

National Center for Education Statistics

2014 Technology and Engineering Literacy (TEL) Grade 8 Assessment Report Card: Summary Data Tables for National Sample Sizes, Participation Rates, Proportions of SD and ELL Students Identified, and Additional Detail for National Average Scores and Percentage of Students Who Completely/Correctly Finished the Steps in Sample Tasks

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Average scores of eighth-grade students assessed in NAEP technology and engineering literacy (TEL), by various student groups, TEL content areas, and TEL practices: 2014

Characteristic	TEL overall	TEL content areas			TEL practices		
		Technology and Society	Design and Systems	Information and Communication Technology	Communicating and Collaborating	Developing Solutions and Achieving Goals	Understanding Technology Principles
All students	150	150	150	150	150	150	150
Race/ethnicity							
White	160	160	161	159	160	160	160
Black	128	129	127	130	129	128	129
Hispanic	138	138	138	138	139	138	138
Asian	160	158	158	163	159	160	161
Native Hawaiian/Other Pacific Islander	142	141	147	137	144	139	145
American Indian/Alaska Native	146	147	148	147	152	146	149
Two or more races	154	156	154	152	155	154	155
Gender							
Male	149	149	150	147	147	149	149
Female	151	151	150	153	153	151	151
Eligibility for National School Lunch Program							
Eligible	135	136	136	135	136	135	135
Not eligible	163	163	163	163	162	163	163
Information not available	164	164	162	164	164	163	165
Highest level of parental education							
Did not finish high school	133	133	135	132	135	132	132
Graduated from high school	137	138	137	137	138	137	138
Some education after high school	152	152	151	152	153	152	151
Graduated from college	159	159	159	159	159	159	159
Unknown	130	129	131	130	130	130	130
Type of school							
Public	149	149	149	149	149	149	149
Private	164	165	162	163	164	163	165
School location							
City	144	145	144	145	145	145	145
Suburb	154	154	153	154	154	154	154
Town	149	148	151	148	149	149	147
Rural	152	151	153	151	151	152	152
Status as students with disabilities (SD)							
SD	116	119	117	115	117	117	118
Not SD	155	154	154	155	154	154	154
Status as English language learners (ELL)							
ELL	108	110	111	107	108	108	111
Not ELL	152	152	152	152	152	152	152

NOTE: Black includes African American and Hispanic includes Latino. Race categories exclude Hispanic origin. Private schools include Catholic, other religious, and nonsectarian private schools. SD includes students identified as having either an Individualized Education Program or protection under Section 504 of the Rehabilitation Act of 1973. The results for students with disabilities and English language learners are based on students who were assessed and cannot be generalized to the total population of such students.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2014 Technology and Engineering Literacy (TEL) Assessment.

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Achievement level results of eighth-grade students assessed in NAEP technology and engineering literacy (TEL), by various student groups: 2014

Characteristic	Percentage of students			
	Below <i>Basic</i>	At or above <i>Basic</i>	At or above <i>Proficient</i>	At <i>Advanced</i>
All students	17	83	43	3
Race/ethnicity				
White	9	91	56	5
Black	35	65	18	#
Hispanic	24	76	28	1
Asian	11	89	56	7
Native Hawaiian/Other Pacific Islander	18	82	30	#
American Indian/Alaska Native	20	80	42	2
Two or more races	12	88	45	5
Gender				
Male	18	82	42	3
Female	15	85	45	3
Eligibility for National School Lunch Program				
Eligible	27	73	25	1
Not eligible	7	93	59	6
Information not available	8	92	60	7
Highest level of parental education				
Did not finish high school	28	72	20	#
Graduated from high school	26	74	27	1
Some education after high school	11	89	44	2
Graduated from college	11	89	55	5
Unknown	33	67	20	#
Type of school				
Public	17	83	42	3
Private	7	93	60	6
School location				
City	22	78	37	3
Suburb	15	85	48	5
Town	16	84	42	2
Rural	14	86	45	3
Status as students with disabilities (SD)				
SD	51	49	13	1
Not SD	12	88	47	4
Status as English language learners (ELL)				
ELL	59	41	5	#
Not ELL	14	86	45	4

Rounds to zero.

