Education Progress Meter (As of 4/30/2024)

Methods Description

Data sources and methods for each of the Education Progress Meter metrics are listed below, with a brief introduction, followed by a more in-depth description of the process for producing the final numbers.

Post-Secondary Attainment (2022)

Updated December 2024

The percent of Arizona residents 25-64 years of age who have completed a 2- or 4-year degree or who have an active professional certificate or license.

Sources

- 2022 1-year Public Use Microdata Series (PUMS) person file for Arizona from U.S. Census Bureau AKA the American Community Survey (ACS)
- 2022 IPUMS Current Population Survey

Included in this number

Arizona residents aged 25-64 who have two-year, four-year, or advanced degrees from public or private institutions or who have an active professional certificate or license.

Alternatively, for county data and demographic subgroups, this measure includes only those with Associate's degrees or higher as data for professional certificates or licenses are not available due to the limited sample size.

Not included in this number

Those who have never had post-high-school education, or have attended but earned neither a degree nor a non-degree certificate, are not included. Also excluded are people under age 25, many of whom are still working on their education. Those aged 65 and over, many of whom are retired, are also excluded. Those living in group quarters are excluded from poverty measures because their income is not calculated for the poverty statistic.

In brief

The Attainment goal contains two data elements: one for adults with at least an Associate's degree, and another for adults who hold an active professional certificate or license.

For the first element, PUMS data for 2022 were filtered to include only persons aged 25 to 64. The Educational Attainment variable was collapsed from 24 categories down to two, those with at least an Associate's degree and those without. The percentage of those with at least an Associate's degree was then calculated for the race/ethnicity categories, and status for English proficiency, poverty, and disability. Results that had excessive margins of error were removed from the final table.

There is no generally accepted local, state, or national data source that counts adults with non-academic professional credentials. Data from the Current Population Survey (CPS) were used to estimate certifications and licenses using an average of their 2022 monthly data for all 12 months. After selecting the Arizona population aged 25 to 64, those possessing academic degrees (Associate's degree and above) were filtered from the data. This number was then added to the academic credential number obtained from the PUMS data.

Detailed methods

The Current Population Survey (CPS) is a survey of about 60,000 households conducted monthly by the Census Bureau on behalf of Bureau of Labor Statistics. Although this survey is primarily designed to track employment trends, it also collects data on demographics, educational attainment and more.

Data from the CPS was retrieved from https://cps.ipums.org/cps/ , a service that aggregates and formats data from CPS. Variables downloaded included age, race, Hispanic status, educational attainment, the presence of professional certification, and county of residence. Because the CPS uses a much smaller sample than the American Community Survey that supplies the PUMS data, only a few counties in Arizona are identified in the data.

As with the PUMS data, the CPS data was filtered to leave only respondents aged 25-64. Non-academic attainment was determined by identifying those that possess an "active professional certification or license," but who do not have an academic degree. This avoids double-counting those such as doctors that hold both an academic degree and a professional license.

Intentional thought was put into the validity of combining the PUMS and CPS datasets to produce a single number. It is possible to estimate both academic and non-academic attainment using the CPS data alone. However, two factors suggest that using PUMS data for the academic portion of the final number is preferable:

1. Academic attainment is widely reported using PUMS data in many other publications from a variety of sources. Using PUMS data for the academic portion of attainment allows comparability with these other sources.
2. The PUMS data is drawn from a sample that is three times larger than that for the CPS, making it more accurate.

There was a remaining concern about combining these data, however. The academic attainment numbers derived from the PUMS data and the CPS data don't quite match, which suggested there might be problems in combining the two sources. To resolve this conflict, estimated standard errors were calculated for the two academic attainment figures. This resolved the conflict by showing that there is no statistically significant difference between the two estimates. Since the PUMS estimate of academic attainment is more accurate due to its larger sample, it is the most appropriate source for that portion of the overall attainment number. The non-academic portion, derived from CPS, has less accuracy but is still the best currently available estimate.

PUMS data

Two indicators, attainment and opportunity youth, are drawn from Public-Use Microdata Sample (PUMS) data from the United States Census Bureau. PUMS data is a product of the Bureau's American Community Survey (ACS), which is conducted annually and collects a wide variety of data from households across the nation.

