

https://tinyurl.com/2025DataSummit

February 6, 2025



IDEA Data & Research Team





Sheika Hart

IT Coordinator



Sowjanya Inampudi
.NET Programmer



Mohamed Sanogoho
Research Analyst

SPED Department





IDEA Data & Research Team















Overview



Data Entry and Maintenance:

- Statewide Information System (SIS)
- APSCN
- eSchool
- o MySPED

Where Is The Data?

- ADE Data Center
- Annual Performance Report
 - State
 - LEA

Data Visualizations

- Storytelling With Data
- Telling Your Story



Overview



How often do you use data? (raise your hand and keep it up)

- Hourly
- Daily
- Weekly
- Monthly
- On occasion



Data Visualizations



"The greatest value of a picture is when it forces us to notice what we never expected to see."

- John Tukey, a pioneer in data analysis

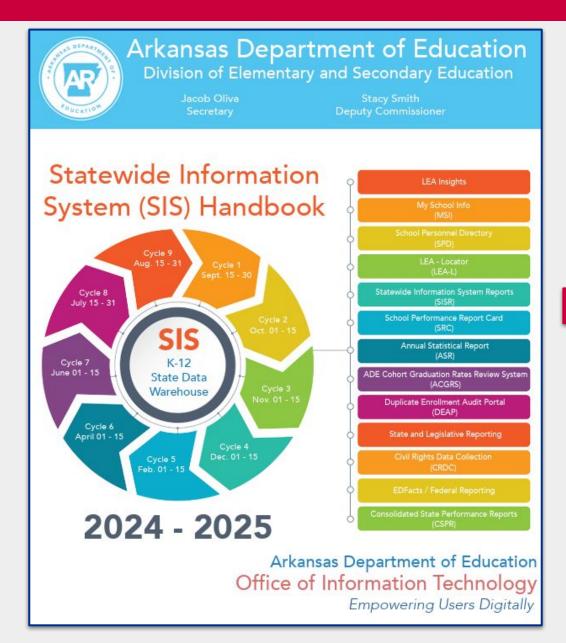
Overview



- Where Is The Data?
- Data Entry and Maintenance:
 - Statewide Information System (SIS)
 - APSCN
 - eSchool
 - MySPED
- Data Reporting
 - ADE Data Center
 - Annual Performance Report
 - State
 - LEA
- Data Visualizations
 - Storytelling With Data
 - Telling Your Story

- 8:30 Welcome and Intro
- 8:45 IDEA Data & Reser
- 9:00 Common Data The
- 9:15 Kahoot SPP/APR C
- 10:30 Break
- 10:45 Data Governance
- 11:45 Lunch
- 12:45 Where is the data
- 2:00 Break
- 2:15 Data Visualization





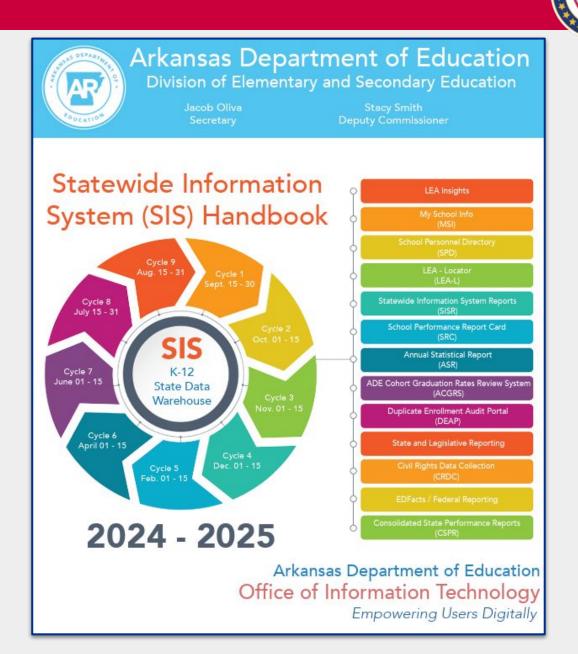




The SIS Handbook aligns with

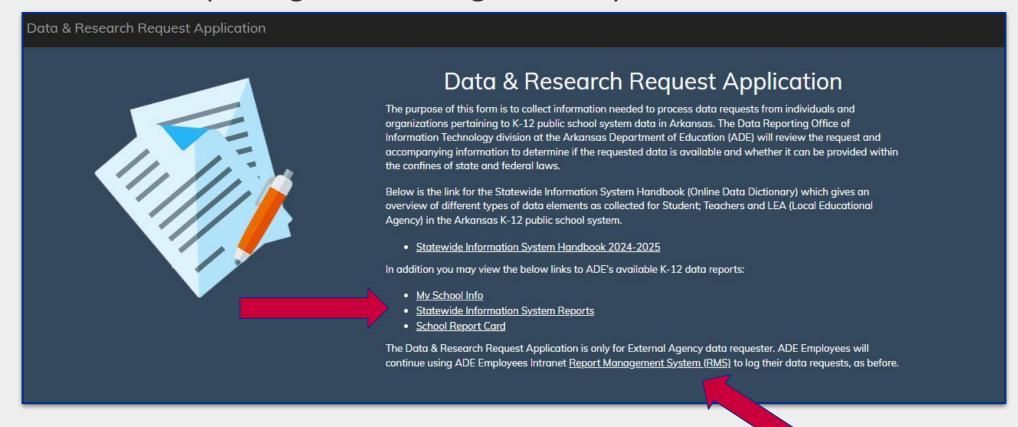
Legal requirements for Arkansas







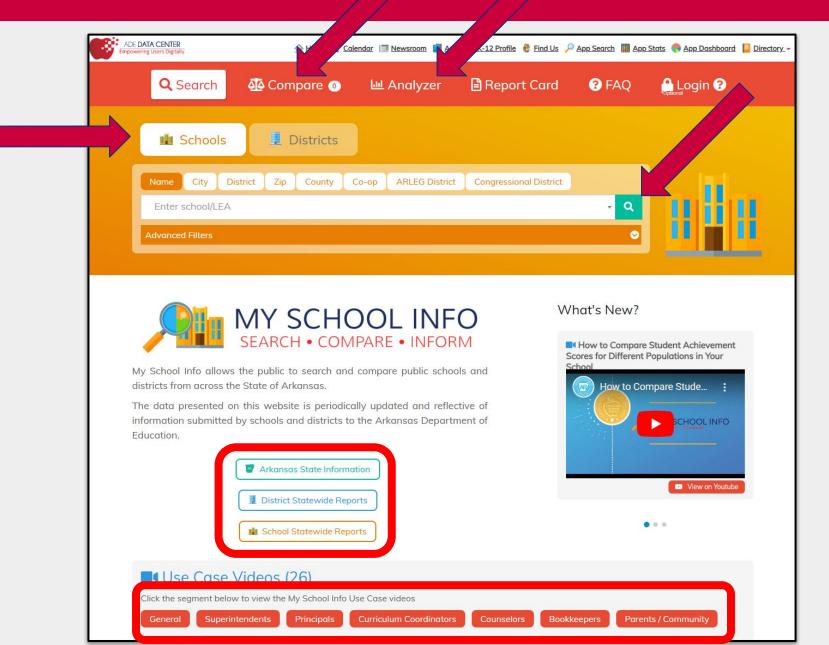
 IDEA Data & Research conducts data requests from Arkansas Department of Education Data Reporting office throughout the year.



- This data is uploaded into MySPED for error checking.
- MySPED data is loaded into EMAPS and/or EdPASS for Federal Reporting.

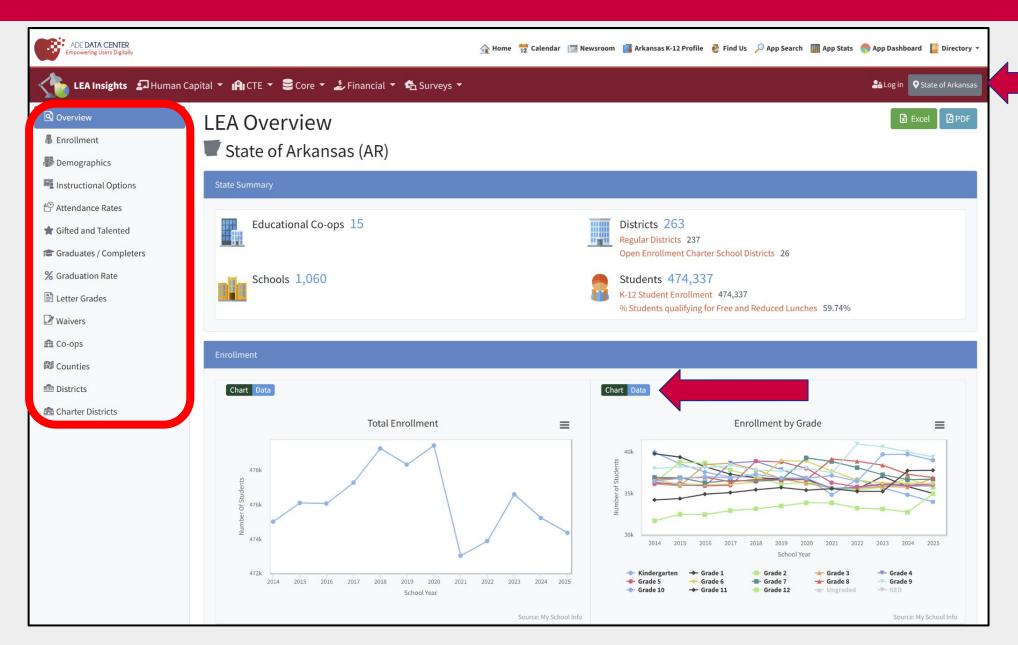
Data Sources





Data Sources





Cycle Reports



LEADERSHIP SUPPORT SERVICE	APSCN Student Data Collec How the Data is Used	
Collection Period	Data	How It Is Used

Cycle Reports

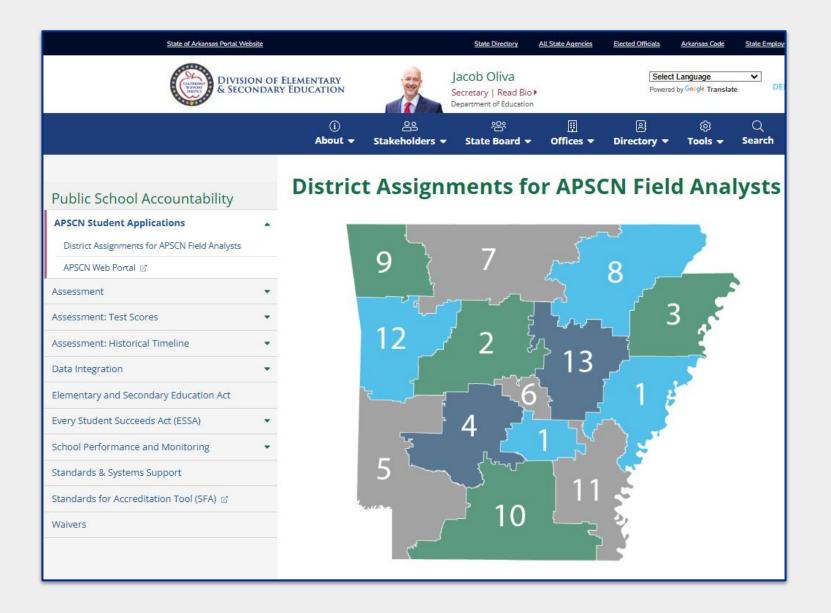




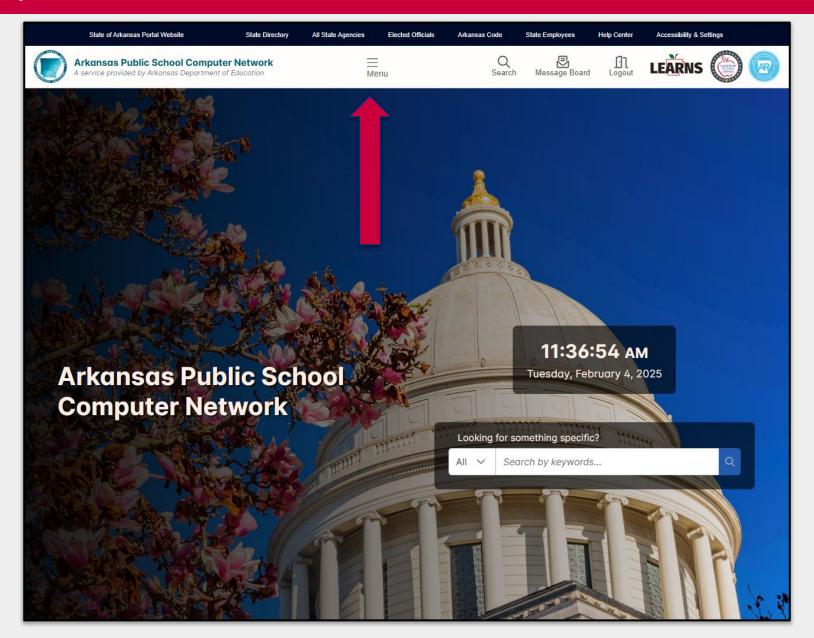
APSCN Student Data Collections How the Data is Used

