Developing Informed Data Requests: How to Use Common Education Data Standards and Tools

April 11, 2021

Nancy Copa
AEM
CEDS Project Director

Nancy Sharkey
NCES
CEDS/SLDS Program Lead

Julia Bloom-Weltman
AEM
Associate Director, Research and Evaluation

IES Institute of Education Sciences

Common Education Data Standards

Session Overview

- Welcome & Objectives
- Common Education Data Standards (CEDS)
  - Data Elements
  - Align
- CEDS and Researchers
  - Connections
  - Reflection
- CEDS and Beyond (vision, big picture)

Download the Graphic Organizer we will be using today:

https://ceds.grads360.org/api/ApplicationMedia/GetDownload/102511

Workshop Objectives

- Understanding the tools and supports available through the Common Education Data Standards
- Learn about available reports and research questions that could support your own research
- How to explore what's available in state data systems

CEDS Overview

History & Background
Explore Elements & Activity
Align Tool & Activity

CEDS – The Basics

A vocabulary that can be applied to data elements, a data set, a data file, or a data system

To speak the same language

To have a shared understanding

History of CEDS

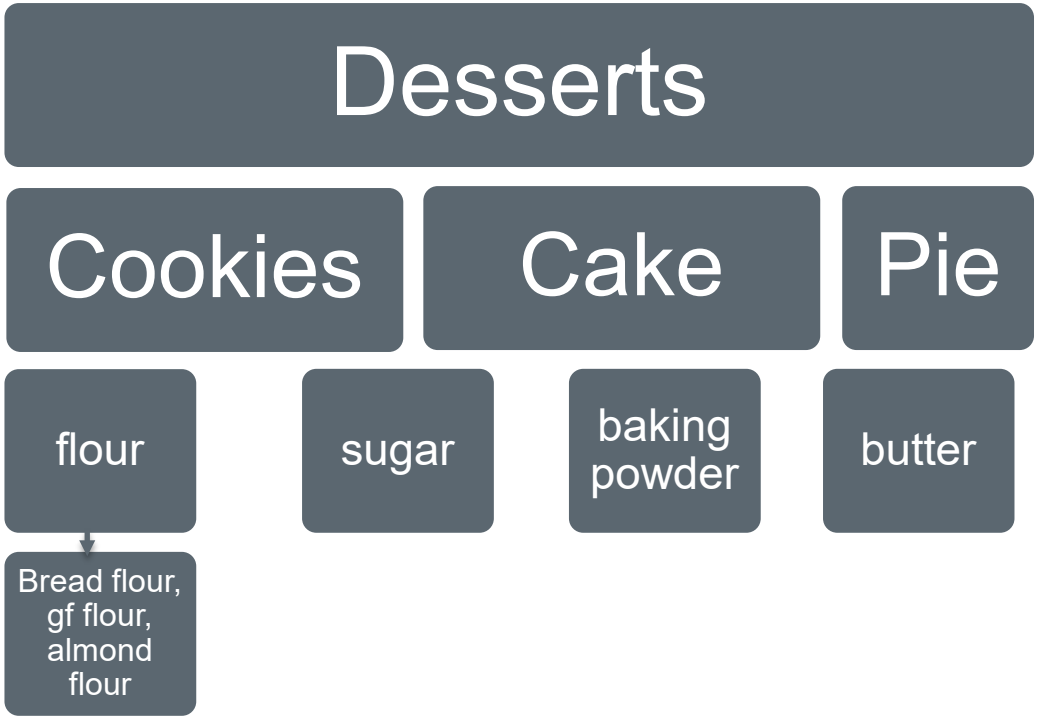
ELEMENTS	**161** ELEMENTS	**638** ELEMENTS	**1,144** ELEMENTS	**1,346** ELEMENTS	**1,450** ELEMENTS	**1,462** ELEMENTS	**1,568** ELEMENTS	**1,711** ELEMENTS	**1,711** ELEMENTS
AREAS									
RESOURCES RELEASED		Searchable website, Logical Data Models, Align	Use Case Generator/ Connect, DES, NDS, AIF, DM Guide	Extend, myConnect	Communities of Practice	Using and Developing Communities of Practice	CEDS Integrated Data Store	CEDS Data Warehouse	Open Source Community
ALIGN MAPS		**63** MAPS FROM **18** STATES/TERRITORIES	**230** MAPS FROM **47** STATES/TERRITORIES	**283** MAPS FROM **51** STATES/TERRITORIES	**519** MAPS FROM **53** STATES/TERRITORIES	**570** MAPS FROM **54** STATES/TERRITORIES	**609** MAPS FROM **54** STATES/TERRITORIES	**659** MAPS FROM **54** STATES/TERRITORIES	**810** MAPS FROM **54** STATES/TERRITORIES
CONNECTIONS			**254** CONNECTIONS FROM **4** STATES/ TERRITORIES	**274** CONNECTIONS FROM **11** STATES/ TERRITORIES	**679** CONNECTIONS FROM **18** STATES/ TERRITORIES	**421** CONNECTIONS FROM **20** STATES/ TERRITORIES	**505** CONNECTIONS FROM **20** STATES/ TERRITORIES	**530** CONNECTIONS FROM **20** STATES/ TERRITORIES	**685** CONNECTIONS FROM **20** STATES/ TERRITORIES
	Organizations gather to discuss developing a common education data standard.	**VERSION 1**	**VERSION 2** **203** REGISTERED USERS	**VERSION 3** **799** REGISTERED USERS	**VERSION 4** **908** REGISTERED USERS	**VERSION 5** **1,909** REGISTERED USERS	**VERSION 6** **2,224** REGISTERED USERS	**VERSION 7** **2,565** REGISTERED USERS	**VERSION 7.1** **2,745** REGISTERED USERS	**VERSION 8** **3,232** REGISTERED USERS
	2009	SEPTEMBER **2010**	JANUARY **2012**	JANUARY **2013**	JANUARY **2014**	JANUARY **2015**	JULY **2016**	JULY **2017**	DECEMBER **2017**	JUNE **2019**