PUMS data allows researchers to compile several attributes into custom tables to present data in new ways. For instance, there is a standard ACS data table that lists the number of people aged 16-19 that are neither in school nor working. However, the term 'Opportunity Youth' is defined as those aged 16-24 who are not working or in school. Furthermore, the ACS table does not break down these Opportunity Youth by other characteristics such as race, ethnicity, and disability status. PUMS data allows these breakdowns, within certain statistical limitations.

PUMS data is available in samples that have been collected over a five-year period or over a single year. The five-year sample is more accurate, but since the Progress Meter is looking for changes across time, the one-year sample is more appropriate for this use.

The one-year sample for 2022 for Arizona was downloaded from the Census website (https://www.census.gov/programs-surveys/acs/microdata/access.html).The data was then imported into SPSS, a statistical software package. Using SPSS, summary variables were created for race and ethnicity, age categories, limited English proficiency (LEP), poverty status, work status, school attendance, educational attainment, disability status, and county of residence. Note that several counties with smaller populations are combined in the PUMS data to protect the privacy of survey respondents. The PUMS data is so detailed that it would be possible to identify individuals or families if the data were focused on a smaller geography. Populous counties are big enough that individual records are effectively masked, but data from smaller counties such as Mohave and La Paz are combined to create a larger population pool and protect identities.

An automated script file was then developed to produce the tables used by the progress meter. The tables contain the variable of interest broken down by the ten county-comparable geographies reported by PUMS, race and ethnicity, limited English proficiency (LEP), poverty, and disability status.

These tables were then transferred to Microsoft Excel for further formatting, calculation of percentages, analysis of standard errors, and computation of 90% confidence intervals. Standard errors for the estimates and the derived proportions were calculated according to the formulas suggested by the Census Bureau (http://www2.census.gov/programs-surveys/acs/tech_docs/pums/accuracy/2016AccuracyPUMS.pdf). These calculations consider the size of the estimates, the size of the population from which the estimates were drawn, and the design factors used by Census Bureau.

Values in the final Excel output tables were suppressed in cases where the 90 percent confidence interval exceeded +/- 25 percent or when the confidence interval encompasses either 0% or 100%.

Survey Data

Three of the chosen indicators are derived from survey data. Attainment and opportunity youth are products of the American Community Survey conducted by the Census Bureau. Median teacher pay is calculated by the Bureau of Labor Statistics as part of their Occupational Employment Statistics (OES) program. Since this data is drawn by sampling a small percentage of the overall population, there is a degree of uncertainty to the numbers.

Sampling error

Rather than seeing these numbers as point descriptors of exactly the percent of adults with college degrees, for example, it is more accurate to visualize them as the center of a 90% confidence interval. Were it possible to interview everyone in Arizona, there is a 90% chance that the 'true' percentage would fall within this confidence interval.

This uncertainty is known as sampling error. It is an unavoidable consequence of the survey process. The size of the confidence interval is expressed by the standard error of the estimate, which is used to monitor the quality of the estimate.

Non-sampling error

Inevitably, other errors creep into the data. Random errors, such as a respondent accidentally checking the wrong box on a survey form, do not bias the data in one direction or another but do affect the precision of the estimate by increasing the standard error.

Systematic errors unintentionally push the data in a specific direction, perhaps through a poorly worded question, which can be a serious concern. Both the Census Bureau and the Bureau of Labor Statistics conduct rigorous, high-quality surveys that reduce systematic errors to a minimum.

Important note about 2020 data

Opportunity Youth data are derived from the American Community Survey (ACS). The 2020 ACS was impacted by the COVID-19 pandemic and other conditions that prevented the normal collection and interpretation of Census data. Abnormal variation in the data could not be satisfactorily corrected with experimental weightings, therefore the 2020 data is not included. However, those issues are resolved with the 2021 and subsequent data, which are included.

Opportunity Youth (2022)

Updated December 2023

The percent of 16-24-year-olds in Arizona that are NOT going to school or working.

Source

2022 1-year Public Use Microdata Series (PUMS) person file for Arizona from U.S. Census Bureau

Included in this number

Arizona residents aged 16-24, inclusive, who are neither working or attending school.

Not included in this number

Those outside the age range and those working or attending school. Those living in group quarters are excluded from poverty measures because their income is not calculated for the poverty statistic.

In brief

Opportunity Youth refers to people aged 16 through 24 who are neither working nor in school. PUMS data for 2021 was filtered to include only people within this age range, and this

population was checked against both school enrollment and worker status to determine the percentage of Opportunity Youth.

