Looking at Data as a Team to Drive your Math Vision



In this session we will

- Connect data practices to research
- Share best data practices from Midland ISD
- Create an action plan for your own data practices



NCTM'S POSITION ON DATA

Teachers should "use evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning" (NCTM, 2014, p. 10)

THREE APPROACHES TO USING DATA TO IMPROVE INSTRUCTION

Data Do Not Drive Themselves (Wieman):

- The Diagnostics Approach
- The Methods Approach
- The Teacher Approach

THREE APPROACHES TO USING DATA TO IMPROVE INSTRUCTION

Each approach addresses a core problem, yet shares the following features:

- They each rely on student data
- None dictate teaching methods, learning theories, or specific goals
- All benefit from effective collaboration among teachers

THE DIAGNOSTIC APPROACH

The problem:

 There is a mismatch between what students need to learn and what they are being taught

How to address the problem:

 Teachers can use data from student assessments to identify which students have achieved mastery and who needs more work

THE METHODS APPROACH

The problem:

 Teachers need better teaching methods for specific learning goals

How to address the problem:

- Teachers can design moves to support specific learning goals, enact those moves, collect data on their enactment and student learning
- If the initial moves don't work, teachers can revise the plan and repeat the process

THE TEACHER APPROACH

The problem:

 A mismatch between teacher beliefs/knowledge and desired teaching methods/student needs and abilities

How to address the problem:

- Trying new techniques or collaborating with others
- Reflect on the difference between expectations and actual events, then revise knowledge and beliefs based on new information

COLLABORATIVE DATA CONVERSATIONS

The formation of collaborative data teams offers a positive environment for faculties to learn together and build an initiative they can call their own. Principals and other school administrators serve an essential role in leading, guiding, and organizing the work of collaborative data teams How can multiple data points help to assess student progress and to inform instructional strategies?

Teachers and administrators are charged with taking an abundance of data and turning it into something useful to impact teaching practices

Midland ISD Wendy Devault



ABOUT MIDLAND ISD

- Midland ISD
 - \circ 40 campuses
 - 26,487 students
 - 14,810 K-6
 - 10,708 7-12

51% Economically Disadvantaged

(F/R lunch)

- Ethnicity
 - 8% African American
 - 3% Asian
 - 63% Hispanic
 - 24% White



MONITORING STUDENT PROGRESS GUIDE INSTRUCTION & IMPROVE STUDENT OUTCOMES

This process is ongoing and has one main purpose:

IMPROVING STUDENT OUTCOMES

- Step 1: Know your purpose!
- Step 2: Know what you need to achieve your purpose.
- Step 3: Make a plan for how you will achieve your purpose.
- Step 4: Execute your plan!
- Step 5: Reflect, Adjust, and Repeat!!

4 QUESTIONS CREATE A FOCUS FOR LEARNING

- 1. What do we want ALL students to learn?
- 2. How will we know they have learned it?
- 3. What do will we do when they don't learn?
- 4. What will we do when they already know it?



PLC FOCUS

Though the data is being discussed at the end, it is in fact the starting point!!

Data is...

- Not to be taken personal
- Used to set goals
- Analyzed to guide instructional conversations

