



# USING CEDS: BUILDING A DATA SYSTEM

*While education institutions across the P-20W (early learning through postsecondary and workforce) environment use many different data standards to meet information needs, there are certain data we all need to be able to understand, compare, and exchange in an accurate, timely, and consistent manner. For these, we need a shared vocabulary for education data – that is, we need common education data standards. The **Common Education Data Standards (CEDS)** project is a national collaborative effort to develop voluntary, common data standards for a key set of education data elements to streamline the exchange, comparison and understanding of data within and across P-20W institutions and sectors.*

*The “How Do I Use CEDS?” series of briefs addresses various ways that different data stakeholders may find CEDS and its associated tools helpful in their data tasks and responsibilities. CEDS is built in a way to support a variety of implementations that are all different; there is no one way to “use” CEDS. This brief focuses on how CEDS can be used in the development or expansion of a state, district or early learning data system.*

## Building and Expanding a Data System

As states and districts continue to use education data to inform education policy and practice, SEA and LEA data teams are focused on improving their data capabilities. By implementing quality longitudinal data systems, these data teams are supporting effective data use by education practitioners, policymakers and stakeholders. As these data systems develop and grow, the ability to communicate via a common language becomes vital. Use of common standards enables different parties – from teachers to administrators to district- and state-level data stewards – to communicate about – and with – data that they all understand.

## Moving to a Longitudinal Data System

Many states are now building or expanding existing longitudinal data systems (LDS). These systems can track student data throughout students’ educational careers. Having longitudinal data about different groups of students enables LEAs and SEAs to look at larger issues such as the success of different programs, the influence of teacher preparation on student success and specific factors that seem to help or hinder individual student progress.

Many LEAs and SEAs have been collecting K12 data, but links to early childhood, postsecondary and workforce-sector data are less firmly established. These growing linkages can be supported by CEDS, which provides a common vocabulary for cross-sector data sharing.

In many places, the LDS is the first time that any early childhood or workforce data have been brought together with K12 data in the system. To be successful, the stakeholders must work together across sectors to ensure that terms and elements are consistent across the different collections. Currently, even different education sectors may

not use similar definitions for education terms. For example, in K12 education, “retention” refers to a student being held back a grade level (and is viewed negatively). In postsecondary education, however, “retention” is a positive occurrence indicating that a student has not dropped out of his or her educational program.

Using a common vocabulary – based on consistent definitions – allows stakeholders to avoid the confusion (and data problems) inherent in such situations. CEDS was developed with a deliberate focus on ensuring that the standards are consistent and clear across different sectors and entities.

## Expanding the Capacities of Existing Systems

States are also developing data access and display components, such as data dashboards and visualization tools, in their LDS systems to inform users and enhance analysis. Data dashboards present differentiated information to end users, such as teachers, administrators or human resources professionals, based on their roles. While individuals at each of these levels may need to see data at different levels of aggregation (for example, student, class or school), each must see data that is clearly and consistently defined. For example, if a visualization tool shows absentee data, users must understand if the data represent period absences or daily absences, and even whether the absences were excused or unexcused, before considering policy based on the data.

## Using the CEDS Tools: CEDS Align and CEDS Connect

In addition to the standards, CEDS includes tools to allow stakeholders to use and integrate the standards into various parts of their work.

**CEDS Align** is a web-based tool that enables users to import or input their data dictionaries, align their elements to CEDS, compare their data dictionaries with those of other users and analyze their data in relation to various other CEDS alignments. CEDS Align is designed to enable education stakeholders to understand how their data dictionaries relate to the Standards, as well as what similarities or gaps might need to be addressed in sharing data among educational sectors and across state lines.

The ***CEDS Align*** tool can be used to identify policy questions and related data elements, define analytic approaches, calculate metrics and indicators, address reporting requirements, and more.

As a LEA or SEA builds its data system, the data team can use the CEDS Align tool to evaluate how its current data dictionary aligns with CEDS, provide a common language to explore how their various dictionaries align with each other and to assess what changes the data team may want to make. Using CEDS Align may also be a way to encourage the various stakeholders across the different sectors – early learning through workforce – to understand the importance of speaking a common language regarding data.

**CEDS Connect** enables users at different levels to consider “connections” such as metric definitions of data points, policy questions, or federal data reporting requirements by establishing the data elements necessary to answer a given connection, as well as recommend logic and routines for analysis. CEDS Connect is designed to help the education data community work together toward standard definitions and methodologies that will provide common, comparable data measurements and reporting across districts, state and multiple educational agencies. CEDS Connect also allows stakeholders from varied educational organizations can use the tool’s myConnect feature that builds upon CEDS Align to apply their Align maps to the elements needed for any connection.

***CEDS Connect*** can build upon the CEDS Align tool to identify policy questions and related data elements, define analytic approaches, calculate metrics and indicators, address reporting requirements, etc.

States and districts often begin LDS projects by compiling lists of state and district research and policy questions, as well as reporting requirements. The Connect tool can help state and district teams identify the data elements needed to answer these questions and also identify the analytic approaches most suited to the questions.

**myConnect** allows users who have mapped their data systems to CEDS via the Align tool to apply them to a particular CEDS Connection. By using CEDS as a bridge, this allows users to see how the elements in their own data systems might correspond to the elements necessary to answer a particular policy issue or data question.

## Steps for Using CEDS while Building a Data System

The CEDS standards, CEDS Align, and CEDS Connect can support states' efforts to create data systems, whether the state is merging data sources to create a new sector-specific data system, or is integrating currently existing data systems to form a new statewide P-20W longitudinal system. Using the CEDS standards and tools, users can identify data and policy questions, explore the contents of the state's or district's current data sources, identify gaps in the data sets and identify new data elements that might be useful in a new system.

*A state team could:*

1. Identify the types of questions that they would like their system to be able to answer, and programs that they would like their system to be able to support. Consider using CEDS Connect to review policy and program questions and reports already identified by CEDS stakeholder community
2. Identify the data sources and systems currently available in their state or district, and gather and analyze reports currently being generated based on these data sources
3. Become familiar with the CEDS standards
4. Add their data dictionary(ies) to CEDS Align (Note: There are likely to be multiple dictionaries within a state defining multiple programs – each dictionary should have its own map if needed, to align to each other first within a state)
5. Align to CEDS, taking care to review elements used to support all students that may be part of their state's system
6. Compare the different CEDS Align maps in order to find duplications, gaps, etc.
7. If the state has a public map, run a match against other program maps within their state
8. Use CEDS Connect to map their reports to CEDS elements
9. Use myConnect to assess the extent to which they can answer policy and research questions published by the CEDS stakeholder community

As state teams and data stakeholders Align and Connect their data and reporting systems to CEDS, they can review state business needs and consider which data elements to add to the system, and which versions of elements to deem the 'source' in the event of duplication, in order to reduce gaps and redundancies.

## Explore and Engage with CEDS

To learn more about CEDS, explore the standards at <https://ceds.ed.gov>. CEDS Align will show you how closely your organization's data dictionary matches CEDS and the data standards used by other organizations. Create or view "connections" within CEDS Connect to determine metrics and indicators for different questions and to consider routines for data analysis. Use myConnect to see the data elements in a published Connection side by side with your own data elements.