Other Sources Data How It Is Used

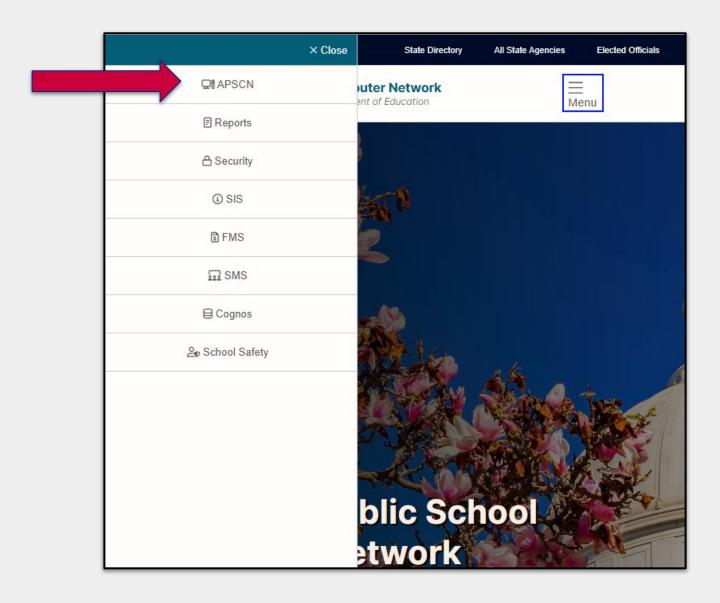




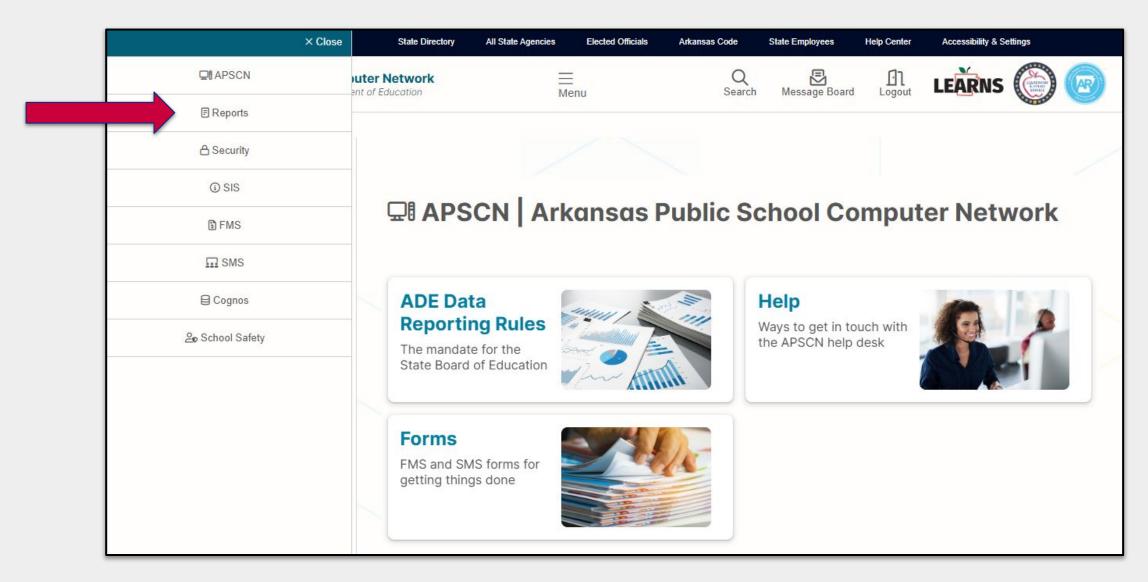




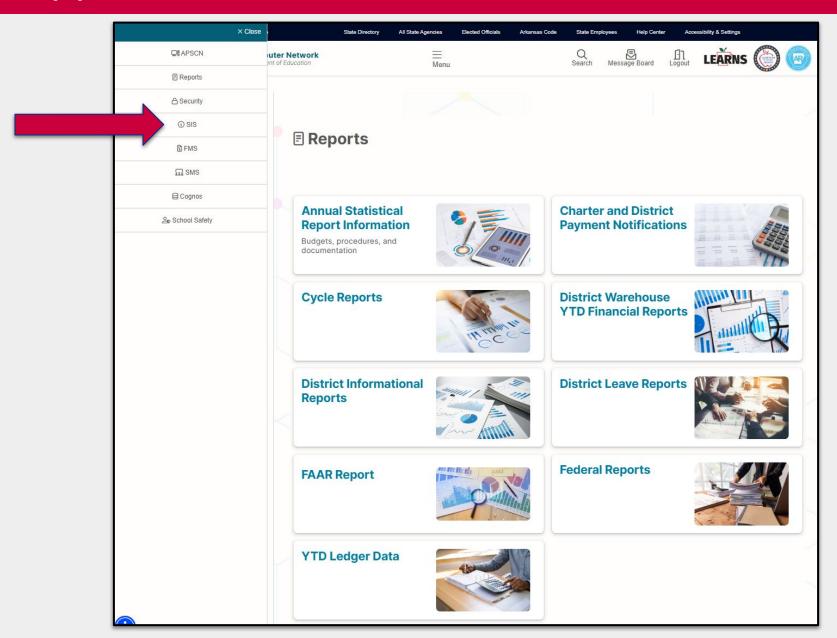




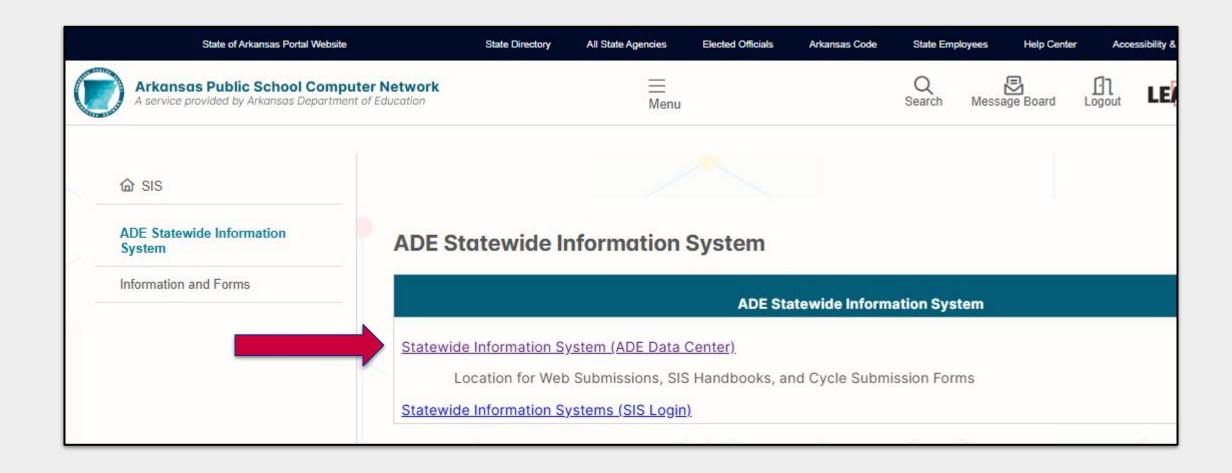




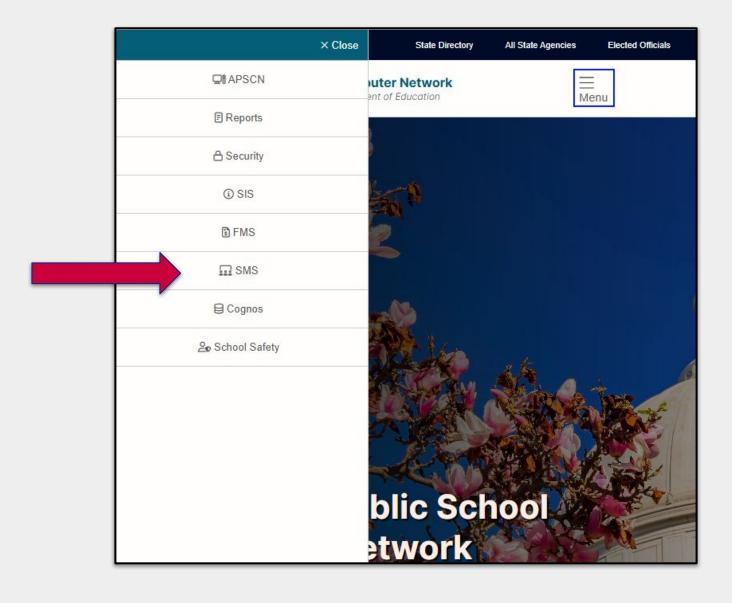




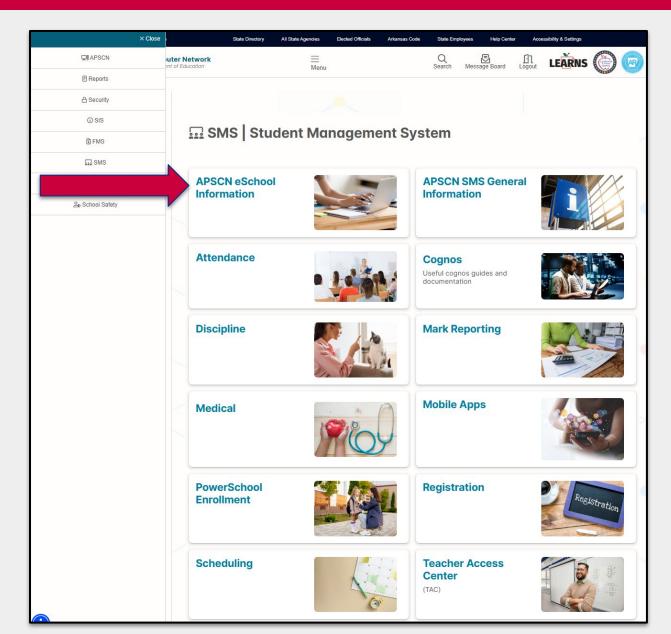




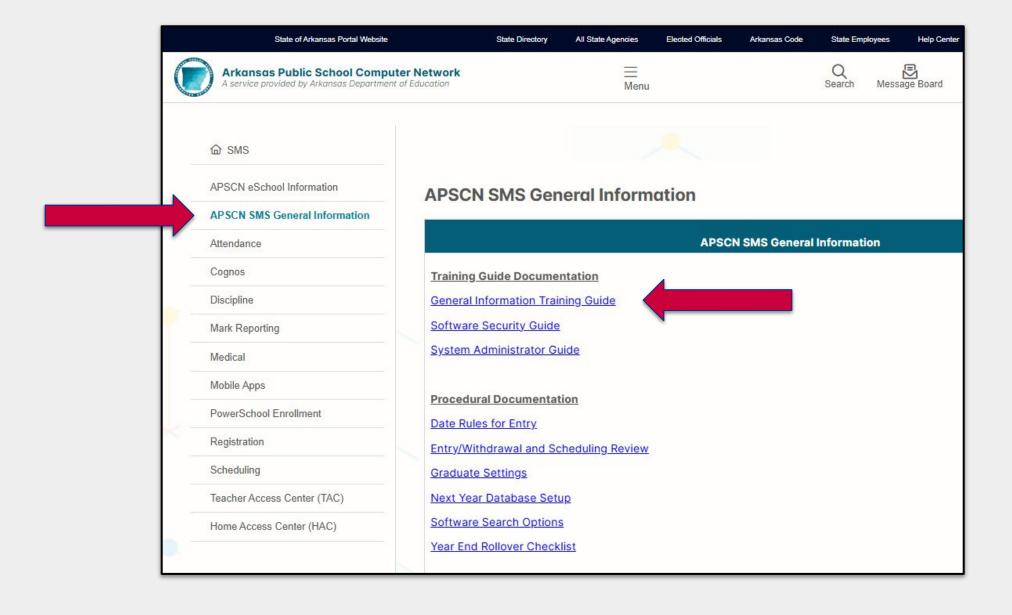












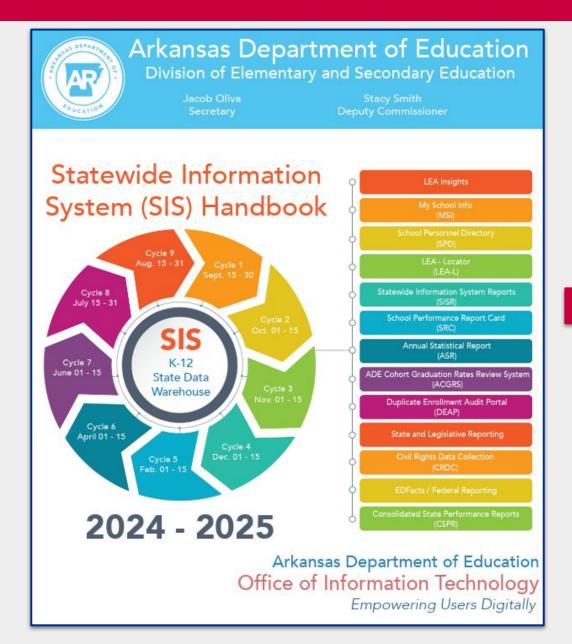


eSchoolPlus+

General Information Training Guide

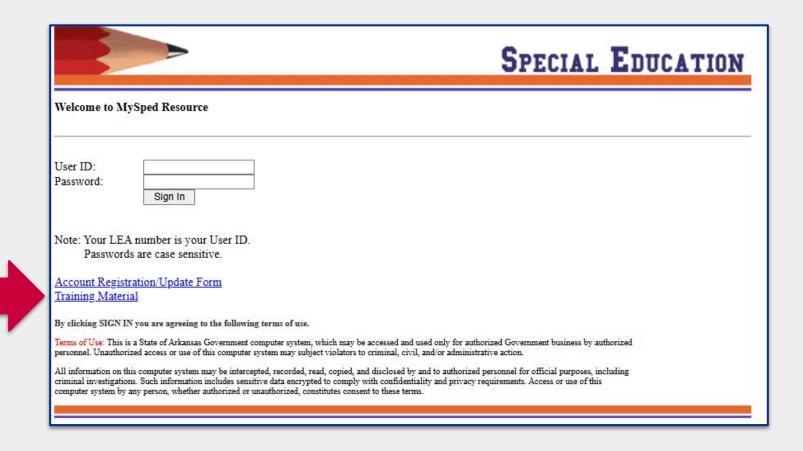




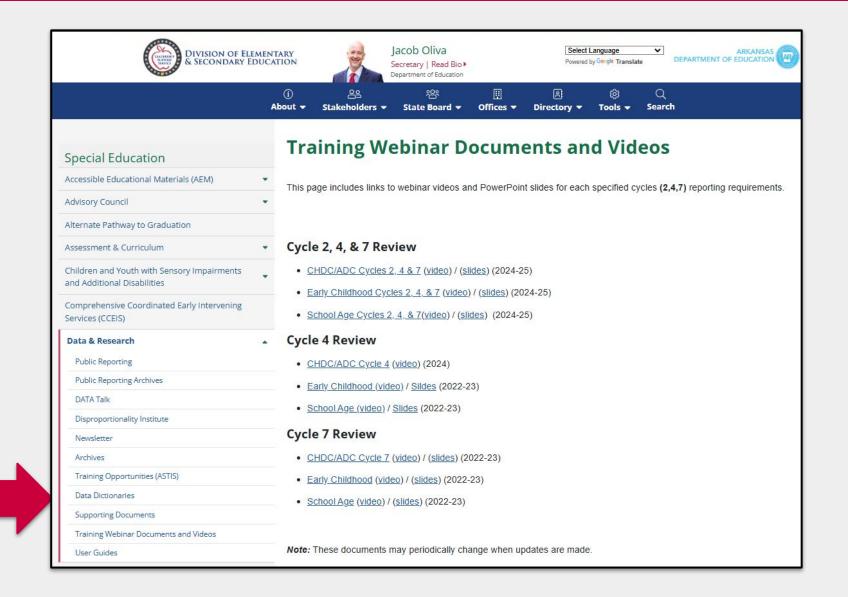




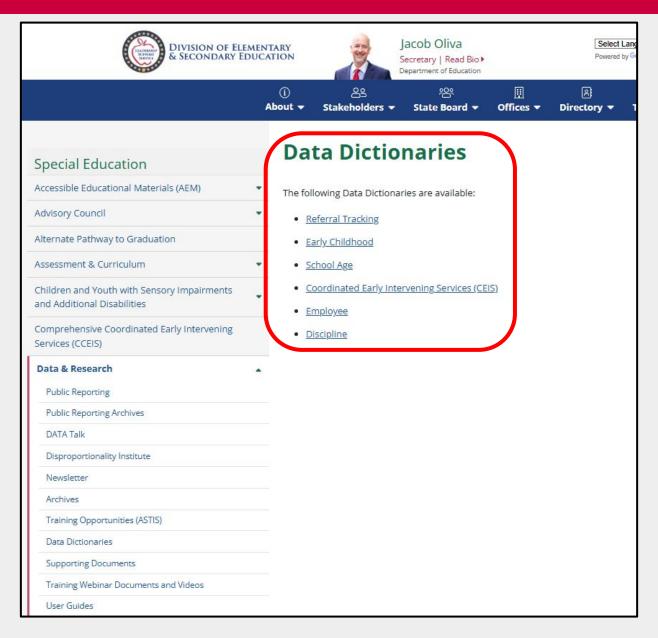












MySPED Resources



<u>Data Dictionaries</u> clarify the required data elements required in MySPED.

One-page guide to each Data Dictionary:

- Coordinated Early Intervening Services (CEIS)
- <u>Discipline</u>
- Early Childhood
- Employee
- Referral Tracking
- School Age





<u>Data Dictionaries</u> clarify the required data elements required in MySPED.

One-page guide to each Data Dictionary:

 Coordinated Early Intervening Services (CEIS)



Office of Special Education Coordinated Early Intervening Services Data Dictionary

This guide helps SPED Early Childhood staff enter student data into eSchool accurately. Data collected through eSchool is part of the SPED module and aligns with federal reporting requirements. This is a one-page reference guide, for more details please see the full Data

The following are data fields required for Federal reporting. All fields listed below will be required for the <u>Statewide Information System</u> in

NOTE: The Student's NAME, SSN, BIRTH DATE, BUILDING, SEX, RACE CODE, GRADE, and ELL fields will be displayed from eSchool Student Registration.

Name	Student's first, middle, and last names	State (Reporting) ID	Unique state-generated 10-digit Triand ID
Birthdate	The student's date of birth.	Race	Select both <i>General Person</i> and <i>Federal</i> race codes. See the Federal Race Code table below.
Gender	M: Male F: Female	Grade	P: Preschool K: Kindergarten O1 – 12: 1st – 12th (Grade codes must be two digits
ELL/ESL	Yes, the student's primary language is not English, and their English proficiency level can affect their academic success. No: No, English is the student's primary language. Note: You can leave it blank	Resident LEA	LEA number of the district where the student resides.
	language.		resides.

Start Date	The date the student entered the sped Early Intervening Services program.	End Date	The date on which Intervening Services ended.	
End Reason	Select a reason Early Intervening Services ended. See the End Reason Code table below for details.			

General Personal Race Codes	Federal Race Codes	End Reason Codes	Service types
A: Asian B: Black/African American H: Hispanic/Latino N: American Indian/Alaskan Native P: Native Hawaiian/Pacific Islander W: White	Hispanic or Latino of any race American Indian or Alaska Native Asian Asian Black or African American Shative Hawaiian or Other Pacific Islander White Two or more races	CD - CEIS discontinued Student IEP services continue D1 - Decease D2 - Dropped Out of School D0 - Dropped Out of School D0 - Dropped Out of School D7 - Services discontinued at Parent's Request CD - Craduated with Regular Diploma MK - Student Moved RP - Reached Program Eligibility SN - Services no longer needed SP - Placed into Special Education	A5 - Adaptive Software A7 - Adaptive Technology BE - Behavioral Evaluation C8 - Counseling/Behavioral Intervention L5 - Language Skills MI - Math Instruction O5 - Other Services RH - Section 504 of Rehab Act S8 - School Based Mental Health S1 - Schoel Instruction



12 = Out of School Suspension (incident resulted in physical injury)

13 = Alternative Learning Environment (less than a year)

14 = Detention

18 = Warning

15 = Bus Suspension

17 = Saturday School

16 = Parent/Guardian Conference

<u>Data Dictionaries</u> clarify the required data elements required in MySPED.

One-page guide to each Data Dictionary:

• <u>Discipline</u>

Office of Special Education Discipline **Data Dictionary** This guide helps SPED Early Childhood staff enter student data into eSchool accurately. Data collected through eSchool is part of the SPED nodule and aligns with federal reporting requirements. This is a one-page reference guide, for more details please see the full Data The following are data fields required for Federal reporting. All fields listed below will be required for the Statewide Information System in NOTE: The Student's NAME, SSN, BIRTH DATE, BUILDING, SEX, RACE CODE, GRADE, and ELL fields will be displayed from eSchool Student egistration. Incident The date the disciplinary incident Select the incident code from the Incident Codes table. Date Type occurred. Actions The number of days the student is out of class for any incident resulting in action codes 01, 02, or 03. Select the code of the action taken Scheduled to reprimand the student from the Action Code Duration The expulsion was shortened If Action Codes table - The incident code is s 08, 09, 10 or 16, - The action code is 02 or 03, and - Schedule Duration is less than a year. Incident Codes Action Codes 01 = Drug 01 = In-School Suspension 02 = Alcohol 02 = Out-of-School Suspension (Not to exceed 10 days) (the incident did not Outcome Code 03 = Tobacco/e-Cigarettes/Vaping Devices result in physical injury) 04 = Attendance Policy Violation 04 = Expelled for Weapons (as defined by Federal, State, and Student 05 = Physical Attack/Harm on Student Discipline Policy) 06 = Physical Attack/Harm on Staff 05 = Corporal Punishment 07 = Knife 06 = Other 08 = Handgun 07 = No Action 09 = Rifle 08 = Alternative Learning Environment (full year) 10 = Shotgun 09 = Expelled for Drugs (Does not include alcohol or tobacco) 10 = Expelled for dangerousness (the incident did not result in physical injury) 11 = Weapon 11 = Expelled for dangerousness (incident resulted in physical injury) 12 = Gangs

Y: Yes, the incident

The police departm

the incident was rep

