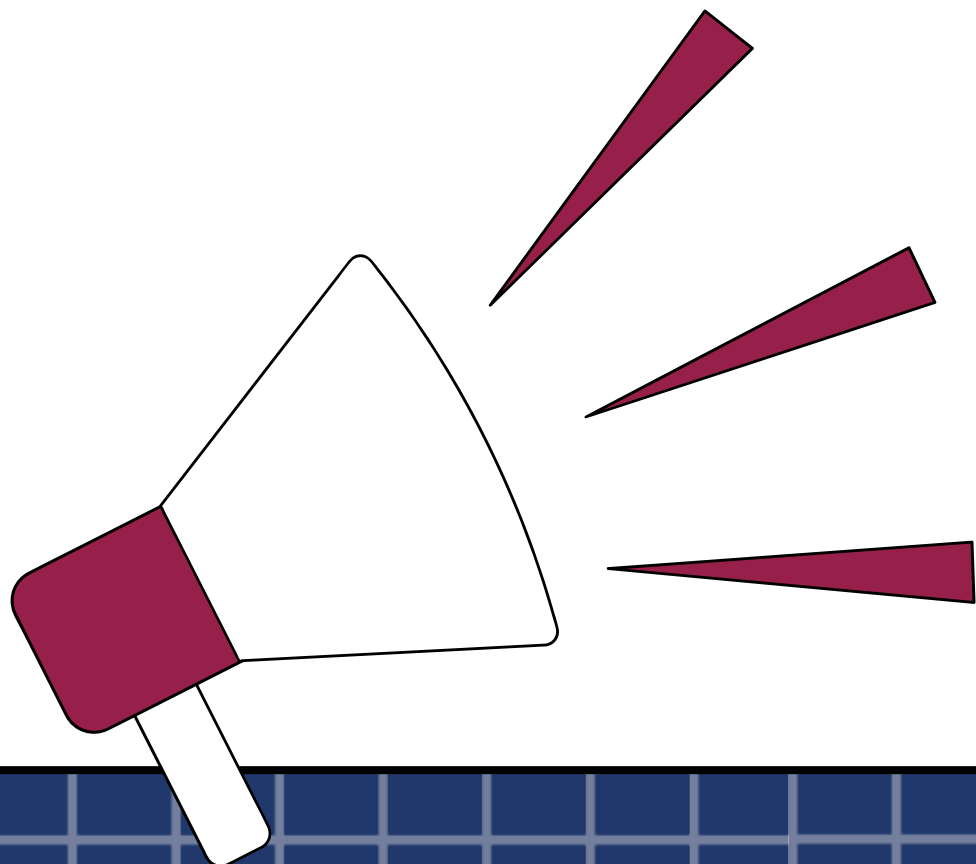




WELCOME

Before we get started...

- Display Name: First & Last
- Program is recorded
 - Turn camera off to not be in recording
- Questions
 - Use chat function throughout session
 - Raise hand feature