NOTE: Black includes African American and Hispanic includes Latino. Race categories exclude Hispanic origin. Private schools include Catholic, other religious, and nonsectarian private schools. SD includes students identified as having either an Individualized Education Program or protection under Section 504 of the Rehabilitation Act of 1973. The results for students with disabilities and English language learners are based on students who were assessed and cannot be generalized to the total population of such students. Detail may not sum to totals because of rounding.

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Percentage of eighth-grade students who completely/correctly finished the steps in the Chicago task in NAEP technology and engineering literacy (TEL), by various student groups: 2014

Characteristic	Percentage of students who completely/correctly finished the steps					
	Step 1: Learn about the causes of the water pollution problem and create a graphic about key historical developments	Step 2: Match different points of view about how to solve the water pollution problem to appropriate stakeholders	Step 3: Edit a video showing the engineering design solution to the dirty water problem	Step 4: Identify which statements from experts help to best explain the decision to reverse the flow of the river	Step 5: Explain the unintended consequences of the technological solution	Step 6: Choose a quote that best expresses the main idea of the exhibit
All students	40	62	32	21	44	62
Race/ethnicity						
White	45	70	38	26	51	69
Black	29	49	20	10	25	47
Hispanic	37	52	24	15	36	54
Asian	35	64	35	26	50	72
Gender						
Male	45	63	36	20	43	61
Female	35	61	28	23	44	63
Eligibility for National School Lunch Program						
Eligible	32	49	21	13	31	53
Not eligible	48	74	41	28	53	69
Highest level of parental education						
Did not finish high school	32	44	15	17	36	51
Graduated from high school	32	48	19	14	30	56
Some education after high school	44	65	36	21	48	64
Graduated from college	43	71	39	26	50	68
School location						
City	37	59	29	19	41	64
Suburb	41	65	32	21	46	63
Town	39	65	40	26	46	62
Rural	42	62	32	23	42	60

NOTE: Black includes African American and Hispanic includes Latino. Race categories exclude Hispanic origin. Results are not shown for students whose race/ethnicity was Native Hawaiian/Other Pacific Islander, American Indian/Alaska Native, or whose race/ethnicity was two or more races. Results are also not shown for students whose National School Lunch Program (NSLP) eligibility status was information not available and students who reported that they did not know the highest education level for either of their parents.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2014 Technology and Engineering Literacy (TEL) Assessment.

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Percentage of eighth-grade students who completely/correctly finished the steps in the Bike Lanes task in NAEP technology and engineering literacy (TEL), by various student groups: 2014

Characteristic	Percentage of students who completely/correctly finished the steps				
	Step 1: Determine how lane width and speed limit affect road safety	Step 2: Explain trade-offs among design criteria	Step 3: Identify route modifications based on design criteria	Step 4: Propose a design based on criteria and constraints	Step 5: Explain trade-offs among criteria
All students	76	48	64	45	11
Race/ethnicity					
White	81	55	73	49	14
Black	69	36	42	29	5
Hispanic	70	39	57	42	8
Asian	73	55	72	55	11
Gender					
Male	73	46	65	43	11
Female	80	51	64	47	12
Eligibility for National School Lunch Program					
Eligible	70	39	54	38	7
Not eligible	83	56	74	52	15
Highest level of parental education					
Did not finish high school	72	43	54	40	4
Graduated from high school	74	38	56	38	8
Some education after high school	76	49	66	48	8
Graduated from college	80	55	72	50	15
School location					
City	72	43	58	42	11
Suburb	76	53	65	44	13
Town	81	49	71	51	12
Rural	80	47	68	47	10

NOTE: Black includes African American and Hispanic includes Latino. Race categories exclude Hispanic origin. Results are not shown for students whose race/ethnicity was Native Hawaiian/Other Pacific Islander, American Indian/Alaska Native, or whose race/ethnicity was two or more races. Results are also not shown for students whose National School Lunch Program (NSLP) eligibility status was information not available and students who reported that they did not know the highest education level for either of their parents.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2014 Technology and Engineering Literacy (TEL) Assessment.