Detailed methods

The data set was filtered to include only those between the ages of 16 and 24, inclusive. The Employment Status Recode (*ESR*) variable in the PUMS data was recoded into a new variable, *ESR_Worker*. This new variable takes on the value of zero for those who are listed as unemployed or not in the workforce. All other values, including civilians working and those in the armed forces, are coded as 1.

The PUMS variable *SCH* indicates whether the person has attended school within the last 3 months or is in public or private school. A dichotomous variable *InSchool* was created to convey school attendance status.

The variables *ESR_Worker* and *InSchool* were combined to create a new dichotomous variable Disconnected which identified those who are neither in school nor working.

For more on the processing of this data, please see the sections on PUMS Data and Survey Data.

Important note about 2020 data

Opportunity Youth data are derived from the American Community Survey (ACS). The 2020 ACS was impacted by the COVID-19 pandemic and other conditions that prevented the normal collection and interpretation of Census data. Abnormal variation in the data could not be satisfactorily corrected with experimental weightings, therefore the 2020 data is not included. However, those issues are resolved with the 2021 data, which are included.

Quality Early Learning (2022 Census data)

Updated December 2023

The percent of Arizona 3 and 4-year old children that are in in quality early learning settings.

Sources

- First Things First, 2022-2023
- Arizona Department of Education, 2022-2023
- Arizona Department of Economic Security, 2022-2023
- U.S. Census Bureau (2022). 2022 U.S. Census Bureau American Community Survey 1-year estimates Table B09001

(Note, specific time frame is Oct. 1, 2022 to Sept. 30, 2023)

Included in this number

Children age three or four years who are enrolled in an early learning setting that meets at least one of these conditions:

- Quality First with 3, 4, or 5-star rating
- Head Start programs

- Programs participating in the Preschool Development Grant (*which is currently 0, as the program has been defunded.*)
- National accreditation from one of the following organizations:
    - National Association for the Education of Young Children
    - American Montessori Society
    - Association for Christian Schools International
    - National Accreditation Commission for Early Care and Education Programs
    - National Early Childhood Program Accreditation

Not included in this number

Those outside the age range and those in settings not meeting the above criteria.

In brief

Morrison Institute for Public Policy has not directly reviewed this data.

Detailed methods

Morrison Institute for Public Policy has not directly reviewed this data.
Read on Arizona pulled from a data request from the data sources. These data sources for enrollment of preschool were identified and confirmed to use a high standard of enrollment verification and common definition of enrollment. The final data set was reviewed for duplicate counts by Read on Arizona's Data Integration Task Force and data sharing partners.

DES ACCEPTED ACCREDITATION AGENCIES FOR CENTERS		
Organization / (AzCCATS code)	**Web Address**	**Telephone Number**
American Montessori Society 116 East 16th Street New York, NY 10003-2163 **(AMS)**	www.amshq.org	1-212-358-1250
Association for Christian Schools International 1607 North Wilmot Road, Suite 104D Tucson, AZ 85712 **(ACSI)**	www.acsi.org	1-520-514-2897
Association for Early Learning Leaders *(***replaced** *National Association of Child Care Professionals)* 8000 Centre Park Drive, Suite #170 Austin, TX 78754 **(NAC)**	www.earlylearningleaders.org	1-800-537-1118

Association Montessori Internationale *(***replaced** *American Montessori Internationale)* 410 Alexander Street Rochester, NY 14607-1028 **(AMI)**	www.montessori-amiusa.org	1-585-461-5920 1-800-872-2643
Council on Accreditation ***School Age Accreditation Only*** *(***replaced** *National Afterschool Association)* 45 Broadway, 29th Floor New York, NY 10006 **(NSC)**	www.coanet.org *coanet.org/standards/standards-for-after-school-programs/	1-212-797-3000 1-866-262-8088
National Association for The Education of Young Children 1313 "L" Street, NW Washington, DC 20005 **(NYC)**	www.naeyc.org	1-202-232-8777 1-800-424-2460
National Early Childhood Program Accreditation Post Office Box 2948 Merrifield, VA 22116 **(NEC)**	www.necpa.net	1-855-706-3272

DES ACCEPTED ACCREDITATION/NATIONAL CREDENTIAL AGENCIES FOR FAMILY CHILD CARE GROUP HOMES		
Organization	**Web Address**	**Telephone Number**
Council for Professional Recognition 2460 16th Street, NW Washington, DC 20009 **(CDA)**	www.cdacouncil.org	1-800-424-4310 1-202-265-9090
National Association for Family Child Care 1743 West Alexander Street Salt Lake City, UT 84119 **(NAF)**	www.nafcc.org	1-801-886-2322

Teacher Pay (2023)

Updated April 2024

Arizona's ranking compared to other states for median Arizona elementary teacher salary.