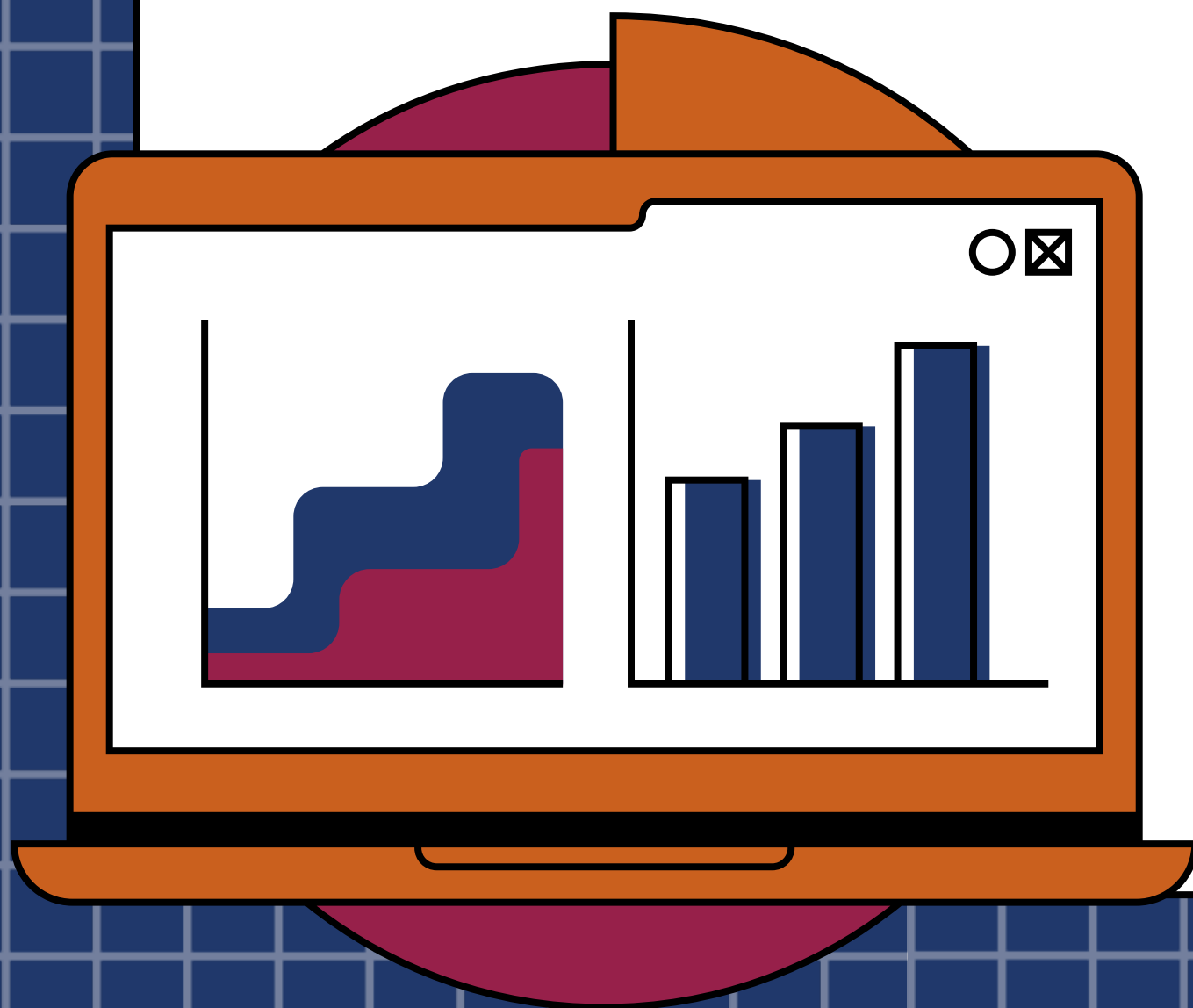


OIE VIRTUAL DATA

TRAINING

February 14th, 2024

Office of Indian Education



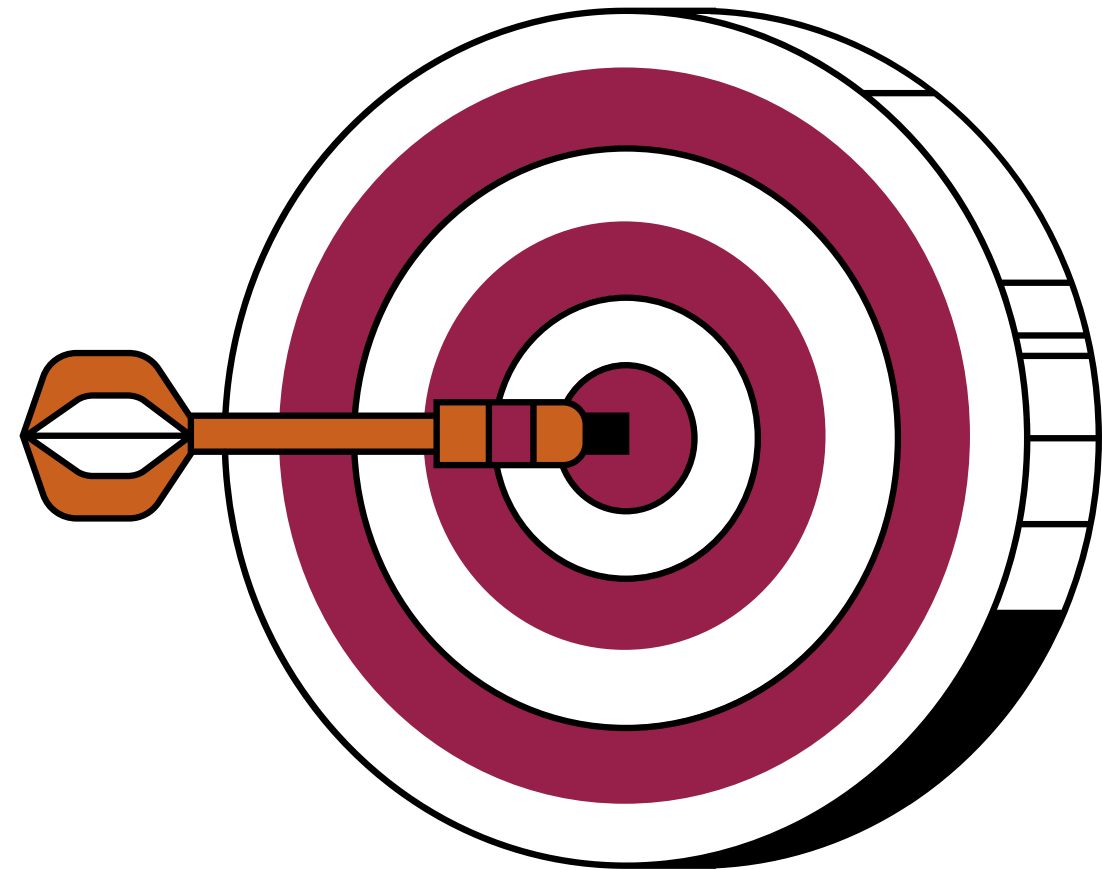
ARIZONA DEPARTMENT OF
EDUCATION



TODAY'S LEARNING

We will discuss

- **organizing** your data
- **cleaning** your data
- **analyzing** your data



INTRODUCTIONS



Russel Potter, Ph.D.

Data Director for the Office of Indian Education

In the chat, please share:

- Your name
- Role / School District
- What you're hoping to get out of today's training



SHARE IN THE CHAT

What are some challenges you have when it comes to storing, cleaning, and analyzing data?





ASK PRELIMINARY QUESTIONS

- **What do you want to know?**
 - List three things you're interested in finding out
- **What do you already know?**
 - What data already exists that might be insightful?
- **What do you need to get now?**
 - What are you missing in this context?
- **How are you going to know that?**
 - List two or more ways to get an answer to that question?
 - Which is easier?
 - Which is more likely to work?



BASIC ORGANIZATION

- **What are you going to collect, and why?**
 - What's the best way to address the questions you're hoping to answer?
 - Prior to collecting, how are these data going to be considered?
- **How are you going to collect, and why?**
 - Surveys, raw data, state reports, SIS data – what are your sources?
 - Ensure they're valid, reasonable, and you're doing it ***on purpose***.
- **More may not be better**
 - There's a limit to how much you can make sense of – more might be good, but too much makes the job less attainable.



BASIC ORGANIZATION – CONVERSION AND QUALITY

- **Convert to digital when possible**
 - Survey results need to be centralized: turn paper into pixels
 - Use one row of data for each response
 - Ensure that identifiers are clear
- **Quality checks**
 - Have a **system** for checking data quality/validation
 - Maintain accuracy and consistency



BASIC ORGANIZATION – STORAGE

- **Centralize storage – one place where all the data lives**
 - Database management – maybe discuss with your IT team
 - Limit access to only those that need it
- **Structure the data with intent**
 - One file or tab or table per ‘event’
 - Multiple files on the same concept need to have relational links
 - Reduce what you can to a number:
 - event number
 - response number
 - Likert scales
 - Survey responses – quantify their result, but do not lose the quality



BASIC ORGANIZATION – SECURITY

- **FERPA rules the universe**
- **Protect and/or redact PII**
 - Discuss with SIS controllers/specialists
- **Consult with Data Governance or develop DG policies**

First and foremost: protect your data and all identifiers



BASIC ORGANIZATION – PROTECTING YOUR DATA

- **Limit access to raw/source data**
 - Keep a list of who has access
 - Constrain the types of access to only the necessary
- **Maintain data quality and veracity**
 - Develop procedures for updating data
 - Ensure you have control over who can edit or upload
- **Version control**
 - Redact whatever is necessary for security
 - Perform analyses on secure copies

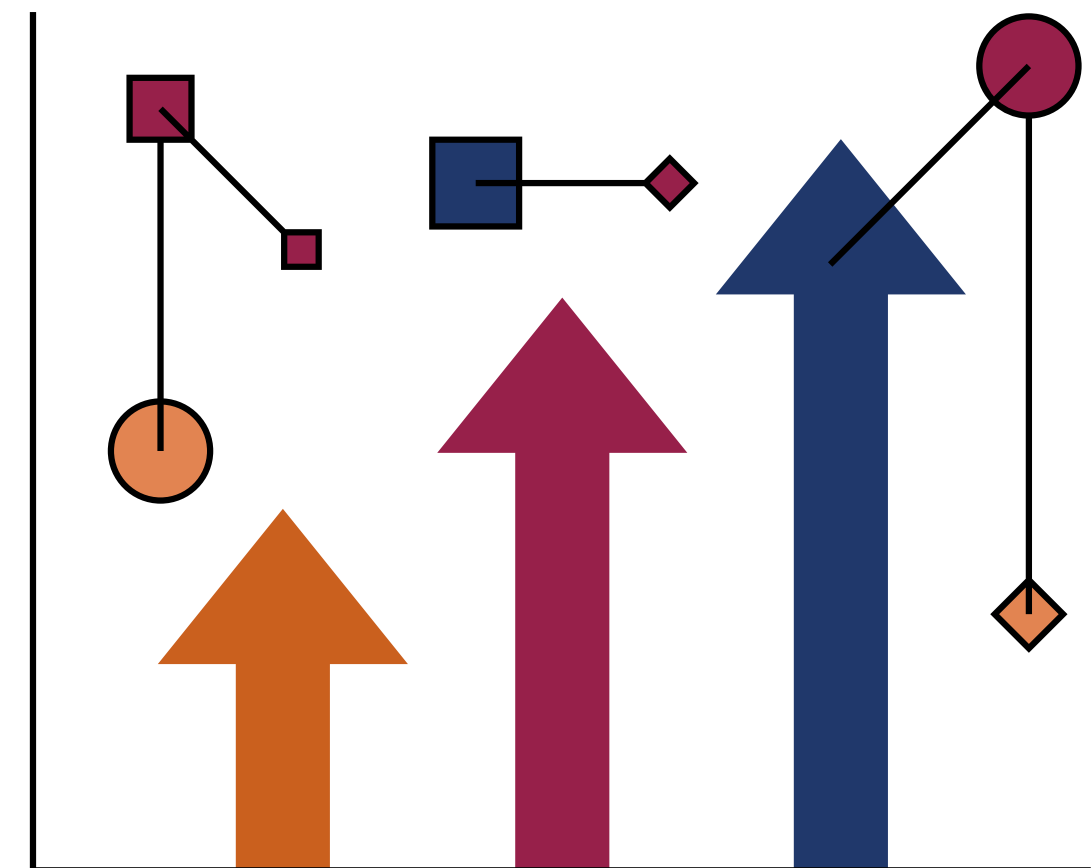
Try not to put it on the internet





CLEANING DATA

- **Standardize formats**
 - 1 and 1.0 might be different – does a decimal matter?
- **Binary consistency**
 - 0/1: “0 means no”
 - Race; IE12; SPED; EL; etc...
- **Scale consistency**
 - 0 is ‘bad’ 5 is ‘good’
 - On a scale from 1 to 5....
- **Have collection protocols**
 - Normalize how to collect
 - Train staff on ensuring data quality