Why does CEDS matter?

- Translate between data requester and data owner
- Supports data set merging from multiple sources
- Eases burden of identifying element names and their accompanying definition
- Facilitates transparency of the data available within systems

Hierarchy of a dessert

- Dessert is the domain
- Cookie is the entity nested under dessert
- Flour is the category of ingredients
- Bread flour, gluten free flour and almond flour, etc are the ingredients or elements



Foundation of Data Elements – A baker's example

- Flour
- Sugar
- Salt
- Brown Sugar
- Butter or margarine
- Baking powder
- Chocolate chips
- Baking Soda
- Cinnamon
- Pecans
- Walnuts
- Raisins
- Coconut

Let’s take a look!

- Access your graphic organizer to help guide you through our workshop.
- https://ceds.grads360.org/api/ApplicationMedia/GetDownload/102511
- Go to https://ceds.ed.gov to follow along!

Data Elements

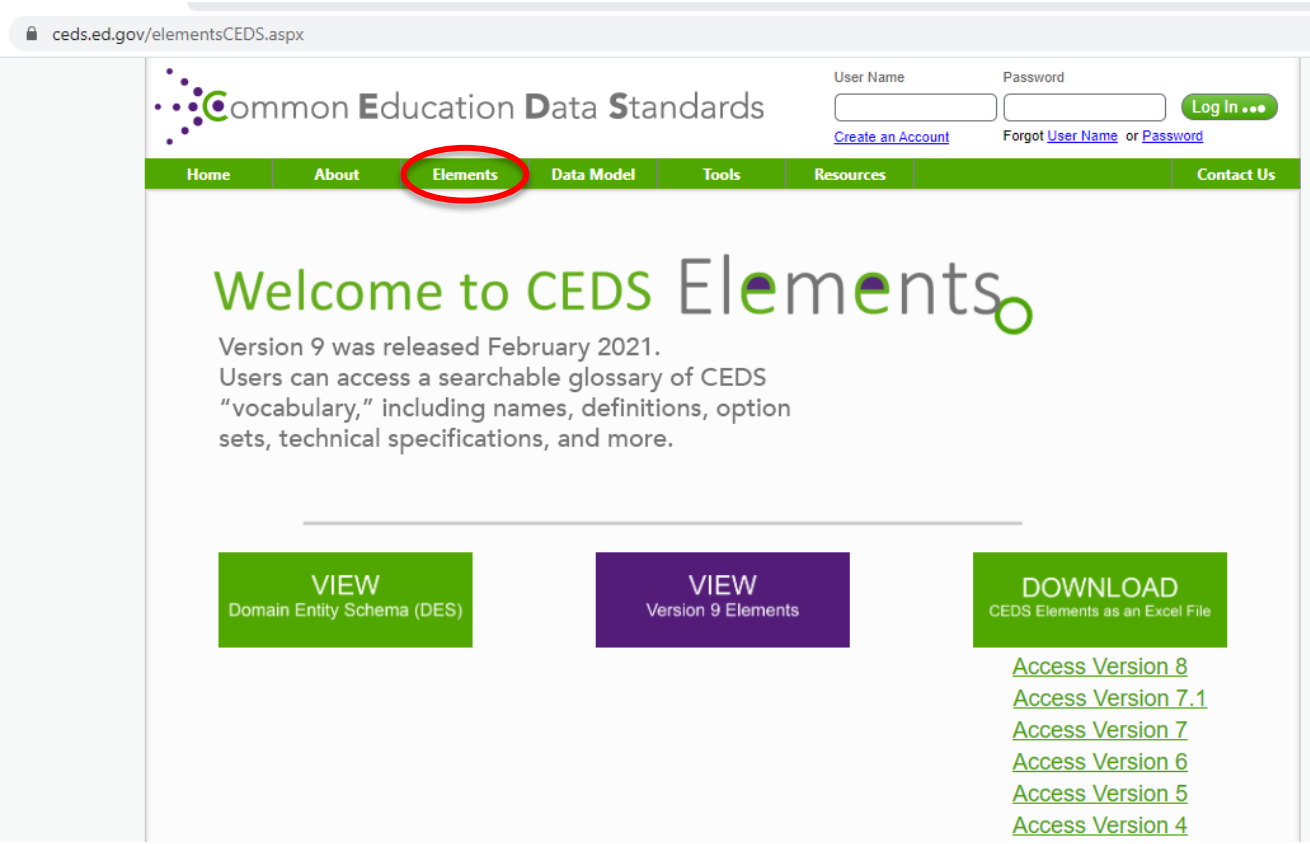
1. Go to Section A of your Graphic Organizer
2. Search for a keyword of interest
3. Review the element results by clicking on an element name
4. Click “(More)” to see the full element details
5. Review the components of an element and track it on your Graphic Organizer
6. Post any questions in Q&A

