



NATIONAL SCIENCE BOARD SCIENCE & ENGINEERING INDICATORS 2022



K-12 Education

Elementary and Secondary STEM Education

Supplemental Tables

NSB-2021-1

July 08, 2021

This publication is part of the *Science and Engineering Indicators* suite of reports. *Indicators* is a congressionally mandated report on the state of the U.S. science and engineering enterprise. It is policy relevant and policy neutral. *Indicators* is prepared under the guidance of the National Science Board by the National Center for Science and Engineering Statistics, a federal statistical agency within the National Science Foundation. With the 2020 edition, *Indicators* is changing from a single report to a set of disaggregated and streamlined reports published on a rolling basis. Detailed data tables will continue to be available online.

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Table SK12-1

Average scores of students in grades 4, 8, and 12 on the NAEP mathematics assessment, by student characteristics: 1990–2019

(Average score)

Student grade and characteristic	1990	1992	1996	2000	2003	2005	2007	2009	2011	2013	2015	2017	2019
All students in grade 4	213	220	224	226	235	238	240	240	241	242	240	240	241
Sex													
Male	214	221	224	227	236	239	241	241	241	242	241	241	242
Female	213	219	223	224	233	237	239	239	240	241	239	239	239
Race or ethnicity ^a													
White	220	227	232	234	243	246	248	248	249	250	248	248	249
Black	188	193	198	203	216	220	222	222	224	224	224	223	224
Hispanic ^b	200	202	207	208	222	226	227	227	229	231	230	229	231
Asian or Pacific Islander	225	231	229	s	246	251	253	255	256	258	257	258	260
American Indian or Alaska Native	s	s	217	208	223	226	228	225	225	227	227	227	227
Two or more races ^c	s	s	s	224	237	241	241	243	245	245	245	245	244
Socioeconomic status ^d													
Eligible for free or reduced-price lunch	NA	NA	207	208	222	225	227	227	229	230	229	228	229
Not eligible for free or reduced-price lunch	NA	NA	232	235	244	248	249	250	252	254	253	252	253
Student disability status ^e													
Has a disability	NA	NA	204	198	214	219	220	221	218	218	218	214	214
Does not have a disability	NA	NA	225	228	237	240	242	242	244	245	244	243	245
English language learner status ^e													
English language learner	s	s	201	199	214	216	217	218	219	219	218	217	220
Not English language learner	s	s	225	227	237	240	242	242	243	244	243	243	243
Region of the country													
Northeast	NA	NA	NA	s	238	241	245	244	244	244	242	242	243
Midwest	NA	NA	NA	s	238	240	243	242	242	244	242	242	241
South	NA	NA	NA	s	234	238	239	239	240	241	241	240	241
West	NA	NA	NA	s	231	234	234	235	238	238	236	236	237
School location													
City	NA	NA	NA	NA	NA	NA	235	235	236	237	237	235	236
Suburb	NA	NA	NA	NA	NA	NA	244	243	244	245	243	244	245
Town	NA	NA	NA	NA	NA	NA	238	238	237	241	238	237	237
Rural	NA	NA	NA	NA	NA	NA	240	241	243	243	241	240	240
Percentiles													
10th percentile	171	177	182	184	197	200	202	202	203	203	202	198	199
25th percentile	193	199	203	205	216	220	222	221		222	221	219	220
50th percentile	214	221	225	227	236	239	242	241	242	243	242	241	242
75th percentile	235	242	245	248	255	258	260	260	261	262	261	262	262
90th percentile	253	259	262	265	270	273	275	275	276	278	277	279	280
All students in grade 8	263	268	270	273	278	279	281	283	284	285	282	283	282
Sex													
Male	263	268	271	274	278	280	282	284	284	285	282	283	282
Female	262	269	269	272	277	278	280	282	283	284	282	282	282
Race or ethnicity ^a													
White	270	277	281	284	288	289	291	293	293	294	292	293	292
Black	237	237	240	244	252	255	260	261	262	263	260	260	260
Hispanic ^b	246	249	251	253	259	262	265	266	270	272	270	269	268
Asian or Pacific Islander	275	290	s	288	291	295	297	301	303	306	306	310	310
American Indian or Alaska Native	s	s	s	259	263	264	264	266	265	269	267	267	262
Two or more races ^c	s	260	s	270	280	280	285	286	288	288	285	287	286
Parents' highest education													
Did not finish high school	242	249	250	253	257	259	263	265	265	267	265	265	264

Table SK12-1

Average scores of students in grades 4, 8, and 12 on the NAEP mathematics assessment, by student characteristics: 1990–2019

(Average score)

Student grade and characteristic	1990	1992	1996	2000	2003	2005	2007	2009	2011	2013	2015	2017	2019
Graduated from high school	255	257	260	261	267	267	270	270	271	270	268	267	265
Some education after high school	267	271	277	277	280	280	283	284	285	285	282	281	280
Graduated from college	274	281	281	286	288	290	292	295	295	296	294	294	293
Unknown	241	252	252	254	259	260	263	264	265	266	263	264	263
Socioeconomic status ^d													
Eligible for free or reduced-price lunch	NA	NA	250	253	259	262	265	266	269	270	268	267	266
Not eligible for free or reduced-price lunch	NA	NA	277	283	287	288	291	294	296	297	296	296	296
Student disability status ^e													
Has a disability	NA	NA	231	230	242	245	246	249	250	249	247	247	247
Does not have a disability	NA	NA	273	276	282	283	285	287	288	289	287	288	287
English language learner status ^e													
English language learner	NA	NA	226	234	242	244	246	243	244	246	246	246	243
Not English language learner	NA	NA	272	274	279	281	283	285	286	287	284	285	285
Region of the country													
Northeast	NA	NA	NA	s	282	283	287	289	288	290	287	288	287
Midwest	NA	NA	NA	s	283	283	284	287	287	288	285	286	286
South	NA	NA	NA	s	275	277	280	282	283	283	280	280	280
West	NA	NA	NA	s	273	275	276	277	279	281	280	281	279
School location													
City	NA	NA	NA	NA	NA	NA	275	279	279	280	278	278	277
Suburb	NA	NA	NA	NA	NA	NA	286	287	287	289	286	288	287
Town	NA	NA	NA	NA	NA	NA	280	279	282	282	279	278	277
Rural	NA	NA	NA	NA	NA	NA	282	284	286	286	282	282	283
Percentiles													
10th percentile	215	221	221	223	230	231	235	236	237	237	235	233	231
25th percentile	239	243	245	249	254	255	258	259	260	261	258	256	255
50th percentile	264	269	273	275	279	280	283	284	285	286	283	283	282
75th percentile	288	294	297	300	303	304	306	308	309	310	308	310	309
90th percentile	307	315	316	320	323	324	327	329	329	331	329	333	333
All students in grade 12	NA	NA	NA	NA	NA	150	NA	153	NA	153	152	NA	150
Sex													
Male	NA	NA	NA	NA	NA	151	NA	155	NA	155	153	NA	152
Female	NA	NA	NA	NA	NA	149	NA	152	NA	152	150	NA	149
Race or ethnicity ^a													
White	NA	NA	NA	NA	NA	157	NA	161	NA	162	160	NA	159
Black	NA	NA	NA	NA	NA	127	NA	131	NA	132	130	NA	128
Hispanic ^b	NA	NA	NA	NA	NA	133	NA	138	NA	141	139	NA	138
Asian or Pacific Islander	NA	NA	NA	NA	NA	163	NA	175	NA	172	170	NA	173
American Indian or Alaska Native	NA	NA	NA	NA	NA	134	NA	144	NA	142	138	NA	136
Two or more races ^c	NA	NA	NA	NA	NA	142	NA	158	NA	155	157	NA	157
Parents' highest education													
Did not finish high school	NA	NA	NA	NA	NA	130	NA	135	NA	137	133	NA	133
Graduated from high school	NA	NA	NA	NA	NA	138	NA	142	NA	139	139	NA	136
Some education after high school	NA	NA	NA	NA	NA	148	NA	150	NA	152	149	NA	147
Graduated from college	NA	NA	NA	NA	NA	161	NA	164	NA	164	163	NA	161
Unknown	NA	NA	NA	NA	NA	123	NA	129	NA	127	125	NA	125
Socioeconomic status ^d													
Eligible for free or reduced-price lunch	NA	NA	NA	NA	NA	132	NA	137	NA	139	137	NA	136
Not eligible for free or reduced-price lunch	NA	NA	NA	NA	NA	155	NA	160	NA	162	160	NA	160

Table SK12-1

Average scores of students in grades 4, 8, and 12 on the NAEP mathematics assessment, by student characteristics: 1990–2019

(Average score)

Student grade and characteristic	1990	1992	1996	2000	2003	2005	2007	2009	2011	2013	2015	2017	2019
Student disability status ^e													
Has a disability	NA	NA	NA	NA	NA	114	NA	120	NA	119	118	NA	119
Does not have a disability	NA	NA	NA	NA	NA	153	NA	156	NA	157	155	NA	154
English language learner status ^e													
English language learner	NA	NA	NA	NA	NA	120	NA	117	NA	109	115	NA	111
Not English language learner	NA	NA	NA	NA	NA	151	NA	154	NA	155	153	NA	152
Region of the country													
Northeast	NA	NA	NA	NA	NA	151	NA	s	NA	156	156	NA	154
Midwest	NA	NA	NA	NA	NA	157	NA	s	NA	157	157	NA	153
South	NA	NA	NA	NA	NA	146	NA	s	NA	152	148	NA	147
West	NA	NA	NA	NA	NA	148	NA	s	NA	151	149	NA	150
School location													
City	NA	NA	NA	NA	NA	NA	NA	152	NA	149	148	NA	149
Suburb	NA	NA	NA	NA	NA	NA	NA	157	NA	158	155	NA	154
Town	NA	NA	NA	NA	NA	NA	NA	151	NA	151	150	NA	147
Rural	NA	NA	NA	NA	NA	NA	NA	151	NA	153	152	NA	148
Percentiles													
10th percentile	NA	NA	NA	NA	NA	105	NA	110	NA	111	107	NA	104
25th percentile	NA	NA	NA	NA	NA	127	NA	130	NA	131	128	NA	125
50th percentile	NA	NA	NA	NA	NA	151	NA	154	NA	154	152	NA	150
75th percentile	NA	NA	NA	NA	NA	174	NA	177	NA	177	175	NA	175
90th percentile	NA	NA	NA	NA	NA	194	NA	197	NA	197	196	NA	196

NA = not available; s = suppressed for reasons of confidentiality and/or reliability.

NAEP = National Assessment of Educational Progress.

^a Other racial and ethnic groups are included in the rows for All students in grade 4, All students in grade 8, and All students in grade 12 but are not shown separately in the table.

^b Hispanic may be any race; race categories exclude Hispanic origin.

^c Prior to 2011, students in the Two or more races category were categorized as unclassified.

^d NAEP uses eligibility for the federal National School Lunch Program (NSLP) as a measure of socioeconomic status. NSLP is a federally assisted meal program that provides low-cost or free lunches to eligible students. It is often referred to as the free or reduced-price lunch program. Information on students' eligibility for free or reduced-price lunch was first collected in 1996.

^e From 1996 on, students with a disability and English language learners were allowed to use testing accommodations (e.g., extended time, one-on-one testing, bilingual dictionary). More information about testing accommodations is available at <https://nces.ed.gov/nationsreportcard/about/inclusion.asp>.

Note(s):

The scale for NAEP mathematics assessment scores is 0–500 for grades 4 and 8 and 0–300 for grade 12. From 1996 on, data shown here are for students allowed to use testing accommodations. Grade 12 mathematics data are presented from 2005, 2009, 2013, and 2015 only because the mathematics framework was substantially revised in 2005, making prior assessment results not comparable with those in or after 2005. Mathematics assessment was not conducted in 2007, 2011, 2017, and 2019 for grade 12.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the 1990, 1992, 1996, 2000, 2003, 2005, 2007, 2009, 2011, 2013, 2015, 2017, and 2019 NAEP mathematics assessments, National Center for Education Statistics.

Table SK12-2

Average scores of students in grades 4, 8, and 12 on the main NAEP mathematics assessment, by race or ethnicity: 2011–19

(Average score)

Student grade and race or ethnicity	2011	2013	2015	2017	2019
All students in grade 4	241	242	240	240	241
Race or ethnicity ^a					
Asian	257	259	259	260	263
White	249	250	248	248	249
Two or more races	245	245	245	245	244
Hispanic ^b	229	231	230	229	231
American Indian or Alaska Native	225	227	227	227	227
Native Hawaiian or Pacific Islander	236	236	231	229	226
Black	224	224	224	223	224
All students in grade 8	284	285	282	283	282
Race or ethnicity ^a					
Asian	305	309	307	312	313
White	293	294	292	293	292
Two or more races	288	288	285	287	286
Hispanic ^b	270	272	270	269	268
American Indian or Alaska Native	269	275	276	274	266
Native Hawaiian or Pacific Islander	265	269	267	267	262
Black	262	263	260	260	260
All students in grade 12	NA	153	152	NA	NA
Race or ethnicity ^a					
White	NA	162	160	NA	NA
Black	NA	132	130	NA	NA
Hispanic ^b	NA	141	139	NA	NA
Asian	NA	174	171	NA	NA
American Indian or Alaska Native	NA	142	138	NA	NA
Native Hawaiian or Pacific Islander	NA	151	s	NA	NA
Two or more races	NA	155	157	NA	NA

NA = not available; s = suppressed for reasons of confidentiality and/or reliability.

NAEP = National Assessment of Educational Progress.

^a Other racial and ethnic groups are included in the rows for All students in grade 4, All students in grade 8, and All students in grade 12 but are not shown separately in the table.^b Hispanic may be any race; race categories exclude Hispanic origin.**Note(s):**

The scale for main NAEP mathematics assessment scores is 0–500 for grades 4 and 8 and 0–300 for grade 12. Grade 12 mathematics data are presented from 2013 and 2015 only because a mathematics assessment was not conducted in 2011, 2017, and 2019 for grade 12.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the 2011, 2013, 2015, 2017, and 2019 NAEP mathematics assessments, National Center for Education Statistics.