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Percentage of eighth-grade students who completely/correctly finished the steps in the Iguana Home task in NAEP technology and engineering literacy (TEL), by various student groups: 2014

Characteristic	Percentage of students who completely/correctly finished the steps									
	Step 1: Consider design solutions and make predictions for solving the problem of Iggy's cage being too cold		Step 2: Consider design solutions and make predictions for solving the problem of Iggy being awake and active at night			Step 3: Observe Iggy's behavior to determine whether the proposed cage design solutions solved Iggy's problems			Step 4: Select a cage redesign to prevent dehydration	
	Recognized that Iggy's home was too cold	Selected and explained how using a stronger heat lamp would be the best design solution	Identified which requirement would determine a design decision	Predicted and explained how a design choice would not meet a particular requirement	Predicted and explained the possible outcomes of a design change	Explained how design problems would be solved by a set of proposed changes	Predicted and explained how a design choice would not meet a particular need	Use information from a model system to explain why a design change would not work		
All students	67	12	82	38	66	8	69	41	83	46
Race/ethnicity										
White	74	14	87	46	71	10	74	46	87	56
Black	54	7	72	23	56	3	58	33	72	24
Hispanic	61	7	79	30	60	4	60	34	78	33
Asian	64	25	81	30	61	15	74	43	87	52
Gender										
Male	68	10	79	36	63	7	66	40	83	48
Female	66	14	85	40	69	8	71	43	82	44
Eligibility for National School Lunch Program										
Eligible	61	7	78	31	59	5	60	34	77	33
Not eligible	72	15	87	44	71	10	76	48	87	57
Highest level of parental education										
Did not finish high school	59	3	75	31	58	4	64	32	73	31
Graduated from high school	59	7	78	32	60	4	65	38	76	35
Some education after high school	68	12	84	39	66	7	65	41	84	47
Graduated from college	72	14	85	41	71	11	72	45	87	53
School location										
City	62	12	80	33	61	6	65	38	81	41
Suburb	66	14	84	37	67	10	74	41	84	46
Town	70	10	82	47	70	7	68	47	83	52
Rural	72	10	82	41	67	6	65	42	82	48

NOTE: Black includes African American and Hispanic includes Latino. Race categories exclude Hispanic origin. Results are not shown for students whose race/ethnicity was Native Hawaiian/Other Pacific Islander, American Indian/Alaska Native, or whose race/ethnicity was two or more races. Results are also not shown for students whose National School Lunch Program (NSLP) eligibility status was information not available and students who reported that they did not know the highest education level for either of their parents.

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Percentage of eighth-grade students who completely/correctly finished the steps in the Recreation Center task in NAEP technology and engineering literacy (TEL), by various student groups: 2014

Characteristic	Percentage of students who completely/correctly finished the steps						
	Step 1: Select the most convincing podcast theme	Step 2: Create introduction to podcast interview	Step 3: Select an attention-grabbing quote	Step 4: Complete the storyboard		Step 5: Select appropriate background music for video	Step 6: Review video created by peer and provide feedback
				Correct image is selected	Complete (Both key facts identified)		
All students	87	24	69	88	72	69	41
Race/ethnicity							
White	90	28	72	89	79	74	48
Black	84	19	69	81	55	62	25
Hispanic	82	18	63	88	65	61	33
Asian	93	26	76	89	78	80	60
Gender							
Male	85	20	66	87	69	65	31
Female	89	29	73	88	75	73	52
Eligibility for National School Lunch Program							
Eligible	81	17	64	84	62	60	28
Not eligible	92	30	74	92	82	76	53
Highest level of parental education							
Did not finish high school	83	19	68	86	64	52	27
Graduated from high school	81	16	63	87	65	65	31
Some education after high school	90	22	72	86	71	71	47
Graduated from college	91	30	73	89	79	73	48
School location							
City	86	23	72	86	67	65	38
Suburb	88	27	71	90	75	70	44
Town	88	16	65	87	78	75	39
Rural	86	26	65	87	73	70	43