- You’ll have **three minutes** to explore!

https://ceds.ed.gov

Steps to take

1. Click on "Elements"
2. Click on "View Version 9 Elements"



Common Education Data Standards

User Name | Password | Log In

Create an Account | Forgot User Name or Password

Home | About | Elements | Data Model | Tools | Resources | Contact Us

CEDS Elements - Version 9

Filter by Domain

All

Filter by Change Status

- All CEDS Elements
- All CEDS Elements plus Extend Elements
- New CEDS Elements
- Updated CEDS Elements
- All Changed CEDS Elements

Filter by Key Word

enrollment

Search Extend Elements

Advanced Search

Download CEDS Elements as an Excel file.

Downloads

Filter by First Letter

All A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Using the features in the box above you can search for elements alphabetically, by Domain, by Key Word, or download as an Excel file. Make a selection to see the resulting CEDS elements.

Home | About | Elements | Data Model | Tools | Resources | Contact Us

CEDS Elements - Version 9

Filter by Domain

All

Filter by Change Status

- All CEDS Elements
- All CEDS Elements plus Extend Elements
- New CEDS Elements
- Updated CEDS Elements
- All Changed CEDS Elements

Filter by Key Word

enrollment

Search Extend Elements

Advanced Search

Download CEDS Elements as an Excel file.

Downloads

Filter by First Letter

All A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Expand All

57 records for "enrollment" when searching Names or Definitions or Option Sets of CEDS Elements

- Adult Education Postsecondary Transition Action
- Adult Education Special Program Type
- Advanced Placement Course Self Selection
- Barrier to Educating Homeless

Enrollment in Postsecondary Award Type

Enrollment Status

Definition:

An indication as to whether a student's name was, is, or will be officially registered on the roll of a school or schools.

Option Set:

Description	Definition	Code
Concurrently enrolled	The student is concurrently enrolled.	01812
Currently enrolled	The student is currently enrolled.	01811
Previously enrolled	The student was previously enrolled.	01810
Transferring (will enroll)	The student is transferring (will enroll).	01813

Related Domains, Entities, and Categories:

K12 -> K12 Student -> Enrollment

(More)

Exit or Withdrawal Type Updated

Components of an Element

1. Definition
2. Option Set
3. Related Domains, Entities and Categories
4. Related Topics
5. CEDS Element ID
6. Element Technical Name
7. URL

Other components may include:

1. Format
2. Usage Notes
3. Changes
4. Alternate Name

Element Details (press "ESC" key to close)

1 Definition

An indication as to whether a student's name was, is, or will be officially registered on
school or schools.

2 Option Set

Description	Definition
Concurrently enrolled	The student is concurrently enrolled.
Currently enrolled	The student is currently enrolled.
Previously enrolled	The student was previously enrolled.
Transferring (will enroll)	The student is transferring (will enroll).

3 Related Domains, Entities and Categories

K12 -> K12 Student -> Enrollment

4 Related Topics

K-12 -> EDFacts

5 CEDS Element ID

000094

6 Element Technical Name

EnrollmentStatus

7 URL

https://ceds.ed.gov/CEDSElementDetails.aspx?TermId=17094 (Email this link)

Align

CEDS Tools: Align

- Tool used to align data dictionaries to CEDS

- Benefits to Researchers:
  - Comparing multiple data sources easily
  - Learn what data is available before you submit a data request
  - Preparing for data linkage or integration once you receive data from multiple sources

recipe

prep time 15 min cook time 9-11 m

INGREDIENTS

All-Purpose Flour
Sugar
Sea Salt
Margarine
Dark Chocolate Chips
Baking Soda
Walnuts

Ingredients

Flour
Sugar
Salt
Fat & Oils
Chocolate Chips
Baking Soda
Spices
Nuts

recipe

INGREDIENTS

Almond Flour
Brown Sugar
Salt
Butter
Chocolate Chips
Baking Soda
Cinnamon
Walnuts

Let’s take a look!

