Using formative assessment data to support growth in children's learning and development

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This project supports the Colorado Shines Brighter Birth through Five Strategic Plan

Strategy *1.2.6 State Organizational Alignment.* Expand ongoing coordination and collaboration across state agencies including Colorado Department of Human Services, Colorado Department of Public Health and Environment, Colorado Department of Education, Colorado Department of Higher Education, Colorado Department of Health Care Policy and Financing, and Colorado Department of Early Childhood to improve child and family outcomes. Identify and address systems and administrative barriers within and across the agencies.

Session Objectives

This session will share findings from an analysis of existing kindergarten school readiness (KSR) assessment data.

The session will explore the data in relation to the developmental growth of students who are below, at, and above kindergarten entry benchmarks.

Pre-K and K attendees will learn how to use their own formative assessment data to monitor students' progress and support growth across multiple domains of learning and development.

Poll: How do you use data in your current role? (Select all that apply)

- I use data to inform instructional practices.
- I use data to make program decisions.
- I use data to make policy decisions.
- I use data to communicate with parents about child's progress.
- I use data for other reasons not listed.
- I don't use data in my current role.
- Other

Using and interpreting data

How do you look at your data?

"Sure, we can spend all day nitpicking specifics but aren't sweeping generalities so much more satisfying?"

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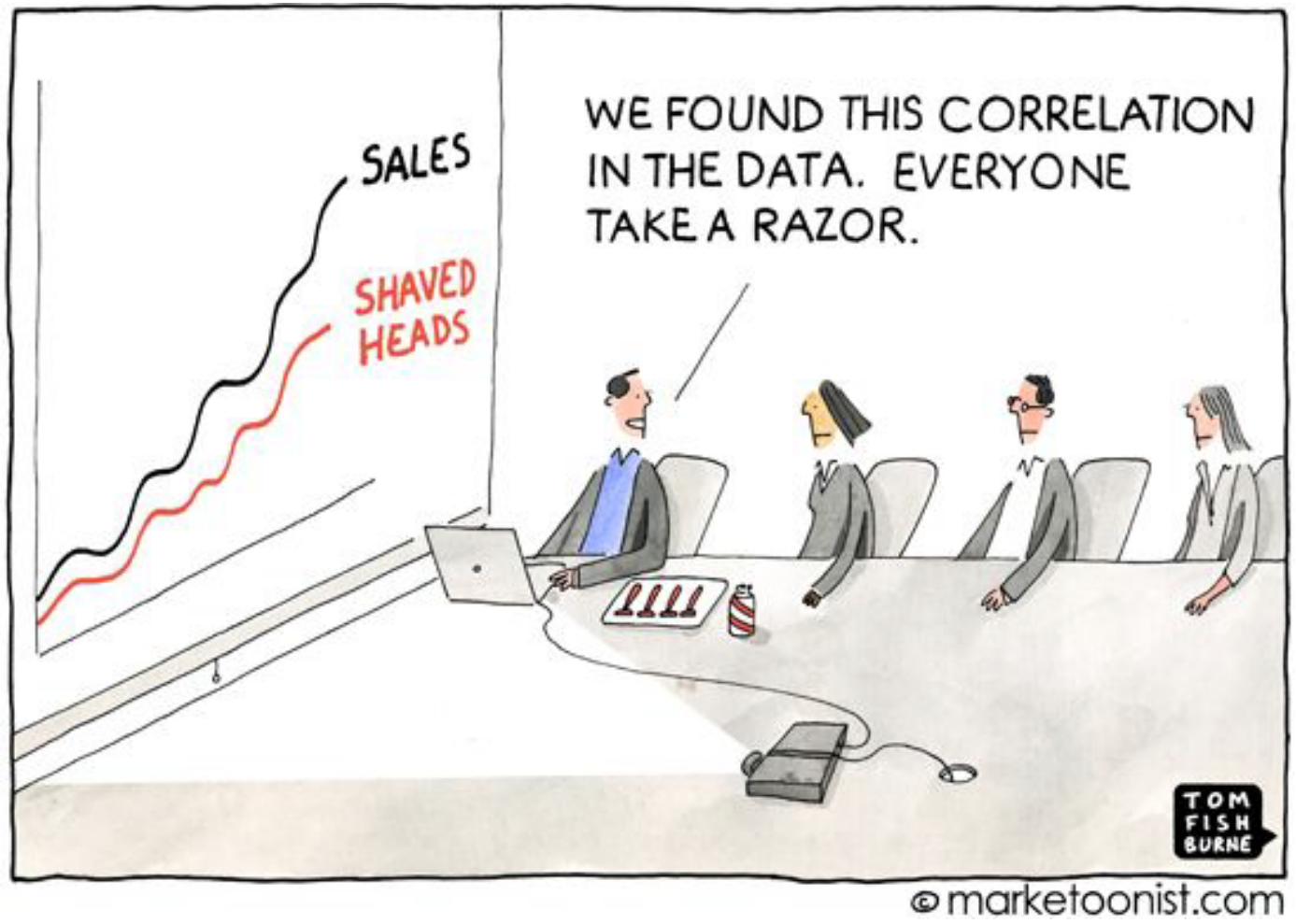
Using and interpreting data

How do you identify things that are important?