to law enforceme

Reported To Police

Police Department

13 = Vandalism

16 = Explosives

17 = Other

18 = Bullying

19 = Fighting

14 = Insubordination

15 = Disorderly Conduct

20 = Personal Electronic Device 21 = Cyberbullying 22 = Harassment 23 = Sexual Behavior 24 = Stealing/Theft 25 = Terroristic Threats 26 = Sexual Harassment 27 = Technology Use Violation



Data Dictionaries clarify the required data elements required in MySPED.

One-page guide to each Data Dictionary:

Early Childhood

Office of Special Education EARLY CHILDHOOD **Data Dictionary**

This guide helps SPED Early Childhood staff enter student data into eSchool accurately. Data collected through eSchool is part of the SPED module and aligns with federal reporting requirements. This is a one-page reference guide; for more details, please see the full Data Dictionar

The following are data fields required for Federal reporting. All fields listed below will be required for the Statewide Information System in cycles 4 and 7

NOTE: The STUDENT NAME, SSN, BIRTH DATE, BUILDING, SEX, RACE CODE, GRADE, and ELL fields will be displayed from eSchool Student Registration.

LEA District Number	The 7-digit number assigned by ADE to identify districts and schools. Example: 6001000 60: Pulaski County, 01: Little Rock School District, 000: N/A
Resident District LEA	The first 4 digits of the student's resident district LEA number, followed by three zeros.

Student Information

- 33	Name	The legal first, middle, and last names of the student.	SSN	Use the student's nine-digit SSN or an ADE-assigned number
	Birth Date	Enter the student's date of birth accurately.	Age	Calculated from the birth date as of December 1.
85	Gender	M: Male	Race Codes	H: Hispanic/Latino N: American Indian/Alaskan Native A: Asian B: Black/African American W: White P: Native Hawaiian/Pacific Islander

English Language Learner (ELL)
Yes, the student's primary language is not English / No. English is the student's primary language.

Primary Disability

AU	Autism	Affects communication and social skills, usually evident before age 3.
DB	Deaf-Blindness	Severe hearing and vision impairments requiring specialized programs.
HI	Hearing Impairment	Hearing impairment affecting education, even with amplification.
MD	Multiple Disabilities	Combination of impairments with significant educational needs.
01	Orthopedic Impairments	Severe physical impairments affecting education.
OHI	Other Health Impairments	Conditions like asthma or ADHD affecting educational performance.
PS	Preschool Disabled (Non-Categorical)	Developmental delays requiring SPED .
SI	Speech/Language Impairment	Communication disorders affecting educational performance.
TBI	Traumatic Brain Injury (TBI)	Injury to the brain from external forces affecting educational performance.
VI	Visual Impairments	Vision issues, even with correction, that impact learning.

Educational Environment (Child Count - December 1 - Early Childhood)

Regular Early Childhood Program	AI: >10+ hours/week, w/ most SPED services in the program. A2: >10+ hours/week, w/ most SPED services elsewhere. BI: <10 hours/week, w/ most services in the program. B2: <10 hours/week, w/ most services elsewhere.	SPED Program	RS: Residential school. SP: Separate class with <50% nondisabled children. SS: Separate school designed for children with disabilities.
Home & Itinerant	HM: Services provided in the home.		

Early Childhood Outcomes (Cycle 7)

	Early Childred Cateonics (Cycle 1)	
Entry Assessment Date	Date of the entry assessment.	
Functional Scores	Rated on a 7-point scale within 30 days of entry. (Social Emotional, Knowledge/Skills, Self-Help)	
Exit Assessment Date	Date of the exit assessment.	
Improvement Indicators	Mark if there is an improvement from entry to exit. Social Emotional, Knowledge/Skills, & Self-Help Functional Score Social Knowledge/Skills, Self-Help Emotional Improvement	

Enter Y if student has a temporary IEP to receive services while going through the evaluation process. Affects Temporary Student (Cycle 4) communication and social skills, usually evident before age 3.

A: ABC	DC: Licensed Family Day Care Home	E: Early Start	H: Head Start	
HI: HIPPY	P: Licensed Preschool	O: Other (Itinerant)	'Home/Clinic)	

Transition Information (Cycle 7)

Transition Conference Date	Date of the last transition to kindergarten conference was need
Transition Code	Describes the outcome of the transition. KW: Kindergarten Waiver MS: Transitioned without services: TX: Transitioned with special education re-evaluation required
Transition Conference LEA	LEA district number where the transition conference was held.

Entry & Exit Information

Entry Date	Date the student began the program (Cycles 4 & 7)	Exit Date	Date the student exited the program (Cycle 7)	
Exit Status (Reason the student is no longer receiving services)	DI: Died KE: Kindergarten Eligible MK: Moved, continuing services elsewhere	NP: Not Placed PR: Parent Refused Services US: Unknown Status	NS: No Longer Requires Services MA: Reached Maximum Age (6 years)	

Hour

31

32

33

34

35

36

37

38

39

FTE

0.77

0.80

0.82

0.85

0.87

0.90

0.92

0.95

0.97

1.00

FTE

0.27

0.30

0.32

0.35

0.37

0.40

0.42

0.45

0.47

0.50

Hour

21

22

23

24

25

26

27

28

29

30

FTE

0.52

0.55

0.57

0.60

0.62

0.65

0.67

0.70

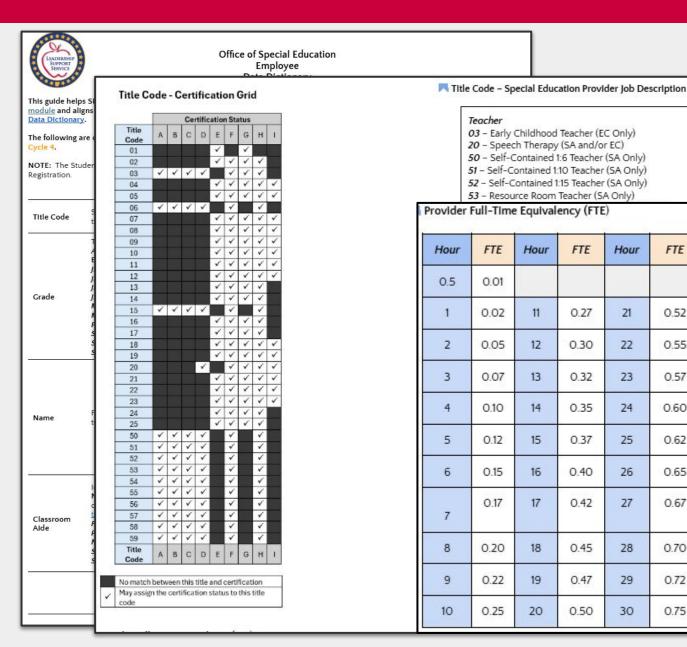
0.72

0.75

Data Dictionaries clarify the required data elements required in MySPED.

One-page guide to each Data Dictionary:

Employee





<u>Data Dictionaries</u> clarify the required data elements required in MySPED.

One-page guide to each Data Dictionary:

Referral Tracking



Office of Special Education Referral Tracking Data Dictionary

This guide helps SPED Early Childhood staff enter student data into eSchool accurately. Data collected through eSchool is part of the SPED module and aligns with federal reporting requirements. This is a one-page reference guide, for more details please see the <u>full Data Dictionary</u>.