STANDARDS FOCUS

	1	2	3	4	5	6	7	8		9	10
	M1	M1	M1	M1	M1	M1	M1	M2		M2	M1
Tabal	4.2(B) [R]	4.2(A) [S]	4.2(C) [S]	4.2(B) [R]	4.2(B) [R]	4.2(H) [5]	4.2(F) [5]	4.4(A) [R]		4.4(A) [R]	4.2(D) [S]
Students	4.1(A) [P]	4.1(B) [P]	4.1(A) [P]	4.1(B) [P]	4.1(F) [P]	4.1(B) [P]	4.1(A) [P]	4.1(B) [P]		4.1(F) [P]	4.1(E) [P]
	+A (69.32%)	F (18.18%)	A (4.55%)	F (259) A (19.32%)	F (2.27%)	A (10.23%)	888.38 (36.36	6)	649.2 (26.14%)	+F (53.41%
	B (17.05%)	G (17.05%)	B (10.23%)	+G (64.779) +B (57.95%)	+G (71.59%)	B (4.55%)	NC (63.64	6)	NC (73.86%)	G (21.59%
88	C (7.95%)	H (14.77%)	+C(78.41%)	H (4.559) C (12.5%)	H (5.68%)	C (4.55%)				H (12.5%
	D (5.68%)	+J (50%)	D (6.82%)	J (5.689) D (10.23%)	J (20.45%)	+D (80.68%)	* (0	6)	* (0%)	J (12.59
	* (0%)	* (0%)	* (0%)	* (09) * (0%)	* (0%)	* (0%)				* (09
	+A (70%)	F (17.5%)	A (2.5%)	F (309) A (15%)	F (0%)	A (12.5%)	888.38 (40	6)	649.2 (22.5%)	+F (55%
	B (15%)	G (15%)	B (10%)	+G (559) +B (62.5%)	+G (75%)	B (2.5%)	NC (60	6)	NC (77.5%)	G (20%
40	C (10%)	H (20%)	+C (85%)	H (59) C (7.5%)	H (7.5%)	C (0%)				H (159
	D (5%)	+J (47.5%)	D (2.5%)	J (109) D (15%)	J (17.5%)	+D (85%)	* (0	6)	* (0%)	J (10%
	* (0%)	* (0%)	* (0%)	* (09) * (0%)	* (0%)	* (0%)				* (0%
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	B (0%)	G (0%)	B (0%)	+G (09) +B (100%)	+G (100%)	B (0%)	NC (0	6)	NC (100%)	G (0%
1	C (0%)	H (0%)	+C (100%)	Н (09) C (0%)	H (0%)	C (0%)				H (0%
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	* (0%)	* (0%)	* (0%)	* (09) * (0%)	* (0%)	* (0%)				* (0%
	+A (100%)	F (0%)	A (0%)	F (16.679	A (0%)	E (0%)	A (0%)	888.38 (50	6)	649.2 (50%)	+F (50%

WHAT DO WE WANT ALL STUDENTS TO LEARN?

ESSENTIAL

• What MUST students know and be able to do before the enter the next course or grade level

STATE ASSESSMENT

• Assessment that measures grade level content standards

WHAT DO WE WANT ALL STUDENTS TO LEARN? ESSENTIAL STANDARDS

Learning standards are most essential because they possess the qualities of:

Endurance

• Are we expecting retention further than the test date?

Readiness

• Is the standard necessary for success in the next unit, course, or grade level?

Leverage

• Will the standards help the student across other content areas?

WHAT DO WE WANT ALL STUDENTS TO LEARN? ESSENTIAL LEARNINGS *Clarifying what students must know*

• ESSENTIAL LEARNINGS MUST:

- Be aligned with district curriculum guides and state standards
- Ensure that students are prepared for the next grade level and beyond
- Ensure that students are well prepared to demonstrate proficiency on highstakes tests
- Have common assessments that allow students to show mastery of learning in a timely manner so that additional time and support for learning can be provided if necessary

WHAT DO WE WANT ALL STUDENTS TO LEARN?

- Standard in student friendly language
- What do we expect?
- How will we measure it?
 - \circ PAs
 - Teacher Observations
 - o Imagine Math
 - \circ CFAs
 - District CP
 - Released STAAR
 - \circ STAAR