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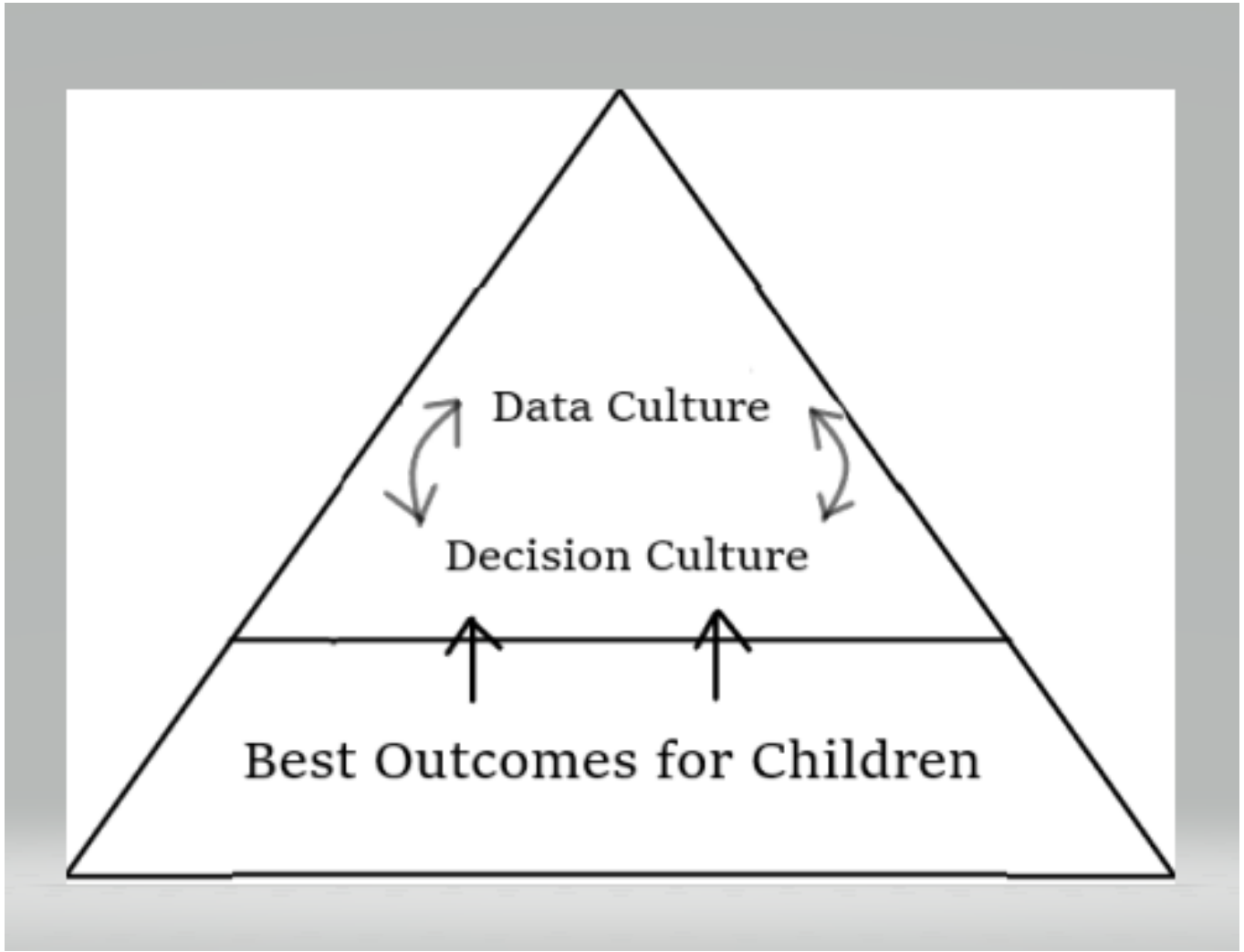
Building a Data Use Culture

Data culture is decision culture.



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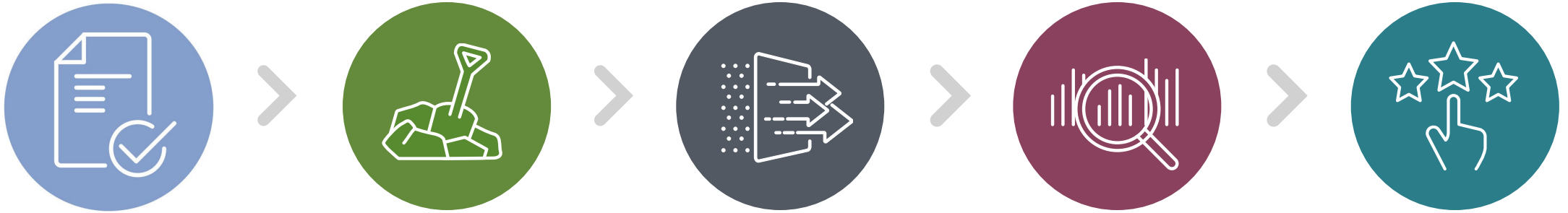
An approach to data use: the 5Ds



DEFINE

Define a focus for inquiry using data or evidence based on the need or problem to be solved.

DIG

Take inventory of available data and evidence that are related to your defined need or question.

DISTILL

Find the data and evidence that are most relevant to the need or question.

DISCOVER

Discover patterns and findings in the data and evidence you are using.

DECIDE

Data interpretation should ultimately yield decisions about next steps—either for action or further inquiry.

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The 5Ds Process – Step 1

DEFINE

Define a focus for inquiry using data or evidence based on the need or problem to be solved. Formulate questions within the focus area whose answers can be informed by data and evidence.

Define: What are your questions?

- What questions would you define for the formative/KSR assessments?
- Use the worksheet to focus on one question option and walk through the tool to help refine.
- Post your refined question in the chat.

1. Does the question address an issue that is significant to the individual, group, or school?	☐ Yes ☐ No		If no, refine the question or choose a different question that will result in more significant new insight.
2. Is it a question with a dichotomous answer (e.g., yes/no or improving/not improving)	☐ Yes ☐ No		If yes, refine the question to be one with a more informative answer or choose a different question.
3. Is the question related to a decision the team needs to make?	☐ Yes ☐ No		If no, refine the question or choose a different question that will lead to making data-informed decisions.
4. Is it possible to address the question in the available time?	☐ Yes ☐ No		If no, narrow the scope of the question to be more manageable in the time allotted.
5. Is the question narrow, clear, and straightforward?	☐ Yes ☐ No		If no, narrow the scope or refine the question to clarify.
6. Are the data necessary for answering the question accessible prior to the time of inquiry?	☐ Yes ☐ No		If no, either modify the question to one that can be answered with available data or set the date of study when necessary data can be collected.