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Table SK12-3

Average scores and 10th and 90th percentile scores of 15-year-old students on the PISA mathematics literacy scale and 90th–10th percentile score gaps, by education system: 2018

(Average score and percentile score)

Education system	Average score	Percentile ^a			OECD country and education system
		10th percentile score	90th percentile score	90th–10th percentile score gap	
OECD average	489 *	370	605	235	na
B-S-J-Z (China)	591 *	486	691	205 *	No
Singapore	569 *	441	684	244	No
Macau (China)	558 *	452	659	207 *	No
Hong Kong (China)	551 *	426	667	241	No
Chinese Taipei	531 *	397	656	259 *	No
Japan	527 *	413	637	224 *	Yes
South Korea	526 *	393	651	258	Yes
Estonia	523 *	419	628	209 *	Yes
Netherlands	519 *	394	638	243	Yes
Poland	516 *	398	631	233	Yes
Switzerland	515 *	391	636	245	Yes
Canada	512 *	392	629	237	Yes
Denmark	509 *	401	613	213 *	Yes
Slovenia	509 *	392	622	230	Yes
Belgium	508 *	377	628	252	Yes
Finland	507 *	399	612	213 *	Yes
Sweden	502 *	383	618	236	Yes
United Kingdom	502 *	381	620	239	Yes
Norway	501 *	381	617	236	Yes
Germany	500 *	373	621	248	Yes
Ireland	500 *	397	599	202 *	Yes
Czechia	499 *	378	619	241	Yes
Austria	499 *	374	618	244	Yes
Latvia	496 *	393	599	207 *	Yes
France	495 *	370	611	241	Yes
Iceland	495 *	374	609	235	Yes
New Zealand	494 *	372	614	242	Yes
Portugal	492 *	362	614	252	Yes
Australia	491 *	371	609	238	Yes
Russia	488 *	376	597	221 *	No
Italy	487	363	605	241	Yes
Slovakia	486	353	610	257	Yes
Luxembourg	483	353	611	257 *	Yes
Spain	481	365	593	229	Yes
Lithuania	481	362	598	236	Yes
Hungary	481	360	597	237	Yes
United States	478	357	598	241	Yes
Belarus	472	351	592	241	No
Malta	472	334	599	265 *	No
Croatia	464 *	354	577	223 *	No
Israel	463 *	315	600	285 *	Yes
Turkey ^b	454 *	343	571	228	Yes
Ukraine	453 *	331	573	242	No
Greece	451 *	334	565	231	Yes

Table SK12-3

Average scores and 10th and 90th percentile scores of 15-year-old students on the PISA mathematics literacy scale and 90th–10th percentile score gaps, by education system: 2018

(Average score and percentile score)

Education system	Average score	Percentile ^a			OECD country and education system
		10th percentile score	90th percentile score	90th–10th percentile score gap	
Cyprus	451 *	325	571	246	No
Serbia	448 *	324	576	251	No
Malaysia ^b	440 *	335	550	214 *	No
Albania	437 *	332	544	211 *	No
Bulgaria ^b	436 *	311	563	251	No
United Arab Emirates	435 *	299	574	275 *	No
Brunei Darussalam	430 *	316	555	239	No
Romania ^b	430 *	310	554	244	No
Montenegro, Republic of	430 *	324	538	214 *	No
Kazakhstan	423 *	314	535	221 *	No
Moldova, Republic of	421 *	300	543	244	No
Baku (Azerbaijan) ^c	420 *	306	535	229	No
Thailand ^b	419 *	310	535	226	No
Uruguay	418 *	307	529	221 *	No
Chile	417 *	311	528	218 *	Yes
Qatar	414 *	290	544	253	No
Mexico ^b	409 *	311	510	199 *	Yes
Bosnia and Herzegovina	406 *	303	514	211 *	No
Costa Rica ^b	402 *	308	499	191 *	No
Peru ^b	400 *	293	511	217 *	No
Jordan ^b	400 *	291	508	217 *	No
Georgia	398 *	286	515	228	No
North Macedonia	394 *	275	516	241	No
Lebanon	393 *	256	533	276 *	No
Colombia ^b	391 *	290	499	209 *	Yes
Brazil ^b	384 *	277	501	224 *	No
Argentina	379 *	272	489	217 *	No
Indonesia	379 *	281	480	198 *	No
Saudi Arabia	373 *	273	475	202 *	No
Morocco ^b	368 *	273	469	196 *	No
Kosovo	366 *	269	465	197 *	No
Panama ^b	353 *	255	454	199 *	No
Philippines ^b	353 *	255	456	201 *	No
Dominican Republic ^b	325 *	236	417	181 *	No

* $p < 0.05$. Significantly different from the U.S. estimate at the 0.05 level of statistical significance. na = not applicable.

OECD = Organisation for Economic Co-operation and Development; PISA = Program for International Student Assessment.

^a These columns show the threshold (or cut) scores for the 10th percentile (the bottom 10% of students) and 90th percentile (the top 10% of students). The 90th–10th percentile score gap for each education system is the difference between its 90th and 10th percentile scores. The percentile ranges are specific to each education system's distribution of scores, enabling users to compare scores across education systems.^b At least 50% but less than 75% of the 15-year-old population is covered by the PISA sample.^c Less than 50% of the 15-year-old population is covered by the PISA sample.

Note(s):

The scale of mathematics and science scores is 0–1,000. Education systems are ordered by 2018 average score from highest to lowest. The OECD average is the average of the national averages of the OECD member countries, with each country weighted equally. B-S-J-Z (China) refers to the four PISA-participating China provinces: Beijing, Shanghai, Jiangsu, and Zhejiang.

Source(s):

OECD, PISA, 2018. <https://nces.ed.gov/surveys/pisa/pisa2018/index.asp#/math/intlcompare>.

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Table SK12-4

Average scores and 10th and 90th percentile scores of 15-year-old students on the PISA science literacy scale and 90th–10th percentile score gaps, by education system: 2018

(Average score and percentile score)

Education system	Average score	Percentile ^a			OECD country and education system
		10th percentile score	90th percentile score	90th–10th percentile score gap	
OECD average	489 *	365	609	244 *	na
B-S-J-Z (China)	590 *	482	695	213 *	No
Singapore	551 *	416	670	254	No
Macau (China)	544 *	434	648	214 *	No
Estonia	530 *	417	644	227 *	Yes
Japan	529 *	405	646	241 *	Yes
Finland	522 *	393	643	250	Yes
South Korea	519 *	388	642	254	Yes
Canada	518 *	393	640	247	Yes
Hong Kong (China)	517 *	401	623	223 *	No
Chinese Taipei	516 *	382	641	259	No
Poland	511 *	392	630	238 *	Yes
New Zealand	508	371	640	269	Yes
Slovenia	507	390	621	231 *	Yes
United Kingdom	505	374	632	258	Yes
Netherlands	503	364	636	272	Yes
Germany	503	363	633	270	Yes
Australia	503	369	631	262	Yes
United States	502	371	629	259	Yes
Sweden	499	368	624	256	Yes
Belgium	499	363	624	261	Yes
Czechia	497	373	620	247	Yes
Ireland	496	380	610	230 *	Yes
Switzerland	495	367	622	255	Yes
France	493 *	364	615	251	Yes
Denmark	493 *	372	609	237 *	Yes
Portugal	492 *	368	609	240 *	Yes
Norway	490 *	357	616	259	Yes
Austria	490 *	361	614	252	Yes
Latvia	487 *	377	595	219 *	Yes
Spain	483 *	365	598	233 *	Yes
Lithuania	482 *	364	599	235 *	Yes
Hungary	481 *	356	602	246	Yes
Russia	478 *	369	586	217 *	No
Luxembourg	477 *	347	606	258	Yes
Iceland	475 *	354	594	240 *	Yes
Croatia	472 *	356	590	235 *	Yes
Belarus	471 *	361	581	221 *	No
Ukraine	469 *	351	588	237 *	No
Turkey ^b	468 *	361	579	218 *	Yes
Italy	468 *	348	583	235 *	Yes
Slovakia	464 *	338	589	251	Yes
Israel	462 *	314	607	293 *	Yes
Malta	457 *	314	594	280 *	No
Greece	452 *	338	561	223 *	Yes

Table SK12-4

Average scores and 10th and 90th percentile scores of 15-year-old students on the PISA science literacy scale and 90th–10th percentile score gaps, by education system: 2018

(Average score and percentile score)

Education system	Average score	Percentile ^a			OECD country and education system
		10th percentile score	90th percentile score	90th–10th percentile score gap	
Chile	444 *	336	553	218 *	Yes
Serbia	440 *	322	562	240 *	No
Cyprus	439 *	319	562	244 *	No
Malaysia ^b	438 *	339	538	199 *	No
United Arab Emirates	434 *	302	572	270	No
Brunei Darussalam	431 *	315	566	252	No
Jordan ^b	429 *	316	541	225 *	No
Moldova, Republic of	428 *	314	546	232 *	No
Thailand ^b	426 *	324	535	211 *	No
Uruguay	426 *	314	540	226 *	No
Romania ^b	426 *	312	545	233 *	No
Bulgaria ^b	424 *	305	552	247	No
Mexico ^b	419 *	326	518	192 *	Yes
Qatar	419 *	290	557	268	No
Albania	417 *	323	514	190 *	No
Costa Rica ^b	416 *	324	512	188 *	No
Montenegro, Republic of	415 *	311	523	212 *	No
Colombia ^b	413 *	311	524	213 *	Yes
North Macedonia	413 *	296	533	238 *	No
Peru ^b	404 *	304	511	207 *	No
Argentina	404 *	291	523	232 *	No
Brazil ^b	404 *	292	527	234 *	No
Bosnia and Herzegovina	398 *	302	499	197 *	No
Baku (Azerbaijan) ^c	398 *	305	494	189 *	No
Kazakhstan	397 *	307	498	191 *	No
Indonesia	396 *	312	488	176 *	No
Saudi Arabia	386 *	287	489	203 *	No
Lebanon	384 *	265	513	248	No
Georgia	383 *	281	491	209 *	No
Morocco ^b	377 *	293	468	175 *	No
Kosovo	365 *	285	450	165 *	No
Panama ^b	365 *	259	478	219 *	No
Philippines ^b	357 *	269	461	192 *	No
Dominican Republic ^b	336 *	250	431	181 *	No

* $p < 0.05$. Significantly different from the U.S. estimate at the 0.05 level of statistical significance. na = not applicable.

OECD = Organisation for Economic Co-operation and Development; PISA = Program for International Student Assessment.

^a These columns show the threshold (or cut) scores for the 10th percentile (the bottom 10% of students) and 90th percentile (the top 10% of students). The 90th–10th percentile score gap for each education system is the difference between its 90th and 10th percentile scores. The percentile ranges are specific to each education system's distribution of scores, enabling users to compare scores across education systems.^b At least 50% but less than 75% of the 15-year-old population is covered by the PISA sample.^c Less than 50% of the 15-year-old population is covered by the PISA sample.

Note(s):

The scale of mathematics and science scores is 0–1,000. Education systems are ordered by 2018 average score from highest to lowest. The OECD average is the average of the national averages of the OECD member countries, with each country weighted equally. B-S-J-Z (China) refers to the four PISA-participating China provinces: Beijing, Shanghai, Jiangsu, and Zhejiang.

Source(s):

OECD, PISA, 2018. <https://nces.ed.gov/surveys/pisa/pisa2018/index.asp#/science/intlcompare>.

Science and Engineering Indicators

Table SK12-5

Male-female difference in average scores of 15-year-old students on the PISA mathematics and science literacy scale, by education system: 2018

(Average score difference)

Education system	Male-female score difference in mathematics	Male-female score difference in science	OECD country and education system
OECD average	5 *	-2 *	na
Albania	-5	-16 *	No
Argentina	15 *	10	No
Australia	6 *	2	Yes
Austria	13 *	2 *	Yes
Baku (Azerbaijan) ^b	8 *	-5	No
Belarus	6	3	No
Belgium	12 *	5	Yes
Bosnia and Herzegovina	3	-1	No
Brazil ^a	9 *	-2 *	No
Brunei Darussalam	-8 *	-7 *	No
B-S-J-Z (China)	11 *	13 *	No
Bulgaria ^a	-2	-15	No
Canada	5 *	-3	Yes
Chile	7 *	3	Yes
Chinese Taipei	4	1 *	No
Colombia ^a	20 *	12 *	Yes
Costa Rica ^a	18 *	9	No
Croatia	9 *	-4 *	No
Cyprus	-8 *	-21	No
Czechia	4	-2	Yes
Denmark	4	-2 *	Yes
Dominican Republic ^a	-3	-10 *	No
Estonia	8 *	-5 *	Yes
Finland	-6 *	-24	Yes
France	6 *	-2 *	Yes
Georgia	-4	-14	No
Germany	7 *	-1 *	Yes
Greece	#	-11 *	Yes
Hong Kong (China)	-6	-9	No
Hungary	9 *	6 *	Yes
Iceland	-10 *	-8 *	Yes
Indonesia	-10 *	-7	No
Ireland	6	-1 *	Yes
Israel	-9	-19	Yes
Italy	16 *	3	Yes
Japan	10 *	3 *	Yes
Jordan ^a	-6	-29 *	No
Kazakhstan	1	-7	No
South Korea	4	4 *	Yes
Kosovo	4	-6 *	No
Latvia	7 *	-8	Yes
Lebanon	#	-5 *	No
Lithuania	-2	-6 *	Yes
Luxembourg	7 *	-5	Yes
Macau (China)	4	-2 *	No

Table SK12-5

Male-female difference in average scores of 15-year-old students on the PISA mathematics and science literacy scale, by education system: 2018

(Average score difference)

Education system	Male-female score difference in mathematics	Male-female score difference in science	OECD country and education system
Malaysia ^a	-7 *	-6 *	No
Malta	-13 *	-21 *	No
Mexico ^a	12 *	9 *	Yes
Moldova, Republic of	-2	-11	No
Montenegro, Republic of	8 *	-5 *	No
Morocco ^a	1	-9 *	No
Netherlands	1	-8	Yes
New Zealand	9 *	2 *	Yes
North Macedonia	-7 *	-19 *	No
Norway	-7 *	-11	Yes
Panama ^a	8 *	# *	No
Peru ^a	16 *	13	No
Philippines ^a	-12 *	-3	No
Poland	1	#	Yes
Portugal	9 *	5 *	Yes
Qatar	-24 *	-39	No
Romania ^a	5	-1	No
Russia	5 *	1 *	No
Saudi Arabia	-13 *	-29	No
Serbia	3	-5	No
Singapore	4	4	No
Slovakia	5	-6 *	Yes
Slovenia	1	-10	Yes
Spain	6 *	1 *	Yes
Sweden	-1	-8	Yes
Switzerland	7 *	# *	Yes
Thailand ^a	-16 *	-20 *	No
Turkey ^a	5	-7	Yes
Ukraine	7	2 *	No
United Arab Emirates	-9 *	-26	No
United Kingdom	12 *	1	Yes
United States	9 *	1	Yes
Uruguay	8 *	3	No

* $p < 0.05$. Difference between male and female scores at the country level is significantly different at the 0.05 level of statistical significance. # = rounds to zero. na = not applicable.

OECD = Organisation for Economic Co-operation and Development; PISA = Program for International Student Assessment.

^a At least 50% but less than 75% of the 15-year-old population is covered by the PISA sample.

^b Less than 50% of the 15-year-old population is covered by the PISA sample.

Note(s):

The scale of mathematics and science scores is 0–1,000. The OECD average is the average of the national averages of the OECD member countries, with each country weighted equally. B-S-J-Z (China) refers to the four PISA-participating China provinces: Beijing, Shanghai, Jiangsu, and Zhejiang.

Source(s):

OECD, PISA, 2018. <https://nces.ed.gov/surveys/pisa/pisa2018/index.asp#/science/intlcompare>.

