Welcome
Thank you for joining the webinar

DATA ANALYSIS
Tools and Processes

The session will begin shortly.

Hawaii Department of Education
Office of Curriculum, Instruction and Student Support

DATA ANALYSIS
Tools and Processes

Hawaii Department of Education
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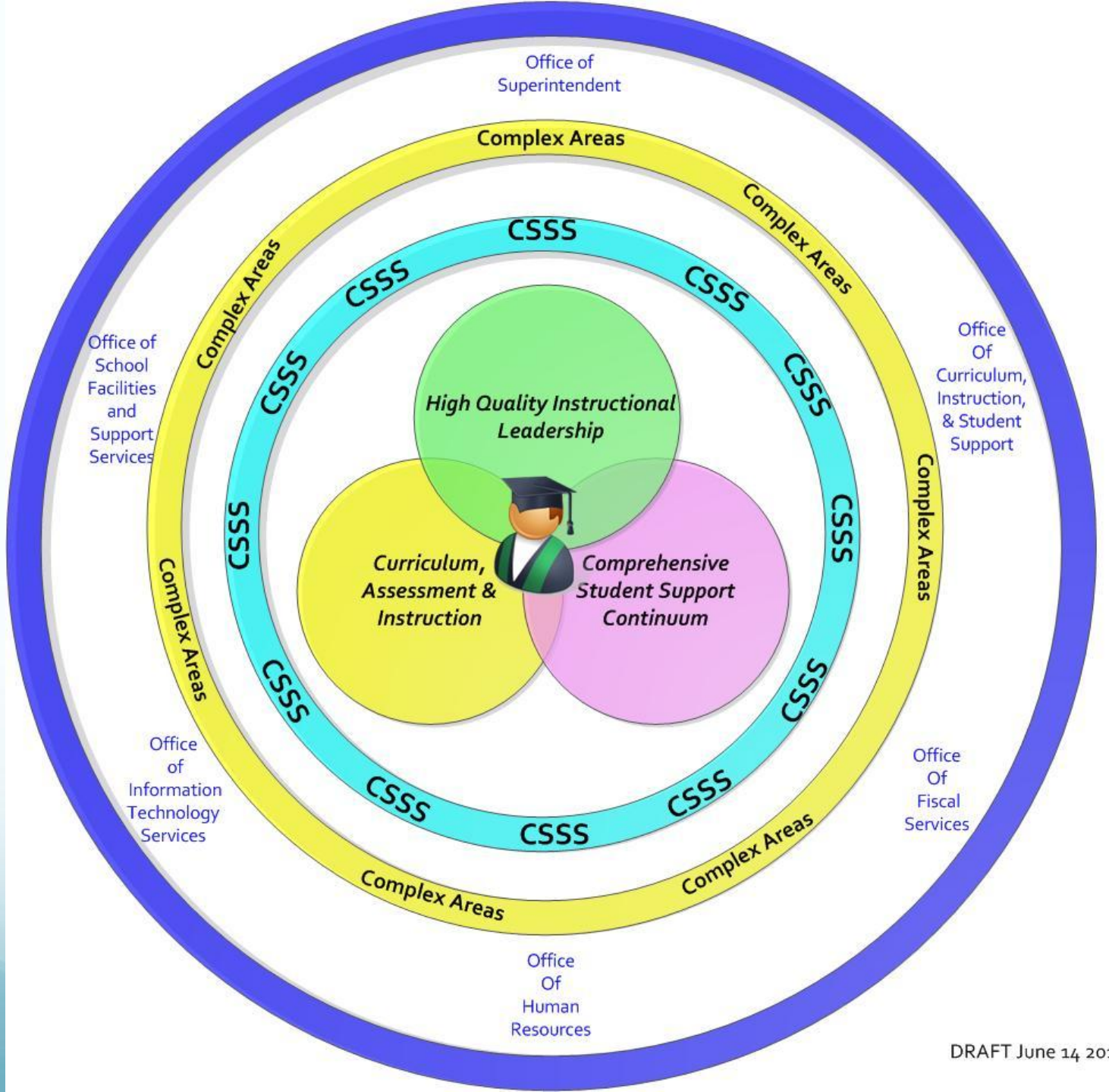
Webinar reminders

- **Close** all other applications on your computer.
- Please make sure to **mute** your microphones and keep them muted unless otherwise instructed.

- Please ask all **questions** through the **chat box**.
- Make sure your chat box is set for "**Everyone**."

Questions will be addressed during Q & A.

- This session is being recorded.



DRAFT June 14 2011

Hawaii DOE's Strategic Plan

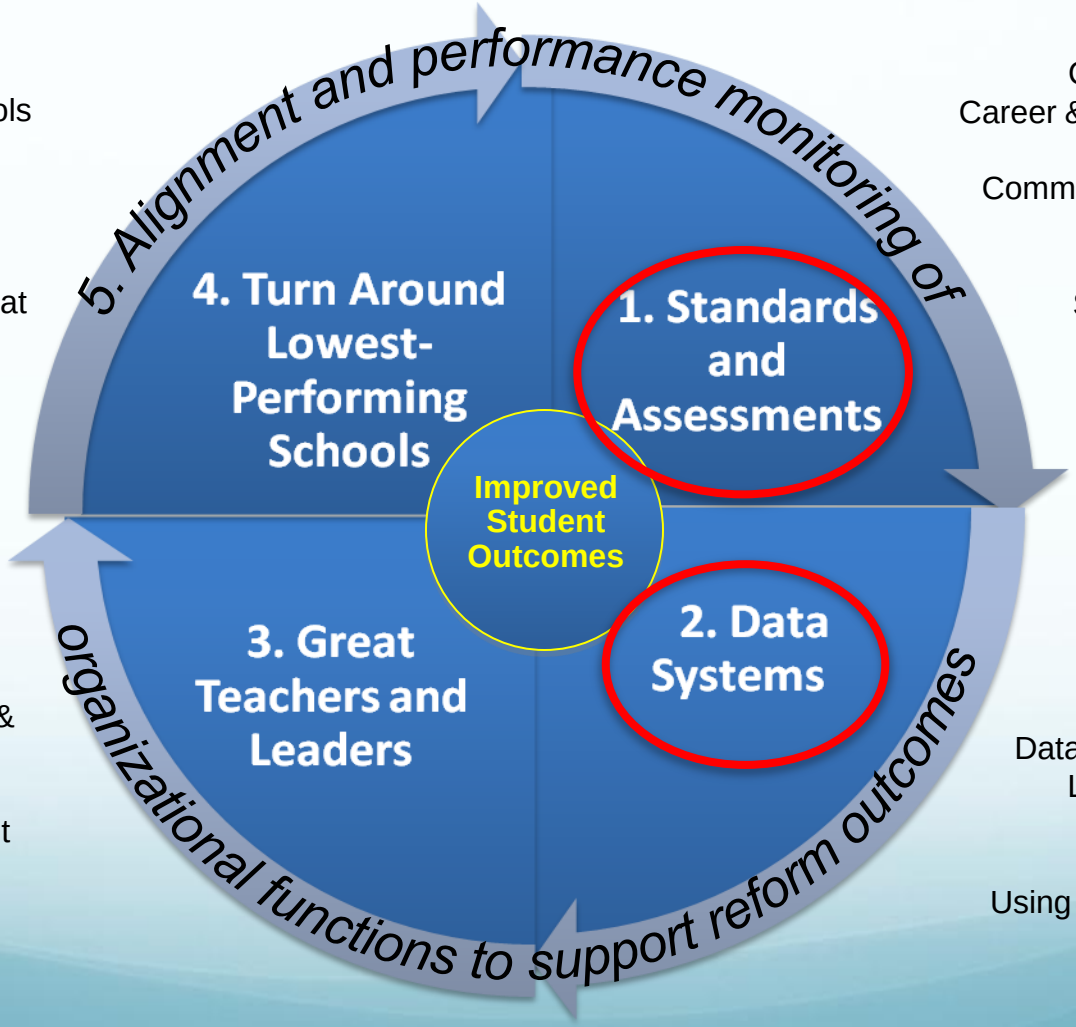
July 1, 2011- June 30, 2018

- Assure all students are college and career ready through effective use of standards-based education
  - **GP # 1** Assessment of and for learning drives instruction
  - **GP # 2** Evidence-based instructional strategies
- Ensure and sustain a rich environment and culture for life long learning
  - **GP # 4** Instructional leadership and professional learning
  - **GP # 6** School, home, and community partnerships
- Continuously improve the effectiveness, efficiency and responsiveness of the educational system
  - **GP # 3** Aligned policies and resources across school, complex area, and state levels
  - **GP # 5** Accountability