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Define: Example Data Questions

Deepening understanding of alignment and coverage for KSR assessments.

1. If a student meets benchmarks at kindergarten entry, what knowledge, skills, and abilities are demonstrated at the end of the year on the same assessment (e.g., Teaching Strategies Gold or Desired Results Developmental Profile for Kindergarten)?

2. Can existing kindergarten school readiness data be used to better identify students that may need additional support to meet or exceed expectations on kindergarten assessment by the end of kindergarten, even if they do not demonstrate skills and knowledge significantly below benchmark?

The 5Ds Process – Step 2

DIG

Dig for data and evidence. Take inventory of available data and evidence that are related to your defined need or question. If you do not have data related to your need, you may need to develop a tool or process to gather it.

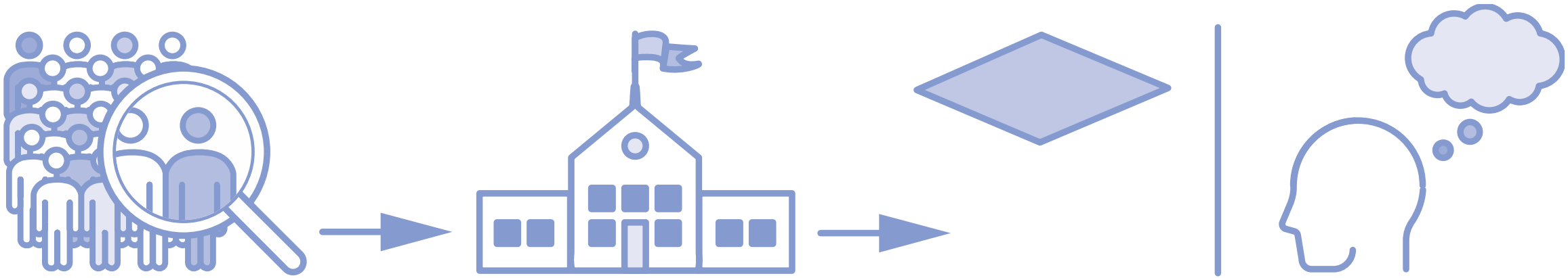
Types of Data

Demographic

Program

Outcome

Perception



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Poll: What type of data do you use? (select all that apply)

Demographic Data • Help staff understand its students and their unique needs. • Provide vital statistics regarding the students, their families, and the community. • Identify factors that must be considered in the staff's decision-making process.	**Program Data** • Include information related to the school's efforts to promote a high level of student achievement. • Refer to variables over which the school has some degree of control.
Outcome Data • Describe how a student or a group of students is doing at a particular moment in time. • Communicate the degree to which a student or a group of students has acquired specific knowledge, skills, and attitudes. • Measurable and quantifiable.	**Perception Data** • Help us understand what students, parents, teachers, and others think about the learning environment. • Can be gathered through questionnaires, interviews, and observations.

"the ability to collect, manage, evaluate, and apply data in a critical manner"

Ridsdale et al., (2015).

Dig: Data to answers the question your Defined

- Think about the question you refined and put in the chat. What data would you need to dig for to answer that question?

- Use the chart in your worksheet to sketch out some quick answers to these questions.

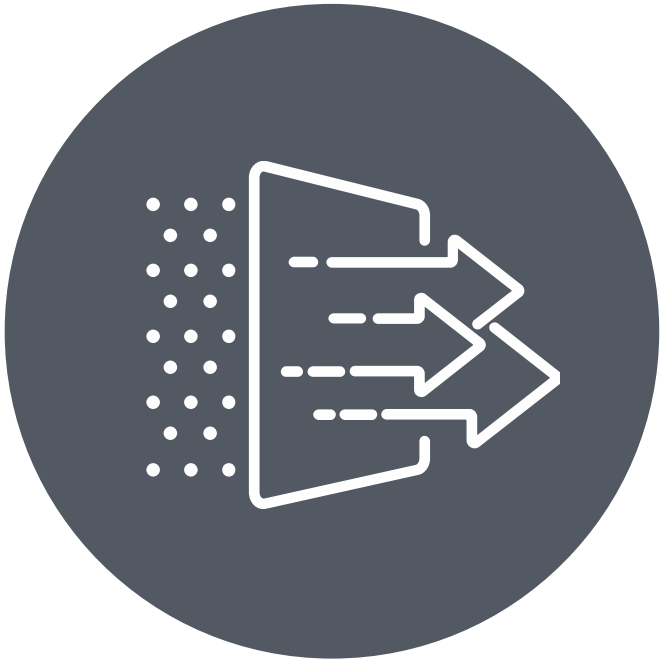
What sources of data will help the investigation?		**Where are these data located?**	
What type of data needs to be collected?		**Who will be responsible for collecting these data?**	
Are the data available or does new data need to be collected?		**When will these data be collected?**	

Dig: Example Dig

This is one source of data that can be used to address the questions we have defined. Additional data from each source could also be included to increase the validity and reliability of any outcomes.

What sources of data will help the investigation?	TS GOLD® Kindergarten School Readiness assessment data	Where are these data located?	1400 Kindergartners within a district in Colorado
What type of data needs to be collected?	Outcome: Scores for 6 domains of the TS GOLD® KSRA from at each timepoint	Who will be responsible for collecting these data?	Kindergarten Teachers
Are the data available or does new data need to be collected?	Available	When will these data be collected?	Beginning and End of Year

The 5Ds Process – Step 3



DISTILL

Find the data and evidence that are most relevant to the need or question. Your initial search will likely result in more data or evidence than you can reasonably process or may yield data that need to be cleaned, prepared, or displayed in particular ways based on the need or question.