Sources

- Bureau of Labor Statistics, Occupational Employment & Wage Statistics, 2023
- Bureau of Economic Analysis, Regional Price Parities, 2022

Included in this number

Median pay for district, charter, and private school elementary teachers, except for special education teachers. Median pay for public and private school secondary teachers, except for special education and career/technical education teachers. These numbers are adjusted to compensate for the regional cost of living. Included in these wage estimates are base salary, cost-of-living allowances, incentive pay, and several other items.

Not included in this number

Preschool, special education, career and technical teachers, teacher's aides, or administrators. Overtime pay, stock bonuses, and year-end bonuses are excluded from the calculation of wages. A complete description of the BLS definition of wages can be found at: https://www.bls.gov/oes/oes_ques.htm#def.

In brief

Median Elementary and secondary (high school) teacher pay is compared in Arizona, three neighboring Western states, and the nation as a whole.

Median teacher pay is also compared to several other occupations that also require a bachelor's degree and to median pay for the total workforce. This data comes from the Bureau of Labor Statistics (BLS).

To provide a more accurate comparison across states, the BLS figures are adjusted by the Regional Price Parities published by the Bureau of Economic Analysis. This adjustment compensates for higher or lower cost-of-living in some areas.

Detailed methods

Data on salaries for 800 occupations are collected by the United States Bureau of Labor Statistics through the Occupational Employment Statistics (OES) program. Both national and state-level files were downloaded from https://www.bls.gov/oes/.

The data released in April 2023 for this metric are an aggregate of six panels of survey data collected over 3 years, resulting in a sample size of ~1.1 million establishments. This covers approximately 80 million out of the 139 million employed. Detailed Methods and Reliability information for the OEWS Survey can be found here.

Note about updated methods per the BLS: *"The estimates described here are produced using a model-based estimation method using 3 years of OEWS data (MB3) to estimate current year occupational employment and wages. The MB3 estimation method was introduced with the May 2021 OEWS estimates; additional changes to the MB3 wage processing methodology were made for the May 2022 estimates and are discussed below. MB3 estimation has advantages over the previous OEWS methodology, as described in the Monthly Labor Review article, 'Model-Based Estimates for the Occupational Employment Statistics program.' The sampling methods described here are the same as those used prior to May 2021."*

The 2016-2023 teacher pay analyses are updated and use the MB3 BLS OEWS data.

The occupations and their Standard Occupation Codes (SOC) selected for comparison are as follows:

• All Occupations	00-0000
• Accountants and Auditors	13-2011
• Civil Engineers	17-2051
• Elementary School Teachers, except special education	25-2021
• Secondary School Teachers, except special and career/technical ed	25-2031
• Occupational Therapists	29-1122
• Physician Assistants	29-1071

Annual median wage was extracted for each of these occupations for the nation and all 50 states.

A note on the BLS website addresses some concerns about using this data for year-to-year comparisons: *"Although the OES survey methodology is designed to create detailed cross-sectional employment and wage estimates for the U.S., States, metropolitan and nonmetropolitan areas, across industry and by industry, it is less useful for comparisons of two or more points in time. Challenges in using OES data as a time series include changes in the occupational, industrial, and geographical classification systems, changes in the way data are collected, changes in the survey reference period, and changes in mean wage estimation methodology, as well as permanent features of the methodology."* (https://www.bls.gov/oes/oes_ques.htm#have)

With this in mind, these numbers are best used to compare teacher pay in Arizona relative to other occupations and to other states rather than looking at changes from one year to the next, which are likely not meaningful.

Unlike other measures of teacher pay, such as NCES or NEA, BLS data also captures salary information for Arizona charter school teachers, representing approximately 19 percent of the K-12 teaching workforce in Arizona.[1]

To adjust for local cost-of-living, Regional Price Parities (RPP) were downloaded from https://apps.bea.gov/iTable/?reqid=70&step=1&isuri=1&acrdn=8#eyJhcHBpZCI6NzAsInN0ZXBzIjpbMSwyNCwyOV0sImRhdGEiOltbIlRhYmxlSWQiLCIxMDEiXSxbIkNsYXNzaWZpY2F0aW9uIiwiTm9uLUluZHVzdHJ5Il1dfQ and applied to the median salaries reported by the Bureau of Labor Statistics. These price parities were applied to the state-level median wages. Both the annual median wage and state rankings were reported for the seven occupations for Arizona, Colorado, New Mexico, Utah, and the United States.