Hawaii's Five RTTT Pillars

Systems of Support to enable schools to do their best work – reprioritize and reorganize State resources; establish Human Resources Unit in Zones of School Innovation; automate

Focused support on lowest-performing schools
-
Zones of School Innovation
•Flexibility
•Great teachers and great leaders
•Remove barriers to learning



Common Core Standards
Career & College Ready Diploma
Curriculum Framework
Common Instructional Materials
Formative Assessments
Interim Assessments
Summative Assessments
STEM

Performance-based evaluation system
New Teacher Induction & Mentoring
Incentives
Leadership development
Alternative pathways

Data for School Improvement
Longitudinal Data System
Balanced Scorecard
Data Governance
Using data to inform instruction

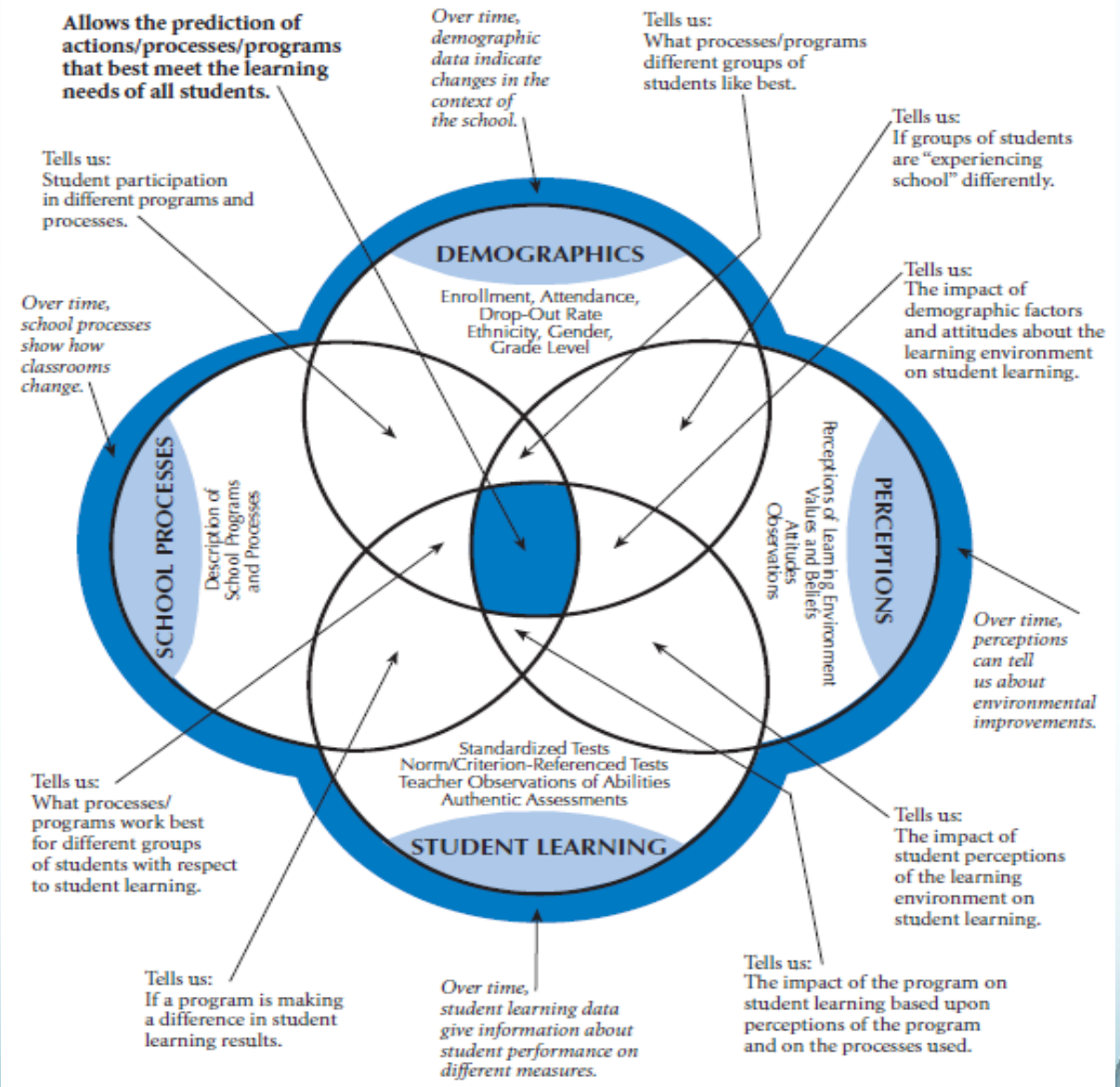
DESIRED OUTCOMES

An understanding of a process in which to move from summative state level data to formative classroom data in order to provide teachers with detailed student information.

ESSENTIAL QUESTION

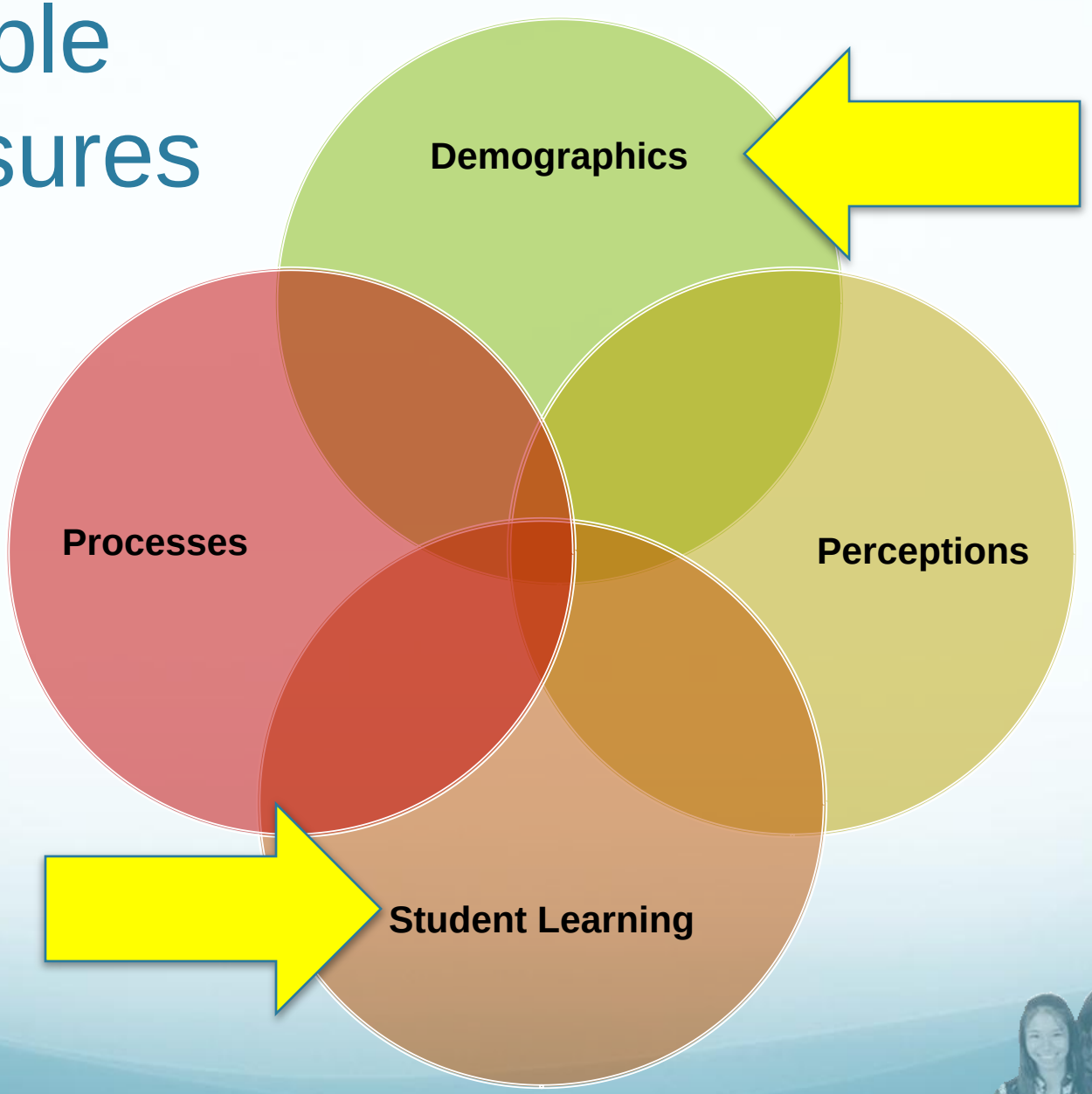
How might a teacher analyze available data ranging from summative assessments to looking at student work?