Steps to Distill Data

Select – Relevance, Usability, Complete

Prepare – Descriptive, Relational, Difference Statistics

Clean – Missingness, Outliers, Errors

Display – Tables and Charts

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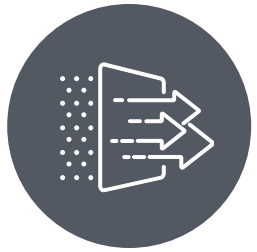


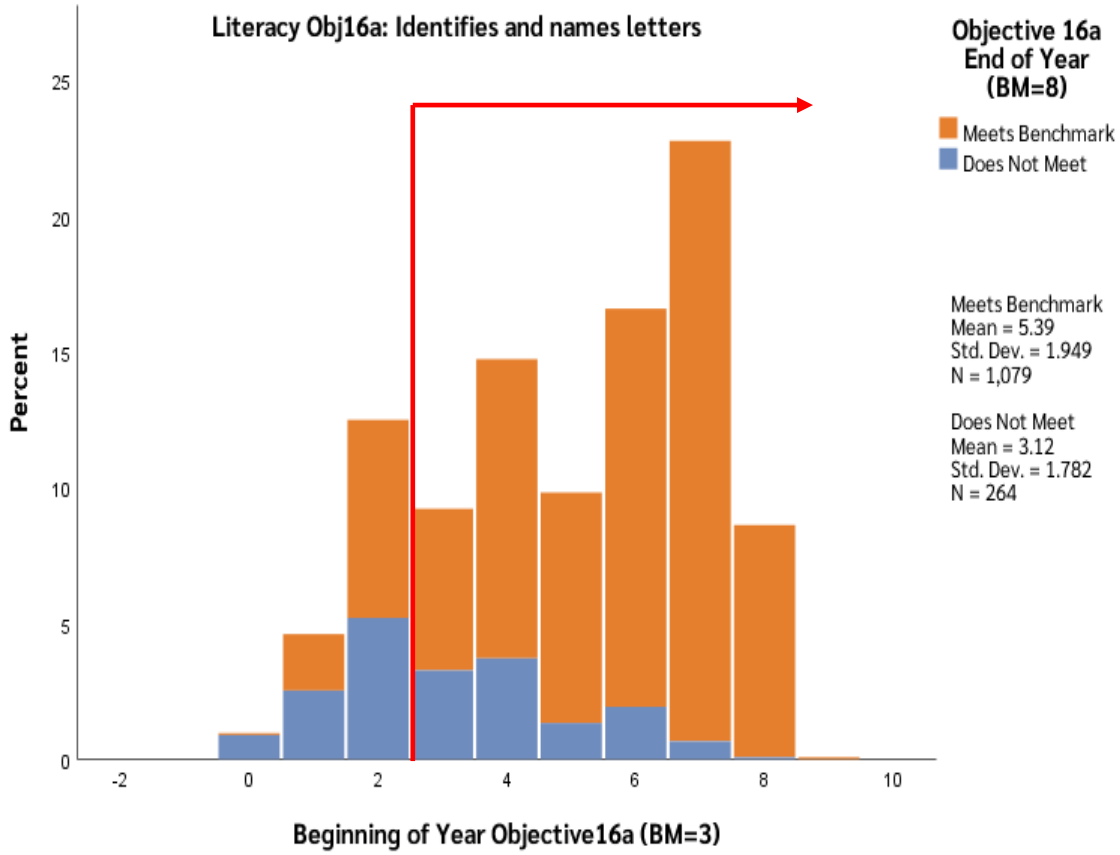
Distill: How is your data displayed?

- Often data are provided by the assessment vendor distilled into a display. These pre-generated displays, such as tables, charts, or graphs, may or may not be easy to understand or use to inform practice.

- Thinking about your own hypothetical question and the data you would dig for to answer it, would you say the data displays are in a format for you to easily interpret and answer your questions?

EXAMPLE: Dug Data Source	Is the data display easy to use for the intended purpose?	What changes would you like to see in these data displays?	What is the process needed to make these changes?
Example: TS GOLD® Data	Not displayed; need graphs and comparison	Plot the BOY scores relative to those meeting EOY BM	Crosstabs and a stacked bar graph

Data Display Overview



View the BOY distribution by not paying attention to the coloring.

EOY Benchmark information embedded by color

The red line marks the BOY benchmark. Anything to the right indicate students who are at or above benchmark at BOY.