The following are data fields required for Federal reporting. All fields listed below will be required for the <u>Statewide Information System</u> in cycle 7.

NOTE: The Student's NAME, SSN, BIRTH DATE, BUILDING, SEX, RACE CODE, GRADE, and ELL fields will be displayed from eSchool Student Registration.

			School Information	<u> </u>	
The 7-digit ADE number to identify dist					
		r, 01: Little Rock School District, 000: N/A ent district LEA number, followed by three zeros.			
				istin	
Name	The lens for	st, middle, and last names of the student.	Student Information	n Student's nine-digit SSN or an ADE-assigned number	
Name	The legal in	st, middle, and last names of the student.	3314	H: Hispanic/Latino N: American Indian/Alaskan Native	
Birth Date			Race Codes	A: Asian B: Black/African American W: White P: Native Hawaiian/Pacific Islander	
Gender	M: Male F: Female		Grade Codes	P: Preschool K: Kindergarten 01 – 12: 1 st – 12 th (Grade codes must be two digits)	
	English Language Learner (Ell)		Y: Yes, the student's primary language is not English, and their English proficiency level can affect their academic success. N: No. English is the student's primary language. Note: You can leave it blank.		
Private School	Y: Yes, the referred student was placed in a private school by their parents. N: No		Name of Private School	If yes (Y), enter the name of the private school.	
Trans Part C	Y: Yes, the student is transitioning from a		Part C B Concurrent	Y. Yes, Part C referral was less than 90 days from student's $3^{\rm rd}$ birthday. \emph{N} : No	
			Evaluation		
Referral Date	Date the re	ferral was received.	Parent Eval Date	Date the student's parent/guardian consented to evaluation.	
Eval Date	Date the ev was compl	aluation process (final evaluation report) ete.	Eval Reason	Reasons evaluations exceeded the 60-day timeline. AT. Additional testing is required. EC: Family canceled evaluation date(s), requiring it to be rescheduled. EV: Evaluations were not completed within the timeline. FM: Family moved, making the student unavailable. HV: Falled hearing/vision screening. IL: Student or family illness/death delayed evaluations. OT: Other PR: Parent refused initial consent. FW: Parent withdrew consent. TR: Student transferred from another program during the due process.	
		Eval Ot Reason	If Other (O	T), explain clearly why the evaluation exceeded the 60-day timeline.	
			Eligibility		
Eligibility Det Date	E00000011100	e student's eligibility was determined.	Edd 30 Day Code	Reason Eligibility Det Date exceeds 30 days' timeline. EV: Evaluations were not completed within the timeline. FC: Family canceled eligibility determination conference(s), requiring it to be rescheduled. FM: Family moved, making the child unavailable. AL: Student or family illness/death delayed evaluations. OT: Other PW: Parent withdrew consent. TR: Student transferred from another program during the due process.	
		Edd Ot Reason	If Other (O	T), explain clearly why the evaluation exceeded the 30-day timeline.	
			Early Childhood		
₹dd 3 rd Dob Code	student's 3' EV: Evaluat IL: Student, OT: Other PC: "Part C" within ti PR: Parent I TR: Student	ion not completed by timelines. Family illness delayed the due process. failed to refer the student for transition	Edd3 Ot Reason	If Other (OT), explain clearly why the Eligibility Det Date exceeded the student's $3^{\circ 0}$ birthday.	



<u>Data Dictionaries</u> clarify the required data elements required in MySPED.

One-page guide to each Data Dictionary:

School Age

Office of Special Education School Age Data Dictionary

This guide helps SPED Early Childhood staff enter student data into eSchool accurately. Data collected through eSchool is part of the SPED module and aligns with federal reporting requirements. This is a one-page reference guide, for more details please see the full Data Dictionary.

The following are data fields required for Federal reporting. All fields listed below will be required for the <u>Statewide Information System</u> in cycles 4, 6 and 7.

NOTE: The Student's NAME, SSN, BIRTH DATE, BUILDING, SEX, RACE CODE, GRADE, and ELL fields will be displayed from eSchool Student Registration.

	School	Information				
LEA District Nun	The 7-digit ADE number to identify districts and	The 7-digit ADE number to identify districts and schools. Example: 6001000 60: Pulaski County, 01: Little Rock School District, 000: N/A				
Resident LEA		The first 4 digits of the student's residency district LEA number, followed by three zeros.				
Building Code	 The last three digits of the school number as ass 	igned by the state.				
	Student	Information				
Name	The legal first, middle, and last name of the student.	SSN	Student's nine-digit SSN or an ADE-assigned number			
State (Reporting) ID	Unique state-generated 10-digit Triand ID	Race	Select both General Person and Federal race codes. See the Federal Race Code table below.			
Gender	M: Male F: Female	Birth Date	Enter the student's date of birth accurately.			
Temporary Student	Y: Yes, the student is temporarily placed in the Special Education program until the student is determined eligible. N: No	Grade Codes	P: Preschool K: Kindergarten Of – 12:1 ⁴ – 12 ⁿ (Grade codes must be two digits) Non-Graded: If the student's grade level is unclear, subtract 5 from student's age as of September 30 ⁿ . •EE: Non-Graded Elementary •SM: Non-Graded Middle/Jr •SS: Non-Graded Middle/Jr			
Alternate Portfolio	Indicate the alternate statewide assessment IEP requires th student to take. - Grades 3-10: Ulteracy, mathematics, & science for all students (not grade 9 for sci) - Grades K-12: English Language Proficiency for English Larners. - All other students should be marked NA.	e Charter School	Y. Yes, the student is enrolled in a charter school.			

		Exit Information	
Exit status	Select the student's sped program exiting category. DI - Deceased DO - Dropped Out of School GC - Graduated with a certificate CD - Craduated with Regular Diploma MA - Student reached maximum age MK - Student Moved PG - Alternate Pathway Graduate RC - Student returned to the regular classroom	Edu Placement Last Year	The student's education placement for the previous school year. CF: Correction Facility DB: Public Day School DI: Private Day School HH: Hospital/Homebound PP: Parent Placed RB: Public Residential RI: Private Residential RC: Regular Class with Special Ed RN: Regular Class with No Special Ed RR: Resource Room SC – Special Class SC: Special Class
Exit Date	Date the student ended services with their IEP.	Entry Date	Date the student entered with their IEP.
Special Ed	Select the teacher (teacher's ID – teacher's last name,	Therapist (Speech/Other)	Select the teacher (therapist's ID - therapist's last name, therapist's

General Personal Race Codes	Federal Race Codes	
A: Asian B: Black/African American H: Hispanic/Latino N: American Indian/Alaskan Native P: Native Hawaiian/Pacific Islander W: White	1 - Hispanic or Latino of any race 2 - American Indian or Alaska Native 3 - Asian 4 - Black or African American 5 - Native Hawaiian or Other Pacific Islander 6 - White 7 - Two or more races	



Explore the ADE Data



Sites to Explore:

- ADE Data & Research Request
- MySchoolInfo
- Arkansas Public School Computer Network
- LEA Insights

One-page guide to each Data Dictionary:

- Coordinated Early Intervening Services (CEIS)
- <u>Discipline</u>
- Early Childhood
- Employee
- Referral Tracking
- School Age



https://tinyurl.com/2025DataSummit



What did you find that can help you?

(ADE Data & Research, MySchoolInfo, APSCN, One-page Data Dictionaries, LEA Insights, other)

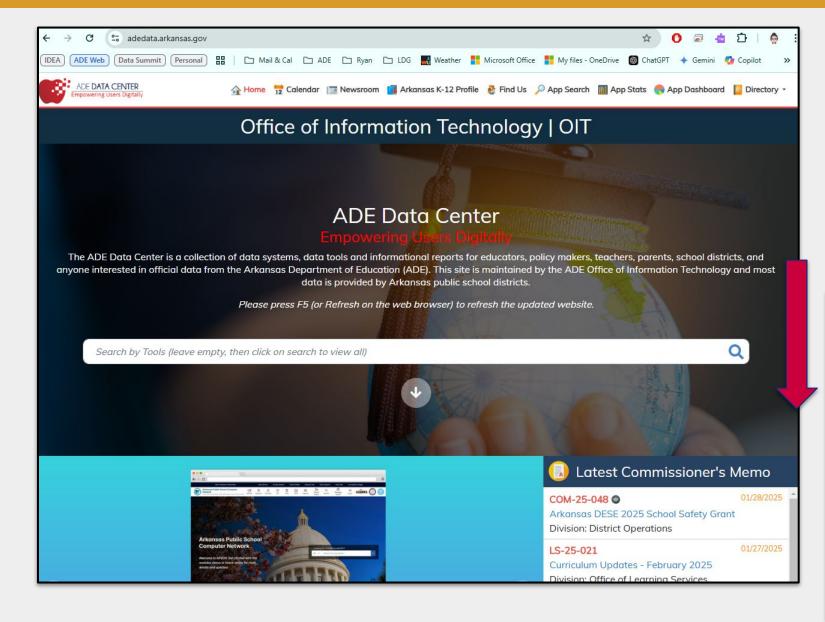
Please list the site and how you can use it.

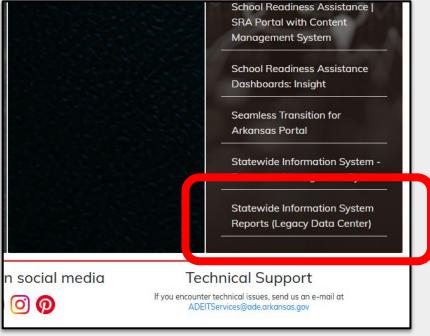




Where is the Data?