MULTIPLE MEASURES OF DATA

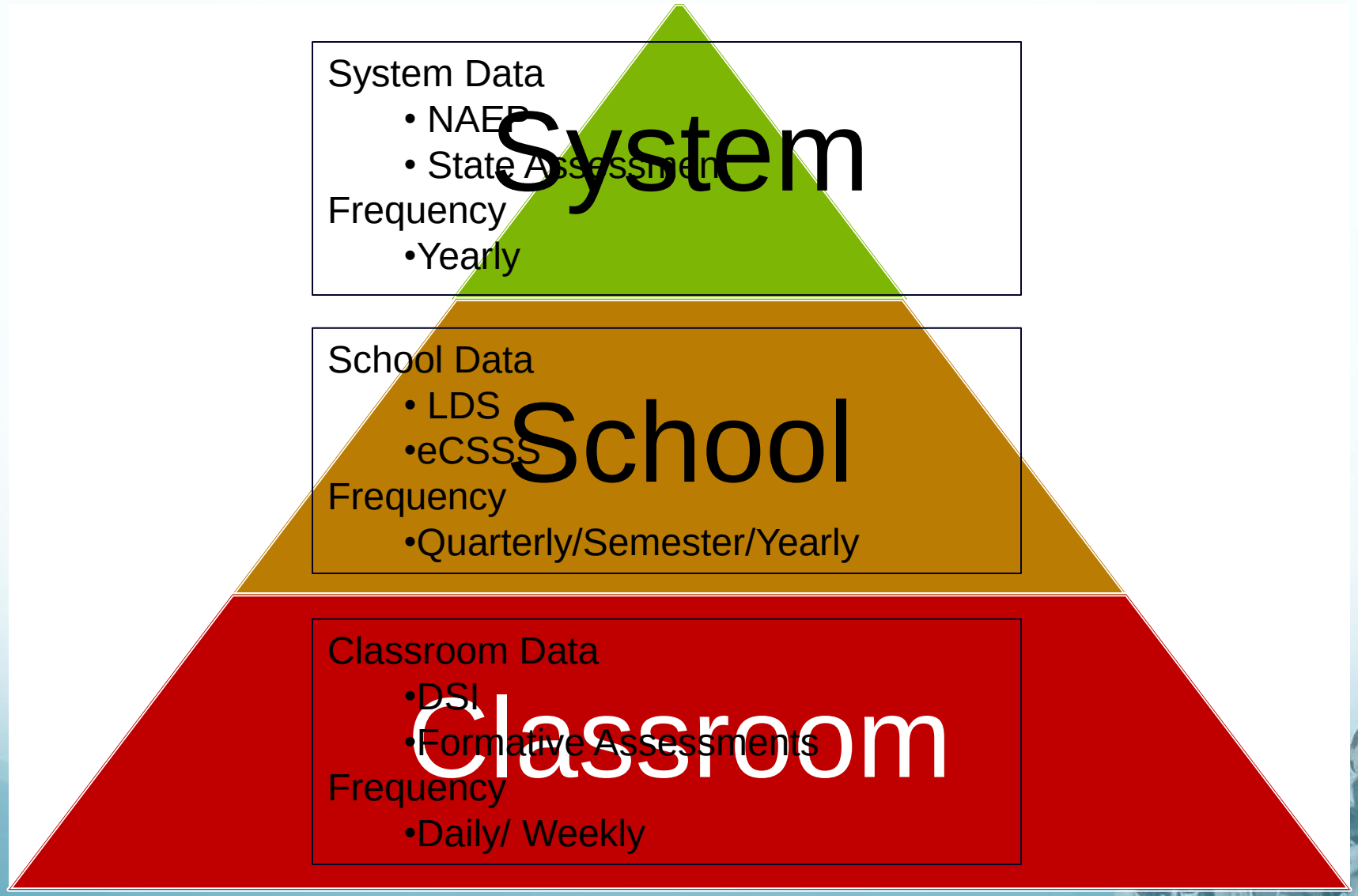


Note. Adapted from *Data Analysis for Comprehensive Schoolwide Improvement* (p.15), by Victoria L. Bernhardt, 1998, Larchmont, NY:

Multiple Measures



Data – Three Levels



Types of School Teams

Leadership Team

Principal
Counselor
Curriculum Coordinator
GL Reps/Dept Chairs

Grade Level/ Department

Kindergarten
First
Second

Science
Math
Language Arts

Classroom

Teacher **Teacher** **Teacher** **Teacher**

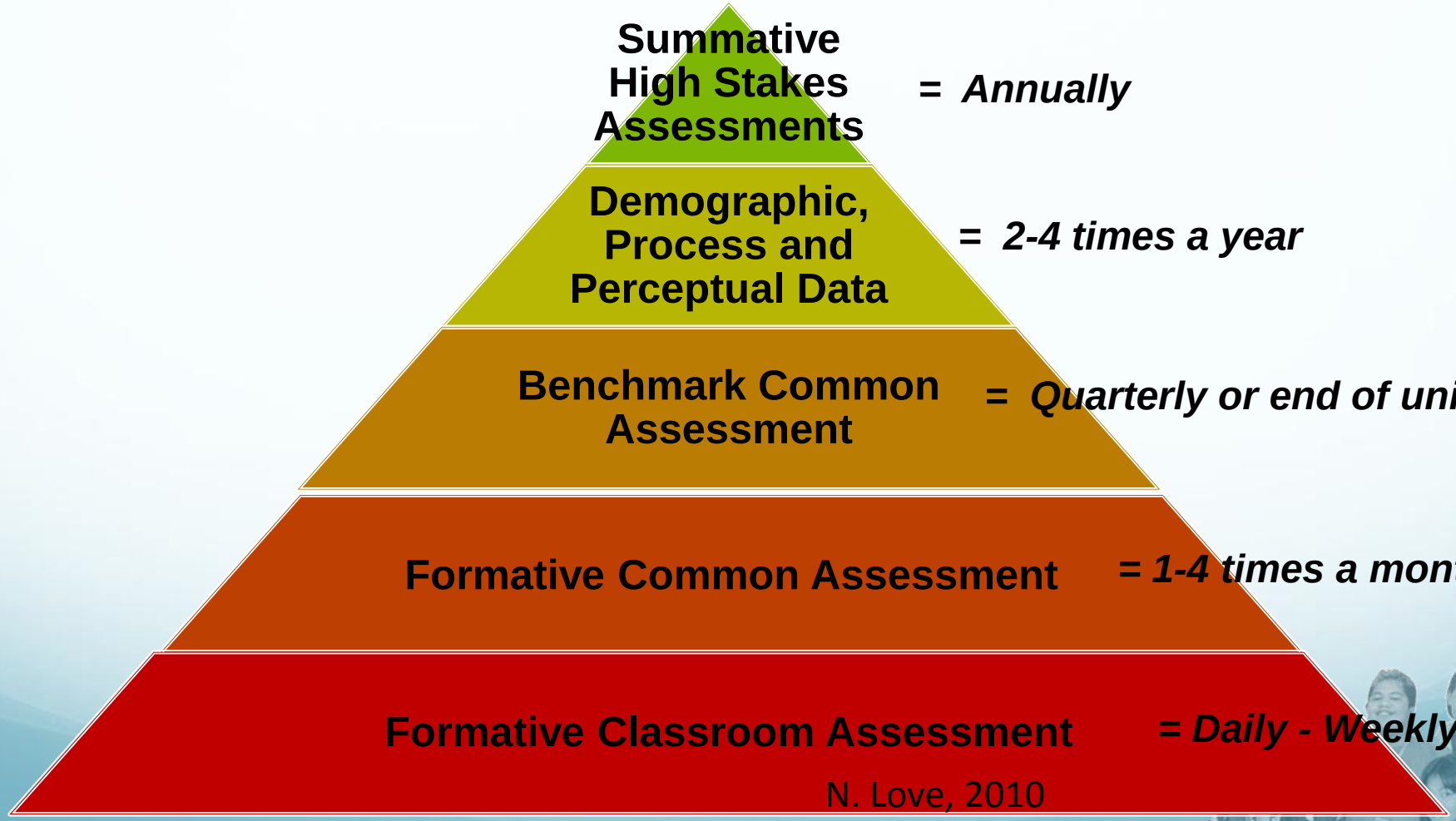
Inverted Data Pyramid

Summative
High Stakes
Assessment

Other

N. Love, 2010

Data Pyramid (types of data): How often do teams and coaches use these types of data?