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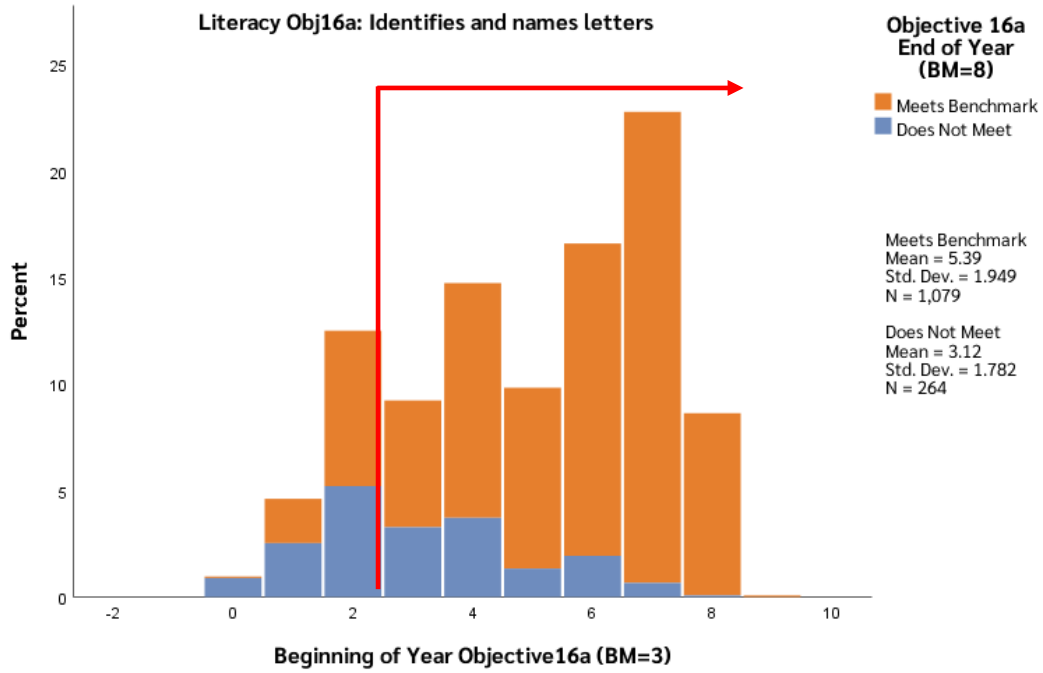
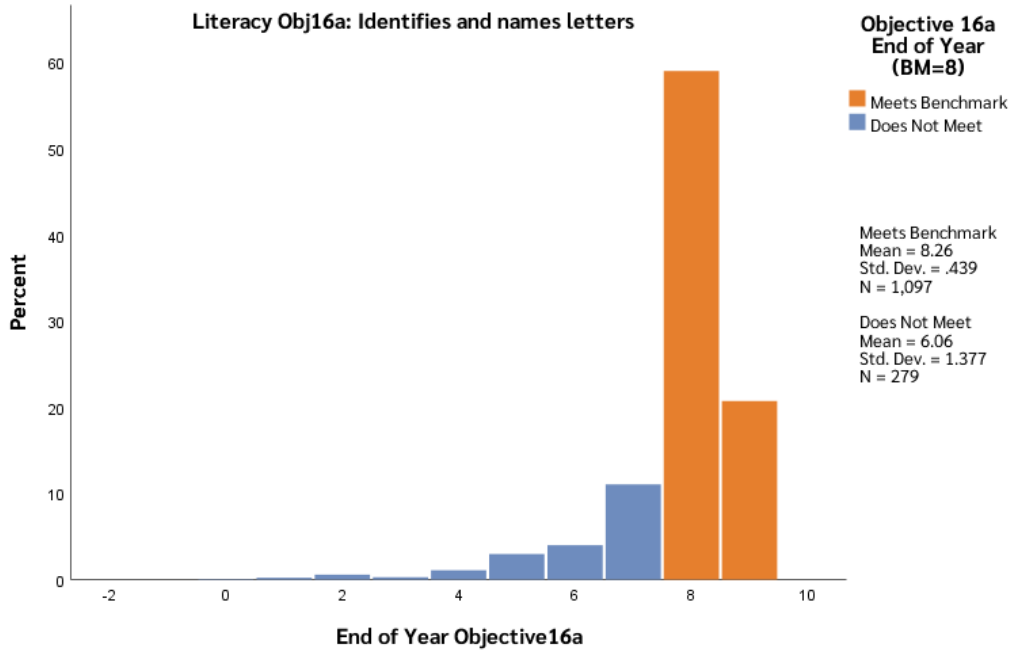
a. Identifies and names letters

Not Yet	1	2	3	4	5	6	7	8	9
		Recognizes and names a few letters in own name		Recognizes and names as many as 10 letters, especially those in own name		Identifies and names 11–20 upper- and 11–20 lowercase letters when presented in random order		Identifies and names all upper- and lowercase letters when presented in random order	





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The 5Ds Process – Step 4

DISCOVER

Discover patterns and findings in the data and evidence you are using. This requires both **analysis** and **interpretation**. **Analysis** is defined in this context as noticing and defining patterns or findings that are in the data; **interpretation** is applying experience and professional judgment to make sense of those patterns and findings.

Discover: A General Process for Analysis

Discuss and record factual observations. Avoid going into the details of ‘why’ and focus on collecting as many SURF statements as possible.

SURF the Data

Observations should be:

S – Specific

U – Understandable

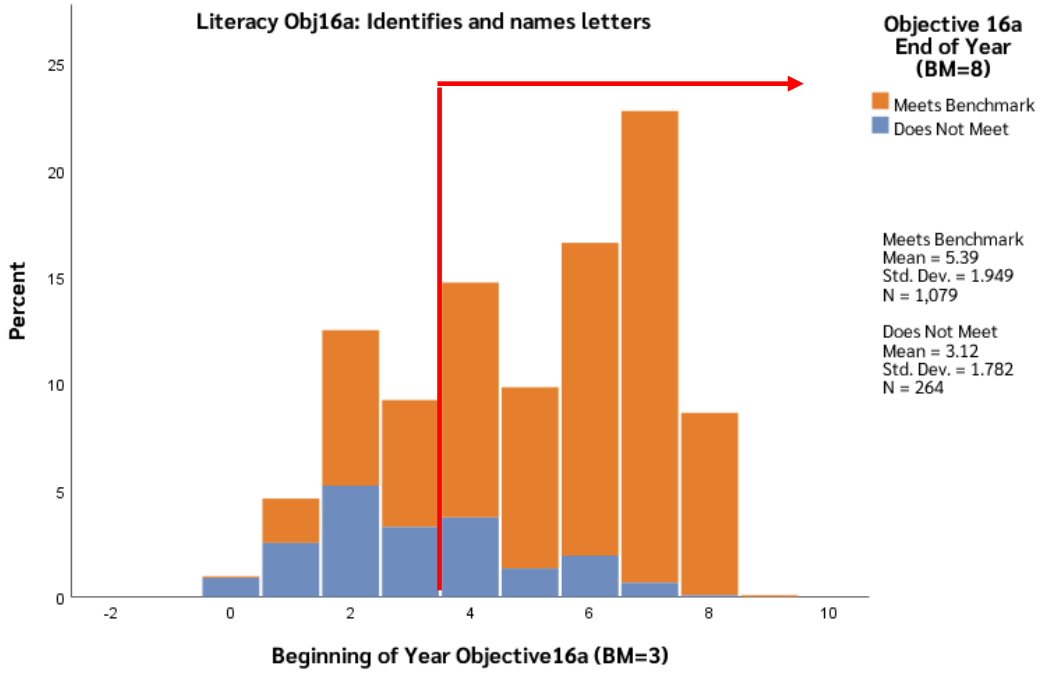
R – Related

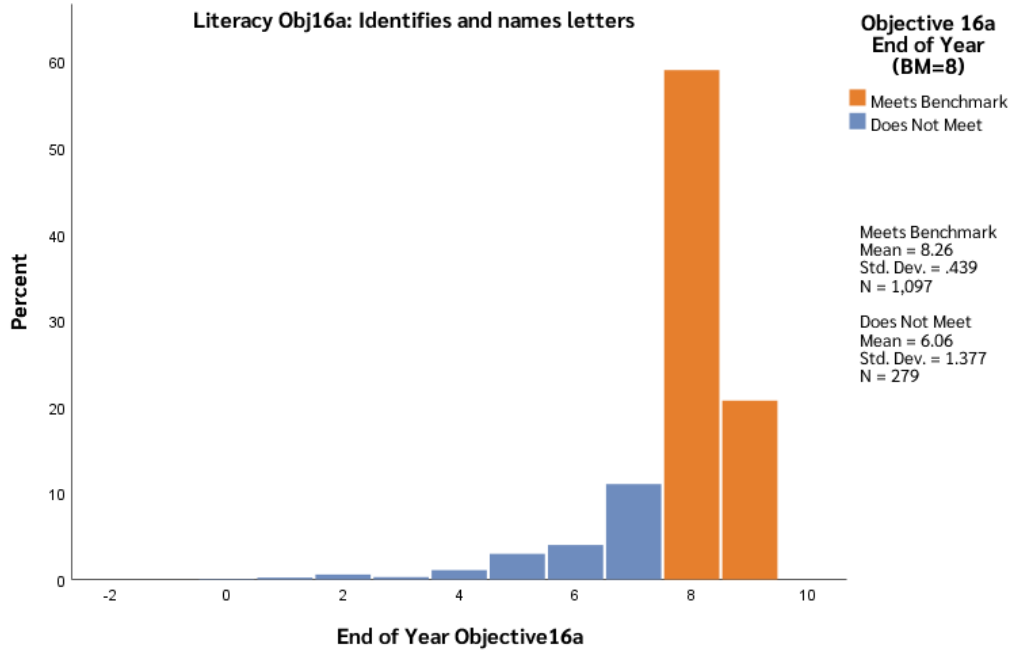
F – Factual

Test: Could someone not involved in the analysis read the statement and understand it?

a. Identifies and names letters

Not Yet	1	2	3	4	5	6	7	8	9
		Recognizes and names a few letters in own name		Recognizes and names as many as 10 letters, especially those in own name		Identifies and names 11–20 upper- and 11–20 lowercase letters when presented in random order		Identifies and names all upper- and lowercase letters when presented in random order	





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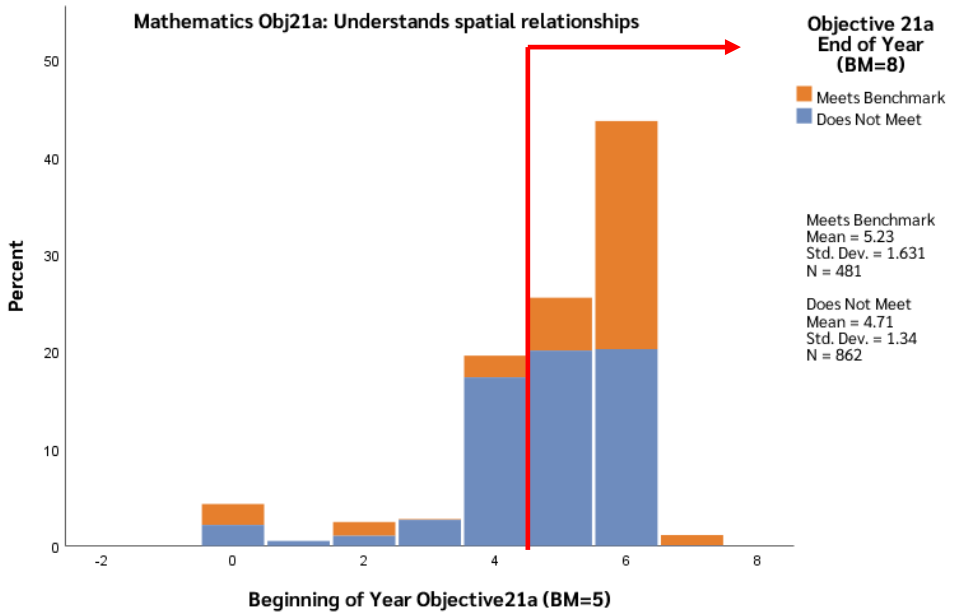
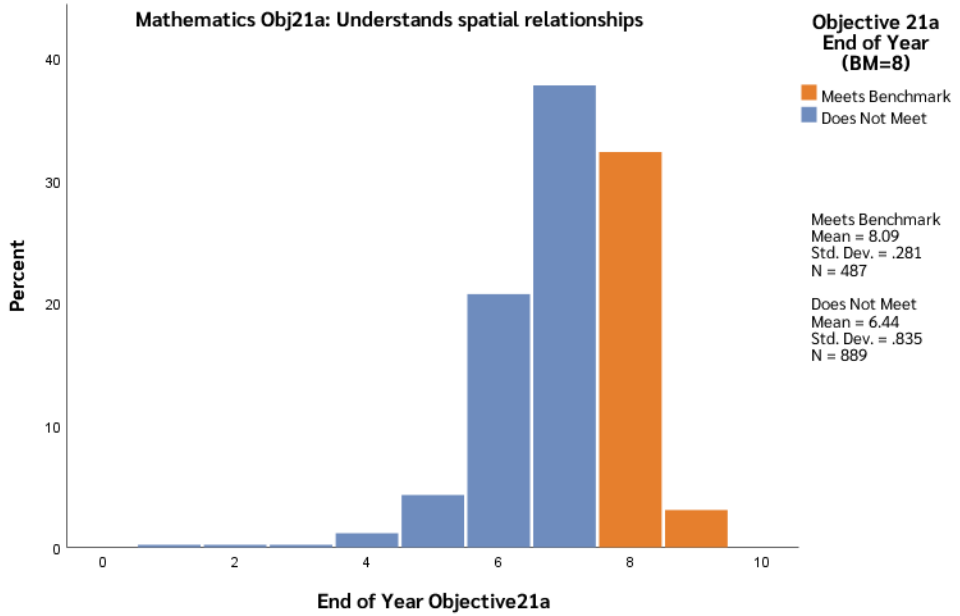
Discovery Workshop – Small Group