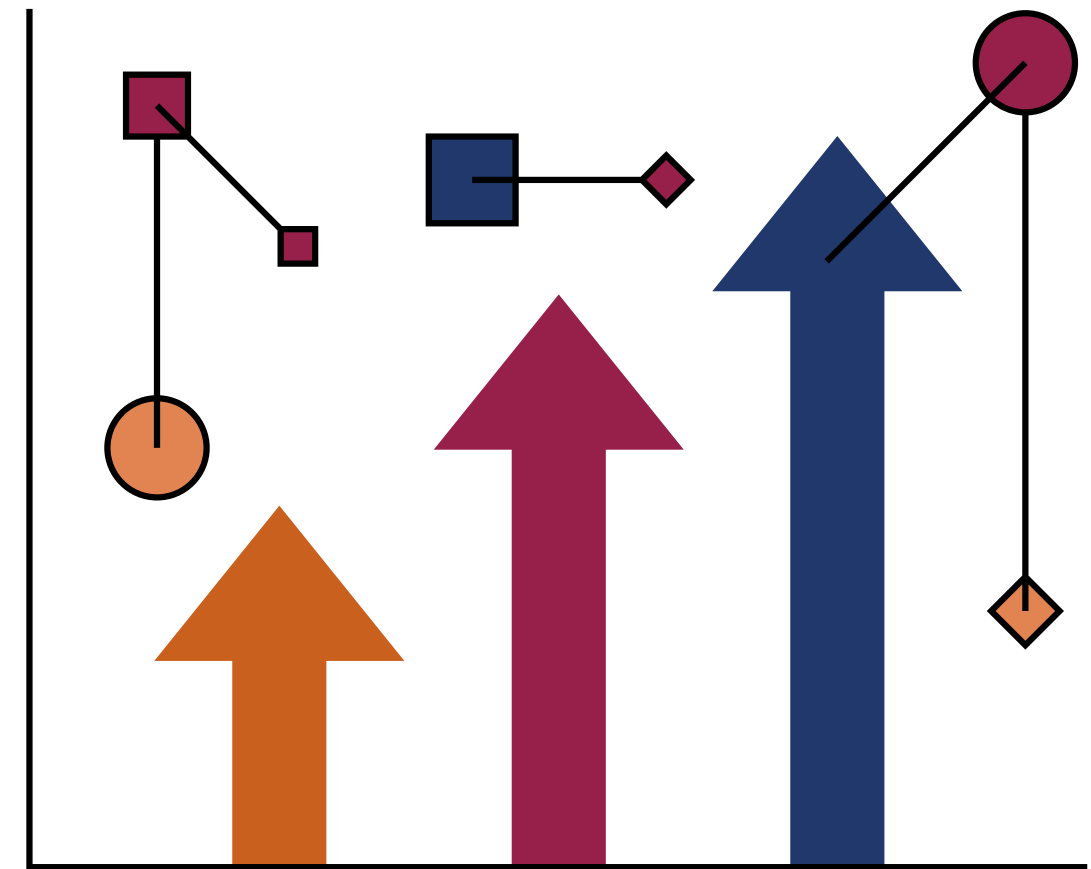




CLEANING DATA

- Check for duplicates
- Dealing with missing data:
 - Have a system and rationale
 - Does a missing value equal zero, the median, the mean, the max? Why?

Have a reason for whatever you're doing





CLEANING DATA - EXAMPLES

School	Interviewer ID	Name	Students	Grade	School Review	Would Recommend	Hot Dog	Hamburger
Mega Middle	Carol	Benjamin Dougherty	1	6	Yes, it fosters growth beautifully.	1	Yes	No
MES	Carol	Callahan, Jason	1	6	Definitely, it suits me well.	1	No	no
Super Elementary School	Frank	Campbell, Victoria	2	5	Yes, it inspires constant curiosity.	4	1	1
Super ES	Jim	Debra Hines	10	7	Honestly, I find it uninspiring.	2	0	0
Super ES	Jim	Frank Walls	0		Definitely, wouldn't trade it.	4	0	1
	Frank	Guerra, Elijah	1	8	Absolutely, great friends and teachers.	10	0	0
Mega Middle School	Carol	Heather Ward	1	7th	Absolutely, the support is tremendous.	1	Yes	no
SES	Jim	Joan Schneider	1	Fourth	Totally, it's a perfect fit.	4	0	1
SES	Frank	Lauren Leonard	1	5	Not my favorite, some issues persist.	2	1	0
Mega	Carol	Matthew Murray	1	5	Indeed, it's my happy place.	1	Yes	No
Mega ES	Carol	Peter Cuevas	1	6	Sure, it's an amazing experience.	2	No	Yes
Super Elementary School	Jim	Pope, Philip	2	7, 8	Yep, the atmosphere is awesome.	5	1	0
Super	Frank	Sharon K	1	8	No, it lacks necessary resources.	2	0	0
Super Elementary School	Frank	Victoria Campbell	2	7	Yes, it inspires constant curiosity.	4	1	1