Essential S	tandards Ch	art: W	hat Do We	Expect St	uden	ts to l	earn	?	
rade Subject			Semester		Tea Memb	m bers			
Example— Rigor	Prerequisite S	ikills Rea Nea	adiness for the xt Grade Level of Learning	Commo Assessme	ent	Wh Taug	en ;ht?	Extension Skill	s
What does proficient studer t work look like? Provide an example and/or description.	What prior knowledge, skills and/or vocabula are needed for students to masi this standard?	will s, stud esse and ter nece succ grad leve Dese	this provide dents with ential knowledge skills that are essary for the cess in the next is level or next is level or next of instruction? cribe.	What assessm will be used to measure stud mastery?	nents o lent	When y standar taught? Under y focal po	vill this d be vhich vint?	What will we do when s have learned the essent standards?	tudents
V	ertica	al A	lign	mer	nt				
	Essential S	Essential Standards Ch Subject Subject Example— Rigor Prerequisite S What does proficient studer t work look like? What prior knowledge, skill and/or vocabula are needed for students to mas this standard? Vertical Vertical	Essential Standards Chart: With the subject Subject Subject Recursive Skills Recursive Skills What does proficient studer t work look like? What prior knowledge, skills, and/or vocabulary are needed for students to master this standard? Will stude see the standard? Will stude see the standard? Vertical Vertical A	Essential Standards Chart: What Do We Subject Semester Example— Rigor Prerequisite Skills Readiness for the Next Grade Level of Learning What does proficient studer t work look like? What prior knowledge, skills, and/or vocabulary are needed for students to master this standard? Will this provide students with essential knowledge and skills that are necessary for the sudents to master this standard? Vertical Aligon	Essential Standards Chart: What Do We Expect St Subject Semester Subject Semester Prerequisite Skills Readiness for the Next Grade Level of Learning What does proficient studer t work look like? What prior knowledge, skills, and/or vocabulary are needed for students to master this standard? Will this provide success in the next grade level or next level of Instruction? Describe. What assessme the students of the students	Essential Standards Chart: What Do We Expect Studen Subject Semester Tea Subject Semester Tea Kigor Prerequisite Skills Readiness for the Next Grade Level of Learning Common Assessment What does proficient studer t work look like? Provide an example and/or description. What prior knowledge, skills, and/or vocabulary are needed for students to master this standard? Will this provide students with essential knowledge and skills that are necessary for the success in the next grade level or next level of Instruction? Describe. What assessments will be used to measure student mastery? Vertical Alignment	Essential Standards Chart: What Do We Expect Students to I Subject Semester Team Members Example	Essential Standards Chart: What Do We Expect Students to Learn Subject Semester Team Members Example- Rigor Prerequisite Skills Readiness for the Next Grade Level of Learning Common Assessment When Taught? What does proficient studer t work look like? What prior knowledge, skills, and/or vocabulary are needed for students to master this standard? Will this provide students with essential knowledge and skills that are necessary for the success in the next level of instruction? Describe. When will this standard be taught? Vertical Alignment Common Assessments will be used to measure student mastery? When will this standard be taught? Image: the student of t	Essential Standards Chart: What Do We Expect Students to Learn? Subject Semester Subject Semester Team Members Kigor Prerequisite Skills Readiness for the Next Grade Level of Learning Common Assessment When Taught? Extension Skill What does proficient studer t work look like? What prior knowledge, skills, and/or vocabulary are needed for students to master this standard? Will this provide student or next grade level or next grade level or next grade level or next level of Instruction? Describe. What will we do when a standard? Vectorial Align meent Align meent When traign and or vocabulary are needed for students to master What will be used to maxter and or vocabulary are needed for student and or vocabulary are needed for student or next level of Instruction? What will be used to prior What will we do when a standard? Vectorial Align meent Image: colspan="4">Image: colspan="4" Image: colspan="4">Image: colspan="

WHAT DO WE WANT ALL STUDENTS TO LEARN?

HOW WILL WE KNOW THEY HAVE LEARNED IT?

Know	Show
 Order of Operations 2 Levels of groupings Solve left to right No exponents Sums and differences of whole numbers, decimals and fractions Proper, improper, mixed numbers and unit fractions Multiplication/division of whole numbers and decimals Expressions Simplify expressions Grouping symbols (parenthesis and brackets) Apply to real world situations Must be able to generate correct equation and identify correct equation Vocabulary: Operations, parenthesis 	 Steps to solving PEMDAS-written at the top of each order of operation problem. Mark out each step as you complete it Show each step by underlining and bringing the rest of the problem down.

5.4F (R): simplify numerical expressions that do not involve exponents, including up to two levels of grouping

HOW WILL WE KNOW THEY HAVE LEARNED IT?

Teacher: _____

Aggressive Monitoring Plan

Lesson Date:

TEKS

TEKS: TEKS 1.4C Use relationships to count by twos, fives, and tens to determine the value of collection of pennies, nickels, and/or dimes.

Lesson Objective: I can tell the value of a group of pennies, nickel, and/or dimes, by counting by 2s, 5s, and 10s.

Aggressive Monitoring Plan

Seating Chart:



Fast Finishers: ETHAN, LINA, DOMINIC Slow to Start: KADEN, BRIAN Monitoring Path: SLOW STARTERS

Laps:

1. Problem # 3 counting on for total of coins.

2. Problem #8 Draw a picture for possible coins.

3. Problem #9 Which coin is needed to make a purchase? Coding Plan:

Great Job

Nice work needs some more help

Needs more instruction with intervention

Aggressive Monitoring Data Tracker

Laps Lap 1 Look at problem #3. Count on and then write how much in all.	Lesson Objective	I can tell the value of a group of pennies, nickel, and/or dimes, by counting by 2s, 5s, and 10s.
Lap 2 Look at problem #8. Jack has 30 cents. He has nickels and pennies. Draw a picture to show the coins Jack could have. Lap 3 Look at problem #9. Rita has the 2 coins below in her purse. She wants	Laps	Lap 1 Look at problem #3. Count on and then write how much in all. Lap 2 Look at problem #8. Jack has 30 cents. He has nickels and pennies. Draw a picture to show the coins Jack could have. Lap 3 Look at problem #9. Rita has the 2 coins below in her purse. She wants to