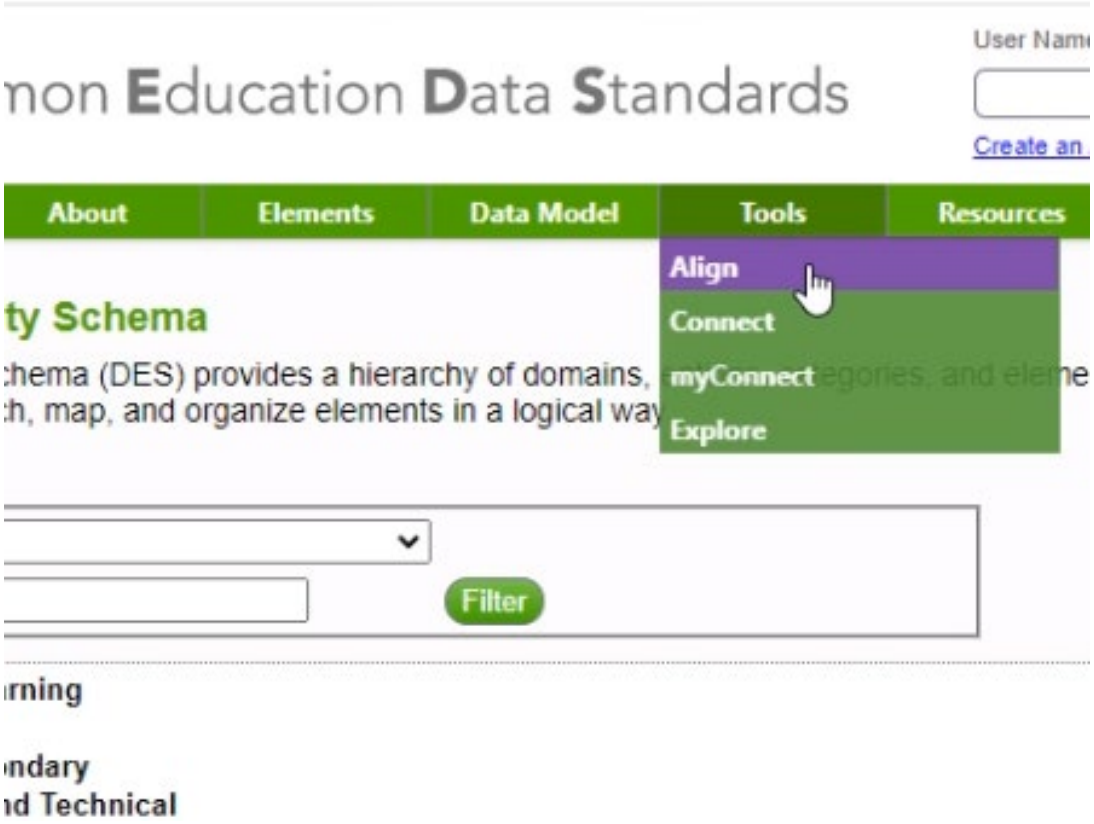
- Go back to https://ceds.ed.gov to follow along!
- Prepare to use your graphic organizer after the demo

Align

1. Go to Section B in your graphic organizer
2. Select Tools | Align
3. Under the “Use” column, select Explore Element Based Reports
4. Find your element and click Next
5. Expand to view the results
6. How many maps have aligned to your element?
   - Don’t see any? Go back and try again using “Enrollment Status”
7. Post any questions in Q&A