NOTE: Black includes African American and Hispanic includes Latino. Race categories exclude Hispanic origin. Results are not shown for students whose race/ethnicity was Native Hawaiian/Other Pacific Islander, American Indian/Alaska Native, or whose race/ethnicity was two or more races. Results are also not shown for students whose National School Lunch Program (NSLP) eligibility status was information not available and students who reported that they did not know the highest education level for either of their parents.

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School and student participation rates at grade 8 in NAEP technology and engineering literacy (TEL), by type of school: 2014

Type of school	School participation			Student participation	
	Student-weighted percent	School-weighted percent	Number of schools participating	Student-weighted percent	Number of students assessed
Nation	92	85	840	94	21,500
Public	94	94	710	94	19,100
Private	74	70	120	94	2,400

NOTE: The national totals for schools include Department of Defense Education Activity (overseas and domestic schools) and Bureau of Indian Education schools, which are not included in either the public or private totals. The national totals for students include students in these schools. The number of schools is rounded to the nearest ten. The number of students is rounded to the nearest hundred.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2014 Technology and Engineering Literacy (TEL) Assessment.

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Percentage of eighth-grade students identified as students with disabilities (SD) and/or English language learners (ELL) excluded and assessed in NAEP technology and engineering literacy (TEL), as a percentage of all students, by SD/ELL category: 2014

SD/ELL category	Percentage of all students				
	Identified	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
SD and/or ELL	17	1	16	6	10
SD	13	1	12	3	9
ELL	5	#	5	3	2

Rounds to zero.

NOTE: Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. Detail may not sum to totals because of rounding.

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Percentage of eighth-grade students identified as students with disabilities (SD) and/or English language learners (ELL) excluded and assessed in NAEP technology and engineering literacy (TEL), as a percentage of identified SD and/or ELL students, by SD/ELL category: 2014

SD/ELL category	Percentage of identified SD and/or ELL students			
	Excluded	Assessed	Assessed without accommodations	Assessed with accommodations
SD and/or ELL	8	92	33	59
SD	8	92	23	69
ELL	9	91	54	38

NOTE: Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories. Detail may not sum to totals because of rounding.

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Percentage of eighth-grade students identified as students with disabilities (SD) and/or English language learners (ELL) assessed in NAEP technology and engineering literacy (TEL) with accommodations, by SD/ELL category and type of accommodation: 2014

Type of accommodation	SD and/or ELL	SD	ELL
Bilingual dictionary	0.71	0.12	0.71
Breaks during test	2.41	2.32	0.28
Cueing to stay on task	0.39	0.39	0.05
Extended time	9.31	8.18	1.85
Hearing impaired version of the test	0.02	0.02	#
Low mobility version of the test	#	#	#
Magnification	0.03	0.03	#
Must have an aide present in the testing room	0.21	0.18	0.05
Other	0.22	0.21	0.03
Presentation in Sign Language	0.04	0.04	0.01
Responds orally to a scribe	0.07	0.07	#
Response in Sign Language	#	#	#
Separate session	0.47	0.45	0.06
Uses template/special equipment/preferential seating	0.53	0.53	0.02

Percentages less than .005.

NOTE: Students identified as both SD and ELL were counted only once under the combined SD and/or ELL category, but were counted separately under the SD and ELL categories.

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