N. Love, 2010

Identifying student learning needs by drilling into data

Levels of Data

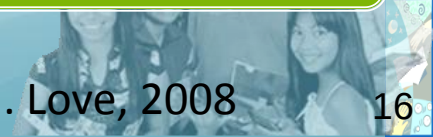
Aggregated Data

Disaggregated Data

Strand

Item

Student Work



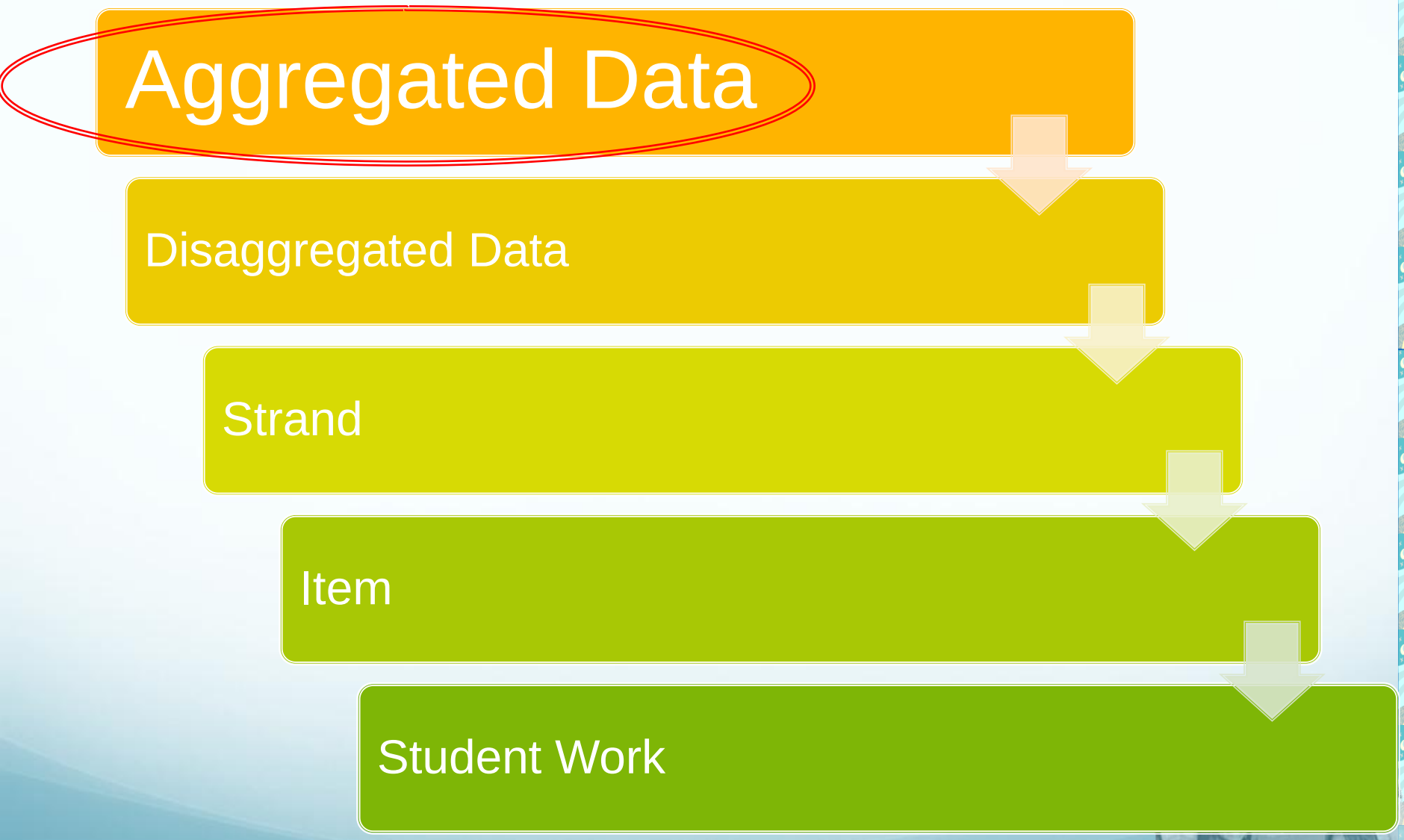
N. Love, 2008

Identifying a Student-Learning Problem: Data Findings

Content Area _____ Grade Level _____

Levels of Data	Types of Data		
	1: _____ _____ Years:	2: _____ _____ Years:	3: _____ _____ Years:
Aggregated results			
Disaggregated results			
Strand results			
Item analysis			
Student work			

“Drilling Down” into Data



N. Love, 2008

100 thousand foot view

Why is Aggregated data results important?

"Headlines" but not the entire "story"

- Cause for celebration
- Calls attention to areas of further investigation

CAUTIONS

When examining **Aggregated** Results

- **Sampling Error - Different Students! Different Tests!**

  "The cohort of students in any one year is often very different from those in previous years, and these differences among student cohorts cause scores to fluctuate substantially more one year to the next, even if the effectiveness of the school remains unchanged." (Boudett, City & Murnane, 2006, p 35).

- **Tests Change!**
- **Sample Sizes**
- **Measurement Error**

H S A Score Report

Hawai'i State Assessments

Score Reports | Test Management Center | Inbox (1) | Search Students | Manage Rosters | Online Reporting

Now viewing: **Scores for students who were mine during the selected administration**

This page: Help | Print | Export

Select Test and Year

Test: HSA

Administration: 2011-2012

- (•) Scores for students who were mine during the selected administration
- ( ) Scores for my current students

Click on a grade and subject to view more information.

Elementary, 2011-2012

Percentage of Students Proficient

Grade	Reading	Mathematics	Science
Grade 3	48%	26%	N/A
Grade 4	64%	41%	21%
Grade 5	46%	41%	N/A

Percentage of Students Tested

Grade	Reading	Mathematics	Science
Grade 3	95%	94%	N/A
Grade 4	100%	100%	100%
Grade 5	100%	100%	N/A

Based on data from the Hawai'i State Assessment, 2011-2012 administration.
Report Generated: 4/2/2012 4:35:42 PM HST
*No valid scores for this grade and subject

Hawai'i Department of Education
Systems Accountability Office
Student Assessment Section
641 18th Avenue, Room V-102
Honolulu, HI 96816
Phone: 808 733 4100

Content Area Math Grade Level Grade 3

Levels of Data	Types of Data		
	1: HSA Years: 2010-12	2: Years:	3: Years:
Aggregated results	26% of the 3rd gr. are proficient in math, which is a decrease from last year.		
Disaggregated results			
Strand results			
Item analysis			
Student work			
Student-learning problem:			

When looking at **aggregate** scores, we need to be careful about . . .

- Moving too quickly to generate solutions
- Blaming students
- Targeting bubble students
- Getting discouraged

“Drilling Down” into Data

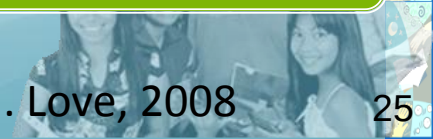
Aggregated Data

Disaggregated Data

Strand

Item

Student Work



N. Love, 2008

10 thousand foot view

Why is Disaggregated data results important?

Goal: **Identify who is and who is not learning**

Data that have been separated into groups based on a criterion.