You’ll have three minutes to explore

Align

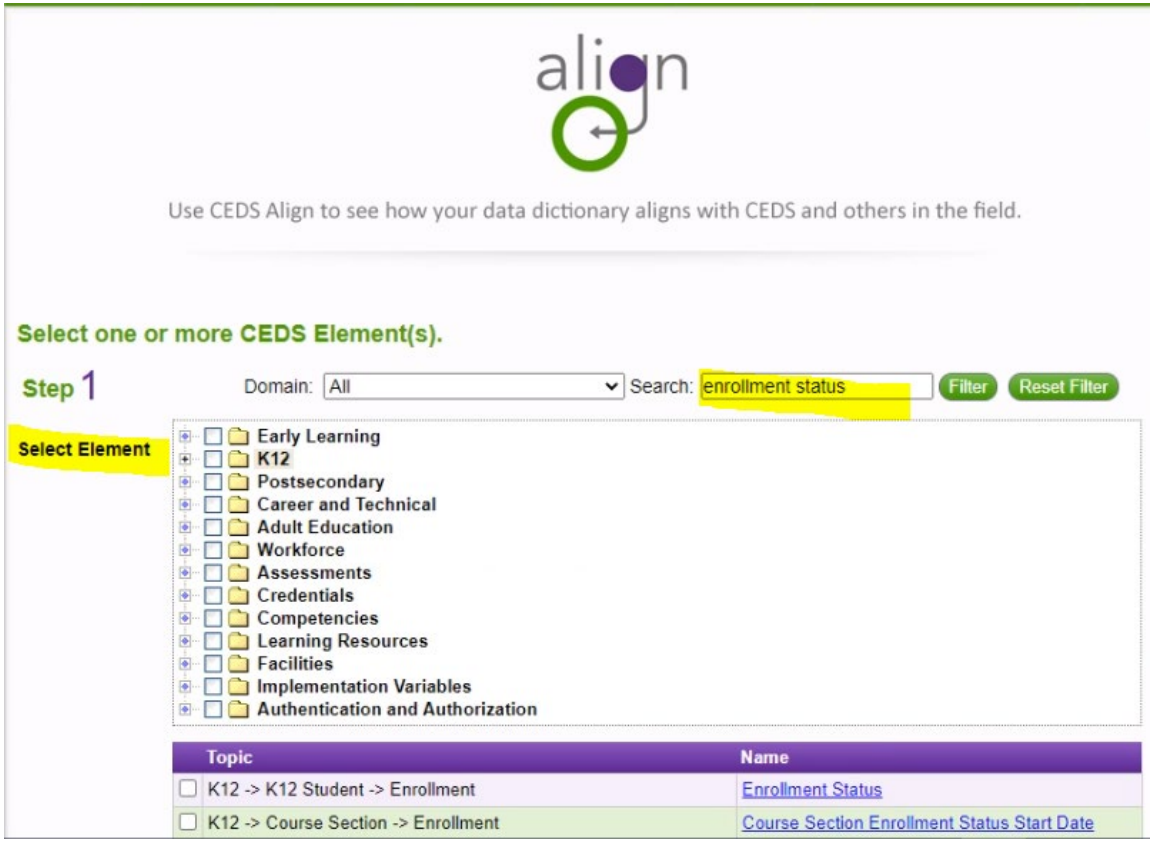

User Nam
non Education Data Standards
Create an
About
Elements
Data Model
Tools
Resources
Align
Connect
myConnect
Explore
ty Schema
chema (DES) provides a hierarchy of domains,
h, map, and organize elements in a logical way
Filter
rning
ndary
d Technical

- Select “Explore Element Based Reports”

- Type your element into the Search bar

OR

- Use the domains to find and select your element.



Results

Common Education Data Standards

User Name | Password | Log In

Create an Account | Forgot User Name or Password

Home | About | Elements | Data Model | Tools | Resources | Contact U

Element Impact Analysis

Options

+ Expand All

- K12 > K12 Student > Enrollment>Enrollment Status

Map Name	Affiliation Name	State	System Name | Database Name | Table Name	Element Name
Arkansas K12 Data System	Arkansas Department of Education	Arkansas	K12 | N/A | Student	enrolled
California Longitudinal Pupil Achievement Data System (CALPADS)12	California Department of Education	California	CALPADS | CALPADS | Student Enrollment	Enrollment Status Code
Georgia Data Collection	GaDOE	Georgia	SLDS | Student | Enrollment	STUDENT STATUS
Kansas Directory Data SY 2016-17	Kansas State Department of Education	Kansas	Directory | Directory | session_schedule	headct
Kansas Directory Data SY 2017-18	Kansas State Department of Education	Kansas	Directory | Directory | session_schedule	headct
Kansas Directory Data SY 2018-19	Kansas State Department of Education	Kansas	Directory | Directory | session_schedule	headct
Kansas Individual Data on Students (KIDS Collection) SY 2013-	Kansas State Department of Education	Kansas	Kansas Individual Data on Students | KIDS Collection | dbo_kcol_Record_STCO	Course_Status

CEDS & Researchers

Julia Bloom-Weltman

CEDS and Researchers

- How researchers extend the use of CEDS?
- Experience with CEDS as a researchers
- CEDS Connections

Experiences with CEDS as researchers: Examples

NORC at the University of Chicago

NCEO National Center on Educational Outcomes

REL CENTRAL

How Researchers extend the use of CEDS?

- Phase I: Developing Research Questions and Reviewing Existing Research
- Phase II: Operationalizing Research Questions
- Phase III: Analytic Plans
- Phase IV: Gathering Potential Data Sources

CEDS Tools: Connect

- Deconstruct reporting requirements, metrics, research questions
- Built using CEDS elements and/or user-defined elements
- Apply Align maps to a finished Connection to see which elements in own system would be used

CEDS Connections: Examples

- What percentage of referred children birth through age 5 were enrolled in the community service or program?
  - Source: Association of Maternal and Child Health Programs (AMCHP)

- Are students who graduate with test scores that deem them college and career ready less likely to take remedial courses in college?
  - Source: SLDS Community

recipe

prep time 15 min cook time 9-11 min serves

INGREDIENTS

- All-Purpose Flour
- Sugar
- Sea Salt
- Margarine
- Dark Chocolate Chips
- Baking Soda
- Walnuts

DIRECTIONS

Preheat oven to 375° F. Combine flour, baking soda and sea salt in
Beat butter, granulated sugar and vanilla extra in large mixer bowl
eggs one at a time, beating well after each addition. Gradually beat
Stir in morsels and walnuts. Drop by rounded tablespoon onto grease
Bake for 9-11 minutes or until golden brown. Cool on baking sheets
remove to wire racks to cool completely.