Science and Engineering Indicators

Table SK12-6

Average scores of 15-year-old students on the PISA mathematics literacy scales, by OECD education system: 2012, 2015, and 2018

(Average score)

OECD education system	Average score in 2012	Average score in 2015	Average score in 2018
Japan	536 *	532 *	527 *
South Korea	554 *	524 *	526 *
Estonia	521 *	520 *	523 *
Netherlands	523 *	512 *	519 *
Poland	518 *	504 *	516 *
Switzerland	531 *	521 *	515 *
Canada	518 *	516 *	512 *
Denmark	500 *	511 *	509 *
Slovenia	501 *	510 *	509 *
Belgium	515 *	507 *	508 *
Finland	519 *	511 *	507 *
Sweden	478	494 *	502 *
United Kingdom	494 *	492 *	502 *
Norway	489	502 *	501 *
Germany	514 *	506 *	500 *
Ireland	501 *	504 *	500 *
Czechia	499 *	492 *	499 *
Austria	506 *	497 *	499 *
Latvia	491 *	482 *	496 *
France	495 *	493 *	495 *
Iceland	493 *	488 *	495 *
New Zealand	500 *	495 *	494 *
Portugal	487	492 *	492 *
Australia	504 *	494 *	491 *
Italy	485	490 *	487
Slovakia	482	475	486
Luxembourg	490 *	486 *	483
Spain	484	486 *	481
Lithuania	479	478 *	481
Hungary	477	477	481
United States	481	470	478
Israel	466 *	470	463 *
Turkey	448 *	420 *	454 *
Greece	453 *	454 *	451 *
Chile	423 *	423 *	417 *
Mexico	413 *	408 *	409 *
Colombia	376 *	390 *	391 *

* $p < 0.05$. Significantly different from the U.S. estimate at the 0.05 level of statistical significance.

OECD = Organisation for Economic Co-operation and Development; PISA = Program for International Student Assessment.

Note(s):

The scale of mathematics scores is 0–1,000. Education systems are ordered by each year's average score from highest to lowest.

Source(s):OECD, PISA, 2018. <https://nces.ed.gov/surveys/pisa/pisa2018/index.asp#/math/intlcompare>.

Table SK12-7

Average scores of 15-year-old students on the PISA science literacy scales, by OECD education system: 2012, 2015, and 2018

(Average score)

OECD education system	Average score in 2012		Average score in 2015		Average score in 2018	
Estonia	541	*	534	*	530	*
Japan	547	*	538	*	529	*
Finland	545	*	531	*	522	*
South Korea	538	*	516	*	519	*
Canada	525	*	528	*	518	*
Poland	526	*	501		511	*
New Zealand	516	*	513	*	508	
Slovenia	514	*	513	*	507	
United Kingdom	514	*	509	*	505	
Netherlands	522	*	509	*	503	
Germany	524	*	509	*	503	
Australia	521	*	510	*	503	
United States	497		496		502	
Sweden	485	*	493		499	
Belgium	505		502		499	
Czechia	508	*	493		497	
Ireland	522	*	503		496	
Switzerland	515	*	506	*	495	
France	499		495		493	*
Denmark	498		502		493	*
Portugal	489		501		492	*
Norway	495		498		490	*
Austria	506		495		490	*
Latvia	502		490		487	*
Spain	496		493		483	*
Lithuania	496		475	*	482	*
Hungary	494		477	*	481	*
Luxembourg	491		483	*	477	*
Iceland	478	*	473	*	475	*
Turkey	463	*	425	*	468	*
Italy	494		481	*	468	*
Slovakia	471	*	461	*	464	*
Israel	470	*	467	*	462	*
Greece	467	*	455	*	452	*
Chile	445	*	447	*	444	*
Mexico	415	*	416	*	419	*
Colombia	399	*	416	*	413	*

* $p < 0.05$. Significantly different from the U.S. estimate at the 0.05 level of statistical significance.

OECD = Organisation for Economic Co-operation and Development; PISA = Program for International Student Assessment.

Note(s):

The scale of science scores is 0–1,000. Education systems are ordered by each year's average score from highest to lowest.

Source(s):OECD, PISA, 2018. <https://nces.ed.gov/surveys/pisa/pisa2018/index.asp#/math/intlcompare>.

Science and Engineering Indicators

Table SK12-8

Average CIL and CT scores of students in grade 8, by education system: 2018

(Average score)

Education system	Average CIL score	Average CT score	OECD country and education system
ICILS 2018 average	496 *	500	na
Chile	476 *	NA	Yes
Denmark ^{a,b}	553 *	527 *	Yes
Finland	531 *	508 *	Yes
France	499 *	501	Yes
Germany	518	486 *	Yes
Italy ^c	461 *	NA	Yes
Kazakhstan ^b	395 *	NA	No
South Korea	542 *	536 *	Yes
Luxembourg	482 *	460 *	Yes
Moscow	549 *	NA	No
North Rhine–Westphalia	515	485 *	No
Portugal ^{b,d}	516	482 *	Yes
United States ^e	519	498	Yes
Uruguay	450 *	NA	No

* $p < 0.05$. Significantly different from the U.S. estimate at the 0.05 level of statistical significance. na = not applicable. NA = not available. s = suppressed for reasons of confidentiality and/or reliability.

CIL = computer and information literacy; CT = computational thinking; ICILS = International Computer and Information Literacy Study; OECD = Organisation for Economic Co-operation and Development.

^a Met guidelines for sample participation rates only after replacement schools were included.

^b National Defined Population covers 90%–95% of National Target Population.

^c Data collected at the beginning of the school year.

^d Nearly met guidelines for sample participation rates after replacement schools were included.

^e Did not meet the guidelines for a sample participation rate of 85% and was not included in the international average.

Note(s):

The scale of CIL and CT scores is 100–700. The ICILS 2018 average is the average of all participating education systems meeting international technical standards, with each education system weighted equally.

Source(s):

International Association for the Evaluation of Educational Achievement (IEA), ICILS, 2018. <https://nces.ed.gov/surveys/icils/icils2018/theme1.asp?tabontop>.

Science and Engineering Indicators

Table SK12-9

Average CIL and CT scores of male and female students in grade 8 and female-male score differences, by education system: 2018

(Average score)

Education system	Average CIL score			Average CT score			OECD country and education system
	Male	Female	Female-male score difference	Male	Female	Female-male score difference	
ICILS 2018 average	488 *	505 *	18	502	498	-4	na
Chile	472 *	480 *	s	NA	NA	NA	Yes
Denmark ^{a,b}	545 *	561 *	16	527 *	527 *	s	Yes
Finland	516	545 *	29	505	498	s	Yes
France	487 *	511 *	24	502	515 *	13 *	Yes
Germany	511	526	16	490 *	482 *	s	Yes
Italy ^c	454 *	469 *	16	NA	NA	NA	Yes
Kazakhstan ^b	391 *	399 *	8 *	NA	NA	NA	No
South Korea	524 *	563 *	39 *	538 *	534 *	s	Yes
Luxembourg	471 *	494 *	23	463 *	457 *	s	Yes
<i>Moscow</i>	546 *	552 *	6 *	NA	NA	NA	No
<i>North Rhine–Westphalia</i>	513	517 *	s	496	474 *	-23 *	No
Portugal ^d	511	522 *	11 *	490 *	473 *	-16 *	Yes
United States^e	508	531	23	502	495	-7	Yes
Uruguay	448 *	453 *	s	NA	NA	NA	No

* $p < 0.05$. Significantly different from the U.S. estimate at the 0.05 level of statistical significance. na = not applicable. NA = not available. s = suppressed for reasons of confidentiality and/or reliability.

CIL = computer and information literacy; CT = computational thinking; ICILS = International Computer and Information Literacy Study; OECD = Organisation for Economic Co-operation and Development.

^a Met guidelines for sample participation rates only after replacement schools were included.

^b National Defined Population covers 90%–95% of National Target Population.

^c Data collected at the beginning of the school year.

^d Nearly met guidelines for sample participation rates after replacement schools were included.

^e Did not meet the guidelines for a sample participation rate of 85% and was not included in the international average.

Note(s):

The scale of CIL and CT scores is 100–700. The ICILS 2018 average is the average of all participating education systems meeting international technical standards, with each education system weighted equally. Italics indicate the benchmarking participants.

Source(s):

International Association for the Evaluation of Educational Achievement (IEA), ICILS, 2018. <https://nces.ed.gov/surveys/icils/icils2018/theme1.asp?tabontop>.

Science and Engineering Indicators

Table SK12-10

Average CIL and CT scores of U.S. students in grade 8, by sex, race or ethnicity, and school poverty level: 2018

(Average score)

Race or ethnicity	Average CIL score		Average CT score	
United States ^a	519		498	
Sex				
Male	508		502	
Female	531	*	495	
Race or ethnicity				
White	540		526	
Black	475	*	432	*
Hispanic ^b	502	*	476	*
Asian	563	*	549	*
Native Hawaiian or Pacific Islander	473	*	431	*
American Indian or Alaska Native	470	*	437	*
Two or more races	491	*	460	*
School poverty level (%) ^c				
Less than 10.0	564		557	
10.0–24.9	550		534	*
25.0–49.9	529	*	513	*
50.0–74.9	506	*	481	*
75.0 or more	476	*	444	*

* $p < 0.05$. Significantly different from the male estimate, the White estimate, or the estimate for schools with less than 10% of students eligible for free or reduced-price lunch at the 0.05 level of statistical significance.

CIL = computer and information literacy; CT = computational thinking.

^a Did not meet the guidelines for a sample participation rate of 85% and is not included in the international average.

^b Hispanic may be any race; race categories exclude Hispanic origin.

^c School poverty level is the percentage of students in public school eligible for free or reduced-price lunch.

Note(s):

The scale of CIL and CT scores is 100–700.

Source(s):

International Association for the Evaluation of Educational Achievement (IEA), International Computer and Information Literacy Study (ICILS), 2018. <https://nces.ed.gov/surveys/icils/icils2018/theme1.asp?tabontop>.

Science and Engineering Indicators

Table SK12-11

Highest degree attainment of public middle and high school teachers, by teaching field and selected school characteristics: 2017–18

(Percent distribution)

Teaching field and selected school characteristic	Less than bachelor's degree	Bachelor's degree	Master's or higher degree		
			Total	Master's degree	Higher than master's degree ^a
All public middle and high school teachers	3	35	61	52	9
Mathematics	3	37	61	54	7
Minority enrollment (percent)					
0–24	3	30	68	61	7
25–49	2	39	59	52	7
50–74	3	45	52	45	7
75 or more	2	37	61	54	7
School poverty level (percent) ^b					
0–34	3	32	65	57	8
35–49	3	35	63	59	4
50–74	2	44	55	48	7
75 or more	3	37	60	52	8
Community type					
City	2	40	58	50	8
Suburban	3	31	66	59	7
Town	4	44	53	49	4
Rural	3	41	57	51	6
Region					
Northeast	2	22	76	67	8
Midwest	3	25	72	66	5
South	3	50	48	41	7
West	2	37	61	54	7
Science	3	33	64	55	9
Minority enrollment (percent)					
0–24	3	25	71	62	9
25–49	3	34	63	55	9
50–74	3	45	52	46	6
75 or more	3	34	63	49	13
School poverty level (percent) ^b					
0–34	3	25	72	63	9
35–49	4	38	58	50	8
50–74	2	38	59	48	11
75 or more	3	35	62	53	9
Community type					
City	3	34	64	54	10
Suburban	2	29	69	60	10
Town	3	41	57	49	7
Rural	5	38	57	48	9
Region					
Northeast	4	17	79	70	10
Midwest	3	27	71	66	5
South	3	45	52	41	11
West	2	33	65	54	11
Other ^c	4	36	61	51	10
Minority enrollment (percent)					
0–24	3	31	66	57	9
25–49	3	35	62	52	10
50–74	4	41	55	46	10

Table SK12-11

Highest degree attainment of public middle and high school teachers, by teaching field and selected school characteristics: 2017–18

(Percent distribution)

Teaching field and selected school characteristic	Less than bachelor's degree	Bachelor's degree	Master's or higher degree		
			Total	Master's degree	Higher than master's degree ^a
75 or more	4	37	59	48	11
School poverty level (percent) ^b					
0–34	4	32	65	54	10
35–49	3	35	62	51	11
50–74	4	36	60	50	10
75 or more	3	41	56	47	9
Community type					
City	3	35	62	52	11
Suburban	3	32	65	54	11
Town	4	42	54	46	8
Rural	5	41	54	46	8
Region					
Northeast	3	20	77	66	11
Midwest	3	30	67	58	9
South	5	47	48	41	8
West	4	34	62	48	14

^a Higher than master's degree includes education specialist, certificate of advanced graduate studies, doctorate, or professional degree.

^b School poverty level is the percentage of students in school eligible for free or reduced-price lunch.

^c Other teachers include those who teach any subject other than mathematics or science.

Note(s):

Percentages may not add to 100% because of rounding.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the 2017–18 National Teacher and Principal Survey, National Center for Education Statistics.

Science and Engineering Indicators

Table SK12-12

Type of certification of public middle and high school teachers, by teaching field and selected school characteristics: 2017–18

(Percent distribution)

Teaching field and selected school characteristic	Regular or advanced	Probationary	Temporary	Emergency	None
All public middle and high school teachers	91	3	4	1	2
Mathematics	92	3	3	1	1
Minority enrollment (percent)					
0–24	94	2	3	s	1
25–49	94	3	2	1	1
50–74	89	3	5	s	s
75 or more	88	3	4	3	2
School poverty level (percent) ^a					
0–34	96	2	2	s	1
35–49	92	2	4	s	1
50–74	90	3	3	2	1
75 or more	87	4	5	2	2
Community type					
City	90	3	4	2	2
Suburban	92	2	4	1	1
Town	94	3	3	s	1
Rural	92	4	2	s	s
Region					
Northeast	92	3	4	1	1
Midwest	94	2	3	s	s
South	92	2	3	1	1
West	88	4	4	2	3
Science	90	3	5	1	1
Minority enrollment (percent)					
0–24	93	1	4	s	s
25–49	92	3	3	1	1
50–74	91	4	4	s	s
75 or more	85	4	7	2	1
School poverty level (percent) ^a					
0–34	91	3	4	s	2
35–49	95	s	3	s	s
50–74	89	5	4	2	s
75 or more	86	3	7	2	2
Community type					
City	86	5	6	2	2
Suburban	92	2	4	s	1
Town	88	3	5	4	s
Rural	95	1	3	s	s
Region					
Northeast	90	s	7	s	1
Midwest	95	2	2	s	s
South	90	3	5	1	1
West	86	5	5	2	s
Other ^b	90	3	4	1	2
Minority enrollment (percent)					
0–24	93	3	3	1	1
25–49	92	3	3	1	2
50–74	91	3	4	1	1
75 or more	88	4	5	1	2

Table SK12-12

Type of certification of public middle and high school teachers, by teaching field and selected school characteristics: 2017–18

(Percent distribution)

Teaching field and selected school characteristic	Regular or advanced	Probationary	Temporary	Emergency	None
School poverty level (percent) ^a					
0–34	92	2	4	1	2
35–49	92	2	3	1	1
50–74	90	4	3	1	2
75 or more	87	4	5	2	2
Community type					
City	89	4	4	1	2
Suburban	92	3	4	1	1
Town	89	3	4	2	2
Rural	90	3	4	1	2
Region					
Northeast	93	3	3	1	1
Midwest	92	3	3	1	1
South	89	3	4	1	2
West	89	4	4	2	2

s = suppressed for reasons of confidentiality and/or reliability.

^a School poverty level is the percentage of students in school eligible for free or reduced-price lunch.

^b Other teachers include those who teach any subject other than mathematics or science.

Note(s):

Percentages may not add to 100% because of rounding.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the 2017–18 National Teacher and Principal Survey, National Center for Education Statistics.