1. As a group decide which item to focus on 21a and 22a.
2. Individually generate as many SURF statements as possible, use the SURF statement questions to stay focused on the data.
3. Add your SURF statements to the chat.
4. As a small group discuss which SURF statements rise to the top.
5. Be ready to share your final SURF statements with the whole group.

a. Understands spatial relationships

Not Yet	1	2	3	4	5	6	7	8	9
		Follows simple directions related to position *(in, on, under, up, down)* • Follows teacher's directions to put the trash *in* the can • Raises hands *up* and *down* as the song directs		**Follows simple directions related to proximity *(beside, between, next to)*** • Follows teacher's direction to put the cup *next to* the plate • Sits beside her friend when he says, "Sit *between* me and Laura."		**Uses and responds appropriately to positional words indicating location, direction, and distance** • Says, "Look for the surprise *behind* the tree." • Moves game piece *backward* when playmate gives directions		**Uses and makes simple sketches, models, or pictorial maps to locate objects** • Constructs a map of the play yard using landscape toys • Uses a map of the classroom to find the hidden treasure	





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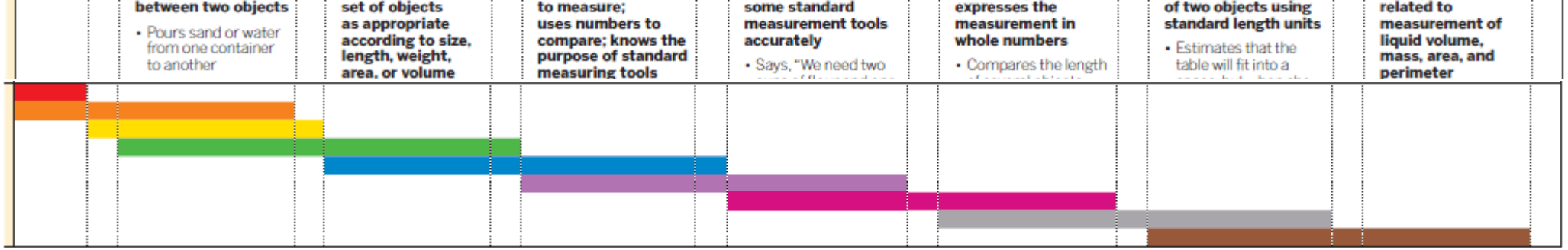
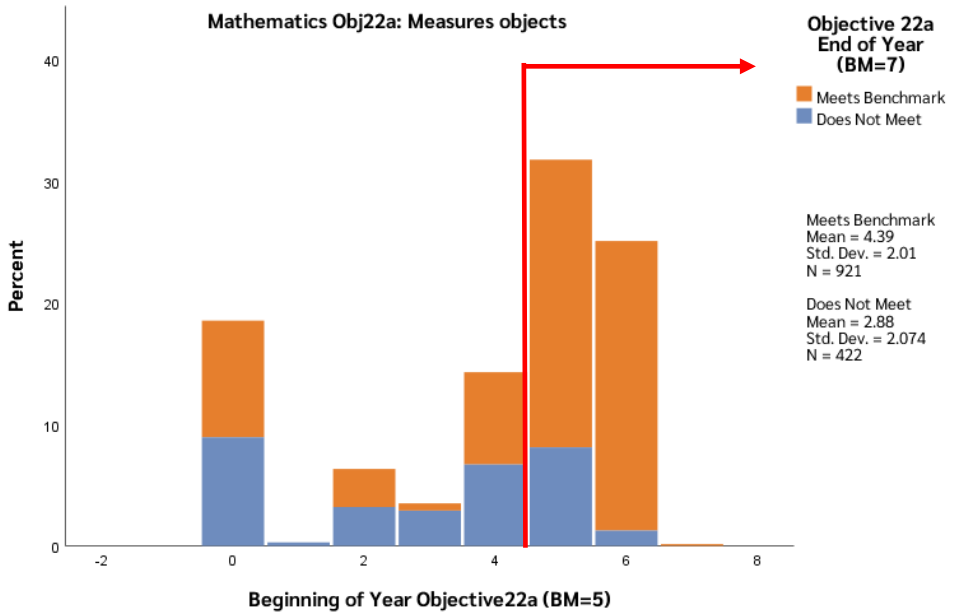
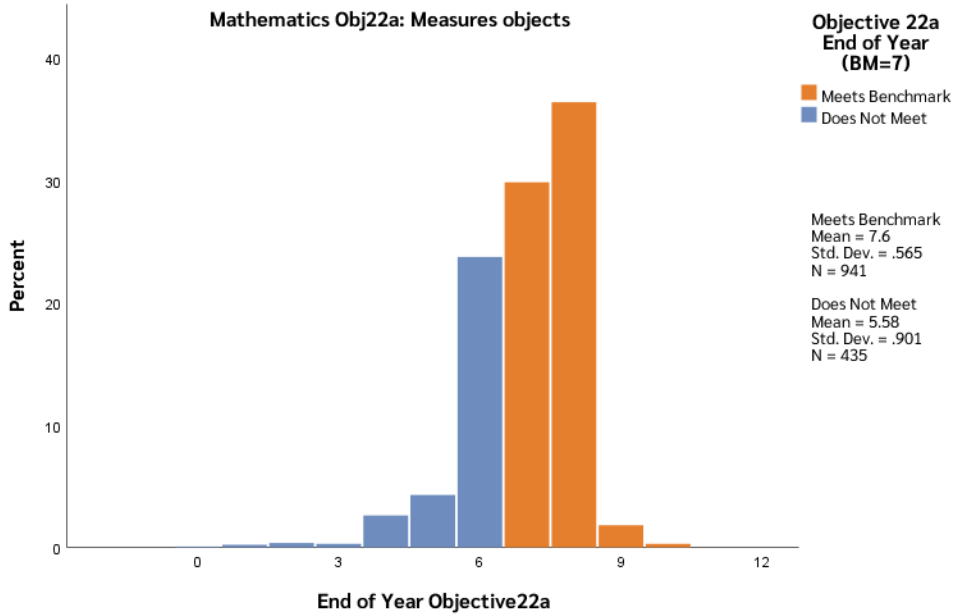
a. Measures objects