Connections

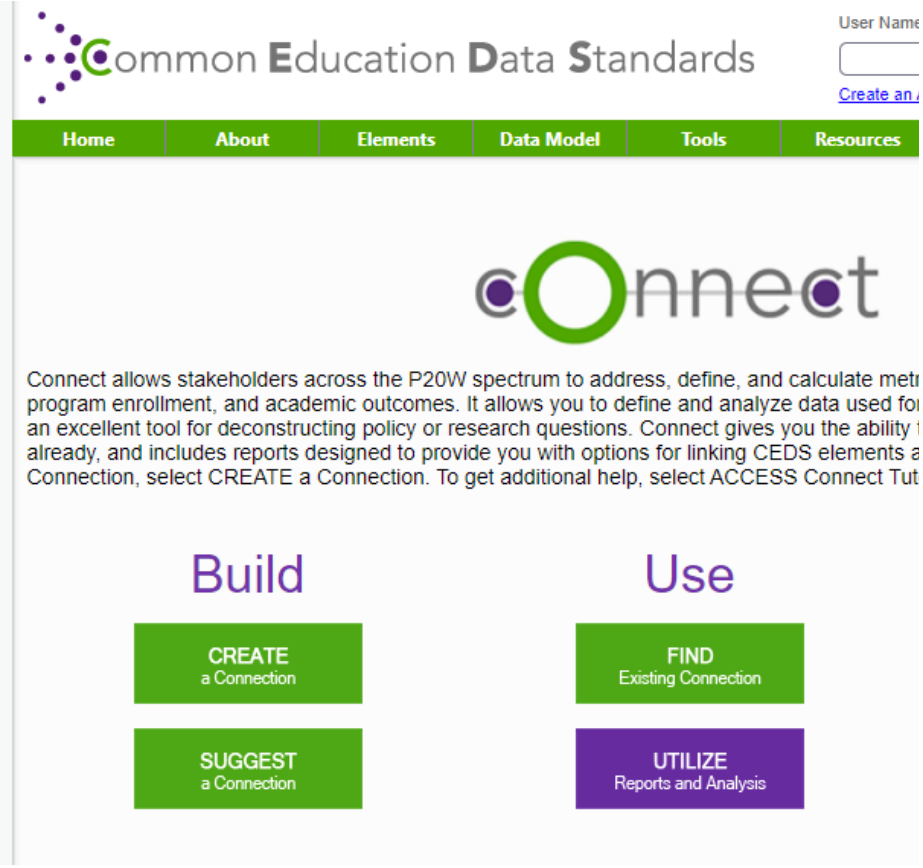
1. Go to Section C in your graphic organizer
2. Select Tools | Connect
3. Under the "Use" column, select Utilize Reports and Analysis
4. Choose *Select Elements* | *See Connections*
5. Find your element and click Next
6. Expand to view the results
7. How many Connections have aligned to your element?
   - Don't see any? Go back and try again using "Enrollment Status"
8. What are the parts of a Connection?
9. Post any questions in Q&A