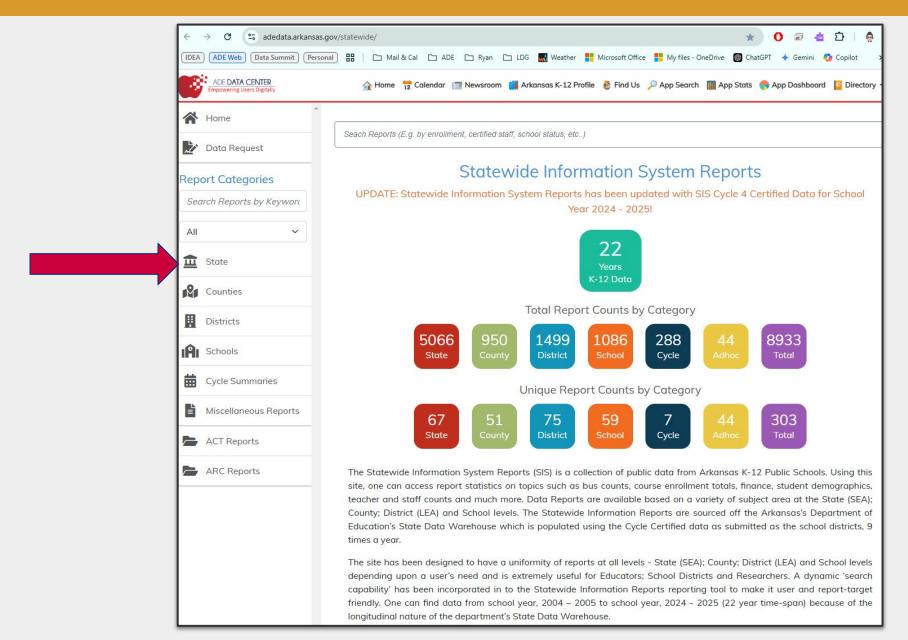






ADE Data Center





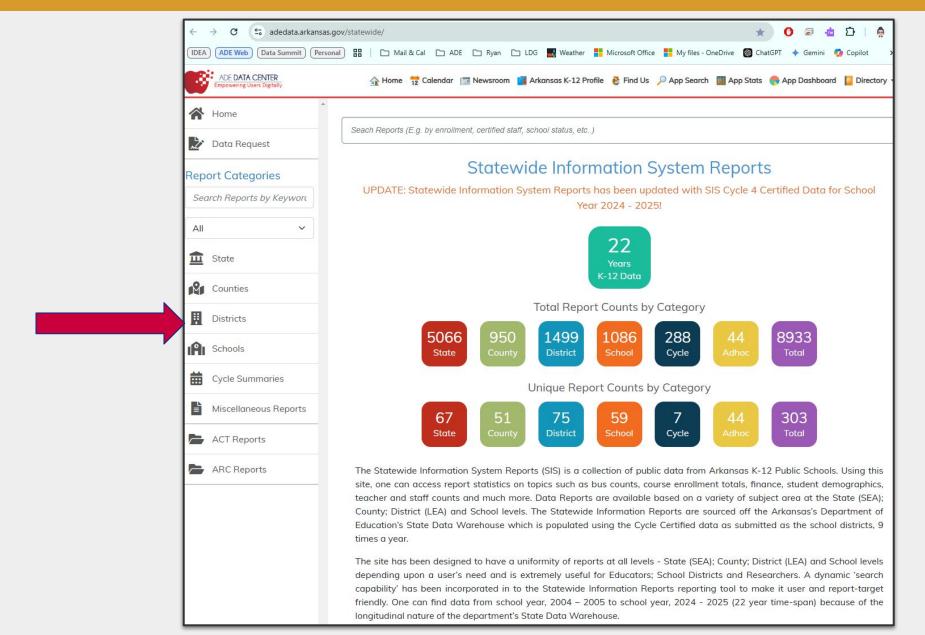
ADE Data Center- State





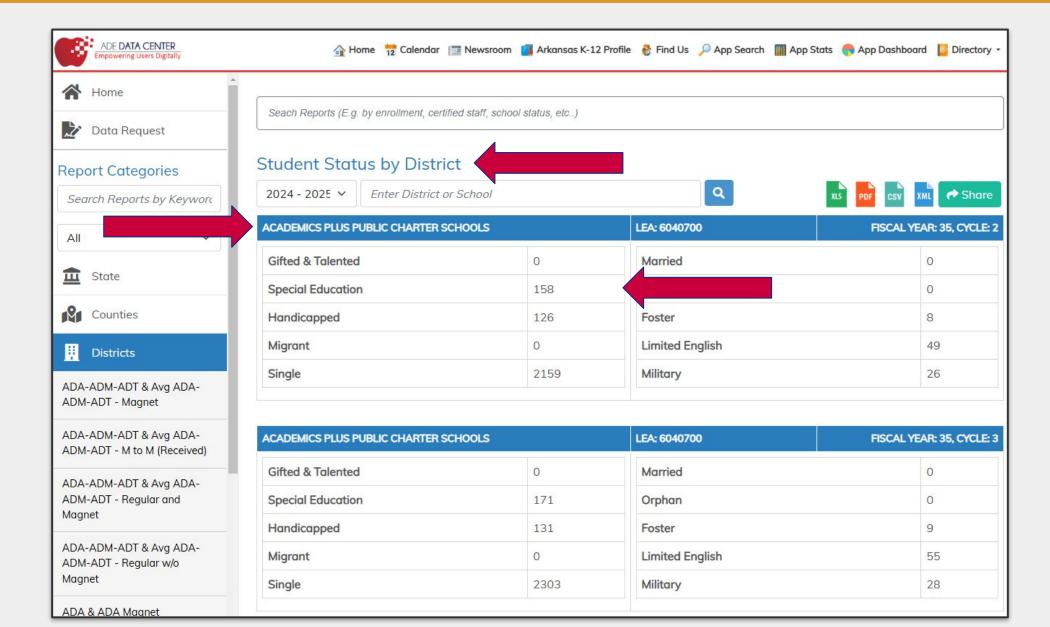
ADE Data Center





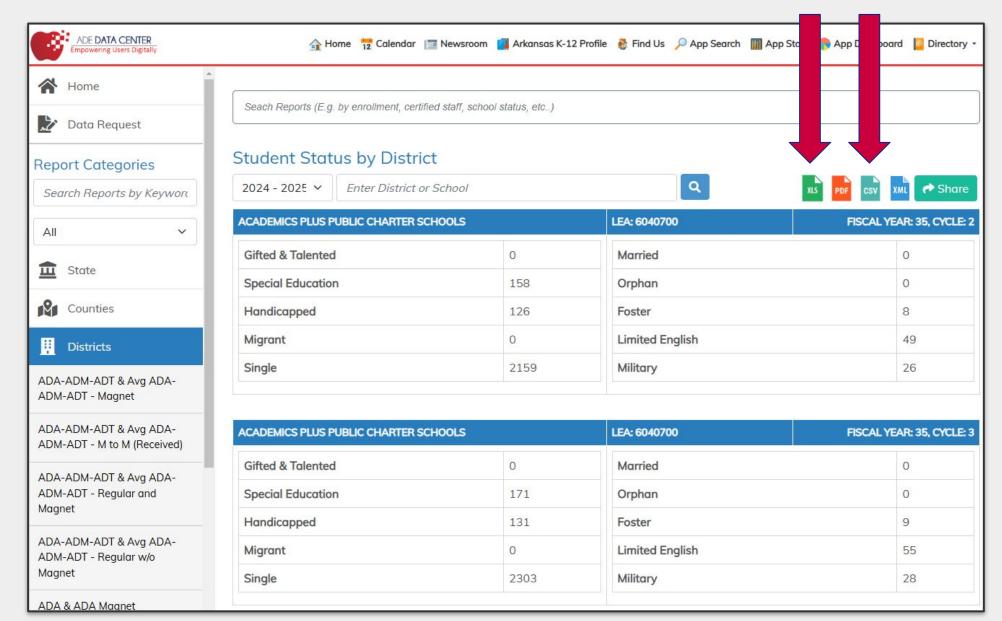
ADE Data Center- District





ADE Data Center- District





18th

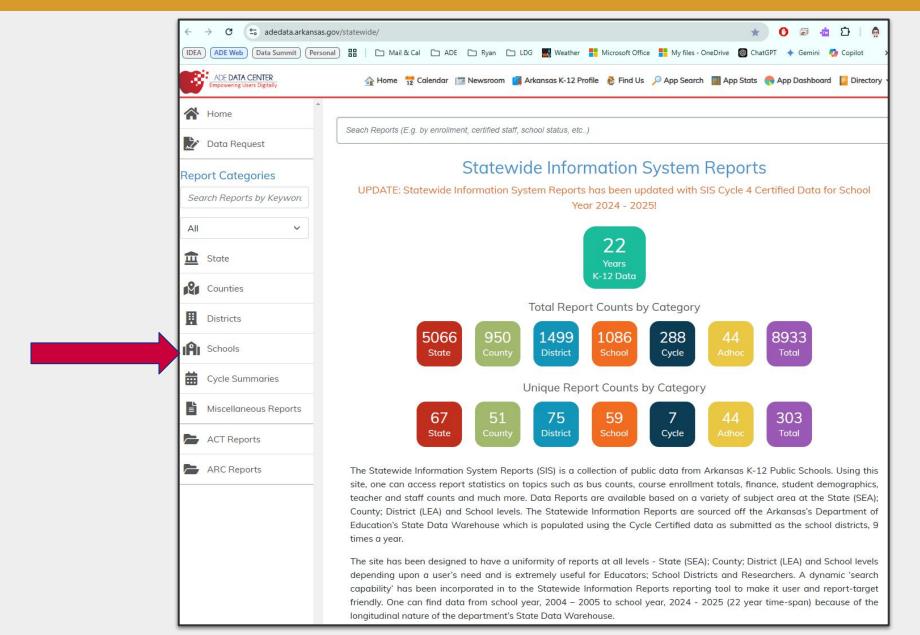
Break





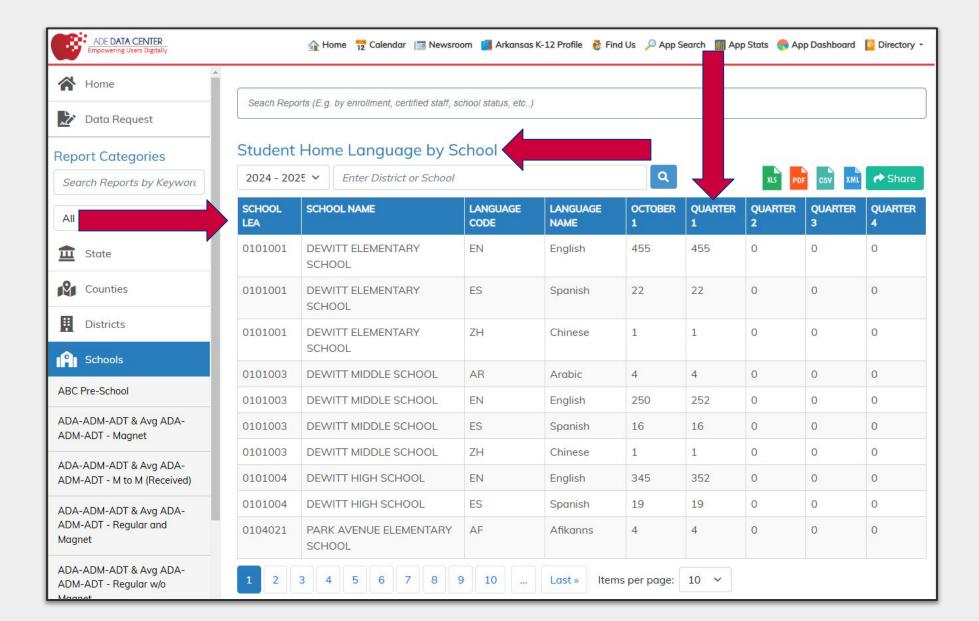
ADE Data Center





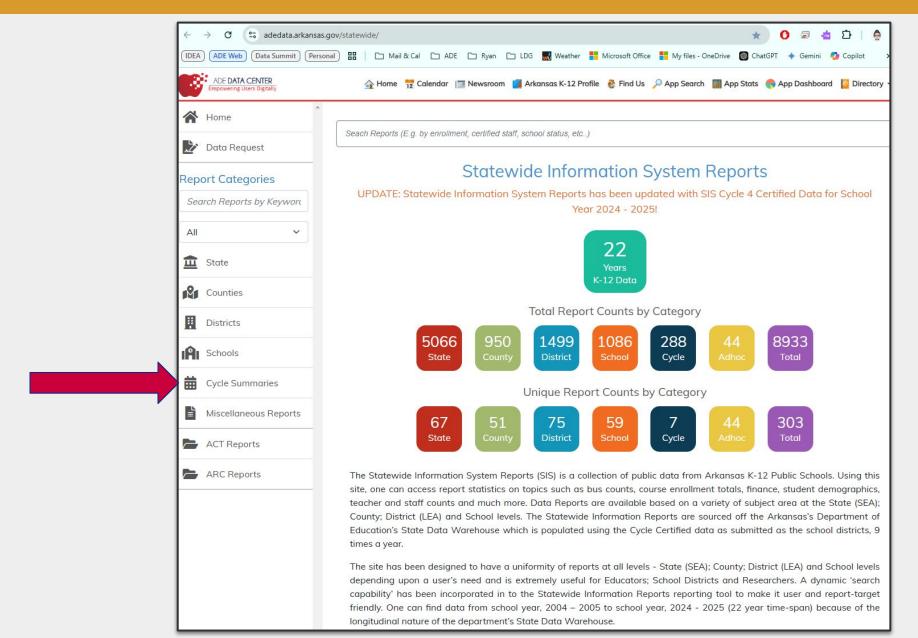
ADE Data Center- District





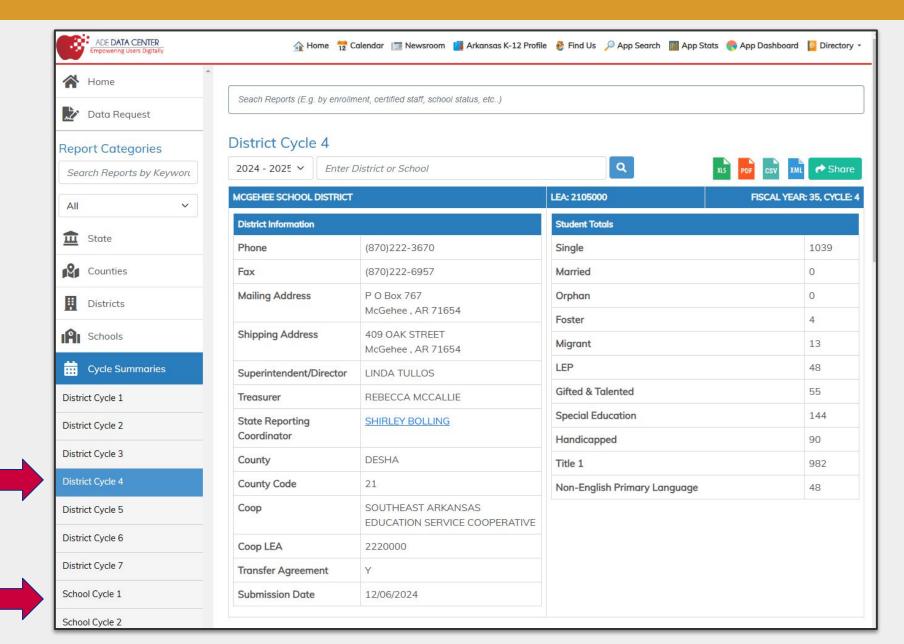
ADE Data Center





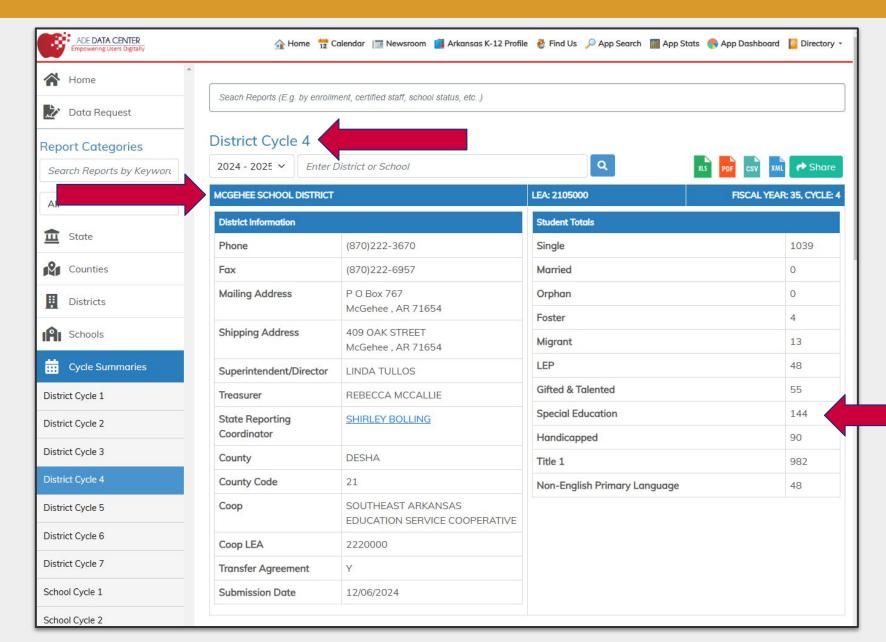
ADE Data Center- District





ADE Data Center- District









Look through the ADE Data Center.

How can the Data Center help you?