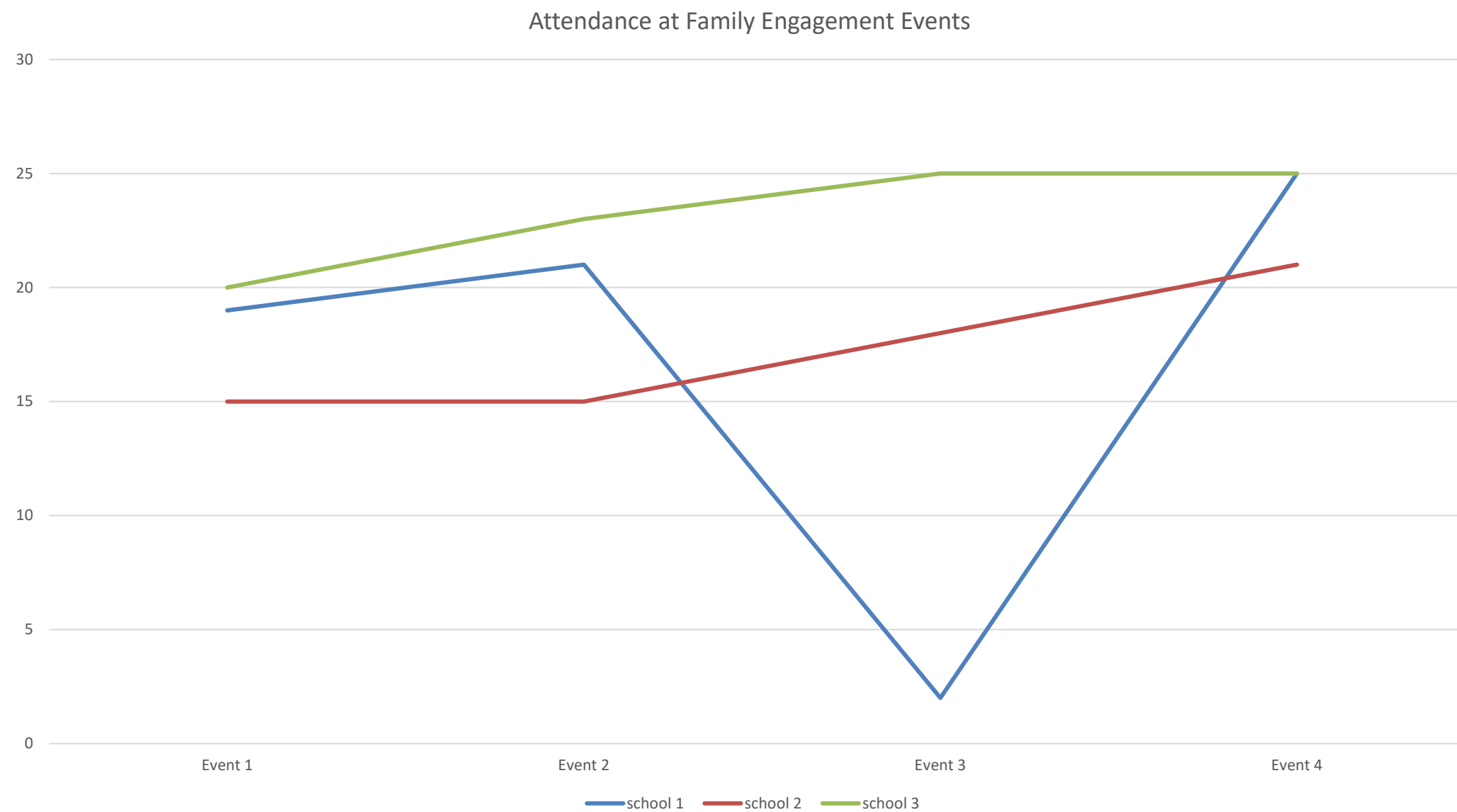
CLEANING DATA - EXAMPLES

Your Turn!

- Is there a potential error?
- What makes you think so?
- How might it be fixed?



CLEANING DATA - EXAMPLES



Is there a potential error?
What makes you think so?
How might it be fixed?



CLEANING DATA - EXAMPLES

Student Attendance at Native American Club

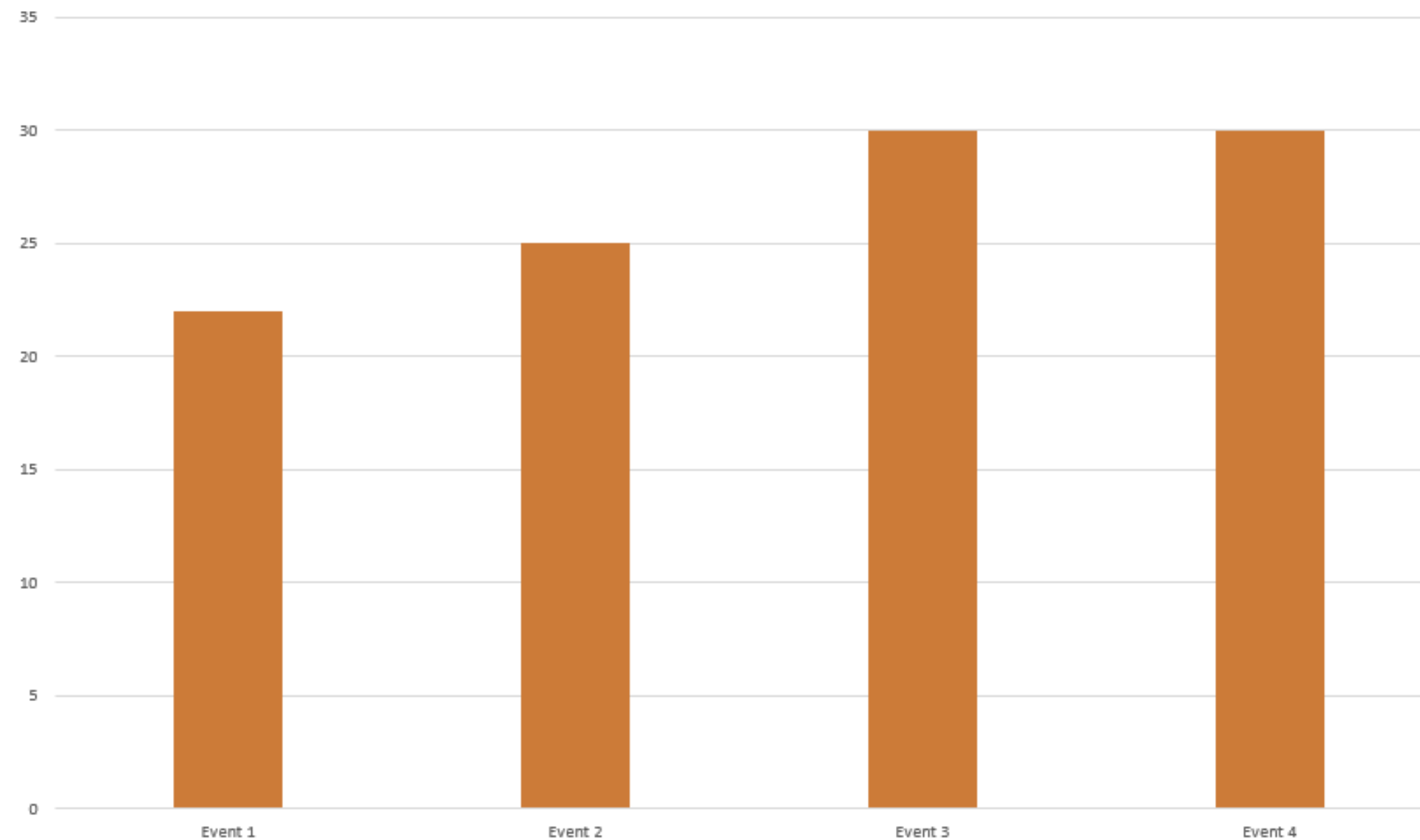
	School Site 1	School Site 2	School Site 3
Week 1	8	12	10
Week 2	9	14	10
Week 3	90	15	10
Week 4	9	13	10
Week 5	10	13	10
Week 6	11	14	10
Week 7	11	14	10
Week 8	11	13	11
Week 9	11	14	10
Week 10	11	13	9
Week 11	10	12	11
Week 12	11	14	11
Week 13	10	14	11
Week 14	10	14	11

Is there a potential error?
What makes you think so?
How might it be fixed?



CLEANING DATA - EXAMPLES

Attendance at Community-Engagement Events



Is there a potential error?
What makes you think so?
How might it be fixed?



CLEANING DATA - EXAMPLES

School Site	1	2	3	4	5	6	7
Total AI/AN Enrollment	26	15	40	82	12	8	36
Tribal Affiliations Represented	6	2	9	15	22	3	5

Is there a potential error?

What makes you think so?

How might it be fixed?



BASIC ANALYSIS - WHAT DOES THE DATA SAY?