Science and Engineering Indicators

Table SK12-13

Average annual salaries for public middle and high school teachers, by teaching field and selected school characteristics: 2017–18

(Dollars)

Teaching field and selected school characteristic	Average annual salary ^a
All public middle and high school teachers	59,500
Mathematics	59,600
Minority enrollment (percent)	
0–24	58,000
25–49	57,000
50–74	59,100
75 or more	63,800
School poverty level (percent) ^b	
0–34	62,000
35–49	58,600
50–74	56,700
75 or more	59,900
Community type	
City	60,400
Suburban	64,500
Town	51,100
Rural	50,900
Region	
Northeast	72,500
Midwest	60,400
South	50,300
West	64,200
Science	60,500
Minority enrollment (percent)	
0–24	59,600
25–49	59,500
50–74	57,200
75 or more	64,200
School poverty level (percent) ^b	
0–34	65,100
35–49	59,400
50–74	56,100
75 or more	59,000
Community type	
City	60,900
Suburban	65,900
Town	51,700
Rural	53,100
Region	
Northeast	73,200
Midwest	60,900
South	51,300
West	66,100
Other ^c	59,300
Minority enrollment (percent)	
0–24	58,000
25–49	59,200
50–74	58,000
75 or more	62,100

Table SK12-13**Average annual salaries for public middle and high school teachers, by teaching field and selected school characteristics: 2017–18**

(Dollars)

Teaching field and selected school characteristic	Average annual salary ^a
School poverty level (percent) ^b	
0–34	62,700
35–49	58,200
50–74	56,900
75 or more	57,700
Community type	
City	60,400
Suburban	64,000
Town	51,100
Rural	52,600
Region	
Northeast	72,900
Midwest	57,700
South	50,700
West	64,300

^a Salaries are not adjusted for cost of living.

^b School poverty level is the percentage of students in school eligible for free or reduced-price lunch.

^c Other teachers include those who teach any subject other than mathematics or science.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the 2017–18 National Teacher and Principal Survey, National Center for Education Statistics.

Science and Engineering Indicators

Table SK12-14

Subject-matter preparation of public middle and high school mathematics and science teachers, by teaching field and selected school characteristics: 2017–18

(Percent distribution)

Teaching field and selected school characteristic	In field ^a	Related field ^b	General education ^c	Other ^d
Public middle school				
Mathematics	69	2	24	5
Minority enrollment (percent)				
0–24	75	3	20	2
25–49	75	s	20	4
50–74	63	s	30	6
75 or more	61	2	29	8
School poverty level (percent) ^e				
0–34	76	2	20	3
35–49	73	s	19	7
50–74	67	2	27	3
75 or more	62	2	28	7
Community type				
City	67	1	26	6
Suburban	71	2	22	5
Town	68	2	26	5
Rural	72	s	25	s
Region				
Northeast	75	3	15	7
Midwest	72	3	22	s
South	65	s	29	5
West	71	2	23	4
Science	76	na	20	4
Minority enrollment (percent)				
0–24	77	na	19	4
25–49	74	na	22	4
50–74	79	na	19	s
75 or more	76	na	19	6
School poverty level (percent) ^e				
0–34	80	na	17	3
35–49	78	na	18	s
50–74	77	na	20	3
75 or more	68	na	26	6
Community type				
City	72	na	24	4
Suburban	80	na	17	3
Town	70	na	21	8
Rural	78	na	20	s
Region				
Northeast	82	na	13	s
Midwest	79	na	20	s
South	72	na	23	4
West	77	na	18	5
Public high school				
Mathematics	87	3	4	6
Minority enrollment (percent)				
0–24	88	2	4	5
25–49	91	2	3	4

Table SK12-14

Subject-matter preparation of public middle and high school mathematics and science teachers, by teaching field and selected school characteristics: 2017–18

(Percent distribution)

Teaching field and selected school characteristic	In field ^a	Related field ^b	General education ^c	Other ^d
50–74	87	2	6	5
75 or more	83	4	4	9
School poverty level (percent) ^e				
0–34	88	3	5	4
35–49	87	3	4	6
50–74	91	2	3	5
75 or more	83	3	5	9
Community type				
City	86	3	4	8
Suburban	88	3	5	5
Town	89	s	5	5
Rural	88	4	3	5
Region				
Northeast	85	4	5	7
Midwest	91	s	3	4
South	87	3	5	5
West	86	3	4	7
Biology and life sciences	90	6	2	3
Minority enrollment (percent)				
0–24	92	3	3	s
25–49	87	7	3	s
50–74	93	5	s	s
75 or more	85	11	s	4
School poverty level (percent) ^e				
0–34	92	4	s	s
35–49	93	5	s	s
50–74	87	10	s	3
75 or more	87	8	s	3
Community type				
City	88	8	3	s
Suburban	92	4	s	4
Town	90	8	s	s
Rural	87	8	s	s
Region				
Northeast	96	s	s	s
Midwest	94	4	s	s
South	81	12	2	5
West	95	4	s	s
Physical sciences	76	21	1	3
Minority enrollment (percent)				
0–24	80	17	2	s
25–49	78	20	s	s
50–74	69	28	#	3
75 or more	73	19	s	8
School poverty level (percent) ^e				
0–34	84	14	1	s
35–49	70	27	s	s
50–74	71	25	s	s

Table SK12-14

Subject-matter preparation of public middle and high school mathematics and science teachers, by teaching field and selected school characteristics: 2017–18

(Percent distribution)

Teaching field and selected school characteristic	In field ^a	Related field ^b	General education ^c	Other ^d
75 or more	71	21	#	8
Community type				
City	72	23	s	5
Suburban	83	15	s	1
Town	72	26	#	s
Rural	67	28	s	4
Region				
Northeast	91	6	s	s
Midwest	79	18	s	2
South	60	36	s	3
West	80	14	s	s

= rounds to zero; na = not applicable; s = suppressed for reasons of confidentiality and/or reliability.

^a Mathematics teachers with a degree and/or full certification in mathematics or mathematics education and science teachers with a degree and/or full certification in science or science education.^b Mathematics teachers with a degree and/or full certification in a field related to mathematics (e.g., science, science education, computer sciences, engineering). Science teachers with a degree and/or full certification in a field related to their teaching field (e.g., high school biology teachers with a degree and/or full certification in chemistry). This category is omitted for middle school science teachers because science teachers at this level are usually not distinguished by specific science fields such as physics, chemistry, or biology.^c Mathematics and science teachers with a degree and/or full certification in general elementary, middle, or secondary education.^d Mathematics and science teachers who did not have a degree or certification in their teaching field, a related field, or general elementary, middle, or secondary education.^e School poverty level is the percentage of students in school eligible for free or reduced-price lunch.**Note(s):**

Percentages may not add to 100% because of rounding.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the 2017–18 National Teacher and Principal Survey, National Center for Education Statistics.

Science and Engineering Indicators

Table SK12-15

Public middle and high school teachers who entered teaching through an alternative certification program, by teaching field and selected school characteristics: 2017–18

(Percent)

Selected school characteristic	Mathematics teachers	Science teachers	Other teachers ^a
All public middle and high school teachers	24	30	22
Minority enrollment (percent)			
0–24	14	23	15
25–49	22	28	21
50–74	22	34	24
75 or more	37	41	31
School poverty level (percent) ^b			
0–34	20	23	18
35–49	20	30	20
50–74	24	36	25
75 or more	31	36	28
Community type			
City	27	35	26
Suburban	24	27	20
Town	17	25	19
Rural	22	34	25
Region			
Northeast	23	31	16
Midwest	11	15	11
South	33	41	34
West	17	24	17

^a Other teachers include those who teach any subject other than mathematics or science.

^b School poverty level is the percentage of students in school eligible for free or reduced-price lunch.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the 2017–18 National Teacher and Principal Survey, National Center for Education Statistics.

Science and Engineering Indicators

Table SK12-16

Years of teaching experience of public middle and high school teachers, by teaching field and selected school characteristics: 2017–18

(Percent distribution)

Teaching field and selected school characteristic	≤ 3 years	4–9 years	10–19 years	≥ 20 years
All public middle and high school teachers	16	22	37	25
Mathematics	17	22	37	24
Minority enrollment (percent)				
0–24	13	18	41	28
25–49	14	23	39	25
50–74	19	24	35	22
75 or more	23	23	34	20
School poverty level (percent) ^a				
0–34	14	20	39	27
35–49	15	22	38	26
50–74	17	23	38	22
75 or more	23	22	34	21
Community type				
City	20	24	36	21
Suburban	16	21	38	25
Town	13	21	37	28
Rural	17	21	38	25
Region				
Northeast	14	17	48	21
Midwest	13	19	38	31
South	19	27	33	22
West	20	19	36	25
Science	16	22	39	23
Minority enrollment (percent)				
0–24	13	22	41	23
25–49	13	21	41	26
50–74	22	22	33	23
75 or more	18	23	39	19
School poverty level (percent) ^a				
0–34	13	19	42	26
35–49	13	23	41	24
50–74	17	25	38	20
75 or more	22	21	35	23
Community type				
City	19	22	37	23
Suburban	12	19	44	25
Town	19	18	37	26
Rural	16	30	34	20
Region				
Northeast	10	23	43	24
Midwest	14	15	43	28
South	20	24	35	21
West	15	23	40	23
Other ^b	16	22	37	26
Minority enrollment (percent)				
0–24	12	21	40	28
25–49	15	21	36	28
50–74	17	25	34	25
75 or more	21	22	36	21

Table SK12-16

Years of teaching experience of public middle and high school teachers, by teaching field and selected school characteristics: 2017–18

(Percent distribution)

Teaching field and selected school characteristic	≤ 3 years	4–9 years	10–19 years	≥ 20 years
School poverty level (percent) ^a				
0–34	13	21	39	27
35–49	14	22	38	26
50–74	16	22	35	27
75 or more	21	23	34	22
Community type				
City	19	23	34	24
Suburban	14	21	39	26
Town	18	22	34	27
Rural	16	20	37	27
Region				
Northeast	11	20	42	27
Midwest	14	21	37	29
South	19	24	34	22
West	17	19	36	28

^a School poverty level is the percentage of students in school eligible for free or reduced-price lunch.

^b Other teachers include those who teach any subject other than mathematics or science.

Note(s):

Percentages may not add to 100% because of rounding.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the 2017–18 National Teacher and Principal Survey, National Center for Education Statistics.

Science and Engineering Indicators

Table SK12-17

Sex of lower secondary mathematics and science teachers, by education system: 2018

(Percent distribution)

Education system	Mathematics teachers		Science teachers		OECD country and education system
	Female	Male	Female	Male	
TALIS average ^a	66	34	68	32	na
Alberta (Canada)	52	48	54	46	No
Australia	53	47	62	38	Yes
Austria	65	35	69	31	Yes
Belgium	72	28	63	37	Yes
Brazil	58	42	69	31	No
Bulgaria	90	10	88	12	No
Chile	56	44	79	21	Yes
Chinese Taipei	49	51	46	54	No
Ciudad Autónoma de Buenos Aires (Argentina)	71	29	77	23	No
Colombia	45	55	56	44	Yes
Croatia	85	15	87	13	No
Cyprus	76	24	69	31	No
Czechia	76	24	69	31	Yes
Denmark	42	58	41	59	Yes
England (United Kingdom)	55	45	61	39	No
Estonia	90	10	79	21	Yes
Finland	53	47	63	37	Yes
France	51	49	65	35	Yes
Georgia	83	17	89	11	No
Hungary	81	19	75	25	Yes
Israel	80	20	79	21	Yes
Italy	83	17	81	19	Yes
Japan	22	78	28	72	Yes
Kazakhstan	84	16	83	17	No
Latvia	97	3	88	12	Yes
Lithuania	93	7	82	18	Yes
Malta	73	27	69	31	No
Mexico	48	52	56	44	Yes
Netherlands	47	53	42	58	Yes
New Zealand	56	44	61	39	Yes
Norway	50	50	49	51	Yes
Portugal	79	21	77	23	Yes
Romania	72	28	88	12	No
Russia	94	6	89	11	No
Saudi Arabia	51	49	49	51	No
Shanghai (China)	70	30	68	32	No
Singapore	57	43	59	41	No
Slovakia	86	14	85	15	Yes
Slovenia	82	18	81	19	Yes
South Africa	57	43	69	31	No
South Korea	67	33	65	35	Yes
Spain	53	47	61	39	Yes
Sweden	58	42	63	37	Yes
Turkey	54	46	57	43	Yes
United Arab Emirates	58	42	68	32	No
United States	67	33	56	44	Yes
Vietnam	60	40	61	39	No

na = not applicable.

OECD = Organisation for Economic Co-operation and Development; TALIS = Teaching and Learning International Survey.

^a The TALIS average is the average of all education systems listed in the table, with each education system weighted equally.

Note(s):

Lower secondary education in the United States includes grades 7–9. Mathematics and science teachers are identified through teacher reports of the subject taught in their *target class*, which is defined as the first class that teachers taught in their school after 11 a.m. Tuesday in the week before the interview. If a teacher did not teach on Tuesday, the target class can be a class taught on a day following the last Tuesday. Teachers whose target class consisted of entirely or mainly special needs students were not asked about the subject taught in their target class and were, therefore, excluded in the table. The table does not include teachers from Belgium-Flemish and Iceland because the Belgium-Flemish data do not meet international technical standards, and Iceland does not permit secondary data analyses unless the data files are obtained directly from the country. Percentages may not add to 100% because of rounding.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the OECD, TALIS, 2018.

Science and Engineering Indicators

Table SK12-18

Highest degree attainment of lower secondary mathematics and science teachers, by education system: 2018

(Percent distribution)

Education system	Mathematics teachers			Science teachers			OECD country and education system
	Below bachelor's degree	Bachelor's degree	Master's or higher degree	Below bachelor's degree	Bachelor's degree	Master's or higher degree	
TALIS average ^a	6	51	43	5	48	47	na
Alberta (Canada)	#	82	18	#	88	12	No
Australia	3	77	20	2	69	29	Yes
Austria	43	19	38	22	12	66	Yes
Belgium	2	91	6	2	91	7	Yes
Brazil	5	89	6	1	90	9	No
Bulgaria	4	14	81	4	13	83	No
Chile	5	81	14	2	82	17	Yes
Chinese Taipei	#	32	68	#	24	76	No
Ciudad Autónoma de Buenos Aires (Argentina)	32	56	12	16	66	18	No
Colombia	3	38	59	3	41	56	Yes
Croatia	8	6	86	4	3	93	No
Cyprus	#	43	57	#	35	65	No
Czechia	1	1	98	1	1	98	Yes
Denmark	9	84	7	6	85	9	Yes
England (United Kingdom)	3	72	25	1	65	34	No
Estonia	3	22	75	3	14	83	Yes
Finland	1	7	93	#	2	98	Yes
France	2	36	62	1	15	84	Yes
Georgia	3	9	89	3	10	87	No
Hungary	#	66	34	0	54	46	Yes
Israel	1	51	49	1	46	53	Yes
Italy	#	2	98	1	5	94	Yes
Japan	1	88	12	#	84	16	Yes
Kazakhstan	3	90	7	2	93	5	No
Latvia	1	29	70	2	20	78	Yes
Lithuania	#	63	37	#	55	45	Yes
Malta	5	85	10	4	69	27	No
Mexico	1	69	30	0	70	30	Yes
Netherlands	5	65	30	3	49	48	Yes
New Zealand	4	82	14	1	74	25	Yes
Norway	1	69	30	#	62	38	Yes
Portugal	2	2	96	2	3	96	Yes
Romania	1	67	32	3	60	37	No
Russia	1	10	89	3	11	86	No
Saudi Arabia	3	91	6	0	92	7	No
Shanghai (China)	1	85	14	1	86	13	No
Singapore	1	82	16	1	72	27	No
Slovakia	#	0	100	1	#	99	Yes
Slovenia	25	5	70	34	5	61	Yes
South Africa	82	14	4	76	21	3	No
South Korea	#	60	40	#	66	34	Yes
Spain	NA	NA	NA	NA	NA	NA	Yes
Sweden	5	19	76	5	13	82	Yes
Turkey	1	91	8	2	90	8	Yes

Table SK12-18

Highest degree attainment of lower secondary mathematics and science teachers, by education system: 2018

(Percent distribution)

Education system	Mathematics teachers			Science teachers			OECD country and education system
	Below bachelor's degree	Bachelor's degree	Master's or higher degree	Below bachelor's degree	Bachelor's degree	Master's or higher degree	
United Arab Emirates	1	71	28	1	62	37	No
United States	#	36	64	#	42	58	Yes
Vietnam	16	83	1	21	76	3	No

= rounds to zero; na = not applicable; NA = not available.