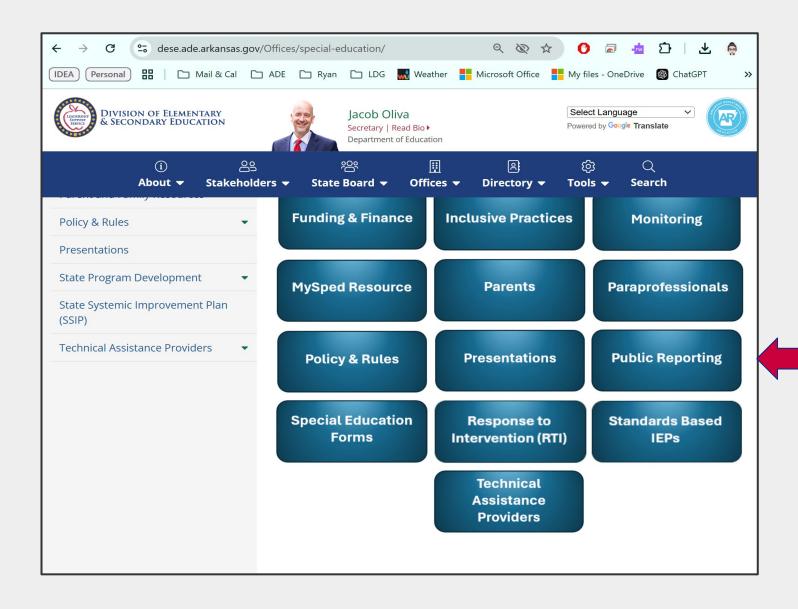
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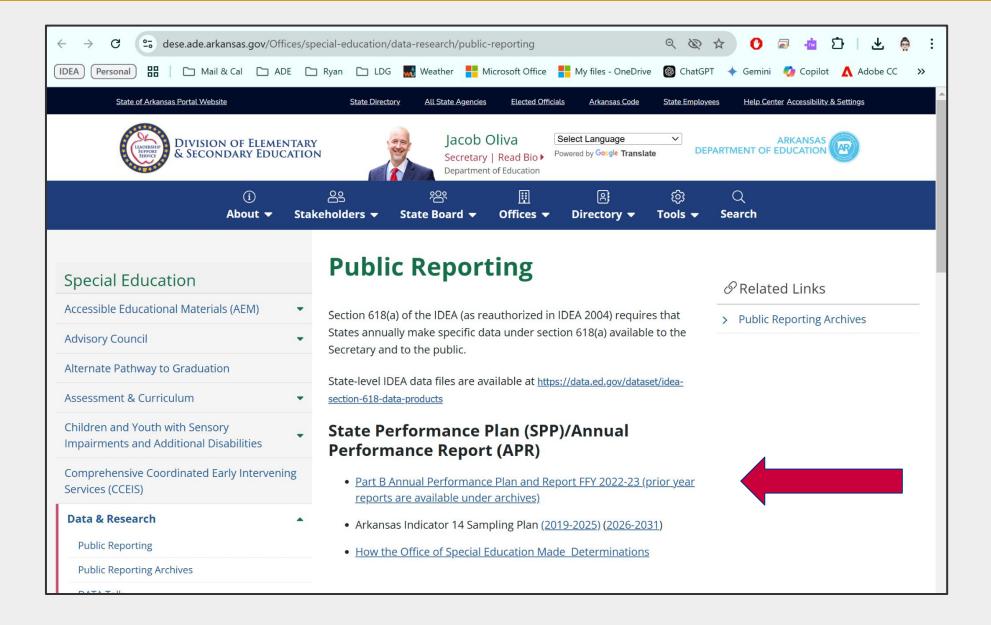
Special Education Website





Special Education Website





Special Education Website



STATE PERFORMANCE PLAN / ANNUAL PERFORMANCE REPORT: PART B

for STATE FORMULA GRANT PROGRAMS under the Individuals with Disabilities Education
Act

For reporting on FFY 2023

Arkansas

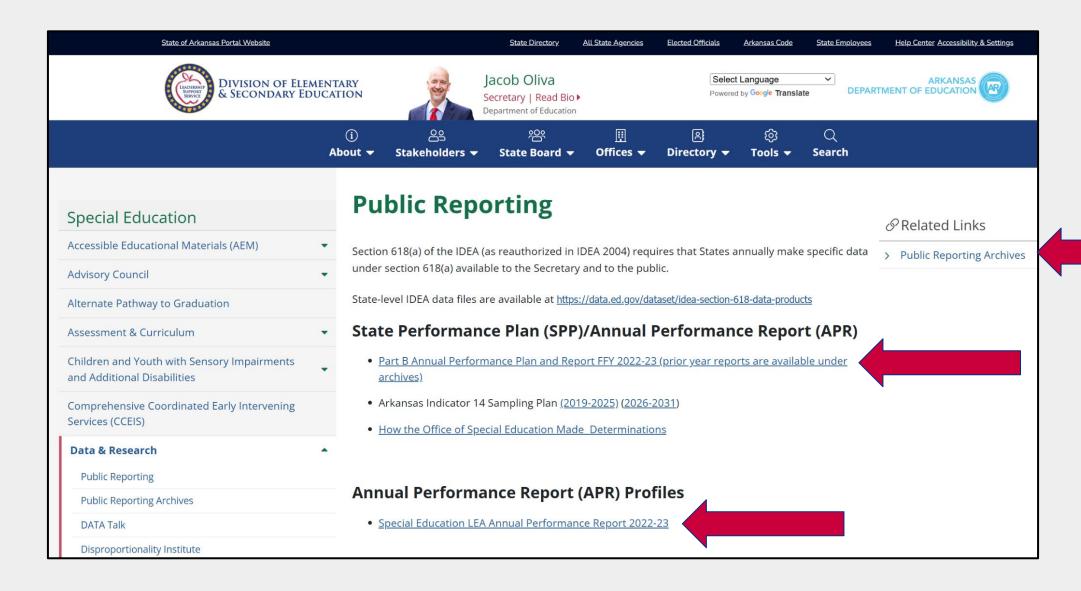


PART B DUE February 3, 2025

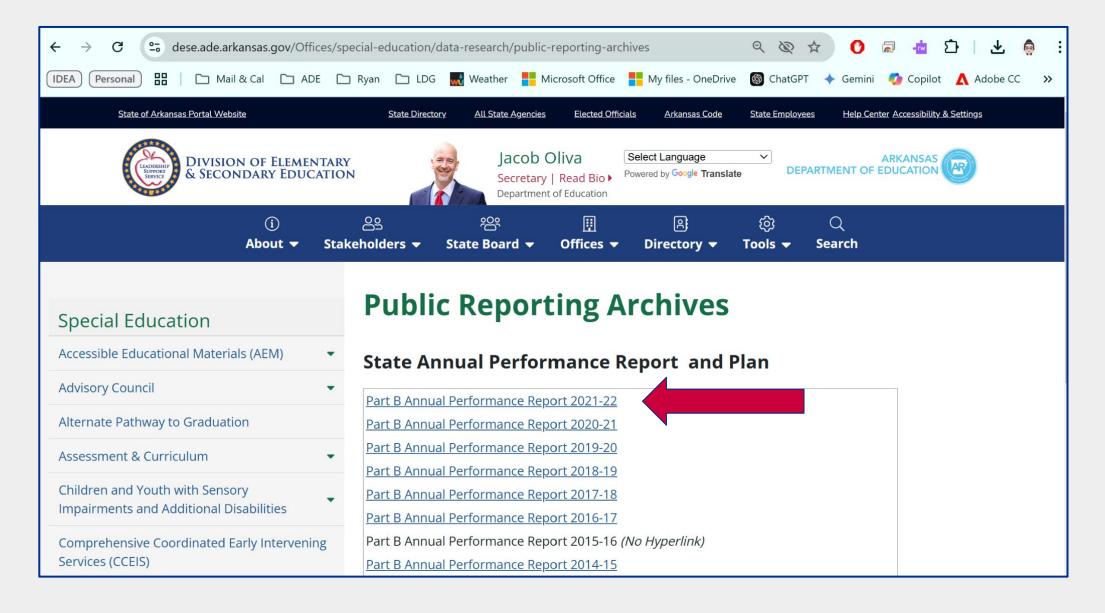
U.S. DEPARTMENT OF EDUCATION WASHINGTON, DC 20202

- 97 Page Document required by <u>Office of Special Education</u> <u>Programs (OSEP)</u>
- Due annually on February 1st or the first Monday in February
- Only 8,000 characters allowed per area, no special characters

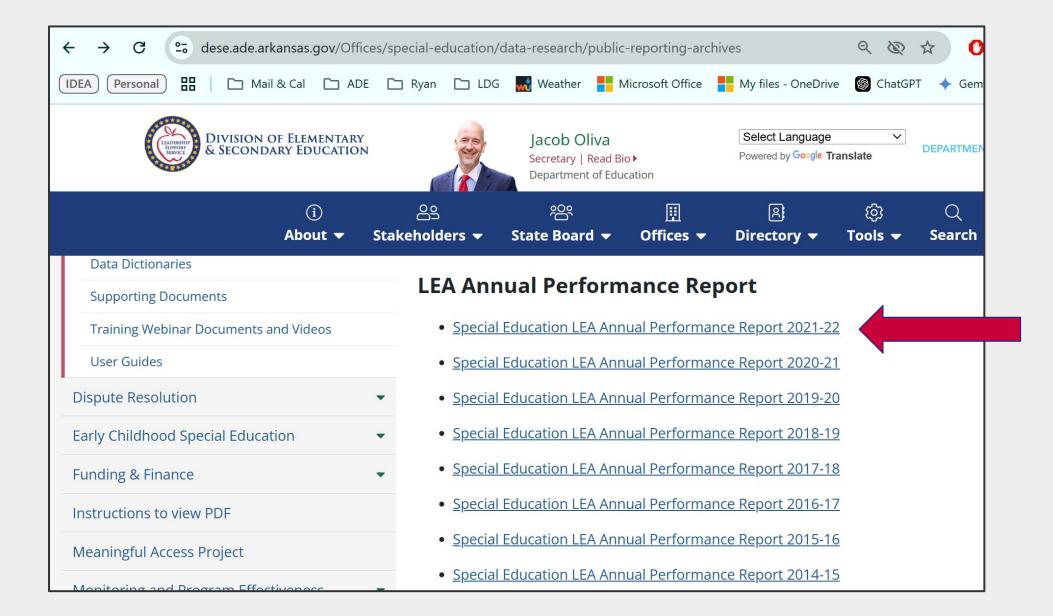
















In accordance with IDEA, the Office of Special Education is required annually to report on local education agencies (LEA) performance against the state targets outline in the Special Education State Performance Plan (SPP).

Some data used in the report are a year in arear due to availablity and/or an additional requirement to review policies, prodecures, and practices.

Additionally, some indicators are not applicable to all LEAs due to the structure of the special education program and the grade levels served.

0101 : DEWITT SCHOOL DISTRICT

2021 - 22 Annual Performance Report

GRADUATION & DROPOUT PERCENTAGES

The data source for Indicator 1: Graduation and Indicator 02: Dropout is the special education exiting data for students ages 14-21 for the specified year. The calculation is the number of SWD who graduated with a regular diploma (or dropped out) divided by those who exited special education with a regular diploma, certificate, alternate diploma, reached maximum age, or dropped out.

The percentages presented below represents the percent of graduates or dropouts in the source data. The percentages are NOT a Graduation or Dropout rate and should not be construed as such.

Indicator	State Target	State Percentage	LEA Percentage	Target Met by LEA	LEA Difference from Target	Year to Year LEA Percent Change
Indicator 01: Graduation: Percent of youth with Individualized Education Programs (IEPs) exiting from high school with a regular high school diploma. (Data is from the 2020/2021 School Year)	88.00%	89.76%	70.00%	N	18.00%	1
Indicator 02: Dropout: Percent of youth with IEPs dropping out of high school. (Data is from the 2020/2021 School Year)	10.00%	8.47%	30.00%	N	20.00%	<u> </u>
Indicator Met: Met Not Met	Year to Y	ear LEA Change:	Progress Sli	ppage No Char	nge Not Applicable	Page 1 of 3047





What did you find in your Annual Performance Report?

Any surprises?

(10 minutes)





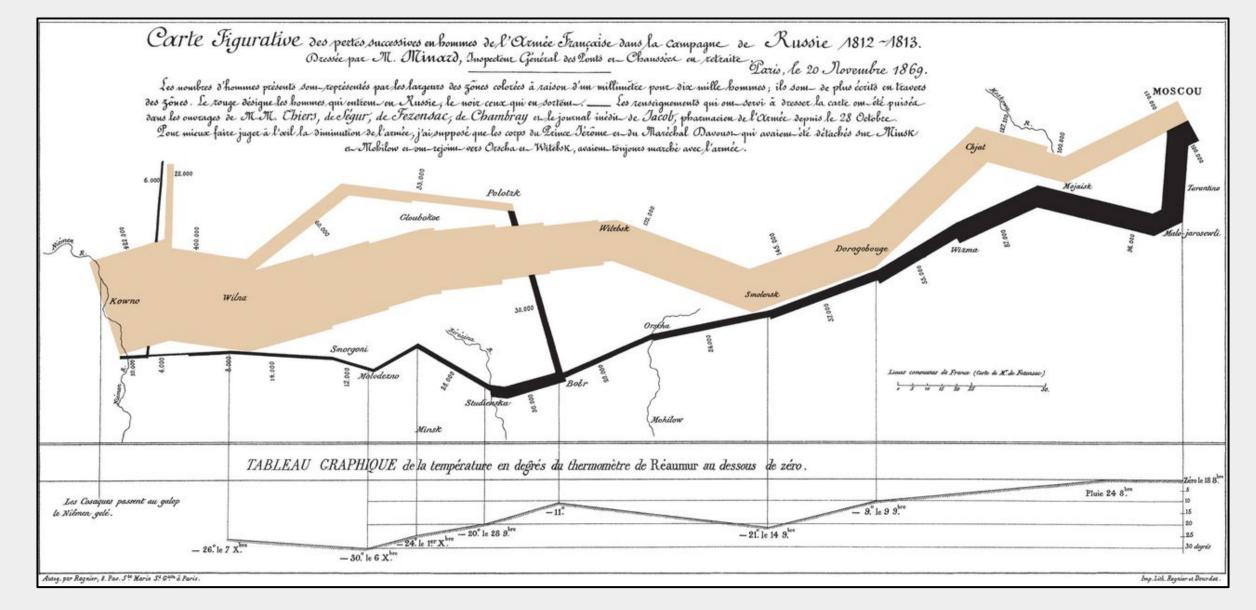


"The world cannot be understood without numbers. But the world cannot be understood with numbers alone."

- Hans Rosling, statistician

Data Viz- Charles Minard, 1869





Edward Tufte



"We must communicate with one another in order to live. How we do so shapes our lives. Being aware of how we present and process data is our best hope of staying in front of our stories, as opposed to catching up and trying to explain."

- Dr. Tufte





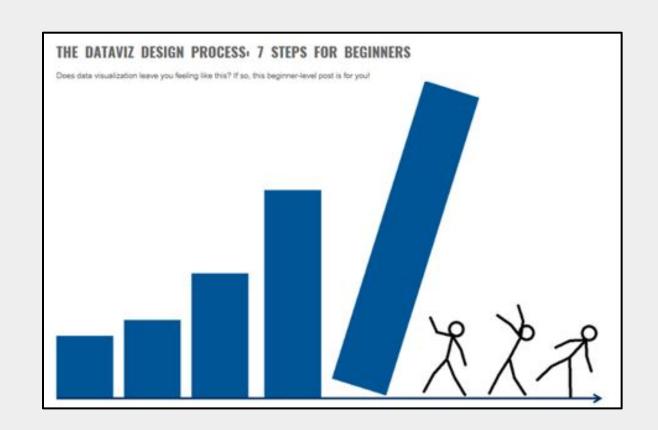
The purpose of data is to communicate.