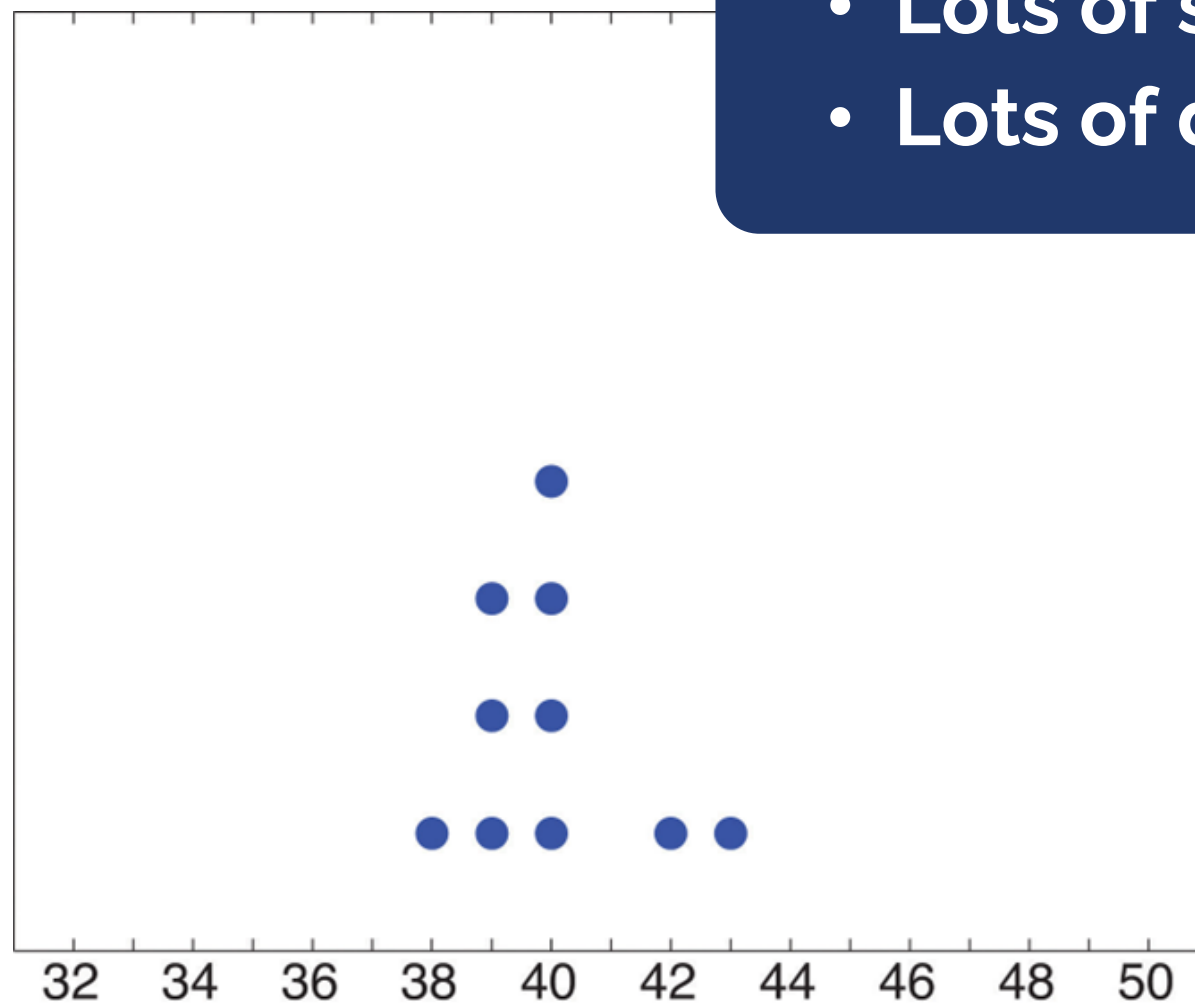
- **Aggregation**
 - Taken together, what do the results say?
 - Look for the easy number: mean, min, max, mode, range, etc...
- **Disaggregation**
 - Taken apart, do we learn anything new?
 - Given a subset, what changes – ‘students who passed the math test were more/less likely to...’
- **Trends**
 - What are you seeing that reflects growth/loss/stability over time?



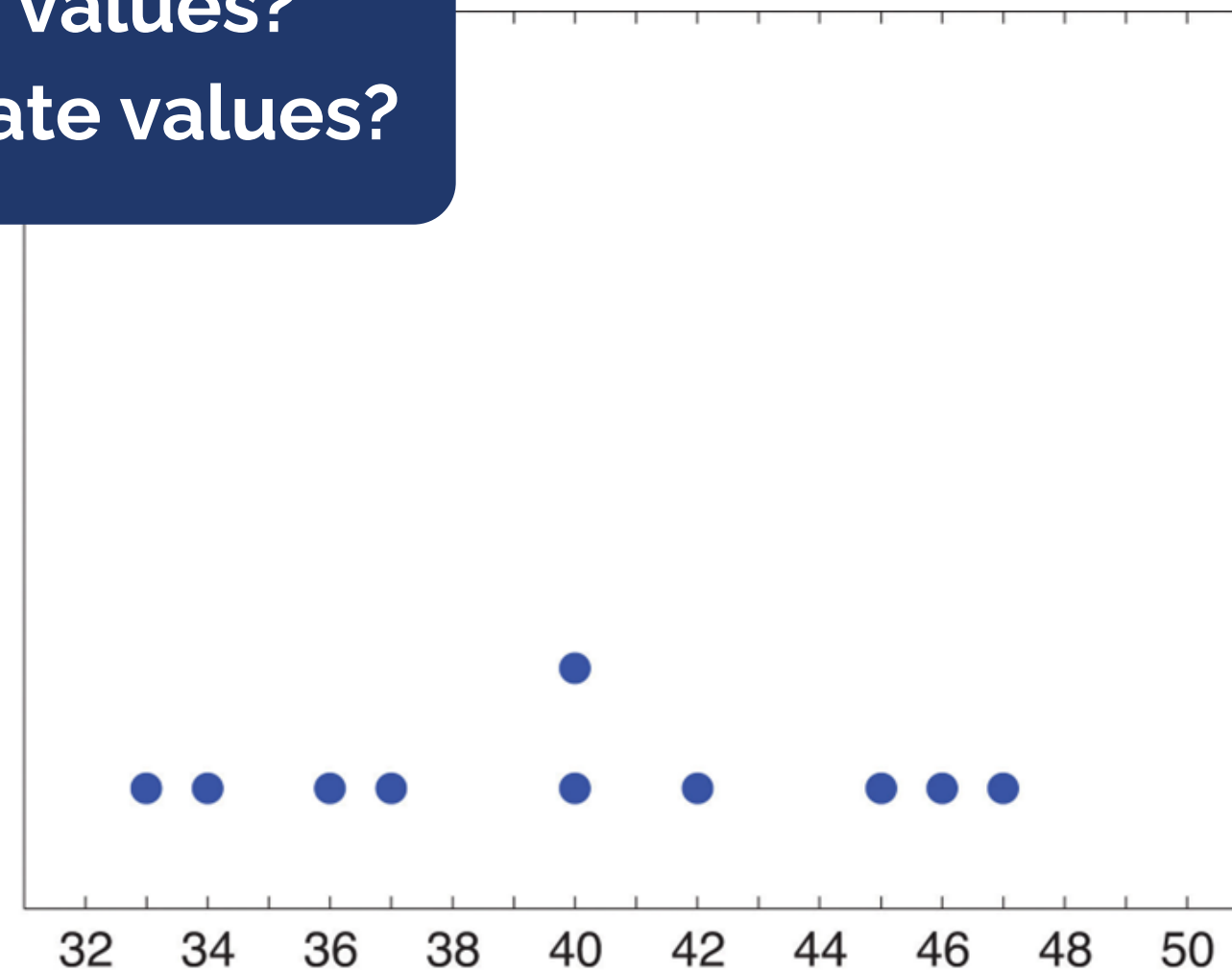
LESS BASIC- SHAPES OF DATA

How does the data look?

- Lots of similar values?
- Lots of disparate values?