CAUTIONS
when examining **Disaggregated Results**

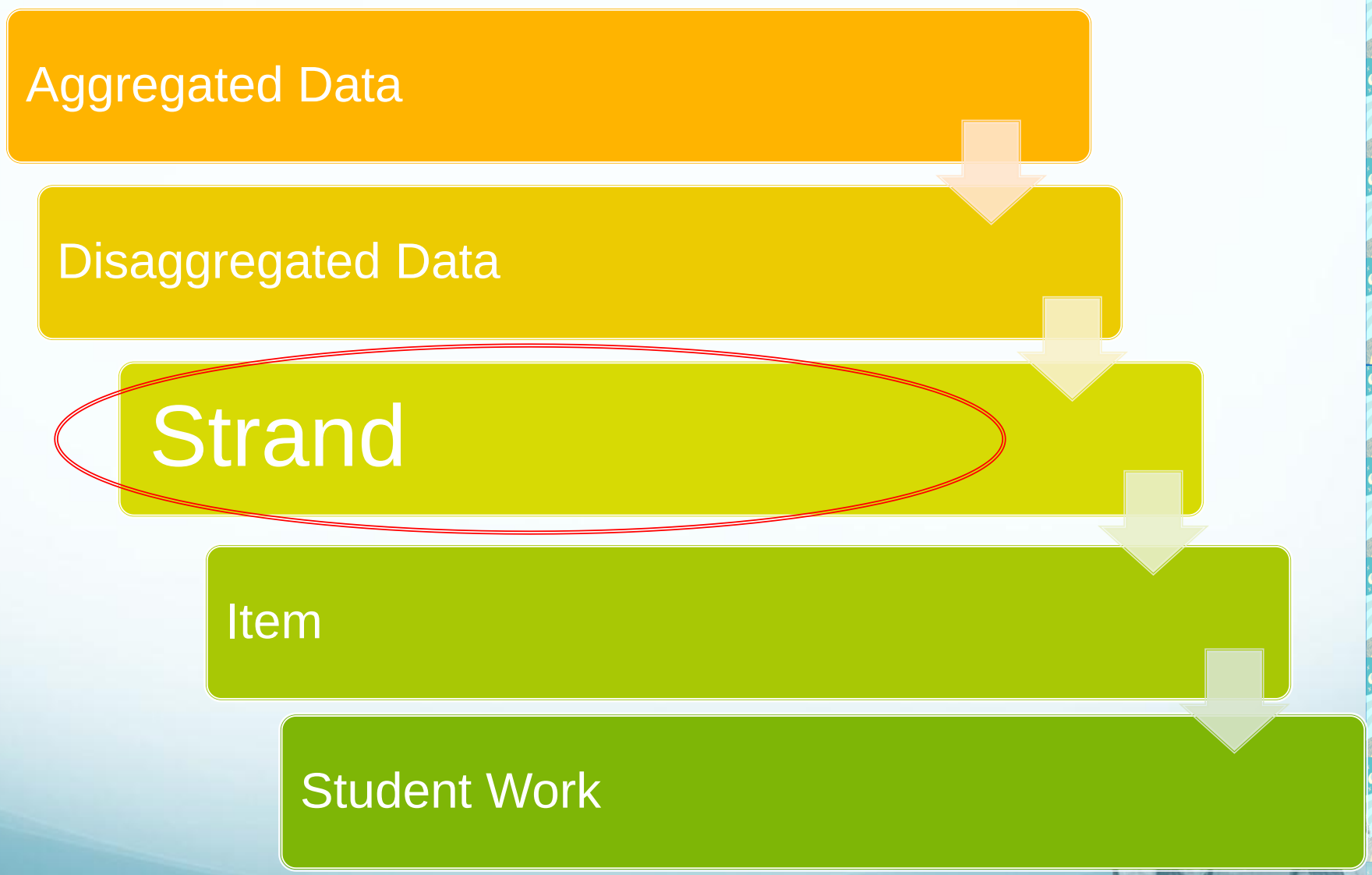
- **Achievement Gaps**
  - The importance of achievement gaps is to call attention to the inequities of our educational system and to take action to address them (N. Love, 2009)

Content Area _____ Grade Level _____

	Types of Data		
Levels of Data	1: HSA Years: 2010-12	2: _____ Years:	3: _____ Years:
Aggregated results	40% of the 3rd gr. are proficient in math, which is a decrease from last year.		
Disaggregated results	**There is a persistent achievement gap between the males and the females in math.**		
Strand results			
Item analysis			
Student work			

Student-learning problem:

“Drilling Down” into Data



N. Love, 2008

1000 foot view

Contributed by Lauren, Marcelle, Champt10 and others

Strand Data

- Multiple years – Patterns and Trends
- Standards in context
- “Whole to Parts” perspective

Grade 3 Mathematics Online HSA Blueprint*

Reporting Categories	Benchmarks	Percent of Items	Number of items
Numbers and Operations	MA.3.1.1 MA.3.1.2 MA.3.1.3 MA.3.1.4 MA.3.2.1 MA.3.2.2 MA.3.2.3 MA.3.2.4 MA.3.3.1 MA.3.3.2 MA.3.3.3	24% - 27%	11 - 12
Measurement	MA.3.4.1 MA.3.4.2 MA.3.4.3 MA.3.4.4 MA.3.4.5 MA.3.4.6	18% - 20%	8 - 9
Geometry & Spatial Sense	MA.3.5.1 MA.3.5.2 MA.3.6.1 MA.3.6.2 MA.3.6.3 MA.3.8.1	18% - 20%	8 - 9
Patterns, Functions & Algebra	MA.3.9.1 MA.3.9.2 MA.3.9.3 MA.3.10.1 MA.3.10.2	18% - 20%	8 - 9
Data Analysis, Statistics & Probability	MA.3.11.1 MA.3.11.2 MA.3.12.1 MA.3.13.1 MA.3.14.1	18% - 20%	8 - 9
Operational Item Total			45
Field Test Item Total**			0 - 10
Total Items on Test			45 - 55

* Revised February 2011. Year removed from title. No changes to Reporting Category and Benchmark alignment were made.

** Field test items are *not* used to compute students' scores. The number of field test item varies throughout the administration window. Periodically, the Department conducts studies on the assessments which may necessitate an increase or decrease in the number of field test items that are administered to students.

Look at the test blue print to determine how many items appear on the test within each strand.

www.alohahsa.org

CAUTIONS

when examining **Strand Data**

- Drawing Conclusions
- Blaming Students and/or Teachers

HSA Strand Report

Name	Student Count	Content Strand	Percent at Each Performance Category
Hawaii Department of Education	14,382	**Mathematics**	
		Numbers and Operations	30 39 31
		Measurement	28 49 23
		Geometry and Spatial Sense	29 47 24
		Patterns, Functions & Algebra	30 43 27
		Data Analysis, Statistics and Probability	29 43 28
Complex Area	1,250	**Mathematics**	
		Numbers and Operations	24 39 36
		Measurement	23 46 31
		Geometry and Spatial Sense	26 45 30
		Patterns, Functions & Algebra	25 42 32
		Data Analysis, Statistics and Probability	25 41 34
Complex	412	**Mathematics**	
		Numbers and Operations	27 43 30
		Measurement	31 47 22
		Geometry and Spatial Sense	33 46 22
		Patterns, Functions & Algebra	31 42 27
		Data Analysis, Statistics and Probability	34 38 27
School	56	**Mathematics**	
		Numbers and Operations	36 36 29
		Measurement	20 48 32
		Geometry and Spatial Sense	32 57 11
		Patterns, Functions & Algebra	38 39 23
		Data Analysis, Statistics and Probability	34 48 18

28	**Mathematics**			
	Numbers and Operations	39	32	29
	Measurement	11	64	25
	Geometry and Spatial Sense	32	61	7
	Patterns, Functions & Algebra	32	50	18
	Data Analysis, Statistics and Probability	25	64	11
1	**Mathematics**			
	Numbers and Operations		100	
	Measurement			100
	Geometry and Spatial Sense		100	
	Patterns, Functions & Algebra		100	
	Data Analysis, Statistics and Probability		100	
27	**Mathematics**			
	Numbers and Operations	33	37	30
	Measurement	30	33	37
	Geometry and Spatial Sense	33	52	15
	Patterns, Functions & Algebra	44	26	30
	Data Analysis, Statistics and Probability	44	30	26