- Yessica Gomez, CDC



Design Process

- 1. Who is your audience?
- 2. Which chart is best for your data and key **message**?
- 3. How will you **share** your data?
- 4. Did you get **your** point across?



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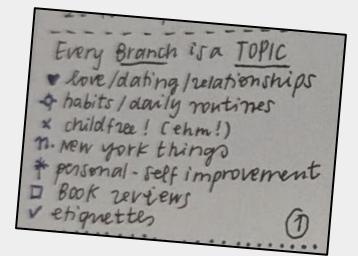


Data Viz can take a variety of different forms.

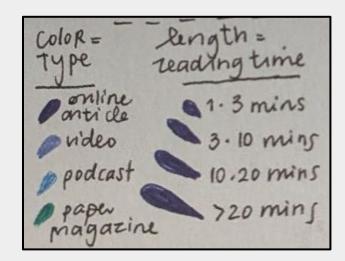




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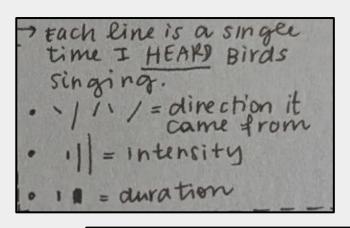
Media

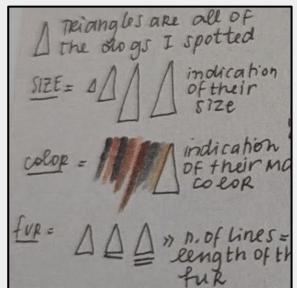


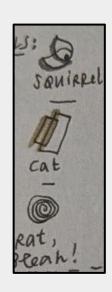




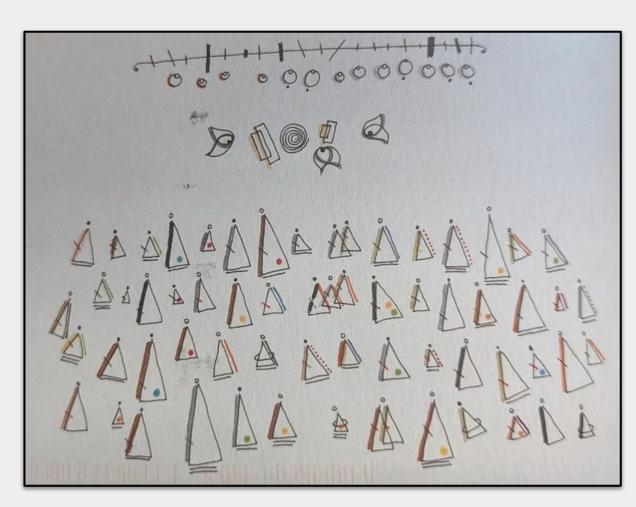
Data Viz can take a variety of different forms.







NY urban animals









Deviation









Correlation



Ranking













Distribution

























Change over Time











Magnitude

Show size comparisons. These can be relative (gast being able to see large Higger) or about the freed to see from differences. Usually those show a tournoof number (for example, barrels, datas or possely rather than a consisted rate or percent.



























Part-to-whole

Example PT uses

Fiscal burgets, company structures
petional and the research























Spatial

















Flow













Visual vocabulary

Designing with data

There are so many ways to visualise data - how do we know which one to pick? Use the categories across the top to decide which data relationship is most important in your story, then look at the different types of chart within the category to form some initial ideas about what might work best. This list is not meant to be exhaustive. nor a wizard, but is a useful starting point for making informative and meaningful data visualisations.



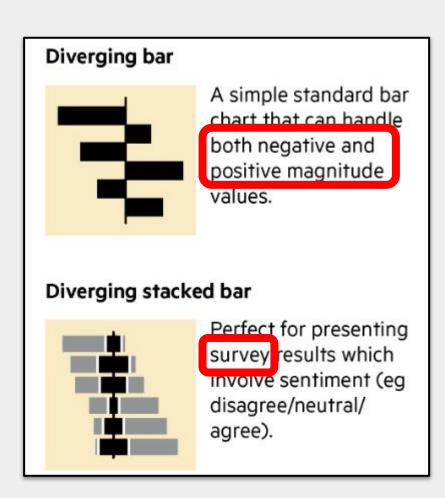


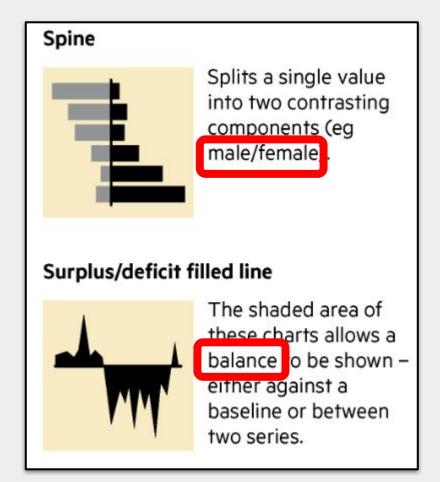
Deviation

Emphasise variations (+/-) from a fixed reference point. Typically the reference point is zero but it can also be a target or a long-term average. Can also be used to show sentiment (positive/neutral/negative).

Example FT uses

Trade surplus/deficit, climate change







Correlation

Show the relationship between two or more variables. Be mindful that, unless you tell them otherwise, many readers will assume the relationships you show them to be causal (i.e. one causes the other).

Example FT uses

Inflation and unemployment, income and life expectancy

Scatterplot



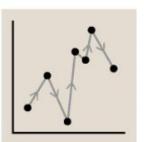
The standard way to show the relationship between two continuous variables, each or which has its own axis.

Column + line timeline



A good way of showing the relationship between an amount (columns) and a rate (line).

Connected scatterplot



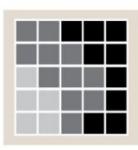
how the relationship between 2 variables has changed over time.

Bubble



Like a scatterplot, but adds additional detail by sizing he circles according to a third variable.

XY heatmap



A good way of showing the patterns between 2 categories of data, less effective at showing fine differences in amounts.

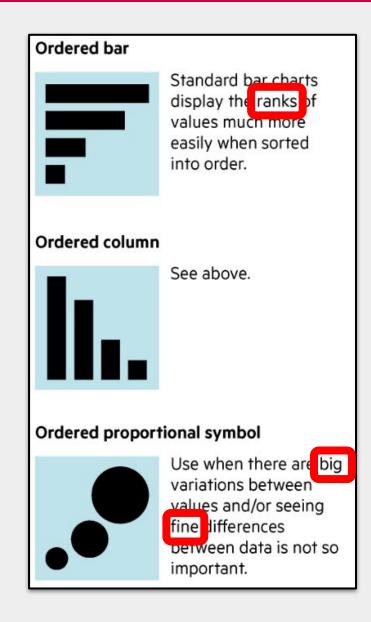


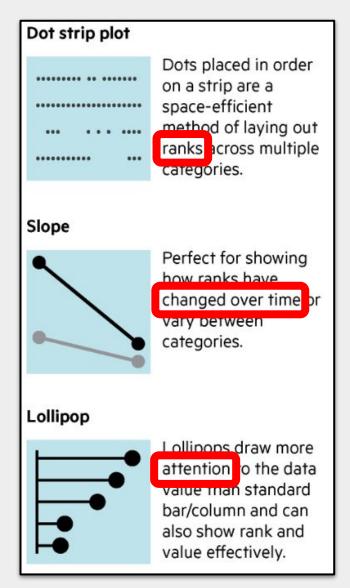
Ranking

Use where an item's position in an ordered list is more important than its absolute or relative value. Don't be afraid to highlight the points of interest.

Example FT uses

Wealth, deprivation, league tables, constituency election results





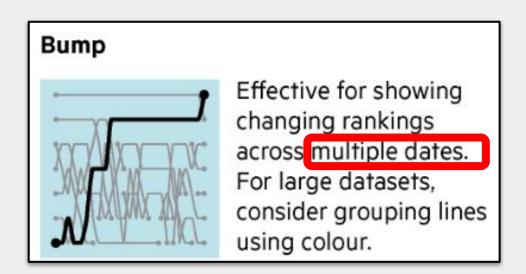


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Example FT uses

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Give an example of how you would use one of these graphs for your job?

Make sure to mention

- * what type of visualization you are using (Deviation, Correlation or Ranking) and
- * what data you are representing.







Distribution

Show values in a dataset and how often they occur. The shape (or 'skew') of a distribution can be a memorable way of highlighting the lack of uniformity or equality in the data.

Example FT uses

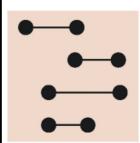
Income distribution, population (age/sex) distribution, revealing inequality

Histogram



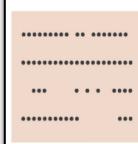
The standard way to show a statistical distribution keep the gaps between columns small to highlight the 'shape' of the data.

Dot plot



A simple way of showing the change or range (min/max) of data across multiple categories.

Dot strip plot



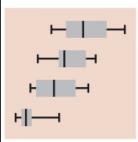
Good for showing individual values in a distribution, can be a problem when too many dots have the same value.

Barcode plot



Like dot strip plots, good for displaying all the data in a table, they work best when highlighting individual values.

Boxplot



Summarise multiple distributions by showing the median (centre) and range of the data

Violin plot



Similar to a box plot but more effective with complex distributions (data that cannot be summarised with simple average).



Distribution

Show values in a dataset and how often they occur. The shape (or 'skew') of a distribution can be a memorable way of highlighting the lack of uniformity or equality in the data.

Example FT uses

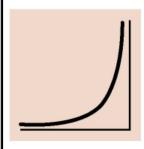
Income distribution, population (age/sex) distribution, revealing inequality

Population pyramid



A standard way for showing the age and sex breakdown of a population listribution; effectively, back to back histograms.

Cumulative curve



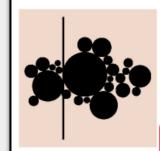
A good way of showing how unequal distribution is: y axis is always cumulative frequency, x axis is always a measure.

Frequency polygons



For displaying multiple distributions of data. Like a regular line chart, best limited to a maximum of 3 or 4 datasets.

Beeswarm



Use to emphasise individual points in a distribution. Points can be sized to an additional variable.

Best with mediumsized datasets



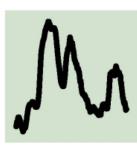
Change over Time

Give emphasis to changing trends.
These can be short (intra-day)
movements or extended series
traversing decades or centuries:
Choosing the correct time period is
important to provide suitable context
for the reader.

Example FT uses

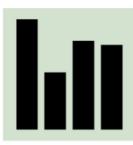
Share price movements, economic time series, sectoral changes in a market

Line



The standard way to show changing time series. It data are irregular, consider markers to represent data points.

Column



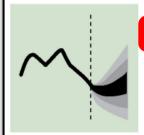
Columns work well for showing change over time - but usually best with only one series of data at a time.

Column + line timeline



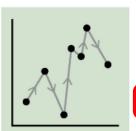
A good way of showing the relationship over time between an amount (columns) and a rate (line).

Fan chart (projections)



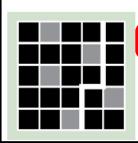
Use to show the uncertainty in future projections - usually this grows the further forward to projection.

Connected scatterplot



A good way of showing changing data for two variables whenever there is a relatively clear pattern of progression.

Calendar heatmap



A great way of showing temporal patterns

(daily, weekly, monthly)

– at the expense of
showing precision in
quantity.



Change over Time

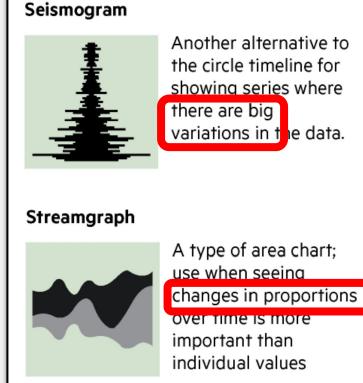
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Example FT uses

Share price movements, economic time series, sectoral changes in a market

Priestley timeline Great wher date and duration are key elements of the story in the data. Circle timeline Good for showing discrete values f varying size across multiple categories (eg earthquakes by continent). Vertical timeline Presents time on the Y axis. Good for displaying detailed

time series that work especially well when scrolling on mobile.



Magnitude

Show size comparisons. These can be relative (just being able to see larger/bigger) or absolute (need to see fine differences). Usually these show a 'counted' number (for example, barrels, dollars or people) rather than a calculated rate or per cent.

Example FT uses

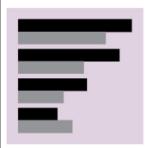
Commodity production, market capitalisation, volumes in general

Paired column



As per standard column but allows for multiple series. Can become tricky to read with more than 2 series.

Paired bar



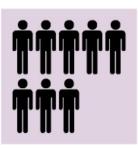
See above.

Marimekko



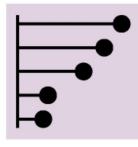
A good way of showing the size and proportion of data at the same time - as long as the data are not too complicated.

Isotype (pictogram)



Excellent solution in some instances – use only with whole numbers (do not slice off an arm to represent a decimal).

Lollipop



Lollipop charts draw more attention to the data value han standard par/column – does not have to start at zero (but preferable).

Radar



A space-efficient way of showing value of multiple variables but make sure they are organised in a way that makes sense to reader.



Magnitude

Show size comparisons. These can be relative (just being able to see larger/bigger) or absolute (need to see fine differences). Usually these show a 'counted' number (for example, barrels, dollars or people) rather than a calculated rate or per cent.

Example FT uses

Commodity production, market capitalisation, volumes in general

Parallel coordinates An alternative to radar charts - again, the arrangement of the variables is important. Usually benefits from highlighting values. **Bullet** Good for showing a measurement against the context of a target or performance range. **Grouped symbol** An alternative to bar/column charts when being able to count

data or highlight

usetul.

800

individual elements s





Give an example of how you would use one of these graphs for your job?