You'll have three minutes to explore

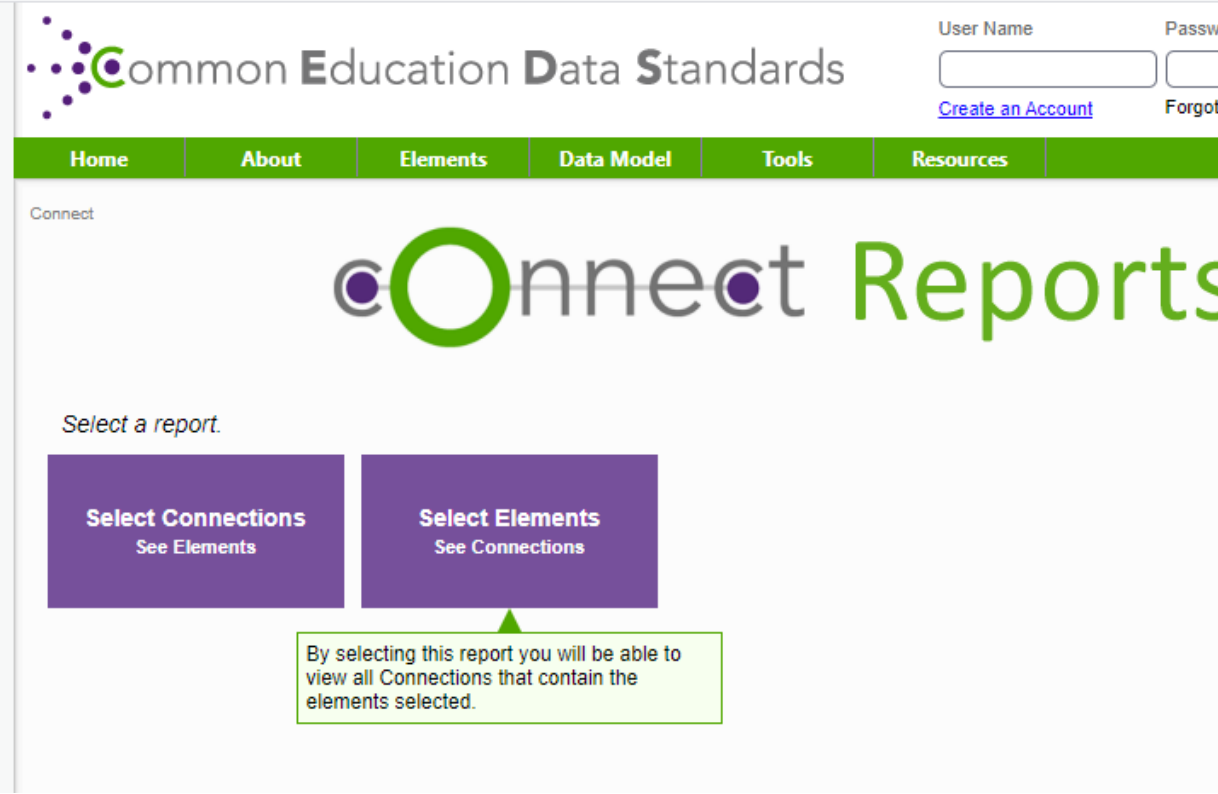
Connect

Common Education Data Standards
User Name
Create an Ac
me
About
Elements
Data Model
Tools
Resources
Align
Connect
myConnect
Explore
Select a role on the left or an activity on the rig
understand its relationship to CEDS.
Developers
Data Stewards
Explore CEDS
The Mapping Toolkit
Data Governance

- Select “Utilize Reports and Analysis”



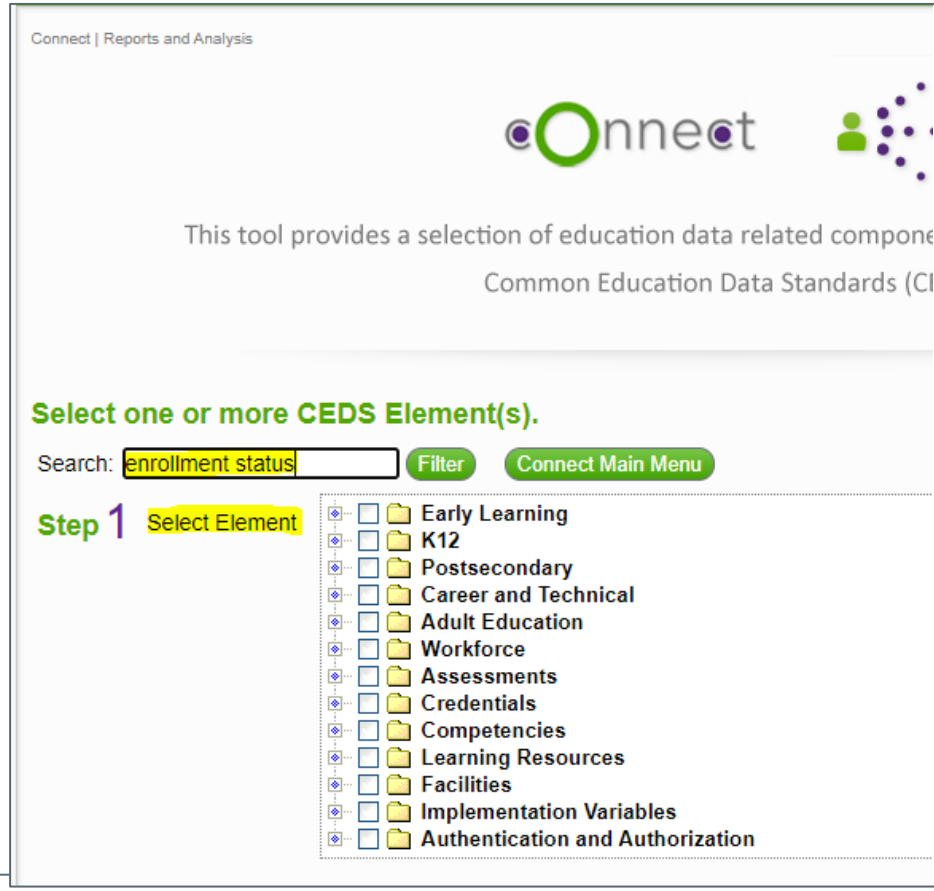
- Choose
  Select Elements
  See Connections



Type your element into the Search bar

OR

Use the domains to find and select your element.



Results

Common Education Data Standards

User Name | Password | Log In

Create an Account | Forgot User Name or Password

Home | About | Elements | Data Model | Tools | Resources | Contact Us

Connect | Reports and Analysis | Select More Connections

Select Elements | See Connections

Options

+ Expand All

- K12 > K12 Student > Enrollment > Enrollment Status

CEDS Connections	Description of CEDS Connection
What are the attendance patterns and proficiency levels of students who drop out by subgroup?	What are the attendance patterns and proficiency levels of students who drop out by subgroup?
To what extent does free and reduced price lunch enrollment drop off in high school?	To what extent does free and reduced price lunch enrollment drop off in high school?
What is the grade-to-grade progress of student subgroups on the state assessments in reading and mathematics, i.e., what percent of students initially below proficient reach proficiency and what percent either maintain or lose proficiency over time?	What is the grade-to-grade progress of student subgroups on the state assessments in reading and mathematics, i.e., what percent of students initially below proficient reach proficiency and what percent either maintain or lose proficiency over time?
What are the district and school enrollment trends at different grade levels by gender, ethnicity, and economic disadvantage, special education, ELL programs statuses, and combinations for each grade level compared to the overall	What are the district and school enrollment trends at different grade levels by gender, ethnicity, economic disadvantage status, students in special education, students in ELL programs, and combinations for each grade level compared to the overall state trends?