Item Analysis

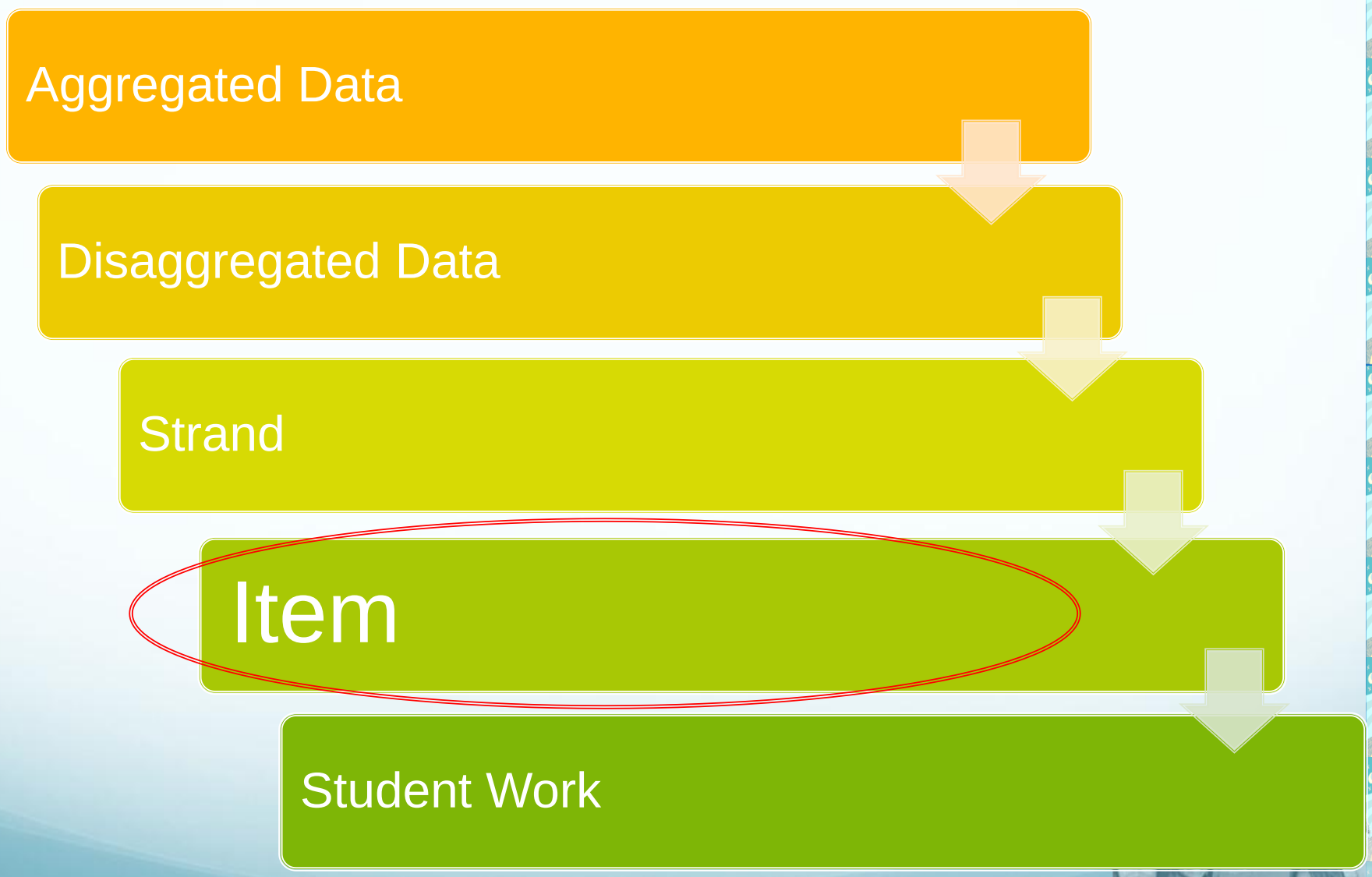
Item #	Standards	A	B	C	D	Correct Answer	Average Points Earned	Max Points Possible	Percentag
1	MA 3.4.1	2	0	12	10	D	0.42	1.00	42.00%
2	MA 3.4.2	1	1	8	14	D	0.58	1.00	58.00%
3	MA 3.4.3	18	3	1	1	A	0.75	1.00	75.00%
4	MA 3.4.3	2	1	1	20	D	0.83	1.00	83.00%
5	MA 3.4.4	10	10	3	1	A	0.42	1.00	42.00%

Content Area Math Grade Level 3

Levels of Data	Types of Data 1: HSA Years: 2010-12	2: DSI Years: 2011-12	3: Years:
Aggregated results	40% of the 3rd gr. are proficient in math, which is a decrease from last year.	65% of all 3rd graders scored a rubric rating of 2 and below	
Disaggregated results	There is a persistent achievement gap between the males and the females in math.	Of the students who scored 2 and below, 52% were male, and 33% were female.	
Strand results	**For two years, the lowest %age of students were proficient in the measurement strand for math**	**This year, the standards within the measurement strand showed the most difficulty for all students.**	
Item analysis			
Student work			

Student-learning problem:

“Drilling Down” into Data



N. Love, 2008

100 foot view

Contributed by kaipaniolo, Champt10, heidi and others

Connecting HSA to formative

Video – Mililani Ike Data Team

Please click on play button to start.

To view video separately or after the webinar
go to - http://vimeo.com/channels/rtttdatacoaches/40615808

Analyzing Item Level Data

- Information about student learning
- Discussion points in data teams

Item-Level Data

Four approaches to analyze Item-Level Data

1. Percentage Correct
2. Distractor Patterns
3. Task Deconstruction
4. Open-Response Item Analysis

Quarter 3 HIDOE - Grade 3
Math (Q4 BM)
March 2010

Multiple Choice

Open Response

		MA 3.1.3 Compare and order fractions with denominators up to 12 (e.g., greater than, less than, equal)		MA 3.1.4 Use fractions with denominators up to 12		MA 3.4.1 Describe the concept of area and volume and the appropriate units for each. MA 3.4.2 Measure area and volume using standard and non-standard units (e.g., tiles, index cards, grids, cubes)					MA 3.4.3 Measure length and capacity, and weight in US customary and metric units (e.g. pound, kilogram) MA 3.4.5 Select appropriate tools for measuring length, capacity and weight.				MA 3.4.6 Estimate and measure perimeter and area of common shapes and irregular shapes (e.g., house-shaped pentagon)		MC Subtotal	SR MA 3.1.3	SR MA 3.1.4	SR MA 3.4.1/	SR MA 3.4.6	ER MA 3.4.6	CR Subtotal	Total	
		9	16	1	19	3	5	8	11	15	2	6	12	14	18	20		7	13	17	4	10			
Name	HI	D	H	B	F	A	J	G	J	A	J	D	B	H	C	A	15	2	2	2	2	4	12	27	
_____	B1(	C	F	C	1	1	1	F	1	1	1	1	1	G	1	1	10	0	2	1	2	1	6	16	59%
	B9	C	F	1	1	D	1	H	H	1	1	1	1	1	1	1	10	0	1	2	2	1	6	16	59%
	B9	1	J	1	1	D	1	H	1	B	1	1	1	G	1	1	10	0	1	2	2	1	6	16	59%
	B9	A	F	1	1	D	1	F	J	1	1	1	1	G	1	C	8	0	2	1	2	2	7	15	56%
	B9	C	F	1	1	D	1	H	H	1	1	1	1	G	1	1	9	0	1	1	2	2	6	15	56%
	B9	C	1	1	1	D	1	J	J	1	1	1	1	F	1	1	10	0	1	2	2	0	5	15	56%
	B9	C	F	1	1	D	1	F	1	1	1	1	1	J	1	1	10	0	0	2	0	2	4	14	52%
	B1(	C	F	1	1	B	1	F	H	C	H	1	1	G	1	1	7	0	2	2	1	1	6	13	48%
	B1(	A	F	C	1	1	1	H	F	1	H	1	1	J	1	1	8	0	0	2	2	1	5	13	48%
	B9	A	F	1	1	D	1	F	1	B	1	1	1	F	1	D	8	0	1	0	2	2	5	13	48%

Cautions with Item Level Data

- Test-Item Quality
- Content Knowledge
- Task Manageability

Item Response

(gray background indicates incorrect answers)