(a) Set I

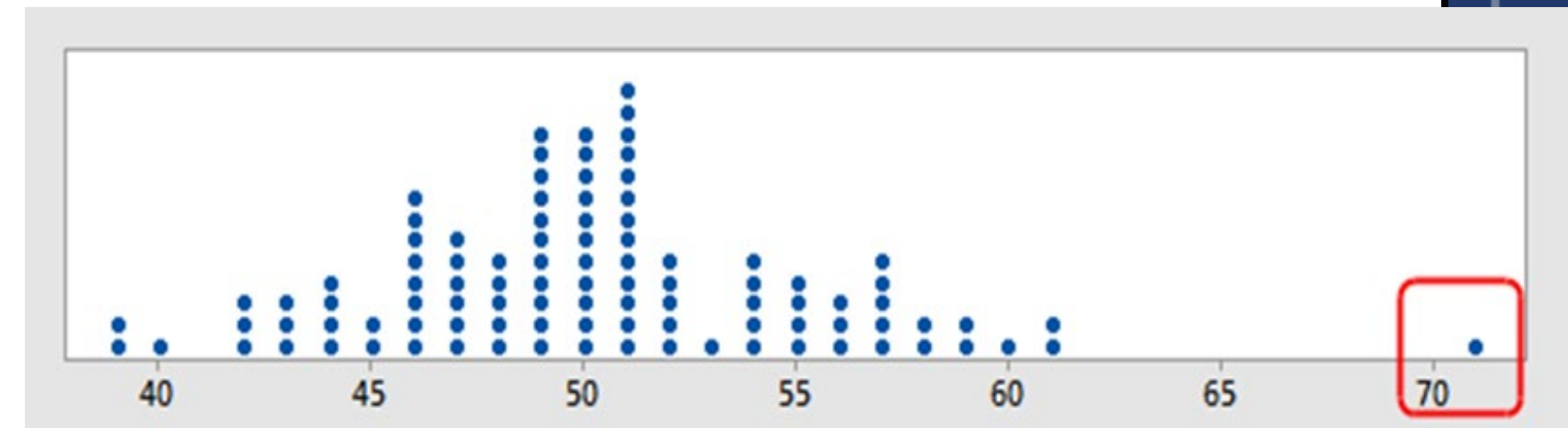


(b) Set II



SHAPRES– IS THE DATA WEIRD? FIX IT

- **Check to see if the data has strange or unexpected results**
 - Look for outliers
 - Check for sanity in those values
- **If you can, fix it.**
 - Have a reason for the method
 - Understand the impact





ANALYSIS - EXAMPLE

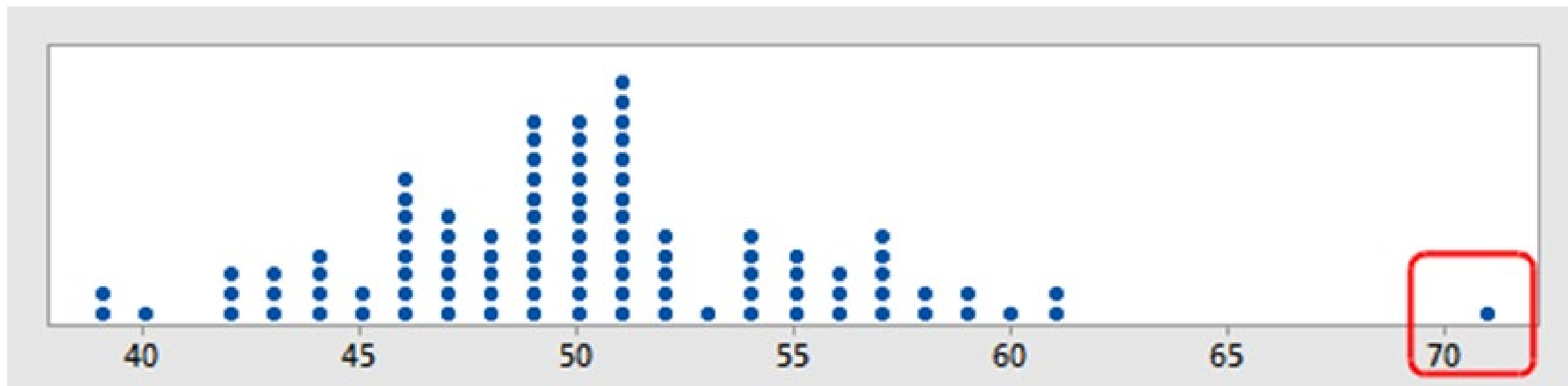
- Family Survey Conducted by Interviewers

School	Interviewer ID	Name	Students	Grade	School Review	Would Recommend	Hot Dog	Hamburger
Super Elementary School	Jim	Schneider, Joan	1	4	Totally, it's a perfect fit.	4	0	1
Mega Middle School	Carol	Murray, Matthew	1	5	Indeed, it's my happy place.	5	1	0
Super Elementary School	Frank	Leonard, Lauren	1	5	Not my favorite, some issues persist.	2	1	0
Super Elementary School	Jim	Campbell, Victoria	2	5	Yes, it inspires constant curiosity.	4	1	1
Mega Middle School	Carol	Callahan, Jason	1	6	Definitely, it suits me well.	5	0	0
Mega Middle School	Carol	Cuevas, Peter	1	6	Sure, it's an amazing experience.	4	0	1
Mega Middle School	Carol	Dougherty, Benjamin	1	6	Yes, it fosters growth beautifully.	5	1	0
Mega Middle School	Carol	Ward, Heather	1	7	Absolutely, the support is tremendous.	5	1	0
Super Elementary School	Frank	Hines, Debra	1	7	Honestly, I find it uninspiring.	2	0	0
Super Elementary School	Jim	Pope, Philip	2	7	Yep, the atmosphere is awesome.	5	1	0
Super Elementary School	Jim	Campbell, Victoria	2	7	Yes, it inspires constant curiosity.	4	1	1
Super Elementary School	Frank	Guerra, Elijah	1	8	Absolutely, great friends and teachers.	1	0	0
Super Elementary School	Frank	K, Sharon	1	8	No, it lacks necessary resources.	2	0	0
Super Elementary School	Jim	Pope, Philip	2	8	Yep, the atmosphere is awesome.	5	1	0
Super Elementary School	Jim	Walls, Frank	0		Definitely, wouldn't trade it.	4	0	1



ANALYSIS - EXAMPLE

- **Test scores for the winter ELA benchmark**
 - Make this make sense
 - Make this not make sense