A Connection

Connection Details

CEDS Connect

Connection Title: What are the attendance patterns and proficiency levels of students who drop out by subgroup?

Selected Descriptors:

Educational Process: School Perspectives->Attendance Patterns
Disabilities->Disabilities
Individual in Social Context, The->Dropouts
Bias and Equity->Economically Disadvantaged
Educational Levels, Degrees, and Organizations->Elementary Education
Educational Levels, Degrees, and Organizations->Elementary Secondary Education
Students, Teachers, School Personnel->High School Students
Educational Levels, Degrees, and Organizations->Primary Education
Individual Development and Characteristics->Race
Measurement->Scores
Educational Levels, Degrees, and Organizations->Secondary Education
Disabilities->Special Education
Tests and Scales->Standardized Tests

Author: NORC and NCES

Location: Not Applicable

Source for CEDS Connection Information: SLDS Community

Description of CEDS Connection:

What are the attendance patterns and proficiency levels of students who drop out by subgroup?

CEDS and Beyond…

Nancy Sharkey

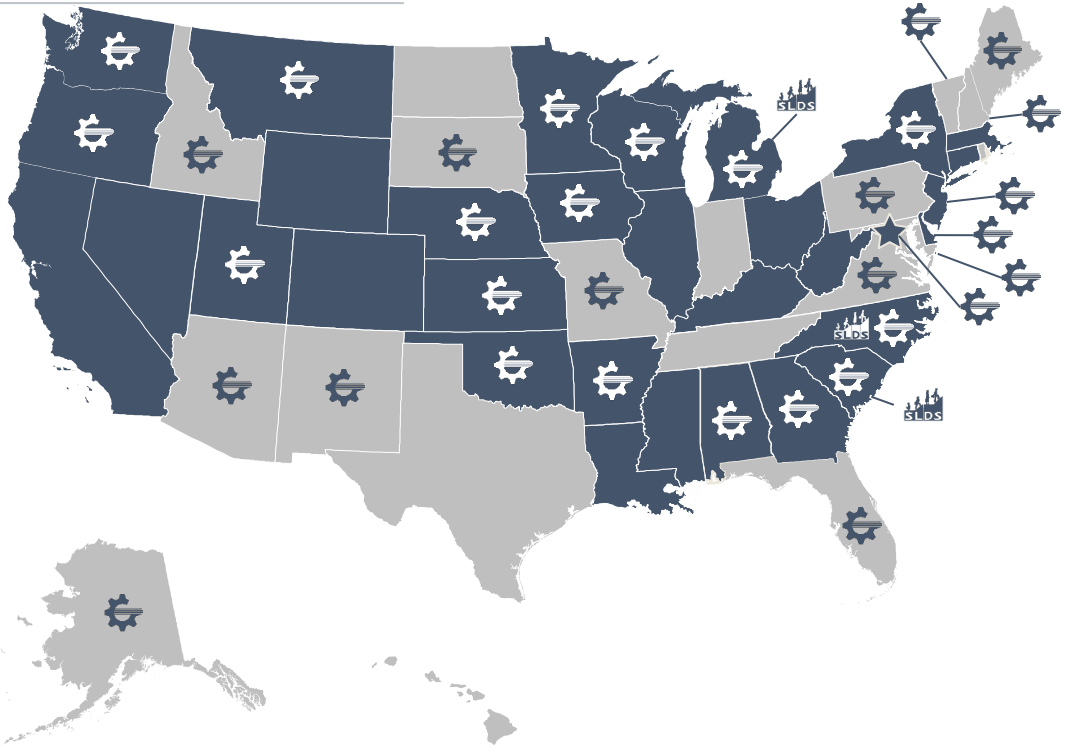
The Big Picture

- Scalability
- Validity
- Replicability
- Transparency
- Reduction of data request iterations
- Applicability

Vision for Data Use, Research

- CEDS and SLDS
- Prevalence of CEDS

CEDS and Generate State Footprint



States with shared CEDS Align map

States interested in or implementing Generate

States building an SLDS using the CEDS physical data model

Reflections

- Use Section D of your graphic organizer
- Reflect on ways you can use CEDS to help with your research
- Post any final questions in the Q&A

- You'll have three minutes to reflect

Resources

- https://ceds.ed.gov
- Use the “Contact us” for help getting started

thank you!

Questions?

Type your questions for the panelists into the Q&A feature on your screen.