OECD = Organisation for Economic Co-operation and Development; TALIS = Teaching and Learning International Survey.

^a The TALIS average is the average of all education systems listed in the table, with each education system weighted equally.**Note(s):**

Lower secondary education in the United States includes grades 7–9. Mathematics and science teachers are identified through teacher reports of the subject taught in their *target class*, which is defined as the first class that teachers taught in their school after 11 a.m. Tuesday in the week before the interview. If a teacher did not teach on Tuesday, the target class can be a class taught on a day following the last Tuesday. Teachers whose target class consisted of entirely or mainly special needs students were not asked about the subject taught in their target class and therefore excluded in the table. Teachers' education is based on the 2011 International Standard Classification of Education (ISCED), which defines nine education levels: level 0 = early childhood education, level 1 = primary education, level 2 = lower secondary education, level 3 = upper secondary education, level 4 = postsecondary non-tertiary education, level 5 = short-cycle tertiary education, level 6 = bachelor's degree or equivalent education, level 7 = master's degree or equivalent education, and level 8 = doctoral degree or equivalent education. More information about ISCED 2011 is available at <http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf>. The table does not include teachers from Belgium-Flemish and Iceland because the Belgium-Flemish data do not meet international technical standards, and Iceland does not permit secondary data analyses unless the data files are obtained directly from the country. Percentages may not add to 100% because of rounding.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the OECD, TALIS, 2018.

Science and Engineering Indicators

Table SK12-19

Years of teaching experience of lower secondary mathematics and science teachers, by education system: 2018

(Percent distribution)

Education system	Mathematics teachers				Science teachers				OECD country and education system
	≤ 3 years	4–9 years	10–19 years	≥ 20 years	≤ 3 years	4–9 years	10–19 years	≥ 20 years	
TALIS average ^a	11	20	31	39	12	20	30	38	na
Alberta (Canada)	12	25	36	28	19	28	33	20	No
Australia	19	21	26	35	15	25	29	31	Yes
Austria	16	20	18	46	23	18	18	41	Yes
Belgium	10	22	32	36	17	27	26	31	Yes
Brazil	6	23	40	31	13	25	31	31	No
Bulgaria	11	7	14	68	15	6	21	58	No
Chile	19	23	25	32	19	29	25	26	Yes
Chinese Taipei	4	10	52	34	7	15	43	35	No
Ciudad Autónoma de Buenos Aires (Argentina)	11	27	20	42	12	21	25	42	No
Colombia	10	23	32	35	10	23	31	35	Yes
Croatia	14	25	33	27	13	28	33	26	No
Cyprus	11	26	41	23	8	24	45	22	No
Czechia	7	16	27	50	9	17	32	42	Yes
Denmark	13	22	44	21	12	22	35	32	Yes
England (United Kingdom)	15	28	41	16	11	26	39	24	No
Estonia	7	13	22	58	9	12	23	56	Yes
Finland	12	26	35	28	11	18	38	33	Yes
France	8	19	34	39	8	22	34	36	Yes
Georgia	6	7	18	69	8	8	22	62	No
Hungary	5	9	24	62	7	12	24	57	Yes
Israel	16	24	22	38	18	24	21	37	Yes
Italy	9	16	31	44	6	18	26	50	Yes
Japan	12	25	22	40	15	25	24	36	Yes
Kazakhstan	16	21	21	42	17	18	25	41	No
Latvia	5	5	17	73	6	5	17	72	Yes
Lithuania	2	6	15	77	4	4	16	76	Yes
Malta	17	22	37	24	15	32	30	23	No
Mexico	10	20	35	35	17	20	32	30	Yes
Netherlands	13	23	22	42	11	21	39	29	Yes
New Zealand	13	23	35	30	13	19	33	35	Yes
Norway	11	25	36	29	18	22	36	24	Yes
Portugal	1	6	34	58	1	4	26		Yes
Romania	5	18	21	56	4	7	32	56	No
Russia	10	9	22	60	15	7	15	64	No
Saudi Arabia	9	31	45	15	13	24	39	24	No
Shanghai (China)	9	21	33	37	11	19	31	40	No
Singapore	16	34	33	17	16	39	35	11	No
Slovakia	9	15	29	48	10	15	31	43	Yes
Slovenia	12	15	35	38	10	10	21	59	Yes
South Africa	15	19	32	34	19	27	25	29	No
South Korea	7	21	27	45	9	27	28	35	Yes
Spain	14	13	31	42	12	14	30	43	Yes
Sweden	8	16	50	26	11	17	40	31	Yes
Turkey	19	32	37	13	12	34	32	22	Yes
United Arab Emirates	5	25	43	27	7	30	41	22	No
United States	14	25	38	23	12	21	36	31	Yes

Table SK12-19

Years of teaching experience of lower secondary mathematics and science teachers, by education system: 2018

(Percent distribution)

Education system	Mathematics teachers				Science teachers				OECD country and education system
	≤ 3 years	4–9 years	10–19 years	≥ 20 years	≤ 3 years	4–9 years	10–19 years	≥ 20 years	
Vietnam	6	16	53	24	6	8	53	33	No

na = not applicable.

OECD = Organisation for Economic Co-operation and Development; TALIS = Teaching and Learning International Survey.

^a The TALIS average is the average of all education systems listed in the table, with each education system weighted equally.**Note(s):**

Lower secondary education in the United States includes grades 7–9. Mathematics and science teachers are identified through teacher reports of the subject taught in their *target class*, which is defined as the first class that teachers taught in their school after 11 a.m. Tuesday in the week before the interview. If a teacher did not teach on Tuesday, the target class can be a class taught on a day following the last Tuesday. Teachers whose target class consisted of entirely or mainly special needs students were not asked about the subject taught in their target class and were, therefore, excluded in the table. The table does not include teachers from Belgium-Flemish and Iceland because the Belgium-Flemish data do not meet international technical standards, and Iceland does not permit secondary data analyses unless the data files are obtained directly from the country. Percentages may not add to 100% because of rounding.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the OECD, TALIS, 2018.

Science and Engineering Indicators

Table SK12-20

Lower secondary mathematics and science teachers who reported various elements included in their formal education and training, by education system: 2018

(Percent)

Education system	Mathematics teachers						Science teachers						OECD country and education system
	Content of some or all subject(s) I teach	Pedagogy of some or all subject(s) I teach	General pedagogy	Classroom practice in some or all subject(s) I teach	Teaching cross-curricular skills (e.g., creativity, critical thinking, problem solving)	Use of information and communications technologies for teaching	Content of some or all subject(s) I teach	Pedagogy of some or all subject(s) I teach	General pedagogy	Classroom practice in some or all subject(s) I teach	Teaching cross-curricular skills (e.g., creativity, critical thinking, problem solving)	Use of information and communications technologies for teaching	
TALIS average ^a	94	90	93	90	70	65	94	90	92	89	70	63	na
Alberta (Canada)	82	87	96	87	74	65	92	93	99	94	80	77	No
Australia	89	92	94	93	66	65	93	93	96	94	65	65	Yes
Austria	94	94	98	96	48	49	98	89	92	94	46	46	Yes
Belgium	88	92	97	95	67	55	84	89	97	91	61	52	Yes
Brazil	95	87	90	94	83	69	94	90	89	95	81	68	No
Bulgaria	95	97	94	96	78	60	98	98	95	97	84	55	No
Chile	92	95	94	94	88	79	94	92	96	94	89	78	Yes
Chinese Taipei	87	90	99	84	64	59	88	89	98	87	64	61	No
Ciudad Autónoma de Buenos Aires (Argentina)	99	97	96	98	88	64	97	84	80	87	89	59	No
Colombia	91	91	91	87	90	79	92	89	93	88	83	75	Yes
Croatia	96	93	98	94	74	63	98	91	94	88	66	54	No
Cyprus	95	77	84	66	72	64	96	79	80	72	76	72	No
Czechia	91	93	99	65	41	49	93	91	97	68	47	50	Yes
Denmark	96	97	100	93	70	61	96	96	99	94	68	57	Yes
England (United Kingdom)	95	95	98	97	73	84	91	93	97	99	66	78	No
Estonia	97	94	99	92	80	61	88	89	96	83	78	60	Yes
Finland	96	94	97	99	49	62	91	94	98	99	50	56	Yes
France	91	73	63	68	42	57	94	74	62	71	38	58	Yes
Georgia	99	90	89	89	68	61	98	90	92	89	72	44	No
Hungary	95	91	97	96	63	54	98	91	97	93	59	62	Yes
Israel	93	93	91	90	70	65	91	92	91	93	65	59	Yes
Italy	91	53	56	83	59	48	89	60	58	80	55	45	Yes
Japan	92	89	86	88	56	63	94	89	91	90	50	61	Yes
Kazakhstan	96	92	97	93	75	76	95	94	97	93	77	76	No
Latvia	95	93	99	94	67	61	96	93	97	93	69	50	Yes

Table SK12-20

Lower secondary mathematics and science teachers who reported various elements included in their formal education and training, by education system: 2018

(Percent)

Education system	Mathematics teachers						Science teachers						OECD country and education system
	Content of some or all subject(s) I teach	Pedagogy of some or all subject(s) I teach	General pedagogy	Classroom practice in some or all subject(s) I teach	Teaching cross-curricular skills (e.g., creativity, critical thinking, problem solving)	Use of information and communications technologies for teaching	Content of some or all subject(s) I teach	Pedagogy of some or all subject(s) I teach	General pedagogy	Classroom practice in some or all subject(s) I teach	Teaching cross-curricular skills (e.g., creativity, critical thinking, problem solving)	Use of information and communications technologies for teaching	
Lithuania	95	89	99	90	57	51	94	90	97	86	62	40	Yes
Malta	92	95	98	97	76	81	85	84	91	91	71	72	No
Mexico	98	89	85	90	89	80	95	86	77	89	87	72	Yes
Netherlands	95	97	90	97	54	62	91	96	95	95	55	60	Yes
New Zealand	94	96	99	98	70	59	94	95	94	97	57	53	Yes
Norway	95	94	98	80	54	53	94	94	98	83	58	54	Yes
Portugal	93	90	94	82	75	71	96		94	86	73	50	Yes
Romania	97	97	99	95	67	70	97	96	95	95	79	73	No
Russia	99	97	97	96	67	75	98	97	97	93	73	67	No
Saudi Arabia	92	87	92	83	74	67	93	86	94	89	81	79	No
Shanghai (China)	96	95	98	92	68	81	96	95	97	91	76	82	No
Singapore	97	97	98	94	74	91	94	96	98	96	77	91	No
Slovakia	87	87	93	86	57	63	88	89	95	85	68	71	Yes
Slovenia	94	92	97	93	51	62	94	91	98	92	54	65	Yes
South Africa	95	88	94	95	93	62	95	88	91	94	85	70	No
South Korea	94	90	94	91	64	60	97	95	96	94	66	60	Yes
Spain	93	56	56	67	52	48	91	53	58	68	50	37	Yes
Sweden	99	96	96	91	66	41	99	92	94	88	64	43	Yes
Turkey	87	85	93	82	85	77	90	87	94	83	82	78	Yes
United Arab Emirates	97	94	92	94	93	85	95	94	91	93	92	86	No
United States	94	93	97	91	81	65	97	92	92	90	83	67	Yes
Vietnam	100	100	100	99	98	96	100	100	100	95	97	92	No

na = not applicable.

OECD = Organisation for Economic Co-operation and Development; TALIS = Teaching and Learning International Survey.

^a The TALIS average is the average of all education systems listed in the table, with each education system weighted equally.

Note(s):

Lower secondary education in the United States includes grades 7–9. Mathematics and science teachers are identified through teacher reports of the subject taught in their *target class*, which is defined as the first class that teachers taught in their school after 11 a.m. Tuesday in the week before the interview. If a teacher did not teach on Tuesday, the target class can be a class taught on a day following the last Tuesday. Teachers whose target class consisted of entirely or mainly special needs students were not asked about the subject taught in their target class and were, therefore, excluded in the table. The table does not include teachers from Belgium-Flemish and Iceland because the Belgium-Flemish data do not meet international technical standards, and Iceland does not permit secondary data analyses unless the data files are obtained directly from the country.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the OECD, TALIS, 2018.

Science and Engineering Indicators

Table SK12-21

Lower secondary mathematics and science teachers who agreed with various statements about the teaching profession, by education system: 2018

(Percent)

Education system	Mathematics teachers				Science teachers				OECD country and education system
	Teachers' views are valued by policymakers	Teachers can influence policy in this country (region)	Teachers are valued by the media in this country (region)	Teaching profession is valued in society	Teachers' views are valued by policymakers	Teachers can influence policy in this country (region)	Teachers are valued by the media in this country (region)	Teaching profession is valued in society	
TALIS average ^a	19	27	24	30	18	28	24	30	na
Alberta (Canada)	39	43	49	60	28	34	40	52	No
Australia	32	36	37	49	23	28	30	36	Yes
Austria	19	6	8	11	24	10	7	11	Yes
Belgium	10	15	13	14	9	12	14	12	Yes
Brazil	6	52	12	9	5	59	14	13	No
Bulgaria	16	15	14	11	15	14	13	15	No
Chile	9	45	10	16	4	47	6	13	Yes
Chinese Taipei	18	12	25	54	13	12	21	52	No
Ciudad Autónoma de Buenos Aires (Argentina)	8	23	10	5	8	24	15	9	No
Colombia	13	55	23	36	16	48	23	38	Yes
Croatia	1	6	4	7	2	6	5	8	No
Cyprus	26	36	21	43	18	24	20	39	No
Czechia	7	8	16	17	7	9	22	17	Yes
Denmark	4	9	11	17	7	13	8	16	Yes
England (United Kingdom)	7	4	14	27	11	9	17	26	No
Estonia	17	22	18	22	19	21	22	25	Yes
Finland	24	26	52	57	22	24	47	56	Yes
France	6	7	7	4	7	6	6	6	Yes
Georgia	29	27	23	31	37	34	34	35	No
Hungary	11	7	5	10	19	15	7	11	Yes
Israel	14	43	18	30	12	41	20	30	Yes
Italy	6	29	10	7	13	22	7	7	Yes
Japan	12	10	9	31	8	6	7	33	Yes
Kazakhstan	34	41	58	55	33	48	63	62	No
Latvia	10	7	23	19	9	8	24	20	Yes
Lithuania	4	5	15	10	7	10	22	13	Yes
Malta	11	26	12	11	13	23	14	13	No
Mexico	10	45	13	42	11	46	16	44	Yes
Netherlands	16	30	37	36	12	24	32	28	Yes

Table SK12-21

Lower secondary mathematics and science teachers who agreed with various statements about the teaching profession, by education system: 2018

(Percent)

Education system	Mathematics teachers				Science teachers				OECD country and education system
	Teachers' views are valued by policymakers	Teachers can influence policy in this country (region)	Teachers are valued by the media in this country (region)	Teaching profession is valued in society	Teachers' views are valued by policymakers	Teachers can influence policy in this country (region)	Teachers are valued by the media in this country (region)	Teaching profession is valued in society	
New Zealand	18	32	32	39	10	26	23	29	Yes
Norway	22	20	21	33	19	22	21	27	Yes
Portugal	4	31	5	6	3	35	6	8	Yes
Romania	19	29	25	39	24	37	28	38	No
Russia	20	18	20	36	24	24	22	43	No
Saudi Arabia	28	48	35	46	34	56	38	41	No
Shanghai (China)	57	44	59	60	53	43	54	61	No
Singapore	44	40	58	69	49	43	59	70	No
Slovakia	2	6	14	2	5	10	12	6	Yes
Slovenia	3	12	6	4	4	14	7	7	Yes
South Africa	44	55	28	58	25	52	30	46	No
South Korea	23	16	16	64	19	16	16	62	Yes
Spain	5	11	13	14	6	16	15	14	Yes
Sweden	7	7	13	8	13	15	14	8	Yes
United Arab Emirates	60	55	69	68	54	50	68	65	No
Turkey	13	40	11	23	17	44	16	22	Yes
United States	20	31	31	31	21	40	42	35	Yes
Vietnam	82	87	91	91	77	79	86	90	No

na = not applicable.