ANALYSIS - EXAMPLE

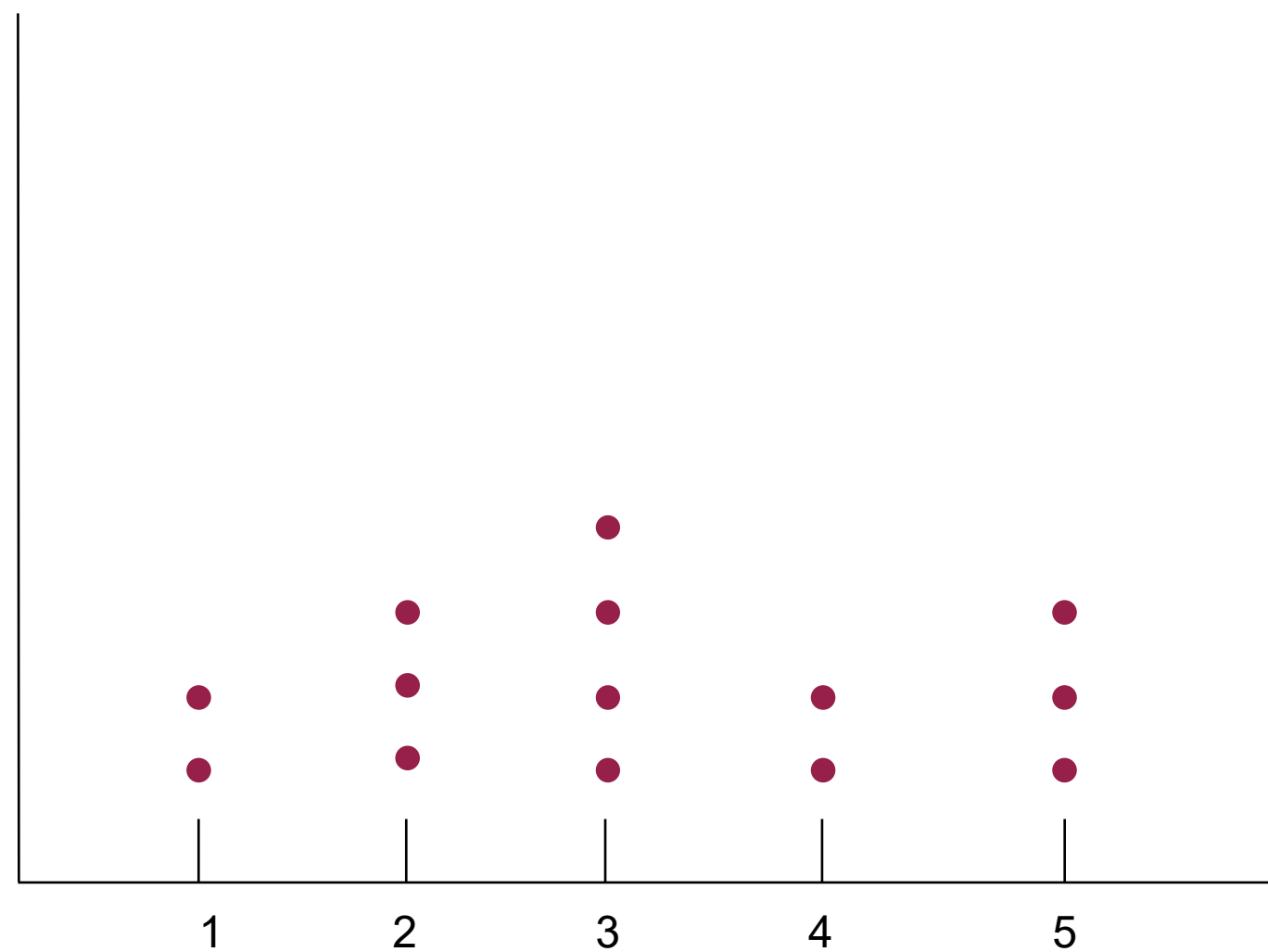
- **AI/AN Student Enrollment at Schools within a District**
 - Make this make sense
 - Make this not make sense

School Site	Total AI/AN Enrollment SY21	Total AI/AN Enrollment SY22
School A	14	12
School B	5	50
School C	8	6
School D	22	18



ANALYSIS - EXAMPLE

Parent Survey Results - "How satisfied are you with our program on a scale of 1-5, with one being not at all and 5 being extremely?"



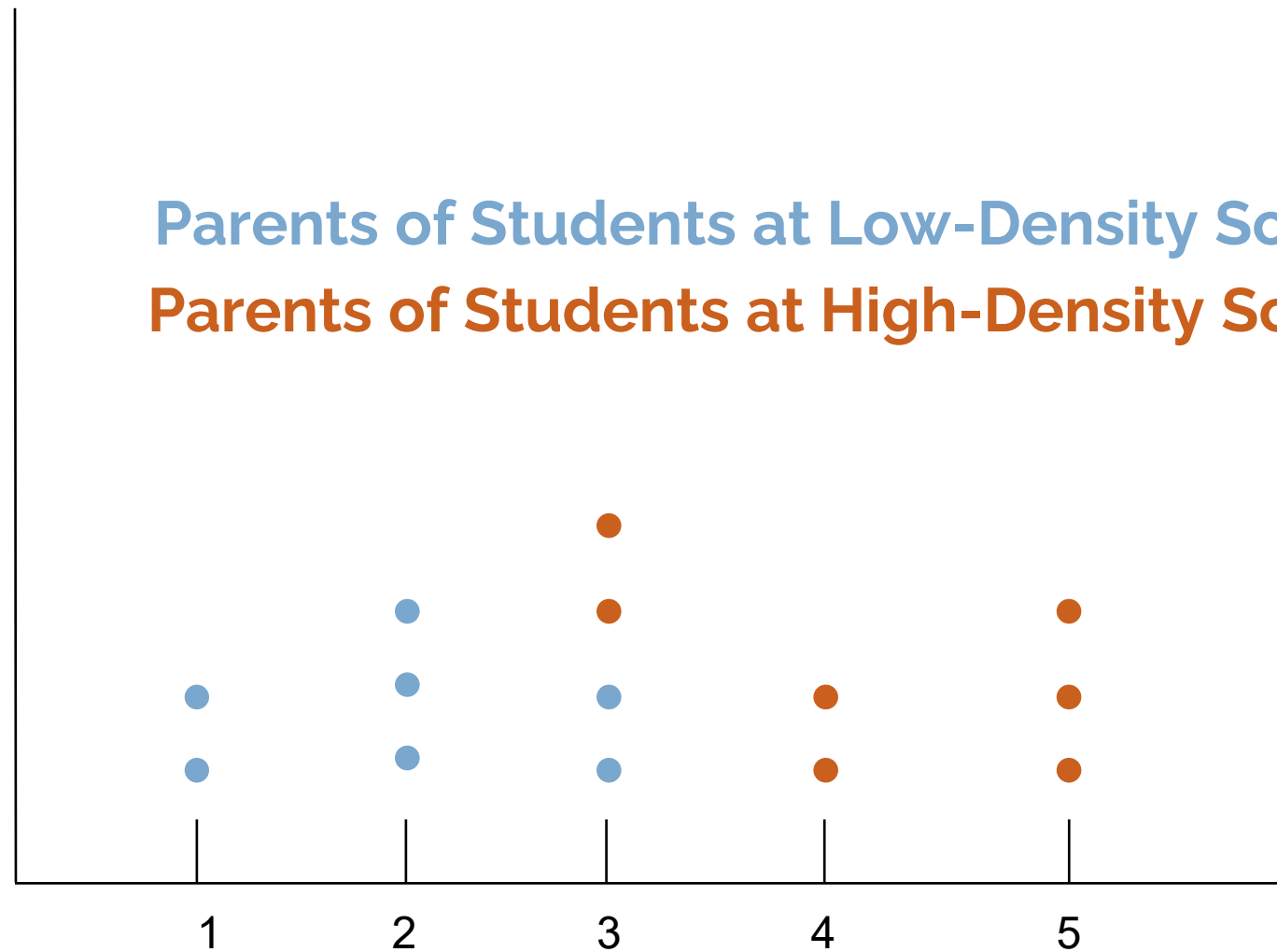
What story might this data tell you?



ANALYSIS - EXAMPLE

Parent Survey Results - "How satisfied are you with our program on a scale of 1-5, with one being not at all and 5 being extremely?"