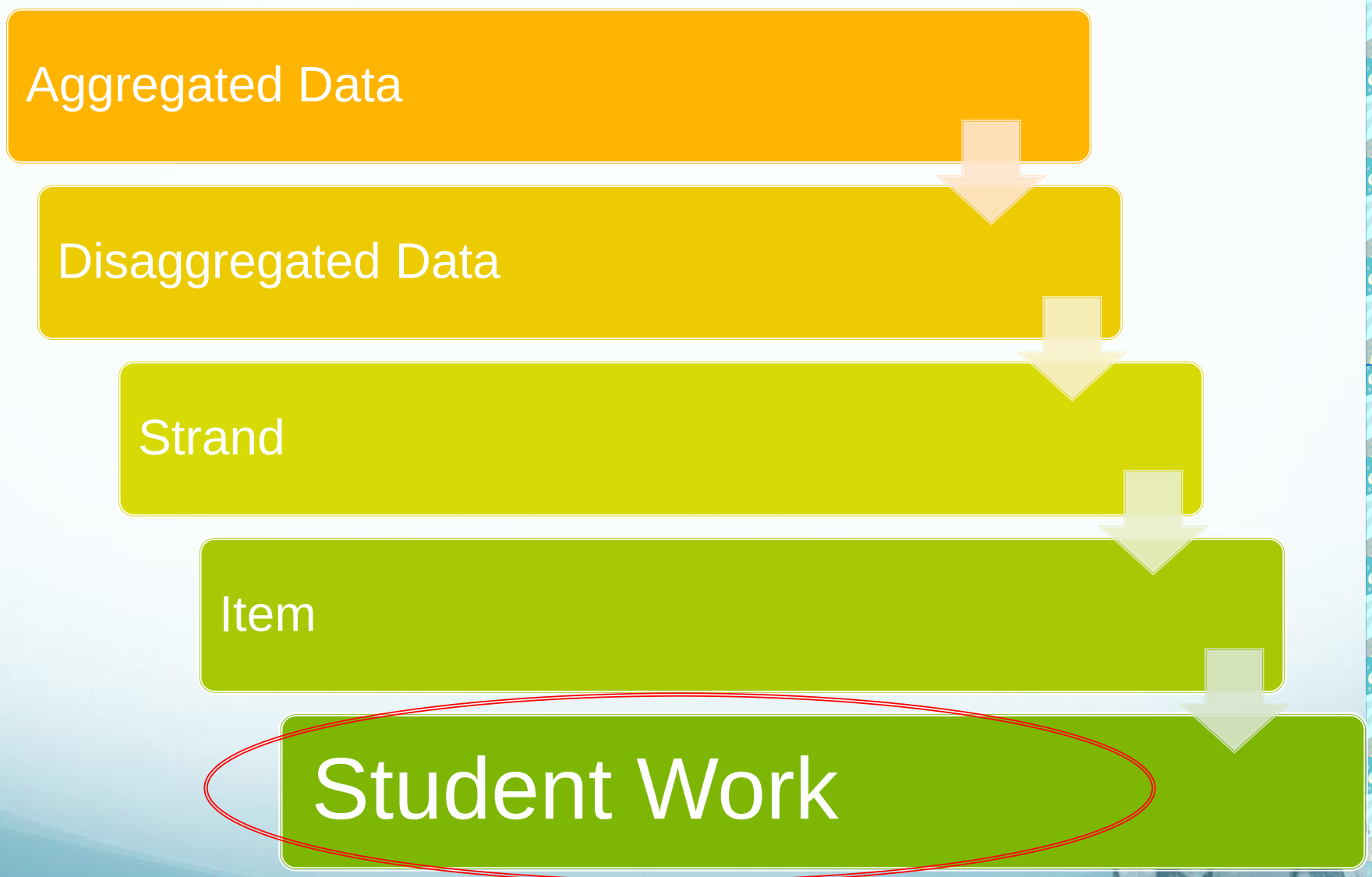
Name(Last,First)	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#16
Student 1	A	A	B	B	D	C	B	B	D	C	C	A	B	C	B	B
Student 2	C	B	B	B	D	C	A	B	D	A	C	D	B	D	C	B
Student 3	C	C	B	B	D	C	B	C	D	A	C	D	B	D	C	D
Student 4	D	A	A	B	B	C	B	A	D	B	C	B	B	A	B	C
Student 5	C	B	C	B	D	C	B	A	D	D	C	A	B	D	C	B

Additional Informatic	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Correct Answer	C	B	B	B	D	C	B	C	D	A
Percentage Score	58.00%	25.00%	67.00%	83.00%	58.00%	83.00%	79.00%	42.00%	96.00%	54.00%
Max Point	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Standards	LA.4.1.1	LA.4.1.1	LA.4.3.5	LA.4.1.1	LA.4.3.1	LA.4.3.5	LA.4.3.1	LA.4.3.1	LA.4.3.1	LA.4.1.1

Content Area Math Grade Level 3

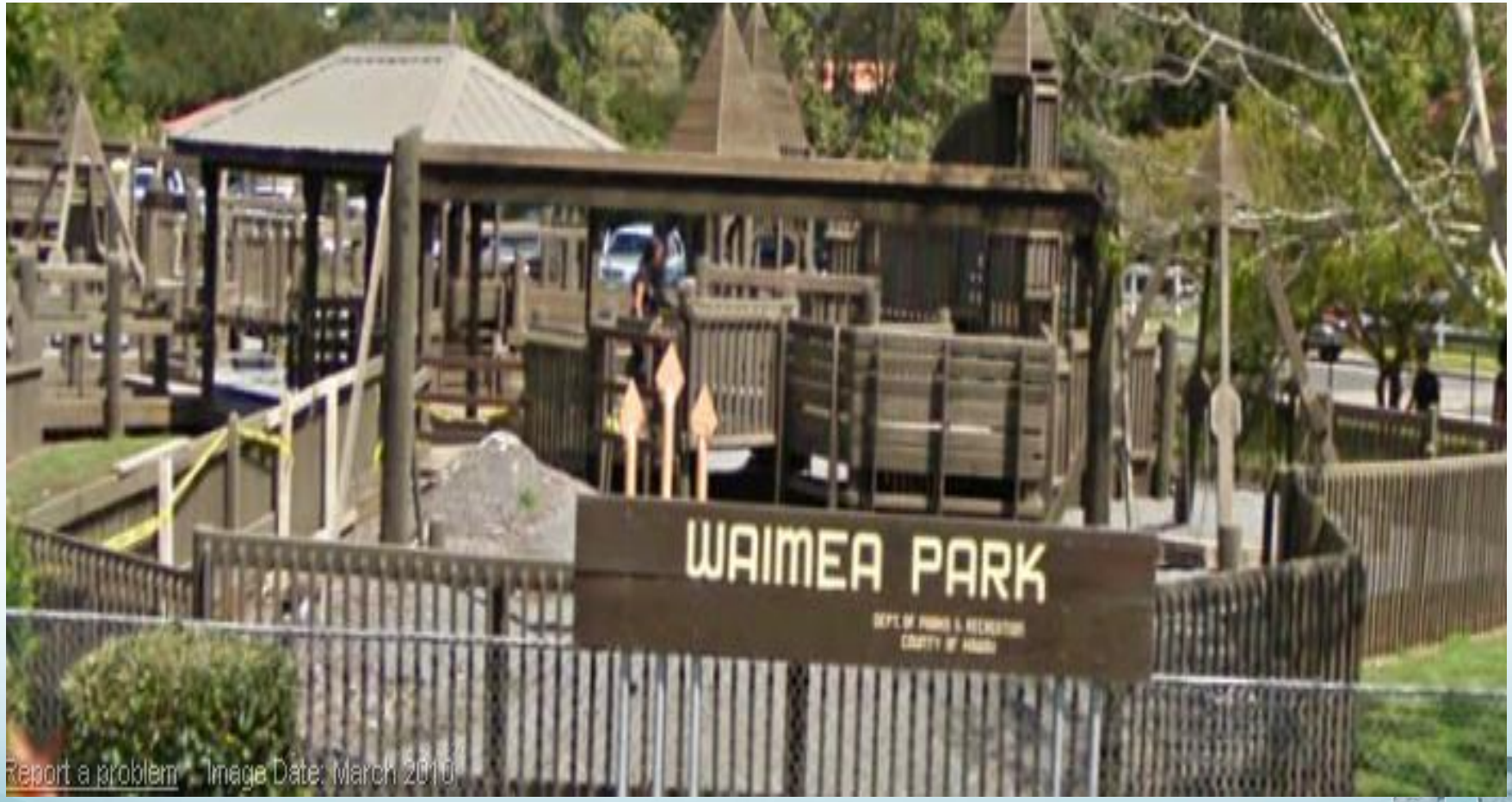
	Types of Data		
Levels of Data	1: HSA Years: 2010-12	2: **Classroom DSI** Years: 2011-12	3: Years:
Aggregated results	26% of the 3rd gr. are proficient in math, which is a decrease from last year.	65% of all 3rd graders scored a rubric rating of 2 and below	
Disaggregated results	There is a persistent achievement gap between the males and the females in math.	Of the students who scored 2 and below, 52% were male, and 33% were female.	
Strand results	For two years, the lowest %age of students were proficient in the measurement strand for math	The students performed poorly in standards within the measurement strand	
Item analysis	**NA (no state data provided)**	Students performed poorly on tasks that require area and perimeter.	
Student work	**NA (no state data provided)**		
Student-learning problem:			