OECD = Organisation for Economic Co-operation and Development; TALIS = Teaching and Learning International Survey.

^a The TALIS average is the average of all education systems listed in the table, with each education system weighted equally.**Note(s):**

Lower secondary education in the United States includes grades 7–9. Mathematics and science teachers are identified through teacher reports of the subject taught in their *target class*, which is defined as the first class that teachers taught in their school after 11 a.m. Tuesday in the week before the interview. If a teacher did not teach on Tuesday, the target class can be a class taught on a day following the last Tuesday. Teachers whose target class consisted of entirely or mainly special needs students were not asked about the subject taught in their target class and were, therefore, excluded in the table. The table does not include teachers from Belgium-Flemish and Iceland because the Belgium-Flemish data do not meet international technical standards, and Iceland does not permit secondary data analyses unless the data files are obtained directly from the country.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the OECD, TALIS, 2018.

Table SK12-22

Students taking AP exams, by selected subjects: 2009–19

(Number)

Year	Total	Biology	Calculus AB	Calculus BC	Chemistry	Computer Science A	Computer Science Principles	Environmental Science	Physics 1	Physics 2	Physics B	Physics C: Electricity and Magnetism	Physics C: Mechanics	Statistics
2009	1,691,905	159,580	230,588	72,965	104,789	16,622	NA	73,575	NA	NA	62,702	12,628	29,167	116,876
2010	1,845,006	172,512	245,867	78,998	115,077	20,120	NA	86,650	NA	NA	67,312	14,191	31,973	129,899
2011	1,973,545	184,497	255,357	85,194	122,651	22,176	NA	98,959	NA	NA	75,648	15,185	35,166	142,910
2012	2,099,948	191,773	266,994	94,403	132,425	26,103	NA	108,839	NA	NA	80,584	17,380	38,630	153,859
2013	2,218,578	203,189	282,814	104,483	140,006	31,117	NA	118,288	NA	NA	89,263	19,380	42,858	169,508
2014	2,342,528	213,294	294,072	112,113	148,554	39,278	NA	130,321	NA	NA	93,574	20,765	47,000	184,173
2015	2,483,452	223,479	302,532	118,707	152,745	48,994	NA	138,703	174,074	20,533	NA	22,789	52,678	195,526
2016	2,611,172	238,080	308,215	124,931	153,465	57,937	NA	149,096	169,304	26,385	NA	23,347	53,110	206,563
2017	2,741,426	254,270	316,099	132,514	158,931	60,519	44,330	159,578	170,447	24,985	NA	24,249	54,862	215,840
2018	2,808,990	259,663	308,538	139,376	161,852	65,133	72,187	166,433	170,653	25,741	NA	25,074	57,399	222,501
2019	2,825,710	260,816	300,659	139,195	158,847	69,685	96,105	172,456	161,071	23,802	NA	25,342	57,131	219,392

NA = not available.

AP = Advanced Placement.

Note(s):

Students can take more than one AP exam.

Source(s):College Board, AP Program Participation and Performance Data 2019. <https://research.collegeboard.org/programs/ap/data/participation/ap-2019>.*Science and Engineering Indicators*

Table SK12-23

Students taking AP exams, by selected subjects and sex: 2018–19

(Number and percent)

Sex	Total	Biology	Calculus AB	Calculus BC	Chemistry	Computer Science A	Computer Science Principles	Environmental Science	Physics 1	Physics 2	Physics C: Electricity and Magnetism	Physics C: Mechanics	Statistics
Number	2,825,710	260,816	300,659	139,195	158,847	69,685	96,105	172,456	161,071	23,802	25,342	57,131	219,392
Male	1,231,488	97,792	152,893	80,855	78,107	52,574	64,647	75,036	97,908	17,026	19,138	40,971	104,471
Female	1,594,222	163,024	147,766	58,340	80,740	17,111	31,458	97,420	63,163	6,776	6,204	16,160	114,921
Percentage distribution	100	100	100	100	100	100	100	100	100	100	100	100	100
Male	44	37	51	58	49	75	67	44	61	72	76	72	48
Female	56	63	49	42	51	25	33	56	39	28	24	28	52

AP = Advanced Placement.

Note(s):

Students can take more than one AP exam.

Source(s):College Board, AP Program Participation and Performance Data 2019. <https://research.collegeboard.org/programs/ap/data/participation/ap-2019>.*Science and Engineering Indicators*

Table SK12-24

Among schools with students enrolled in any of grades 9–12, percentage that offered dual or concurrent enrollment, by selected school characteristics: 2017–18

(Percent)

School characteristic	Dual or concurrent enrollment ^a
All schools	75
All public schools	82
School classification	
Traditional public	83
Charter school	77
Community type	
City	73
Suburban	80
Town	83
Rural	90
School level	
Primary	na
Middle	na
High	86
Combined	73
Student enrollment	
Less than 100	45
100–199	77
200–499	87
500–749	92
750–999	91
1,000 or more	94
K–12 students who were approved for free or reduced-price lunches	
0–34	84
35–49	93
50–74	85
75 or more	71
All private schools	56
School classification	
Catholic	68
Other religious	63
Nonsectarian	38
Community type	
City	54
Suburban	61
Town	64
Rural	50
School level	
Elementary	na
Secondary	55
Combined	57
Student enrollment	
Less than 100	45
100–199	68
200–499	67
500–749	60
750 or more	61

na = not applicable.

^a Dual or concurrent enrollment offers both high school and college credit.

Source(s):

Taie S, Goldring R, *Characteristics of Public and Private Elementary and Secondary Schools in the United States: Results from the 2017–18 National Teacher and Principal Survey First Look*, NCES 2019-140, U.S. Department of Education, National Center for Education Statistics (2019). <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2019140>.

Science and Engineering Indicators

Table SK12-25

High school graduates enrolled in college in October after completing high school, by demographic characteristics and institution type: 1975–2018

(Percent)

Year	All graduates	Sex		Family income ^a			Race or ethnicity ^b				Parents' highest education ^c				Institution type	
		Male	Female	Low	Middle	High	White	Black	Hispanic	Asian	Less than high school	High school diploma or equivalent	Some college	Bachelor's or higher degree	2-year	4-year
1975	51	53	49	31	46	65	49	45	53	NA	NA	NA	NA	NA	18	33
1976	49	47	50	39	41	63	50	45	54	NA	NA	NA	NA	NA	16	33
1977	51	52	49	28	44	66	50	47	49	NA	NA	NA	NA	NA	17	33
1978	50	51	49	31	44	64	50	48	46	NA	NA	NA	NA	NA	17	33
1979	49	50	48	31	43	63	50	45	46	NA	NA	NA	NA	NA	18	32
1980	49	47	52	33	43	65	52	44	50	NA	NA	NA	NA	NA	19	30
1981	54	55	53	34	49	68	52	40	49	NA	NA	NA	NA	NA	20	33
1982	51	49	52	33	42	71	54	39	49	NA	NA	NA	NA	NA	19	32
1983	53	52	53	35	45	70	56	38	47	NA	NA	NA	NA	NA	19	34
1984	55	56	54	35	48	74	58	40	49	NA	NA	NA	NA	NA	19	36
1985	58	59	57	40	51	75	59	40	46	NA	NA	NA	NA	NA	20	38
1986	54	56	52	34	49	71	58	43	42	NA	NA	NA	NA	NA	19	35
1987	57	58	55	37	50	74	59	44	45	NA	NA	NA	NA	NA	19	38
1988	59	57	61	43	55	73	60	50	49	NA	NA	NA	NA	NA	22	37
1989	60	58	62	48	55	71	62	48	53	NA	NA	NA	NA	NA	21	39
1990	60	58	62	47	54	77	63	49	52	81	NA	NA	NA	NA	20	40
1991	63	58	67	40	58	78	64	47	53	81	NA	NA	NA	NA	25	38
1992	62	60	64	41	57	79	64	50	58	81	33	56	68	81	23	39
1993	63	60	65	50	57	79	64	51	56	83	47	52	63	88	23	40
1994	62	61	63	43	58	78	64	52	55	82	43	50	65	83	21	41
1995	62	63	61	34	56	84	65	53	52	83	27	47	70	88	22	40
1996	65	60	70	49	63	78	67	55	58	83	45	56	67	85	23	42
1997	67	64	70	57	61	82	68	59	55	83	51	62	63	86	23	44
1998	66	62	69	46	65	78	68	60	52	84	50	57	68	82	24	41
1999	63	61	64	48	60	75	67	59	47	81	36	54	60	82	21	42
2000	63	60	66	50	60	77	65	56	49	81	44	52	64	81	21	42
2001	62	60	63	44	56	80	66	56	53	78	39	52	62	81	20	42
2002	65	62	68	56	61	78	67	57	55	72	43	52	66	83	22	44
2003	64	61	67	53	58	80	68	60	58	74	43	54	63	82	21	42
2004	67	61	72	48	63	80	69	59	58	82	40	55	67	86	22	44
2005	69	66	70	54	65	81		58	58	81	43	62	66	89	24	45
2006	66	66	66	51	61	81	70	56	58	85	43	56	67	78	25	41
2007	67	66	68	58	63	78	70	56	62	86	45	52	65	86	24	43
2008	69	66	72	56	65	82	71	60	62	90	44	57	72	82	28	41

Table SK12-25

High school graduates enrolled in college in October after completing high school, by demographic characteristics and institution type: 1975–2018

(Percent)

Year	All graduates	Sex		Family income ^a			Race or ethnicity ^b				Parents' highest education ^c				Institution type	
		Male	Female	Low	Middle	High	White	Black	Hispanic	Asian	Less than high school	High school diploma or equivalent	Some college	Bachelor's or higher degree	2-year	4-year
2009	70	66	74	54	67	84	71	62	61	88	40	58	74	82	28	42
2010	68	63	74	51	67	82	70	66	62	87	51	58	71	84	27	41
2011	68	65	72	54	66	82	68	62	66	84	s	54	67	83	26	42
2012	66	61	71	51	65	81	68	60	66	82	61	57	66	77	29	37
2013	66	64	68	46	64	79	67	61	65	84	43	52	64	83	24	42
2014	68	64	73	58	64	84	69	61	65	84	54	56	67	81	25	44
2015	69	66	73	69	62	83	70	61	69	88	56	57	65	82	25	44
2016	70	67	72	65	65	83	70	57	68	86	50	57	67	84	24	46
2017	67	61	72	NA	NA	NA	70	61	67	82	47	62	62	77	23	44
2018	69	67	71	NA	NA	NA	70	62	63	78	58	54	69	79	26	44

NA = not available; s = suppressed for reasons of confidentiality and/or reliability.

^a Family income is categorized as follows: low income includes families in the lowest 20% of income distribution, middle income includes families in the middle 60%, and high income includes families in the highest 20%.

^b Because of the small sample size for racial and ethnic categories, data are subject to relatively large sampling errors. Therefore, 3-year moving averages are used to produce more stable estimates. The 3-year moving average is an arithmetic average of the rates in the year indicated, the year immediately preceding, and the year immediately following. For 1975 and 2019, a 2-year moving average is used. Data for 1975 reflect an average of 1975 and 1976, and data for 2018 reflect an average of 2017 and 2018. Starting from 2003, data for White, Black, and Asian students exclude individuals identifying themselves as two or more races. Hispanic may be any race; race categories exclude Hispanic origin.

^c This refers to the highest level of education achieved by either parent.

Note(s):

The table includes students ages 16–24 completing high school in the survey year. Immediate college enrollment rates are defined as rates of high school graduates enrolled in college in October after completing high school earlier in the same calendar year. Before 1992, high school graduates referred to those who had completed 12 years of schooling. As of 1992, high school graduates refer to those who have received a high school diploma or equivalency certificate.

Source(s):

For parents' highest education: National Center for Education Statistics special tabulations (2020) of the Current Population Survey, Bureau of Labor Statistics. All other data: De Brey C, Snyder TD, Zhang A, Dillow SA, *Digest of Education Statistics 2019*, NCES 2021-009, Tables 302.10 and 302.20, U.S. Department of Education, National Center for Education Statistics (2021). https://nces.ed.gov/programs/digest/current_tables.asp.

Table SK12-26

Among fall 2009 students in grade 9 who took a mathematics or science course, percentage who reported various reasons for taking it, by sex and race or ethnicity: 2012

(Percent)

Reasons	All students	Sex		Race or ethnicity				
		Male	Female	White	Black	Hispanic ^a	Asian	Other or Two or more races
Reasons for taking mathematics ^b								
I really enjoy math.	33	34	32	32	40	30	48	31
I like to be challenged.	46	47	46	45	55	42	60	45
I had no choice; it is a high school requirement.	70	69	71	67	76	77	54	72
I will need it to get into college.	76	73	78	74	79	76	78	75
I will need it to succeed in college.	74	73	76	73	77	74	82	73
I will need it for my career.	48	50	46	45	58	49	55	49
A high school counselor suggested I take it.	36	35	38	36	38	38	36	36
A teacher encouraged me to take it.	34	32	36	37	32	29	41	31
My parents encouraged me to take it.	32	31	33	37	26	23	39	29
Another family member encouraged me to take it.	16	17	16	17	17	14	25	13
My employer encouraged me to take it.	4	5	3	3	6	4	4	4
My friends were taking it.	27	27	26	29	24	22	38	24
I do well in math.	58	59	57	60	60	52	68	55
It was assigned to me.	68	68	69	62	79	79	53	71
Reasons for taking science ^c								
I really enjoy science.	51	55	48	52	51	48	61	52
I like to be challenged.	52	53	51	53	54	46	61	51
I had no choice; it is a high school requirement.	64	63	65	58	73	73	57	63
I will need it to get into college.	68	65	71	66	75	68	75	68
I will need it to succeed in college.	63	59	67	61	69	62	77	62
I will need it for my career.	43	38	47	40	50	43	51	43
A high school counselor suggested I take it.	36	34	38	36	37	37	35	35
A teacher encouraged me to take it.	31	29	33	33	30	28	33	28
My parents encouraged me to take it.	27	26	29	32	22	19	32	25
Another family member encouraged me to take it.	15	15	15	16	14	13	23	12
My employer encouraged me to take it.	5	6	4	4	8	5	6	5
My friends were taking it.	30	33	28	32	25	26	41	28
I do well in science.	62	65	59	66	59	55	65	64
It was assigned to me.	61	60	61	52	75	73	52	62

^a Hispanic may be any race; race categories exclude Hispanic origin.