Parents of Students at Low-Density Schools
Parents of Students at High-Density Schools

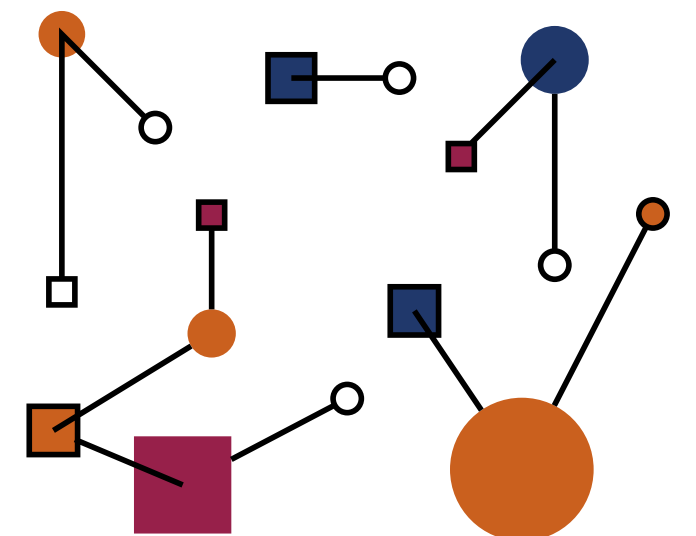


What story might this data tell you?



ANALYSIS - TELL SOME STORIES

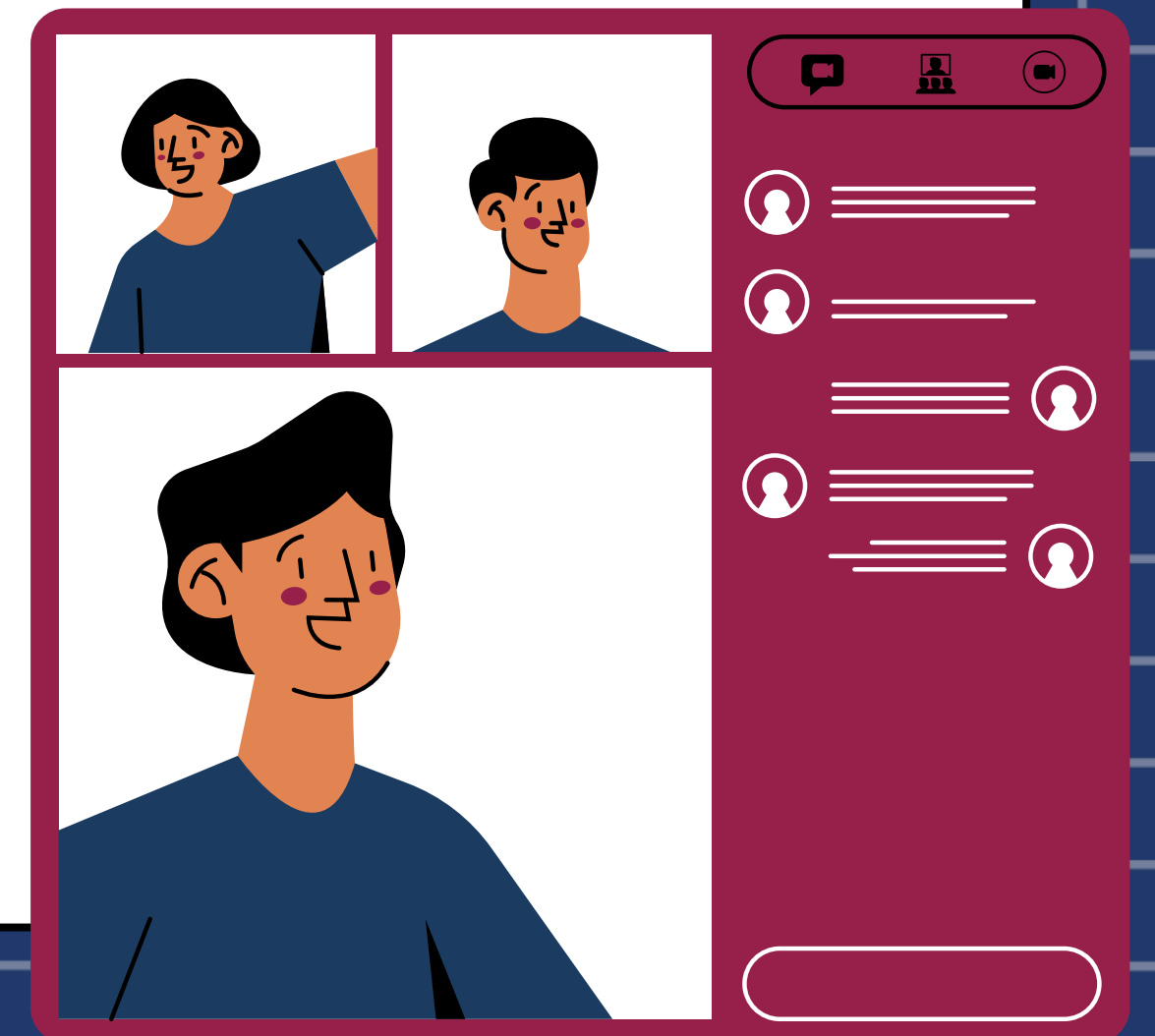
- **Develop a narrative that makes the numbers less mathy**
- **The truth is in the details, but the argument is in the story**
- **Let the data talk – don't pick out what sells your product**
- **Use the data and the narrative to support your grant**
 - helpful for collecting and maintaining historical data
 - continuous improvement (e.g. JOM Grantees)
 - sustaining / evaluating (e.g. OIE RISE Grantees)





BREAKOUT DISCUSSIONS

- What are you taking away from this training?
- How will you apply what you've learned in your grant work?
- What else do you need to know?



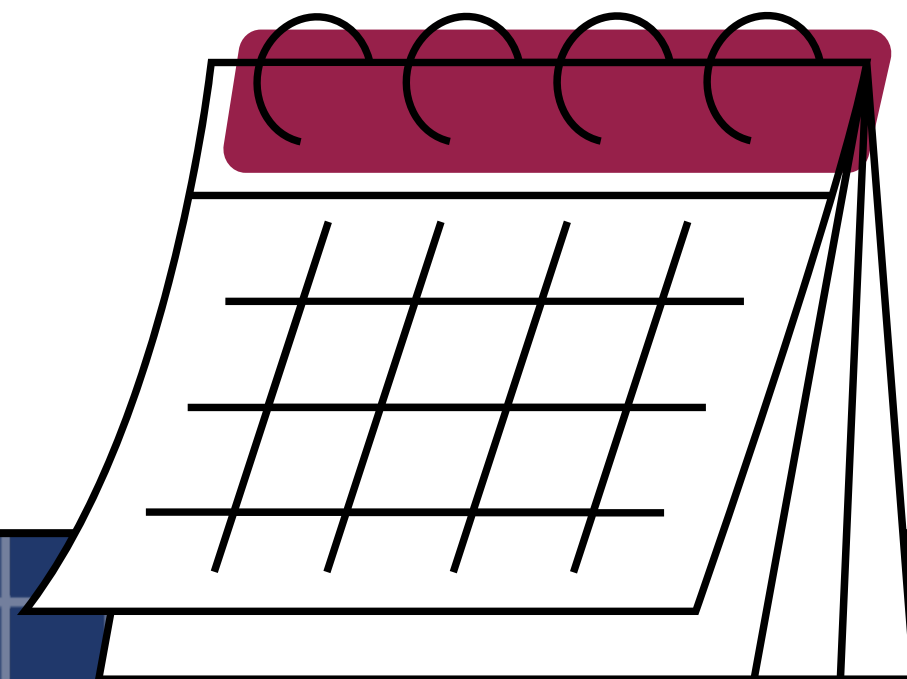


SAVE THE DATE

Next OIE Virtual Data Training

Wednesday April 24th, 2023

10:00 – 11:00 am MST



THANK YOU
FOR JOINING
US TODAY!

Feedback Survey