“Drilling Down” into Data



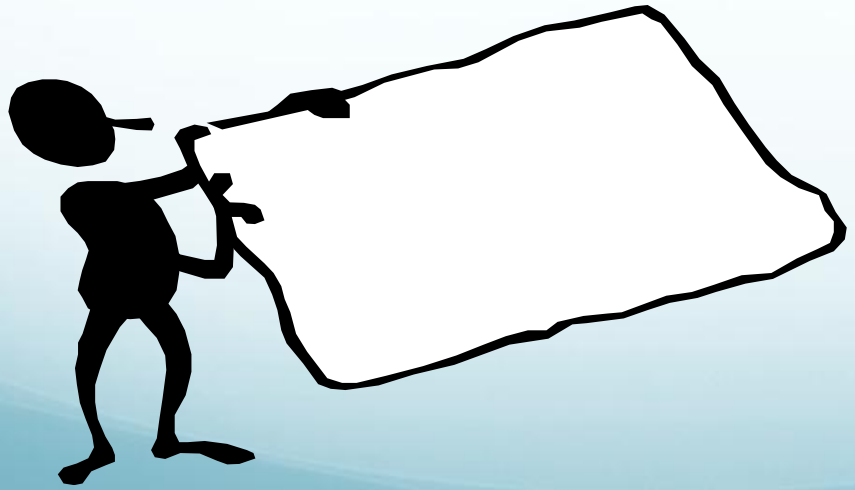
N. Love, 2008

Street View

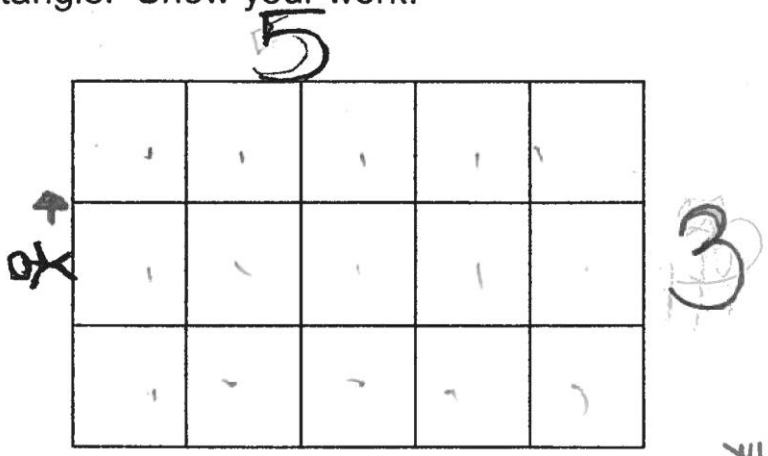


Why is Student Work important?

- Student misconceptions and misunderstandings.
- Student understanding of the concept, skills, and knowledge within content areas.
- Patterns observed in the item level data.



Sally drew this shape in math class today. Find the **perimeter** and **area** of her rectangle. Show your work.



5+5+5

Perimeter = 15

Area = 16

5+5+3+3

CAUTIONS
when examining Student Work

- Stay Objective
- Keep to the criteria selected
- Stick to “just the facts”

Content Area Math Grade Level 3

Levels of Data	Types of Data 1: HSA Years: 2010-12	2: Classroom DSI Years: 2011-12	3: Classroom Assessment Years: 2011-12
Aggregated results	26% of the 3rd gr. are proficient in math, which is a decrease from last year.	65% of all 3rd graders scored a rubric rating of 2 and below	
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Strand results	For two years, the lowest %age of students were proficient in the measurement strand for math	The students performed poorly in standards within the measurement strand	
Item analysis	NA (no state data provided)	Students performed poorly on tasks that require area and perimeter.	
Student work	NA (no state data provided)	**Cannot distinguish between area and perimeter when presented together. Have trouble with the vocabulary.**	**Cannot distinguish between area and perimeter when presented together. Have trouble with the vocabulary.**
Student-learning problem:			

Student Involvement

- Students should look at their own work in order to determine their needs.
- Teachers may use a variety of templates and strategies to involve students.
  - rubrics,
  - student self-assessments
  - student analysis of their own performance

Student Reflection Sheets

Reviewing My Results

Name: _____ Assignment: _____ Date: _____

Please look at your corrected test and mark whether each problem is right or wrong. Then look at the problems you got wrong and decide if you made a simple mistake. If you did, mark the "Simple Mistake" column. For all the remaining problems you got wrong, mark the "Don't Get It" column.

Problem	Learning Target	Right	Wrong	Simple Mistake	Don't Get It

Chappuis, Jan. Seven Strategies of Assessment for Learning. MA: Pearson Education, Inc., 2009

Student Reflection Sheets

MY OPINION

My strengths are _____

_____

_____

What I think I need to work on is _____

_____

_____

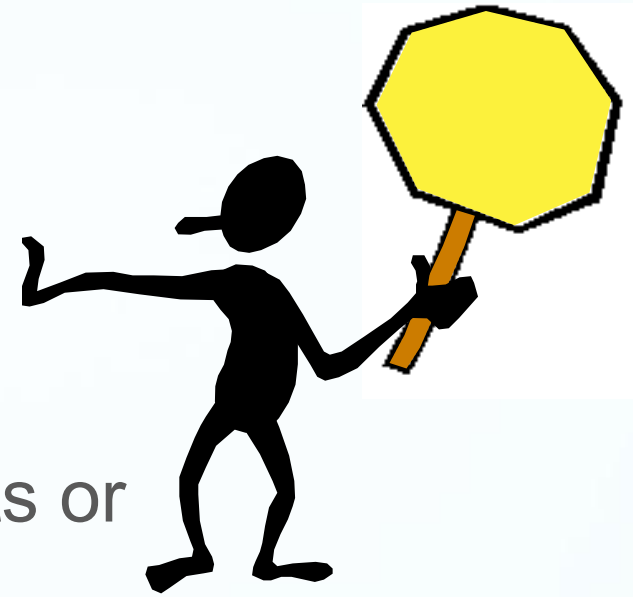
Chappuis, Jan. Seven Strategies of Assessment for Learning. MA: Pearson Education, Inc., 2009

Principles of Effective Data Use

- Go visual with the data
- Use data to build understanding and ownership of problems
- Take time to learn as much as possible from the data (the first solution may not be the best one)
- Separate observation from inference
- Pay attention to the process
- Assure that diverse voices are brought into the analysis

Data-Driven Dialogue (Wellman & Lipton, 2004)

Data "Safety Regulations"



- Don't use data to punish
- Don't use data to blame students or their circumstances
- Don't jump to conclusions without ample data
- Don't use data as an excuse for quick fixes. Focus on improving instruction

Resources

Chappuis, Jan. Seven Strategies of Assessment for Learning. MA: Pearson Education, Inc., 2009

Love, Nancy, The Data Coach's Guide to Improving Learning for All Students. CA: Corwin Press, 2008.

Symonds, Kiley Walsh, "After the Test: Closing the Achievement Gaps with Data" Learning Point Associates, 2004.

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Questions and Answers

Answering Chat Questions

Thank you for joining us!

- A recording of this webinar will be posted on the Standards Toolkit website.
- If there are any questions, please e-mail:
  - Dewey Gottlieb, Mathematics Specialist
  - Monica Mann, Acting Administrator
  - Petra Schatz, Language Arts Specialist, or
  - Derrick Tsuruda, Science Specialist
  - Dan Miyamoto, DSI Project Manager

Thank you!