Note about updated methods per the BEA: *"The improved method was introduced in 2022 and uses a more detailed adjustment that includes utility expenditures on other fuels, such as*

[1] "AZ School Report Cards," Arizona Department of Education, 2022-2023 School Year. Retrieved April 17, 2024, https://azreportcards.azed.gov/state-reports.

heating oil or propane. These are important regionally, particularly in the northeastern states and Alaska. The adjustment is made to any observation where the payment for one or more utilities was included in the rent. Instead of removing estimated costs for all utilities, the improved adjustment only removes costs for the specific utilities included in each rent observation.

The distribution of the housing rent RPPs is similar both before and after these revisions. There is no change to the states in quintiles with the highest and lowest price levels, and there is some movement across the others. Maine had the largest downward revision with an RPP that drops from 82.8 to 71.5 (−13.6 percent). North Dakota had the largest upward revision from 71.7 to 77.0 (7.4 percent).

A second change made to the rents and utilities data was the incorporation of the ACS-based results for reference year 2020. Due to pandemic-related delays encountered at Census, BEA could not access the 2020 ACS PUMS in time for the December 2021 release. Instead, BEA used 2019 ACS PUMS results for the estimation of the 2020 RPPs. For the December 2022 release, BEA was able to access the 2020 ACS PUMS and used those results to estimate the RPPs.

The final change is the adoption of price data for electricity and natural gas from EIA. Previously, the RPPs used CPI or ACS PUMS microdata to develop these estimates. However, CPI results are only available for a limited number of metropolitan areas and regions, and both sources required processing at BEA to develop state-level results. The EIA price levels, on the other hand, are published for all states and are publicly available on the EIA website"

Post-High School Enrollment (2022)

Updated January 2024

The percent of Arizona high school graduates enrolled in postsecondary education the semester after graduating from high school.

Sources

- National Student Clearinghouse via Arizona Board of Regents, 2005-2022
- National Center for Education Statistics, 2022-2023

Included in this number

Arizona district and charter high school students who graduated in 2021-2022 school year and enrolled in post-secondary education during the 2022-2023 school year. Post-secondary enrollment includes in-state and out-of-state universities, community colleges, or private postsecondary trade schools.

Not included in this number

Students who graduated in the 2021-2022 school year but have not enrolled in the 2022-2023 school year or who enroll in a subsequent year.

Students not included in calculations:

- Any analysis condition where there are 5 or fewer students graduating or enrolling in any demographic group are suppressed to protect privacy (Example: If 6 Native American

students graduate from Westview High School, and 4 enroll in a post-secondary institution, the enrollment rate is suppressed from these data as there are 5 or fewer enrollees. However, if there are more than 5 students in larger aggregations (like Tolleson High School District, or the city of Avondale), these students are counted in those rates.

- Municipal:
    - A total of 42 High School graduates statewide came from schools that could not be placed in any one municipality but are included in the county and state numbers

In brief

The Arizona Board of Regents (ABOR) provides a list of high schools in Arizona along with the number of graduates and the number who enroll in post-secondary education the following year. High school graduation data for the 2021-2022 school year is sent by the Arizona Department of Education to the National Student Clearinghouse, which matches individual student information with enrollment in universities, community colleges, and trade schools for the 2022-2023 school year. The National Student Clearinghouse returns the file to ADE and it is shared with ABOR, which process the data file to produce these numbers.

Detailed methods

The ABOR report is compiled using high school graduation data from ADE and postsecondary enrollment figures from the National Student Clearinghouse. This report lists school names, school identification codes, raw graduation data, and post-secondary enrollment records. Please see the section 'School Geography' for information on how geographies were determined for each school.

School geography

To provide data to municipalities on local education conditions and trends, data that is usually released at the school or district level was converted to county and municipal level data. This process provides a picture of how the district and charter schools in an area are performing.