^b Apply to students who took a mathematics course in the spring term 2012. If a student took more than one mathematics course, the question refers to the most challenging mathematics course taken. Students can choose more than one reason listed in the table.

^c Apply to students who took a science course in the spring term 2012. If a student took more than one science course, the question refers to the most challenging science course taken. Students can choose more than one reason listed in the table.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the High School Longitudinal Study of 2009 (HSL:09), First Follow-Up.

Science and Engineering Indicators

Table SK12-27

Fall 2009 students in grade 9 who agreed with various statements about their mathematics and science ability, by sex and race or ethnicity: 2012

(Percent)

Sex and race or ethnicity	Mathematics						Science					
	I see myself as a math person.	Others see me as a math person.	I am confident in my ability to do an excellent job on math tests.	I am certain that I can understand the most difficult material presented in math textbooks.	I am certain that I can master math skills.	I am confident in my ability to do an excellent job on math assignments.	I see myself as a science person.	Others see me as a science person.	I am confident in my ability to do an excellent job on science tests.	I am certain that I can understand the most difficult material presented in science textbooks.	I am certain that I can master science skills.	I am confident in my ability to do an excellent job on science assignments.
Total	44	46	65	53	71	74	48	43	66	59	69	75
Sex												
Male	48	49	70	57	73	77	50	43	71	63	71	77
Female	39	44	61	49	68	71	46	43	62	55	67	72
Race or ethnicity												
White	44	46	65	52	71	74	52	46	67	60	70	76
Black	44	47	70	59	77	78	45	42	72	61	75	80
Hispanic ^a	40	42	65	53	68	72	42	37	60	56	62	68
Asian	59	68	68	58	74	79	54	52	64	62	70	79
Other or Two or more races	42	49	63	51	65	74	48	44	66	60	70	75

^a Hispanic may be any race; race categories exclude Hispanic origin.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the High School Longitudinal Study of 2009 (HSL:09), First Follow-Up.

Science and Engineering Indicators

Table SK12-28

Among fall 2009 students in grade 9 who enrolled in postsecondary education after high school, percentage who reported that their current or most recent major was in a STEM field, by perception of mathematics and science ability, sex, and race or ethnicity: 2016

(Percent)

Perception of mathematics and science ability	All students	Sex		Race or ethnicity				
		Male	Female	White	Black	Hispanic ^a	Asian	Other or Two or more races
Total	37	39	35	37	35	36	50	32
I see myself as a math person.								
Agreed	43	45	40	45	34	40	53	36
Disagreed	31	32	31	29	36	33	47	29
Others see me as a math person.								
Agreed	43	46	40	44	37	43	55	37
Disagreed	30	29	30	29	33	31	39	27
I am confident in my ability to do an excellent job on math tests.								
Agreed	39	42	37	40	35	38	56	34
Disagreed	31	29	32	30	35	31	39	27
I am certain that I can understand the most difficult material presented in math textbooks.								
Agreed	41	44	38	42	35	41	55	37
Disagreed	32	31	32	31	35	31	45	27
I am certain that I can master math skills.								
Agreed	40	43	37	40	35	39	55	38
Disagreed	28	26	30	28	36	28	35	22
I am confident in my ability to do an excellent job on math assignments.								
Agreed	39	42	37	39	38	39	54	34
Disagreed	28	26	29	29	24	26	36	27
I see myself as a science person.								
Agreed	46	48	44	46	45	44	59	41
Disagreed	26	26	27	25	28	29	40	23
Others see me as a science person.								
Agreed	47	50	44	47	46	45	59	40
Disagreed	27	27	28	26	28	30	43	23
I am confident in my ability to do an excellent job on science tests.								
Agreed	39	42	37	40	36	38	52	36
Disagreed	30	28	32	29	35	28	50	25
I am certain that I can understand the most difficult material presented in science textbooks.								
Agreed	41	42	39	41	37	40	54	37
Disagreed	31	30	31	31	33	29	46	23
I am certain that I can master science skills.								
Agreed	40	43	38	40	36	42	53	37

Table SK12-28

Among fall 2009 students in grade 9 who enrolled in postsecondary education after high school, percentage who reported that their current or most recent major was in a STEM field, by perception of mathematics and science ability, sex, and race or ethnicity: 2016

(Percent)

Perception of mathematics and science ability	All students	Sex		Race or ethnicity				
		Male	Female	White	Black	Hispanic ^a	Asian	Other or Two or more races
Disagreed	27	24	28	27	34	22	46	18
I am confident in my ability to do an excellent job on science assignments.								
Agreed	40	42	37	40	38	38	51	35
Disagreed	28	25	30	26	29	29	52	19

^a Hispanic may be any race; race categories exclude Hispanic origin.

STEM = science, technology, engineering, and mathematics.

Note(s):

About 79% of fall 2009 students in grade 9 had enrolled in postsecondary education as of 2016. STEM majors include mathematics, biological and life sciences, physical sciences, computer and information sciences, engineering and related technologies, science technologies, social sciences, and psychology and are based on the first major declared by students for their current or most recent undergraduate degree or certificate program as of February 2016.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the High School Longitudinal Study of 2009 (HSL:09), First Follow-Up and Second Follow-Up.

Science and Engineering Indicators

Table SK12-29

Average number of hours in the past week spent on home-based education in households with children enrolled in K–12 school, by selected adult characteristics: 7–12 May 2020

(Percent)

Adult characteristic	Average number of hours in the past week household members spent on teaching activities with children	Average number of hours in the past week students spent on all live virtual contact with their teachers
Total	13	4
Race or ethnicity		
White	13	5
Black	13	4
Hispanic ^a	13	5
Asian	10	6
Other or Two or more races	14	3
Education attainment		
Less than high school	11	3
High school	13	4
Some college or associate's degree	13	4
Bachelor's or higher degree	14	5
Household income		
Below \$25,000	13	4
\$25,000–\$34,999	12	4
\$35,000–\$49,999	12	3
\$50,000–\$74,999	13	4
\$75,000–\$99,999	14	4
\$100,000–\$149,999	14	4
\$150,000–\$199,999	13	4
\$200,000 and above	9	6

^a Hispanic may be any race; race categories exclude Hispanic origin.

Note(s):

The table includes adults 18 years and older in households with children enrolled in K–12 school.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the 2020 U.S. Census Bureau Household Pulse Survey.

Science and Engineering Indicators

Table SK12-30

Adults who reported COVID-19 pandemic impact on how their children received education, by selected adult characteristics: 7–12 May 2020 and 16–28 September 2020

(Percent)

Adult characteristic	7–12 May 2020					16–28 September 2020				
	Classes were moved to distance learning format using online resources	Classes were moved to distance learning format using paper materials sent home	Classes were cancelled	Classes changed in another way	No change to classes because schools did not close	Classes were moved to distance learning format using online resources	Classes were moved to distance learning format using paper materials sent home	Classes were cancelled	Classes changed in another way	The coronavirus pandemic did not affect how children in this household received education
Total	73	21	42	4	0	66	14	24	13	12
Race or ethnicity										
White	70	21	45	7	0	64	13	19	17	15
Black	75	23	38	3	0	71	14	29	9	5
Hispanic ^a	67	21	50	6	0	67	17	33	8	9
Asian	82	13	36	2	1	79	12	26	8	7
Other or Two or more races	75	21	45	7	0	65	17	27	18	10
Education attainment										
Less than high school	52	22	45	13	s	59	14	33	13	13
High school	64	23	46	4	0	60	15	27	12	14
Some college or associate's degree	76	21	43	4	0	70	14	24	12	11
Bachelor's or higher degree	86	20	35	3	0	71	14	19	15	11
Household income										
Below \$25,000	61	23	53	5	0	59	12	29	16	13
\$25,000–\$34,999	62	24	48	6	0	69	14	34	11	10
\$35,000–\$49,999	62	24	45	8	0	64	20	27	9	12
\$50,000–\$74,999	70	26	43	3	0	70	13	24	12	11
\$75,000–\$99,999	80	18	40	4	1	66	16	22	12	15
\$100,000–\$149,999	86	19	31	3	0	67	15	18	16	12

Table SK12-30

Adults who reported COVID-19 pandemic impact on how their children received education, by selected adult characteristics: 7–12 May 2020 and 16–28 September 2020

(Percent)

Adult characteristic	7–12 May 2020					16–28 September 2020				
	Classes were moved to distance learning format using online resources	Classes were moved to distance learning format using paper materials sent home	Classes were cancelled	Classes changed in another way	No change to classes because schools did not close	Classes were moved to distance learning format using online resources	Classes were moved to distance learning format using paper materials sent home	Classes were cancelled	Classes changed in another way	The coronavirus pandemic did not affect how children in this household received education
\$150,000–\$199,999	88	17	33	3	0	73	11	21	13	10
\$200,000 and above	88	19	34	1	0	70	13	19	17	11

^a Hispanic may be any race; race categories exclude Hispanic origin.

Note(s):

The table includes adults 18 years and older in households with children enrolled in K–12 school. Adults in households with only homeschooled children are not included. Respondents can choose multiple categories.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the 2020 U.S. Census Bureau Household Pulse Survey.

Science and Engineering Indicators

Table SK12-31

Adults who reported availability of computer or other digital device and the Internet for children to use at home for educational purposes, by selected adult characteristics: 7–12 May 2020 and 16–28 September 2020

(Percent distribution)

Adult characteristic	7–12 May 2020										16–28 September 2020									
	Computer or other digital device					Internet					Computer or other digital device					Internet				
	Always available	Usually available	Sometimes available	Rarely available	Never available	Always available	Usually available	Sometimes available	Rarely available	Never available	Always available	Usually available	Sometimes available	Rarely available	Never available	Always available	Usually available	Sometimes available	Rarely available	Never available
Total	70	17	9	3	2	72	18	6	2	2	77	15	5	2	1	76	17	5	1	1
Race or ethnicity																				
White	65	21	8	4	1	71	22	6	0	1	81	13	4	1	1	79	15	4	1	1
Black	73	15	7	2	2	74	15	7	2	2	75	15	7	2	1	78	13	8	1	1
Hispanic ^a	62	15	14	5	4	69	18	7	3	4	70	22	5	2	1	68	25	6	1	0
Asian	71	20	6	0	2	72	23	3	2	1	84	11	3	1	0	84	14	2	0	0
Other or Two or more races	70	14	11	4	2	70	20	5	4	2	73	15	5	7	1	68	19	5	3	5
Education attainment																				
Less than high school	44	29	18	5	5	52	30	11	4	2	62	24	9	3	2	67	18	10	2	3
High school	67	15	9	5	4	67	20	6	3	4	71	19	7	3	1	70	22	5	2	1
Some college or associate's degree	69	18	10	2	1	73	17	7	1	1	80	14	4	2	1	76	17	5	1	1
Bachelor's or higher degree	81	14	4	1	0	83	13	3	1	0	85	11	3	1	0	85	13	2	0	0
Household income																				
Below \$25,000	57	17	15	6	5	60	19	11	5	5	65	20	8	4	3	62	20	12	3	3
\$25,000–\$34,999	58	24	12	3	3	60	26	11	2	2	64	22	9	4	2	64	24	8	2	2
\$35,000–\$49,999	59	24	9	7	2	65	22	8	3	2	72	20	6	2	1	68	23	6	3	1
\$50,000–\$74,999	67	17	11	3	2	70	20	5	3	2	77	15	6	2	0	76	21	2	1	1
\$75,000–\$99,999	75	16	7	1	1	80	16	3	1	0	80	14	5	1	0	80	15	4	1	0

Table SK12-31

Adults who reported availability of computer or other digital device and the Internet for children to use at home for educational purposes, by selected adult characteristics: 7–12 May 2020 and 16–28 September 2020

(Percent distribution)

Adult characteristic	7–12 May 2020										16–28 September 2020									
	Computer or other digital device					Internet					Computer or other digital device					Internet				
	Always available	Usually available	Sometimes available	Rarely available	Never available	Always available	Usually available	Sometimes available	Rarely available	Never available	Always available	Usually available	Sometimes available	Rarely available	Never available	Always available	Usually available	Sometimes available	Rarely available	Never available
\$100,000–\$149,999	84	13	3	1	0	82	15	3	0	0	87	10	2	1	0	86	11	2	0	1
\$150,000–\$199,999	83	13	4	s	1	84	11	3	0	1	88	9	2	1	0	86	12	1	1	0
\$200,000 and above	90	7	1	0	2	91	6	1	0	2	92	6	1	1	0	92	7	1	0	0

^a Hispanic may be any race; race categories exclude Hispanic origin.

Note(s):

The table includes adults 18 years and older in households with children enrolled in K–12 school. Adults in households with only homeschooled children are not included. Percentages may not add to 100% because of rounding.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the 2020 U.S. Census Bureau Household Pulse Survey.

Science and Engineering Indicators

Table SK12-32

Adults who reported provider of computer or digital device and Internet services for children to use at home for educational purposes, by selected adult characteristics: 7–12 May 2020 and 16–28 September 2020

(Percent)

Adult characteristic	7–12 May 2020						16–28 September 2020					
	Computer or digital device			Internet services			Computer or digital device			Internet services		
	Provided by children's school or school district to use outside of school	Provided by someone in household or family, or it is the child's	Provided by another source	Paid for by children's school or school district	Paid for by someone in household or family	Paid for by another source	Provided by children's school or school district to use outside of school	Provided by someone in household or family, or it is the child's	Provided by another source	Paid for by children's school or school district	Paid for by someone in household or family	Paid for by another source
Total	39	73	2	2	97	1	61	56	2	4	97	1
Race or ethnicity												
White	42	67	4	3	96	2	59	60	2	3	98	1
Black	37	76	1	1	98	1	64	48	3	8	93	2
Hispanic ^a	42	67	3	5	94	2	65	47	2	6	96	2
Asian	34	79	1	1	98	1	52	69	2	4	98	1
Other or Two or more races	37	75	2	3	97	1	62	58	3	6	94	2
Education attainment												
Less than high school	38	68	6	5	97	1	71	31	4	11	89	3
High school	43	66	2	3	95	2	62	49	2	4	96	1
Some college or associate's degree	40	73	2	2	97	2	61	58	2	4	97	1
Bachelor's or higher degree	32	82	1	1	99	1	56	67	1	3	99	1
Household income												
Below \$25,000	44	60	6	6	90	4	68	38	5	9	90	4
\$25,000–\$34,999	39	67	3	3	96	1	68	44	3	5	95	2
\$35,000–\$49,999	49	66	2	2	98	2	66	48	2	5	97	1
\$50,000–\$74,999	37	75	2	2	99	1	62	53	2	4	98	0
\$75,000–\$99,999	43	74	1	1	99	0	59	60	2	5	97	0
\$100,000–\$149,999	34	79	1	0	99	1	60	63	1	3	98	1
\$150,000–\$199,999	31	81	0	1	100	0	53	69	0	3	99	1

Table SK12-32

Adults who reported provider of computer or digital device and Internet services for children to use at home for educational purposes, by selected adult characteristics: 7–12 May 2020 and 16–28 September 2020

(Percent)

Adult characteristic	7–12 May 2020						16–28 September 2020					
	Computer or digital device			Internet services			Computer or digital device			Internet services		
	Provided by children's school or school district to use outside of school	Provided by someone in household or family, or it is the child's	Provided by another source	Paid for by children's school or school district	Paid for by someone in household or family	Paid for by another source	Provided by children's school or school district to use outside of school	Provided by someone in household or family, or it is the child's	Provided by another source	Paid for by children's school or school district	Paid for by someone in household or family	Paid for by another source
\$200,000 and above	27	88	0	0	100	1	51	74	1	1	99	0

^a Hispanic may be any race; race categories exclude Hispanic origin.