Not Yet	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		Makes simple comparisons between two objects • Pours sand or water from one container to another		**Compares and orders a small set of objects as appropriate according to size, length, weight, area, or volume**		**Uses multiples of the same unit to measure; uses numbers to compare; knows the purpose of standard measuring tools**		**Uses measurement words and some standard measurement tools accurately** • Says, "We need two		**Measures length accurately and expresses the measurement in whole numbers** • Compares the length		**Measures and compares the length of two objects using standard length units** • Estimates that the table will fit into a		**Solves one-step word problems related to measurement of liquid volume, mass, area, and perimeter**	







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The 5Ds Process – Step 5

DECIDE

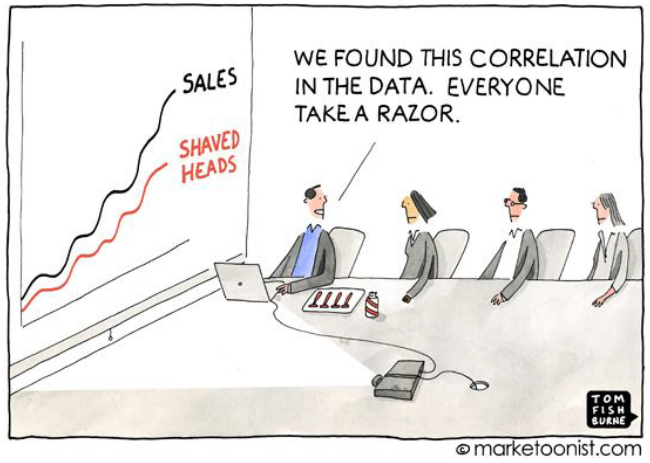
Data interpretation should ultimately yield decisions about next steps – either for action or for further inquiry. When decisions have been made, systematic change processes can be used to act on those decisions.

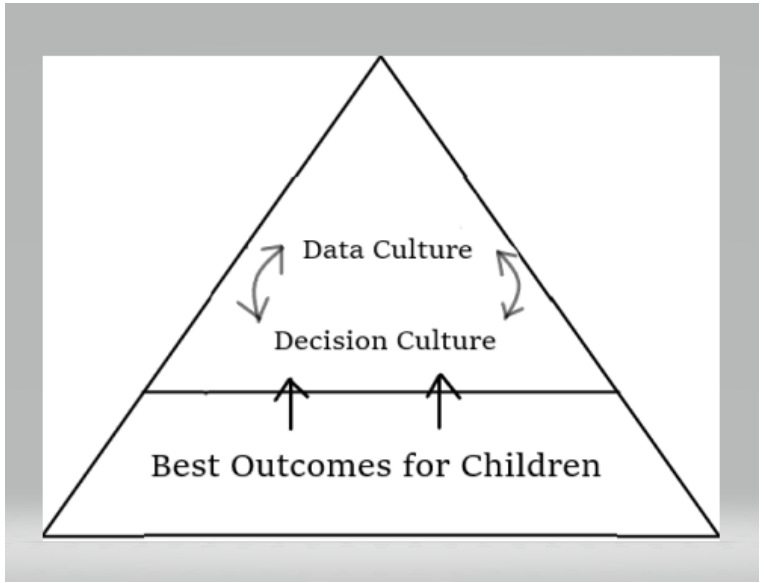
Decide – Example Data

Who might use this data to make decisions? And what kind of decisions each user make based on this data?

- **Change Decisions** – from update to overhaul
- **Process Decisions** – things to be started and things to be stopped
- **Information Decisions** – places where more or different data is needed

Data culture is decision culture





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About Us

Marzano Research is a women-owned small business and Certified Benefit Company dedicated to working with educators and system leaders to learn, evolve, and thrive. Based in Denver, CO and Portland, OR, we offer sophisticated education research and consulting capabilities with a collaborative, small-business approach.

Addressing our partners' challenges and priorities through:

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