In Arizona, school district boundaries do not necessarily follow city and town boundaries and charter schools are free to locate wherever they please. Additionally, Arizona is an open-enrollment state, meaning that students can enroll in a school that is in a different town from where they reside, and there are an increasing number of online 'virtual' schools that may have an office in a certain city, but the students have no particular connection to the city. A final complication is that a school's street address does not necessarily conform to the physical city in which it resides. For example, Marana High School is located within the Marana town limits. However, it has a Tucson street address even though the Tucson city limits are over 10 miles distant.

To resolve these conflicts, a shapefile containing the geography of Arizona municipalities was downloaded from the US Census Bureau was imported into ArcGIS. This file contains the boundaries of incorporated cities and towns, as well as Census Designated Places (CDP), which are recognized unincorporated population centers such as Sun City and Mayer.

From the National Center for Education Statistics (NCES) the following was downloaded:

- The name of all district and charter school in Arizona.

- Latitude and Longitude for each school location.
- Location address of each school.
- Unique State ID number for each school.
- A flag indicating whether or not the school is a ‘virtual school.’

The latitude and longitude were used to map all schools in ArcGIS, and a spatial join was performed with the Census Bureau shapefile to determine the city, town, or CDP that each school is located in.

Schools that NCES identified as virtual schools were labeled as such and not assigned to any municipality.

Schools located on unincorporated county land and not in a CDP were individually examined, and assigned to a municipality based on the proximity of the school and district to neighboring areas.

Schools that were remote from population centers as defined by the Census Bureau are listed as “unallocated.”

High School Graduation Rate (2022)

Updated November, 2023

The percent of Arizona high school students graduating in 4 years.

Source

Arizona Department of Education, 2022 Graduation Rate Report.

Arizona Department of Education, 2022 un-redacted, de-identified data aggregated to the school, county, and state level for all public schools in Arizona.

Included in this number

Students in district and charter high schools that graduated within four years.

Not included in this number

- Students who take more than four years to graduate from high school.
- Students in private high schools.

In brief

High school graduation numbers for 2021-2022 are provided by the Arizona Department of Education. Four-year graduation rates are reported and broken down by county, ethnicity, poverty status, limited English proficiency, and disability status.

Typically, data are suppressed if cell count is less than 11 prior to the Arizona Department of Education making the data publicly available on its website. For a more detailed analysis of 2021-2022 graduation rates, a data sharing agreement was established to allow the Center for the Future of Arizona to access data prior to suppression by the Arizona Department of Education. The school level data were analyzed and aggregated from the school level to the municipal level without suppression rules. If cell counts were still less than 11 after aggregation to municipal level, then suppression was applied prior to reporting of the data. This analysis of

data without suppression on the front end allowed for a more thorough understanding of graduation rates in small municipalities such as Globe and Grand Canyon Village.

Detailed methods

Department of Education's Accountability & Research provided a data file to CFA for the analysis. Please see the section 'School Geography' for information on how geographies were determined for each school.

The unredacted data were obtained through a data sharing agreement with Arizona Department of Education. Data were aggregated to municipal and county level and graduation rate was calculated. Data were then suppressed if cell counts were fewer than 11.

To improve data accuracy, schools identified as fully virtual by the National Center for Education Statistics were removed from county aggregations and placed in a location named "Virtual County". This prevents the occasion where students who attend school remotely, and may not be physically located in the county from being assigned where they may not live.

School geography

To provide data to municipalities on local education conditions and trends, data that is usually released at the school or district level was converted to county and municipal level data. This process provides a picture of how both district and charter schools in a geographic area are performing.

In Arizona, school district boundaries do not necessarily follow city and town boundaries, and charter schools are free to locate where they please. Additionally, Arizona is an open-enrollment state, meaning that students can enroll in a school that is in a different town from where they reside, and there are an increasing number of online 'virtual' schools that may have an office in a certain city, but the students have no particular connection to the city. A final complication is that a school's street address does not necessarily conform to the physical city in which it resides. For example, Marana High School is located within the Marana town limits. However, it has a Tucson street address even though the Tucson city limits are over 10 miles distant.

To resolve these conflicts, a shapefile containing the geography of Arizona municipalities (downloaded from the US Census Bureau) was imported into ArcGIS. This file contains the boundaries of incorporated cities and towns, as well as Census Designated Places (CDP), which are recognized unincorporated population centers such as Sun City and Mayer.

From the National Center for Education Statistics (NCES) the following were downloaded:

- The name of all district schools and charter schools in Arizona.
- Latitude and Longitude for each school location.
- Location address of each school.
- Unique State ID number for each school.
- A flag indicating whether or not the school is a 'virtual school.'