Make sure to mention

- * what type of visualization you are using (Distribution, Change over time, Magnitude) and
- * what data you are representing.





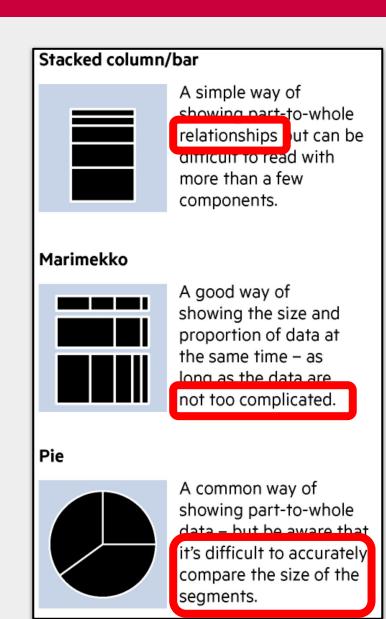


Part-to-whole

Show how a single entity can be broken down into its component elements. If the reader's interest is solely in the size of the components, consider a magnitude-type chart instead.

Example FT uses

Fiscal budgets, company structures, national election results







Similar to a nie chart – but the centre an be a good way or making space to include more information about the data (eq total).

Treemap



Use for hierarchical part-to-whole relationships; can be difficult to read when there are many small segments.

Voronoi



A way of turning points into areas any point within each area is closer to the central point than any other centroid.

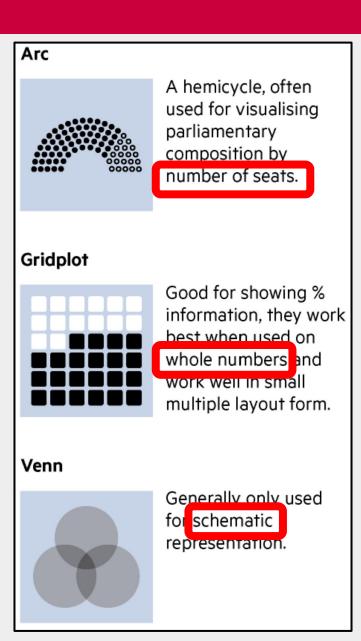


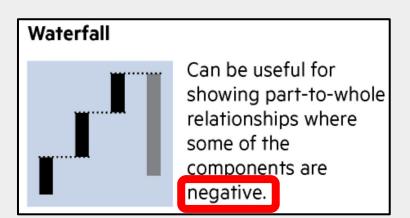
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Example FT uses

Fiscal budgets, company structures, national election results







Spatial

Aside from locator maps only used when precise locations or geographical patterns in data are more important to the reader than anything else.

Example FT uses

Population density, natural resource locations, natural disaster risk/impact, catchment areas, variation in election results

Basic choropleth (rate/ratio)



The standard approach for putting data on a map – should always be rates rather than totals and use a sensible base geography

Proportional symbol (count/magnitude)



Use for totals ather than rates – be wary that small differences in data will be hard to see.

Flow map



For showing unambiguous movement across a map.

Contour map



For showing areas of equal value on a map.
Can use deviation colour schemes for showing +/- values

Equalised cartogram



Converting each unit on a map to a regular and equally-sized shape – good for representing voting regions with equal value.

Scaled cartogram (value)



Stretching and shrinking a man so tha each area is sized according to a particular value.



Spatial

Aside from locator maps only used when precise locations or geographical patterns in data are more important to the reader than anything else.

Example FT uses

Population density, natural resource locations, natural disaster risk/impact, catchment areas, variation in election results

Dot density



Used to show the location of individual events/locations – make sure to annotate any patterns the reader should see.

Heat map



mapped with an intensity colour scale.
As choropleth map – but not snapped to an admin/political unit.

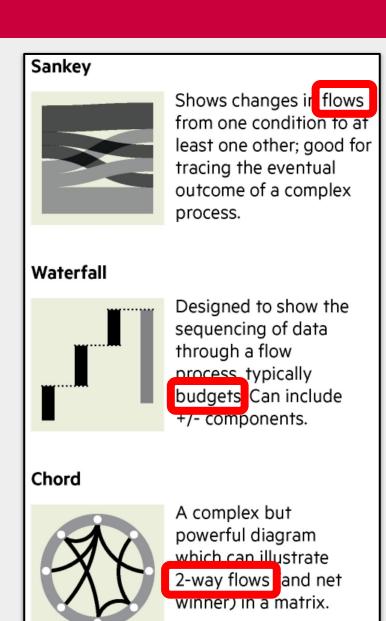


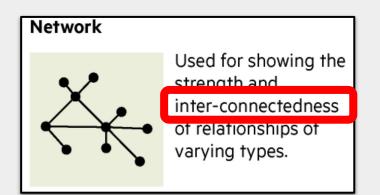
Flow

Show the reader volumes or intensity of movement between two or more states or conditions. These might be logical sequences or geographical locations.

Example FT uses

Movement of funds, trade, migrants, lawsuits, information; relationship graphs.









Give an example of how you would use one of these graphs for your job?

Make sure to mention

* what type of visualization you are using

(Part-to-whole, Spatial or Flow) and

* what data you are representing.





Storytelling with Data





Which of the chosen data representations (we just reviewed) did you see in the video?

Which data visualizations were the most impactful?







You have data, now how do you present it to get your message across?

- simplify complex data
- reveal patterns and trends
- effectively communicate insights

Methods of data visualizations:

- transform raw data into an accessible visual format
- allow people to quickly understand key information and make informed decisions
- visually represent relationships
- make the data actionable



Checklist by Stephanie Evergreen

4 page guide of 23 guidelines on how to format graphs to clearly tell your story:

- 1. Text
- 2. Arrangement
- 3. Lines
- 4. Color
- 5. Overall

DATA VISUALIZATION CHECKLIST

This checklist guides the development of high-quality data visualizations. Rate each aspect of the data visualization by circling the most appropriate number, where 2 points means the guideline was fully met, 1 means it was partially met, and 0 means it was not met at all.

n/a should not be used frequently, but reserved for when the guideline truly does not apply. For example, a pie chart has no axes lines or tick marks to rate. If the guideline has been broken intentionally to make a point, rate it n/a and deduct those points from the total possible. Guidelines particularly helpful for accessibility are marked with

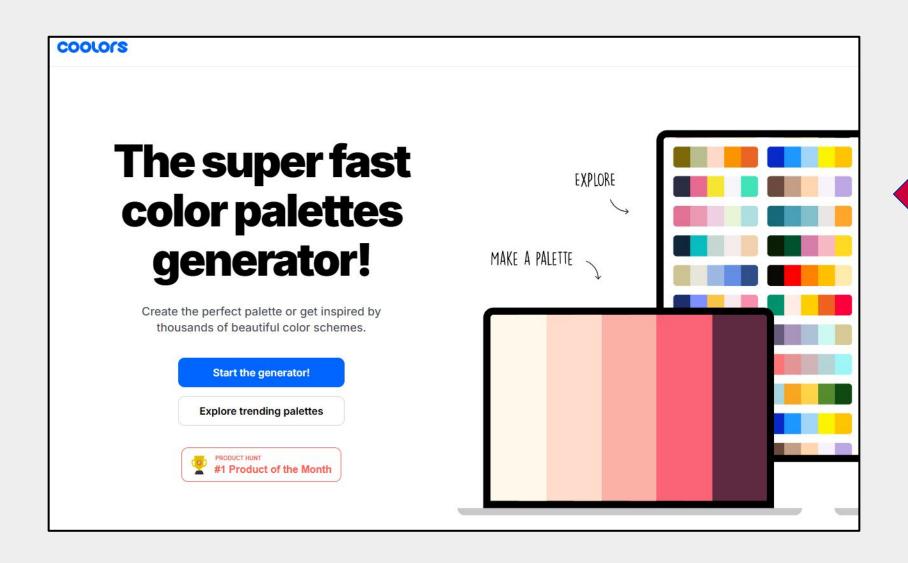
Refer to the Data Visualization Anatomy Chart on the last page for guidance on vocabulary and the Resources at the end for more assistance.

TEXT

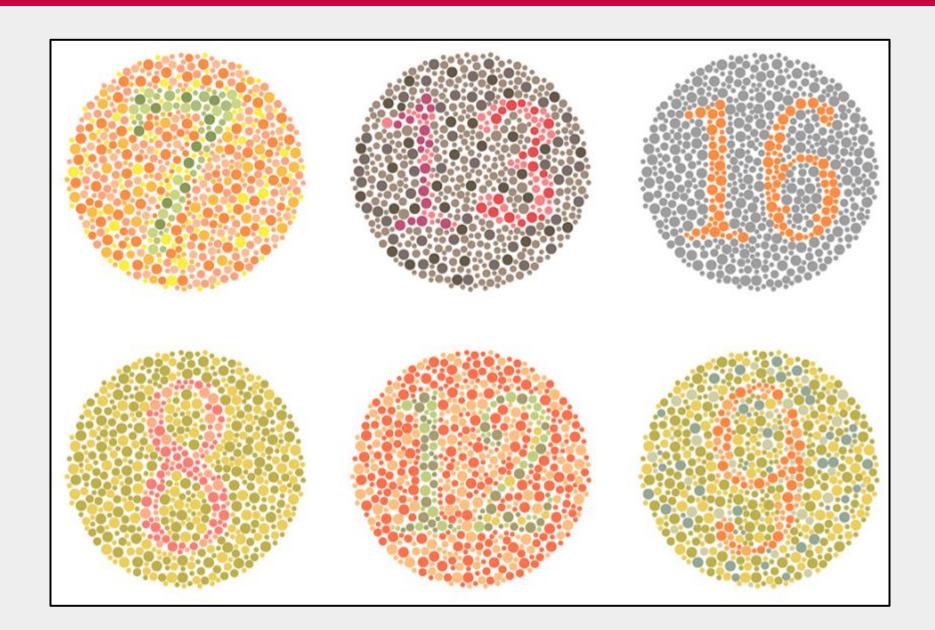
Graphs don't contain much text, so existing text must encapsulate your message clearly and concisely.

Guideline	Description	Rating			
8-20 word descriptive title is a full sentence, left-justified, in upper left	Rather than a generic phrase, use a full, descriptive sentence that encapsulates a takeaway message about the graph's finding or "so what?" When communicating to Western cultures put the title in the upper left. Not centered.	3	1	0	n/a
Subtitle and/or annotations provide additional information	Subtitles and annotations can add explanatory and interpretive power to a graph. Use them to answer potential viewer questions or to highlight specific data points. Annotations only count if they're within the graph, not in a paragraph around it.	2	1	0	n/a



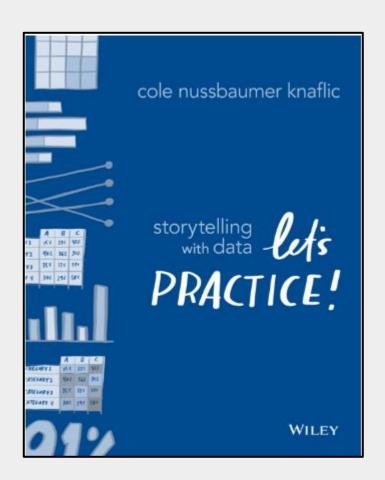






Framing



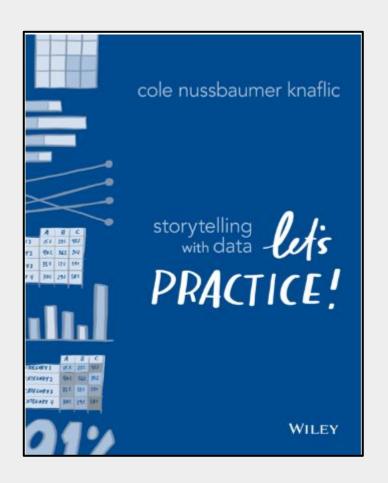


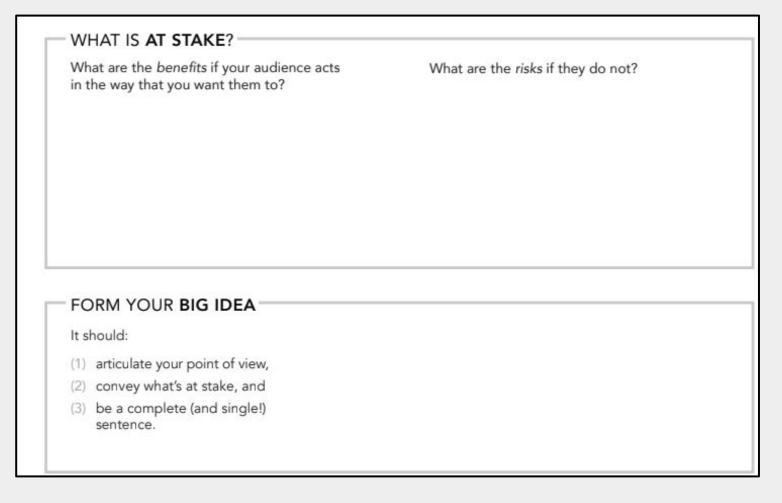
storytelling Mil data
OJECT
(3) What does your audience care about?
(4) What action does your audience need to take?

Resources

Framing



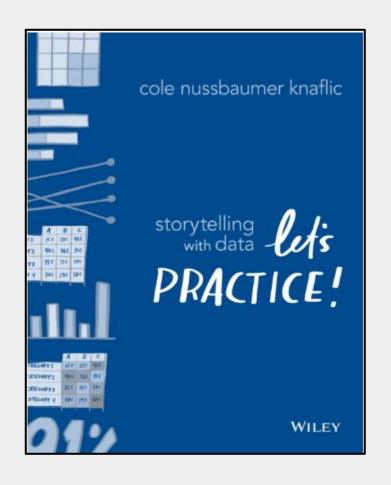




Resources

Framing





STEP 1: UNDERSTAND the CONTEXT STEP 4: DRAW ATTENTION

STEP 2: CHOOSE AM APPROPRIATE VISUAL STEP 5: THINK LIKE A DESIGNER

STEP3: ELIMINATE CLUTTER STEP 6: TELL a STORY



Survey: https://tinyurl.com/2025DataSummitSurvey

https://tinyurl.com/2025DataSummit

February 6, 2025