Note(s):

The table includes adults 18 years and older in households with children enrolled in K–12 school. Adults in households with only homeschooled children are not included. Respondents can choose multiple categories.

Source(s):

National Center for Science and Engineering Statistics, special tabulations (2020) of the 2020 U.S. Census Bureau Household Pulse Survey.

Science and Engineering Indicators

Table SK12-33

Students in grade 8 who reported using information and communications technologies for learning activities every school day or at least once a week, by type of activity: 2018

(Percent)

Type of activity	ICILS average	United States ^a
Use the Internet to do research	59	72 *
Complete worksheets or exercises	30	56 *
Take tests	20	43 *
Prepare reports or essays	26	41 *
Organize your time and work	28	40 *
Use software or applications to learn skills or a subject	24	33 *
Work online with other students	25	30 *
Prepare presentations	22	30 *
Use coding software to complete assignments	14	15
Make video or audio productions	18	13 *

* $p < 0.05$. Significantly different from the U.S. estimate at the 0.05 level of statistical significance.

ICILS = International Computer and Information Literacy Study.

^a Did not meet the guidelines for a sample participation rate of 85% and is not included in the international average.

Note(s):

The ICILS average is the average of all participating education systems meeting international technical standards, with each education system weighted equally. Professional learning activities are ordered by the percentages of U.S. teachers reporting participation in them from highest to lowest.

Source(s):

International Association for the Evaluation of Educational Achievement (IEA), ICILS, 2018. <https://nces.ed.gov/surveys/icils/icils2018/theme1.asp?tabontop>.

Science and Engineering Indicators

Table SK12-34

Eighth-grade teachers who reported participating in professional learning activities at least once in the past 2 years, by type of activity: 2018

(Percent)

Type of activity	ICILS average	United States ^a	
Training on subject-specific digital teaching and learning resources	50	70	*
The sharing of digital teaching and learning resources with others through a collaborative workspace	57	70	*
A course or webinar on integrating ICT into teaching and learning	46	65	*
A course on ICT applications (e.g., word processing, presentations, Internet use, spreadsheets, databases)	51	63	*
Observations of other teachers using ICT in teaching	59	62	
An ICT-mediated discussion or forum on teaching and learning	40	50	*
Use of a collaborative workspace to jointly evaluate student work	40	48	*
A course on how to use ICT to support personalized learning by students	28	46	*
A course on use of ICT for students with special needs or specific learning difficulties	24	33	*

* $p < 0.05$. Significantly different from the U.S. estimate at the 0.05 level of statistical significance.

ICILS = International Computer and Information Literacy Study; ICT = information and communications technologies.

^a Did not meet the guidelines for a sample participation rate of 85% and is not included in the international average.

Note(s):

The ICILS average is the average of all participating education systems meeting international technical standards, with each education system weighted equally. Professional learning activities are ordered by the percentages of U.S. teachers reporting participation in them from highest to lowest.

Source(s):

International Association for the Evaluation of Educational Achievement (IEA), ICILS, 2018. <https://nces.ed.gov/surveys/icils/icils2018/theme1.asp?tabontop>.

Science and Engineering Indicators

Table SK12-35

Eighth-grade teachers who agreed with various statements about using information and communications technologies in teaching at school, by statement: 2018

(Percent)

Statement	ICILS 2018 average	United States ^a	
ICT is considered a priority for use in teaching.	86	86	
My school has access to sufficient digital learning resources (e.g., learning software or apps).	59	74	*
My school has good connectivity (e.g., fast speed and stable) to the Internet.	57	73	*
The computer equipment in my school is up-to-date.	61	70	*
My school has sufficient ICT equipment (e.g., computers).	62	69	*
There is sufficient technical support to maintain ICT resources.	55	68	*
There is enough time to prepare lessons that incorporate ICT.	41	62	*
There is sufficient opportunity for me to develop expertise in ICT.	52	61	*

* $p < 0.05$. Significantly different from the U.S. estimate at the 0.05 level of statistical significance.

ICILS = International Computer and Information Literacy Study; ICT = information and communications technologies.

^a Did not meet the guidelines for a sample participation rate of 85% and is not included in the international average.

Note(s):

The ICILS average is the average of all participating education systems meeting international technical standards, with each education system weighted equally. Statements are ordered by the percentages of U.S. teachers reporting “strongly agree” or “agree” from highest to lowest.

Source(s):

International Association for the Evaluation of Educational Achievement (IEA), ICILS, 2018. <https://nces.ed.gov/surveys/icils/icils2018/theme1.asp?tabontop>.

Science and Engineering Indicators

Table SK12-36

Public school teachers who reported various types of access to computers or the Internet provided to their students by the district or school, by school characteristics: 2018–19

(Percent)

School characteristic	All teachers			Teachers whose students take home a district- or school-provided computer who have some students not able to take a computer home ^a	Teachers whose students do not have a district- or school-provided computer to take home ^b	
	School has additional academic period when students can use computers and Internet for homework	District or school provides mobile hotspots students take home	Students take home a district- or school-provided computer on long-term basis		Students can borrow school computers to take home on short-term basis	Students can access school computers outside of class time (e.g., before or after school, at lunch, in special periods)
All teachers	36	8	26	40	8	81
Instructional level ^c						
Primary school	23	6	9	49	4	69
Middle school	43	9	30	48	7	87
High school	45	11	42	32	15	96
Other school	48	s	20	48	9	86
Enrollment size						
Less than 300	49	5!	23	59	13	83
300–499	29	6!	20	44	5	76
500–999	34	7	22	47	6	76
1,000 or more	40	12	36	28	12	93
Community type						
City	31	7	19	38	7	81
Suburban	34	11	31	33	9	79
Town	46	4	29	54	7	85
Rural	44	7	26	49	9	83
School poverty level (%) ^d						
Less than 35 ^e	42	9	35	32	9	84
35–49	41	6	29	45	11	81
50–74	28	9	21	44	6	80
75 or more	32	7	14	54	6	78
Students take home school computers						

Table SK12-36

Public school teachers who reported various types of access to computers or the Internet provided to their students by the district or school, by school characteristics: 2018–19

(Percent)

School characteristic	All teachers			Teachers whose students take home a district- or school-provided computer who have some students not able to take a computer home ^a	Teachers whose students do not have a district- or school-provided computer to take home ^b	
	School has additional academic period when students can use computers and Internet for homework	District or school provides mobile hotspots students take home	Students take home a district- or school-provided computer on long-term basis		Students can borrow school computers to take home on short-term basis	Students can access school computers outside of class time (e.g., before or after school, at lunch, in special periods)
Yes	49	18	100	40	na	na
No	32	5	na	na	8	81

na = not applicable; s = suppressed for reasons of confidentiality and/or reliability.

^a Based on the 26% of teachers who reported that their students have a district- or school-provided computer that the student takes home on a long-term basis during the school year.^b Based on the 74% of teachers who reported that their students do not have a district- or school-provided computer that the student takes home on a long-term basis during the school year.^c Primary school has low grade 3, high grades 3–8; middle school has low grades 4–7, high grades 4–9; high school has low grades 7–12, high grades 11–12, or grade 9 only; other school is all other schools.^d School poverty level is the percentage of students in school eligible for free or reduced-price lunch.^e Includes schools with missing values.**Note(s):**

This table includes public school teachers who teach at least one regularly scheduled class in grades 3–12 and teach either (1) self-contained classes, or (2) departmentalized classes in one or more of the core subjects of English and language arts, social studies and social science, math, or science. The table excludes those who teach only special education, bilingual education, or English as a Second Language.

Source(s):Gray L, Lewis L, *Teachers' Use of Technology for School and Homework Assignments: 2018–19*, NCES 2020-048, U.S. Department of Education, National Center for Education Statistics (2020), <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2020048>.*Science and Engineering Indicators*

Table SK12-37

Public school teachers who reported the extent to which their students used various locations for computer or Internet access to work on school assignments, by school characteristics: 2018–19

(Percent distribution)

School characteristic	Public library				Public locations other than public library ^a				Commercial locations				Homes of relatives, friends, or neighbors				Student's own home			
	Not at all	Small extent	Moderate extent	Large extent	Not at all	Small extent	Moderate extent	Large extent	Not at all	Small extent	Moderate extent	Large extent	Not at all	Small extent	Moderate extent	Large extent	Not at all	Small extent	Moderate extent	Large extent
All teachers	32	56	10	2	47	46	7	1	50	40	9	1	6	41	43	11	1	12	27	60
Instructional level ^b																				
Primary school	40	51	7	2	61	34	4	1	68	29	3	s	9	47	36	8	2	17	32	49
Middle school	27	59	13	2	44	48	8	1	51	41	6	1	4	41	43	12	1	11	24	65
High school	28	60	10	2	33	57	10	s	28	51	19	2	3	34	50	13	1	7	24	68
Other school	33	53	12	s	42	47	9	s	45	47	8	s	s	41	41	14	s	10	29	60
Enrollment size																				
Less than 300	32	55	12	s	52	42	7	#	64	30	6	#	5	41	40	14	1	17	32	50
300–499	39	50	9	2	56	38	5	s	63	32	4	s	8	44	38	10	3	17	33	48
500–999	32	56	10	2	48	44	6	1	53	39	6	1	6	41	43	10	1	13	27	59
1,000 or more	28	61	9	1	36	55	10	s	31	50	18	2	3	39	46	13	s	6	21	73
Community type																				
City	33	54	11	2	43	47	9	1	48	40	11	1	5	36	46	13	1	15	31	53
Suburban	30	59	9	2	46	47	6	1	47	43	9	1	6	45	41	9	1	8	21	70
Town	31	56	11	2	47	44	8	s	53	37	9	s	7	42	42	9	3	16	30	51
Rural	35	55	7	2	53	41	5	s	56	36	7	1	6	41	41	12	2	12	29	56
School poverty level (%) ^c																				
Less than 35 ^d	30	61	7	1	44	50	6	s	43	45	11	1	7	47	37	9	1	4	12	83
35–49	29	59	11	1	46	47	6	s	44	44	10	1	6	38	44	12	1	7	25	67
50–74	36	52	10	2	51	40	8	1	54	37	8	2	5	39	45	11	2	16	34	49
75 or more	33	53	12	3	45	45	8	1	59	33	7	s	4	36	47	13	1	23	43	32
Students take home school computers																				
Yes	30	57	11	2	32	55	12	#	31	51	17	2	3	40	44	14	1	3	14	82
No	33	56	9	2	52	42	5	1	56	36	7	1	6	41	42	10	2	15	31	52

= rounds to zero; s = suppressed for reasons of confidentiality and/or reliability.

^a Examples of public locations other than public library include parks and community centers.^b Primary school has low grade 3, high grades 3–8; middle school has low grades 4–7, high grades 4–9; high school has low grades 7–12, high grades 11–12, or grade 9 only; other school is all other schools.^c School poverty level is the percentage of students in school eligible for free or reduced-price lunch.^d Includes schools with missing values.

Note(s):

This table includes public school teachers who teach at least one regularly scheduled class in grades 3–12 and teach either (1) self-contained classes, or (2) departmentalized classes in one or more of the core subjects of English and language arts, social studies and social science, math, or science. The table excludes those who teach only special education, bilingual education, or English as a Second Language. Percentages may not add to 100% because of rounding.

Source(s):

Gray L, Lewis L, *Teachers' Use of Technology for School and Homework Assignments: 2018–19*, NCES 2020-048, U.S. Department of Education, National Center for Education Statistics (2020). <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2020048>.

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Table SK12-38

Public school teachers who reported the estimated percentage of their students who had access to a computer at home, the availability of those computers for students to use for school assignments, and the likelihood that those computers had reliable Internet access from home, by school characteristics: 2018–19

(Percent distribution)

School characteristic	Percentage of teacher's students with access to a computer at home					Availability of computers at home for school assignments ^a					Likelihood computers at home have reliable Internet access ^a				
	0–49	50–74	75–89	90–94	95–100	Very available	Some-what available	Slightly available	Not available	Don't know	Very likely	Some-what likely	Slightly likely	Not likely	Don't know
All teachers	13	22	22	12	30	35	47	10	#	8	29	45	15	3	7
Instructional level ^b															
Primary school	17	26	24	11	22	22	53	15	1	9	26	43	20	4	8
Middle school	12	21	22	13	32	37	48	9	s	6	32	45	14	4	6
High school	9	19	20	13	39	48	40	6	s	7	32	48	11	2	7
Other school	13	27	22	12	25	33	46	11	#	11	23	44	21	6	6
Enrollment size															
Less than 300	15	27	22	13	22	31	47	11	s	10	19	46	18	6	10
300–499	19	27	22	9	23	24	51	15	s	10	22	49	18	3	8
500–999	13	23	22	12	29	32	49	11	1	7	28	44	18	3	7
1,000 or more	7	17	22	15	40	46	42	5	s	6	40	44	9	2	6
Community type															
City	19	25	24	9	22	28	51	12	s	8	26	46	17	4	7
Suburban	7	18	20	15	40	43	45	9	s	4	39	44	11	1	4
Town	17	26	22	10	26	34	42	14	s	10	22	46	19	4	9
Rural	13	24	23	13	27	30	48	9	1	12	22	45	17	5	10
School poverty level (%) ^c															
Less than 35 ^d	2	10	19	19	50	52	39	4	s	4	51	38	5	#	5
35–49	6	20	28	15	31	34	51	6	s	8	26	52	13	1	8
50–74	19	31	22	7	21	25	50	14	s	10	17	47	22	5	9
75 or more	29	33	22	6	10	19	53	18	1	9	14	47	24	8	8
Students take home school computers															
Yes	s	3	10	13	74	75	21	2	#	2	36	51	9	1	4
No	17	29	27	12	15	21	56	13	1	9	27	43	18	4	8

= rounds to zero; s = suppressed for reasons of confidentiality and/or reliability.

^a Based on the 99.9% of teachers who reported that some of their students have access to a computer at home.

^b Primary school has low grade 3, high grades 3–8; middle school has low grades 4–7, high grades 4–9; high school has low grades 7–12, high grades 11–12, or grade 9 only; other school is all other schools.

^c School poverty level is the percentage of students in school eligible for free or reduced-price lunch.

^d Includes schools with missing values.

Note(s):

This table includes public school teachers who teach at least one regularly scheduled class in grades 3–12 and teach either (1) self-contained classes, or (2) departmentalized classes in one or more of the core subjects of English and language arts, social studies and social science, math, or science. The table excludes those who teach only special education, bilingual education, or English as a Second Language. Percentages may not add to 100% because of rounding.

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