The latitude and longitude were used to map all schools in ArcGIS, and a spatial join was performed with the Census Bureau shapefile to determine the city, town, or CDP that each school is located in.

Schools that NCES identified as virtual schools were labeled as such and not assigned to any municipality.

Schools located on unincorporated county land and not in a CDP were individually examined, and assigned to a municipality based on the proximity of the school and district to neighboring areas.

Schools that were remote from population centers as defined by the Census Bureau are listed as “unallocated.”

Third Grade Reading (2023)

Updated November, 2023

The percent of Arizona 3rd grade students who scored Proficient or Highly Proficient on the AASA 3rd grade English language arts assessment.

Sources

Arizona Department of Education, 2023 AASA results

Arizona Department of Education, 2023 un-redacted, de-identified data aggregated to the school level for all public schools in Arizona.

Included in this number

Third grade students in district and charter schools in Arizona.

Not included in this number

- Third grade students with significant cognitive disabilities
- Students in private schools

In brief

AASA data for 2023 were provided by the Arizona Department of Education’s (ADE) Accountability & Research division. Totals were filtered to show scores for the English Language Arts Grade three assessment. Students with scores in performance levels 3 and 4 (Proficient and Highly Proficient) were considered to have passed this assessment. The ADE report breaks down these scores by school, Local Education Agency (LEA) (District), county, state and several demographic characteristics.

Center for the Future of Arizona entered into a data use agreement with the Arizona Department of Education in order to obtain un-redacted 2023 AASA English Language Arts Grade three assessment data. Students with scores in performance levels 3 and 4 (Proficient and Highly Proficient) were considered to have passed this assessment. The school level data were analyzed and aggregated to the county and municipal level without suppression rules. If cell counts were still less than 11 after aggregation to municipal or county level, then suppression rules were applied prior to reporting of the data. This analysis of data without suppression on the front end allowed for a more thorough understanding of AASA data in small municipalities.

Detailed methods

This is a direct download from the Department of Education’s Accountability & Research website. Please see the section ‘School Geography’ for information on how geographies were determined for each school.

For the un-redacted analysis, Center for the Future of Arizona entered into a data use agreement with the Arizona Department of Education in order to obtain un-redacted 2023 AASA data by school and LEA for English Language Arts Grade three assessment data which included number tested, percent passing, and percent at each proficiency level. The data were also provided by subgroups of interest including race, limited English Proficiency, income eligibility, foster care, military, homeless, migrant and students with disabilities. Students with scores in performance levels 3 and 4 (Proficient and Highly Proficient) were considered to have passed this assessment. The number of students passing was calculated from the variables provided (number of students tested and percent of students passing). The school level data were analyzed and aggregated to the municipal and county levels by subgroup without suppression rules. Data were then suppressed (indicated with "*" or "0") if the denominator (number tested) included fewer than 11. This analysis of data without suppression on the front end allowed for a more thorough understanding of AASA results in small municipalities.

School geography

To provide data to municipalities on local education conditions and trends, data that is usually released at the school or district level were converted to county and municipal level data. This process provides a picture of how both district and charter schools in a geographic area are performing.

In Arizona, school district boundaries do not necessarily follow city and town boundaries, and charter schools are free to locate where they please. Additionally, Arizona is an open-enrollment state, meaning that students can enroll in a school that is in a different town from where they reside, and there are an increasing number of online 'virtual' schools that may have an office in a certain city, but the students have no particular connection to the city. A final complication is that a school's street address does not necessarily conform to the physical city in which it resides. For example, Marana High School is located within the Marana town limits. However, it has a Tucson street address even though the Tucson city limits are over 10 miles distant.

To resolve these conflicts, a shapefile containing the geography of Arizona municipalities (downloaded from the US Census Bureau) was imported into ArcGIS. This file contains the boundaries of incorporated cities and towns, as well as Census Designated Places (CDP), which are recognized unincorporated population centers such as Sun City and Mayer.

From the National Center for Education Statistics (NCES) the following were downloaded:

- The name of all district schools and charter schools in Arizona.
- Latitude and Longitude for each school location.
- Location address of each school.
- Unique State ID number for each school.
- A flag indicating whether or not the school is a 'virtual school.'

The latitude and longitude were used to map all schools in ArcGIS, and a spatial join was performed with the Census Bureau shapefile to determine the city, town, or CDP that each school is located in.

