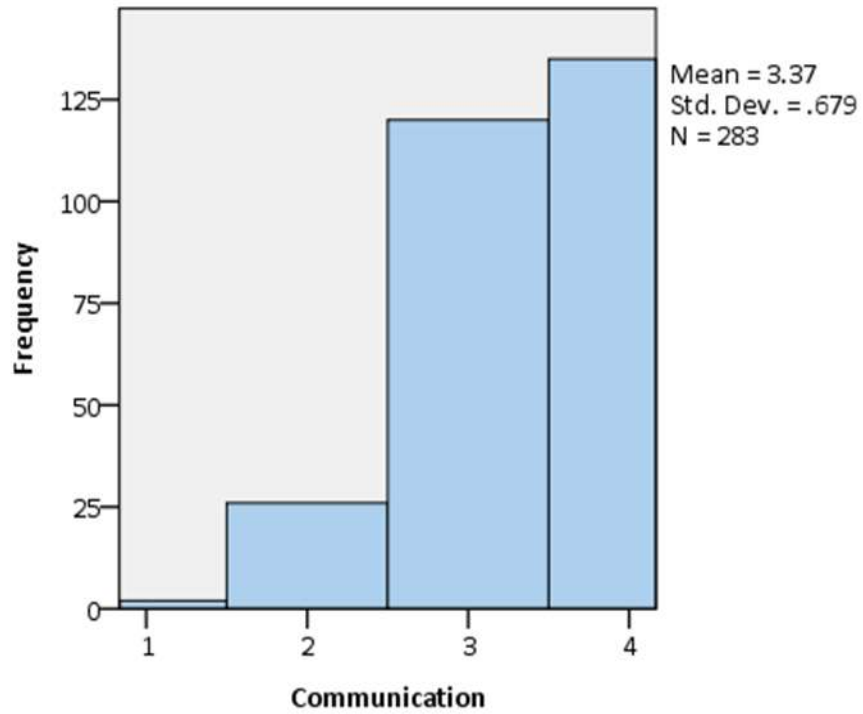


Figure 13: Grade 6 PATs Communication Score Distribution

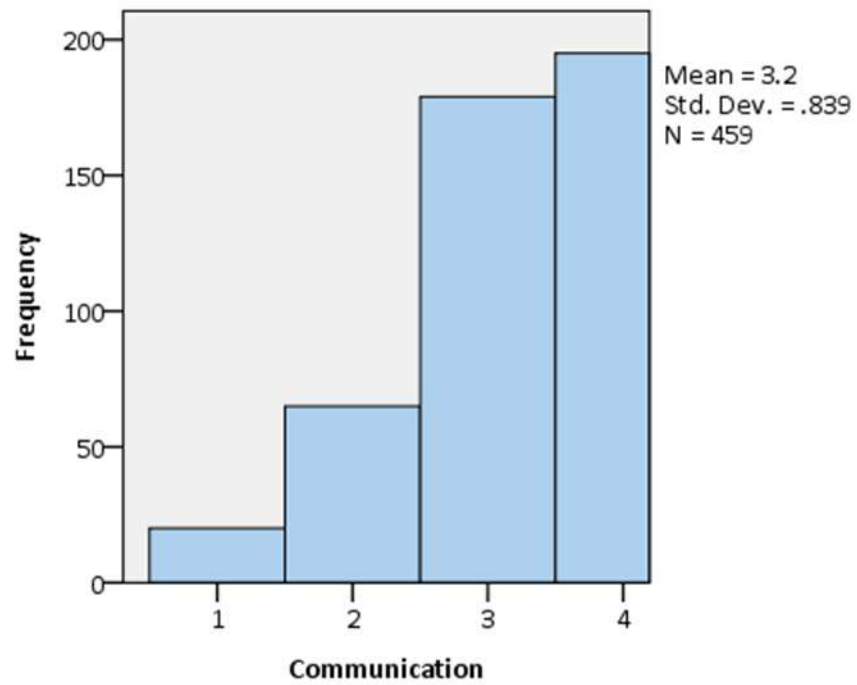


Table 1 shows overall PATs scores by grade and ethnicity.

Table 1: Total PATs Scores by Grade and Ethnicity

Group	Grade 4		Grade 6	
	# Assessed	Average Total Score	# Assessed	Average Total Score
Asian	31	16.6	19	15.1
Black	33	14.5	40	14.3
Hispanic	37	14.1	20	14.1
White	165	17.0	125	16.1

Table 2 shows overall PATs scores by grade, gender, disadvantaged status, limited English proficiency (LEP) status, and students with disabilities (SWD) status.

Table 2: Total PATs Scores by Grade, Gender, Disadvantaged Status, LEP Status, and SWD Status

Group	Grade 4		Grade 6	
	# Assessed	Average Total Score	# Assessed	Average Total Score
Females	146	16.7	138	15.8
Males	127	15.7	126	14.7
Non-disadvantaged	206	16.8	178	15.7
Disadvantaged	67	14.6	86	14.4
Non-LEP	227	16.6	230	15.5
LEP	46	14.5	34	14.1
Non-SWD	234	16.5	202	16.2
SWD	39	15.0	62	12.3