Schools that NCES identified as virtual schools were labeled as such and not assigned to any municipality.

Schools located on unincorporated county land and not in a CDP were individually examined, and assigned to a municipality based on the proximity of the school and district to neighboring areas.

Schools that were remote from population centers as defined by the Census Bureau are listed as “unallocated.”

Eighth Grade Math (2023)

Updated November, 2023

The percent of Arizona 8th grade students who are prepared to be successful in high school math.

Source

Arizona Department of Education, 2023 AASA results

Arizona Department of Education, 2023 un-redacted, de-identified data aggregated to the school level for all public schools in Arizona.

Included in this number

Eighth grade students in public schools who took an AASA math assessment.

Not included in this number

- Students with significant cognitive disabilities.
- Students in private schools.

In brief

AASA for 2023 data provided by the Arizona Department of Education’s (ADE) Accountability & Research division. County-level totals were filtered to show scores for students enrolled in eighth grade who took any math assessment. Students with scores in performance levels 3 and 4 (Proficient and Highly Proficient) were considered to have passed this assessment. The ADE report breaks down these scores by county, Local Education Agency (LEA) (District), school and several demographic characteristics.

Center for the Future of Arizona entered into a data use agreement with the Arizona Department of Education in order to obtain un-redacted 2023 AASA math assessment data. Students with scores in performance levels 3 and 4 (Proficient and Highly Proficient) were considered to have passed this assessment. School level data were analyzed and aggregated to the county and municipal level without suppression rules. If cell counts were still less than 11 after aggregation to municipal or county level, then suppression rules were applied prior to reporting of the data. This analysis of data without suppression on the front end allowed for a more thorough understanding of AASA data in small municipalities.

Detailed methods

The Department of Education’s Accountability & Research division provided CFA with a data file for analysis. Please see the section ‘School Geography’ for information on how geographies were determined for each school.

For the un-redacted analysis, Center for the Future of Arizona entered into a data use agreement with the Arizona Department of Education in order to obtain un-redacted 2023 AASA data by school and LEA for English Language Arts Grade three assessment data which included number tested, percent passing, and percent at each proficiency level. The data were

also provided by subgroups of interest including race, limited English Proficiency, income eligibility, and students with disabilities. Students with scores in performance levels 3 and 4 (Proficient and Highly Proficient) were considered to have passed this assessment. The number of students passing was calculated from the variables provided (number of students tested and percent of students passing). The school level data were analyzed and aggregated to the municipal and county levels by subgroup without suppression rules. Data were then suppressed (indicated with "*" or "0") if the denominator (number tested) included fewer than 11. This analysis of data without suppression on the front end allowed for a more thorough understanding of AASA results in small municipalities.

School geography

To provide data to municipalities on local education conditions and trends, data that is usually released at the school or district level was converted to county and municipal level data. This process provides a picture of how both district and charter schools in a geographic area are performing.

In Arizona, school district boundaries do not necessarily follow city and town boundaries, and charter schools are free to locate where they please. Additionally, Arizona is an open-enrollment state, meaning that students can enroll in a school that is in a different town from where they reside, and there are an increasing number of online 'virtual' schools that may have an office in a certain city, but the students have no particular connection to the city. A final complication is that a school's street address does not necessarily conform to the physical city in which it resides. For example, Marana High School is located within the Marana town limits. However, it has a Tucson street address even though the Tucson city limits are over 10 miles distant.

To resolve these conflicts, a shapefile containing the geography of Arizona municipalities (downloaded from the US Census Bureau) was imported into ArcGIS. This file contains the boundaries of incorporated cities and towns, as well as Census Designated Places (CDP), which are recognized unincorporated population centers such as Sun City and Mayer.

From the National Center for Education Statistics (NCES) the following were downloaded:

- The name of all district schools and charter schools in Arizona.
- Latitude and Longitude for each school location.
- Location address of each school.
- Unique State ID number for each school.
- A flag indicating whether or not the school is a 'virtual school.'

The latitude and longitude were used to map all schools in ArcGIS, and a spatial join was performed with the Census Bureau shapefile to determine the city, town, or CDP that each school is located in.

Schools that NCES identified as virtual schools were labeled as such and not assigned to any municipality.

Schools located on unincorporated county land and not in a CDP were individually examined, and assigned to a municipality based on the proximity of the school and district to neighboring areas.

Schools that were remote from population centers as defined by the Census Bureau are listed as "unallocated."