Student Name	Lap 1	Lap 2	Lap 3	Notes
Adam Arguayo	\checkmark	\checkmark	\checkmark	Nice work but needs to work on skip counting
Aven Boyd	Ö	\odot	\odot	
Adrivel Burrola	\checkmark	-	\checkmark	
Alejandro Esquivel	\odot	\checkmark	\odot	
Hallie Gates	\odot	\checkmark	\odot	
Torrian Harden	\checkmark	\checkmark	\checkmark	
Rylan Hasselhoff	\odot		_	Needs more help with skip counting and coin recoginiton
Megan Hernandez	\odot	\checkmark	\checkmark	
Jaime Jordan	\checkmark	\odot	\odot	
Isabel Maden	\odot	\odot	\odot	
Brae Magnolia	-	-	-	Still working on counting by one, Struggles to count on from any number
lorge Martinez	\checkmark	_	\checkmark	Needs help with where to start with counting on
Jaymee Miller	\odot	\odot	\odot	
Isaiah North	\checkmark	\checkmark	\checkmark	
Brianna O'Brien	\checkmark	\checkmark	\checkmark	
Kaden Ripley	\checkmark	\checkmark	\odot	
Adelina Salazar	\checkmark	\odot	\odot	
Flor Yanez	\checkmark	\checkmark	\odot	

Trending Misconception(s):

Skip counting and counting on from any number.

HOW WILL WE KNOW THEY HAVE LEARNED IT?

Effective instruction provides for opportunities for students to show what they know through progress monitoring.

FORMATIVE ASSESSMENTS

- Exit Tickets
- Learning Logs/Response Journals
- CFAs
- Quick writes
- Imagine Math

SUMMATIVE ASSESSMENTS

- 9 Week Checkpoints
- Interim STAAR Assessments
- STAAR/TELPAS Assessments
- District Initiative Assessments

Are we being intentional?

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This process is ongoing and has one main purpose:

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What is your purpose for data?



IMAGINE MATH DATA

- Usage
- Progress
- Growth



Usage

Alaska Demo School 🔻 All Classrooms 👻

USAGE DATA

Overview A	ctivity Performan	ce Math Time			
Group by All Classrooms	Date range Last 1322 days (02/02/ ▼	Grade levels Active		Name	8
Name	Active Students	Avg. lessons passed	Avg. lessons ♣ attempted	Avg. school time	🜲 Avg. home
Demo 1 Class Grade 6	33	43.03	62.73	07:47	12:46
Demo 10 Class Grade 8	66	43.03	62.73	05:59	14:34
Demo 11 Class Grade 7	33	43.03	62.73	07:47	12:46
Demo 12 Class 3	33	43.03	62.73	07:47	12:46
Demo 2 Class Grade 4	33	43.03	62.73	07:47	12:46
Demo 3 Class Grade 8	33	43.03	62.73	07:47	12:46

Weekly Progress Summary Download PDF School Group: All Schools 💠 Week Ending: 09/14/2019 💠 Student Enrollment | Students with Work | Math Time | Weekly Lessons Completed | Overall Lessons Completed | Overall Lessons Pass Rates | Math Helps | IM Teacher Student Enrollment Once students are enrolled and able to do math, they're on their way to reaching several important milestones in Imagine Math. A student with work has complete action. A rising percentage in the meter indicates growth in the number of enrolled students using Imagine Math for the first time. Print 100% e time 25% 50% 75% % of Students 5 Schools Show Details Students with Work Students with work have completed at least one math action in Imagine Math during the week. The more work students do, the more likely they are to be self-m learners, especially as they are exposed to the motivational strategies of Imagine Math. The height of the bars indicates how many students have done work wit 2,000 ¥ 1,500

1,000



PROGRESS

Standards Summ	nary					Print					
Standards Strands											
Group by:											
All Schools > Ross Middle School > All Domains > 8.NS The Number System Show Students in: All Grade Levels Classroom: All Classrooms \$ Lesson Type: All Lessons \$											
Standard Number	Failing Students	Struggling Students	Passing Students	# of Students Assigned	Standard Text						
8.NS.A.1	14	14	52	134	Know that there are numbers that are not rational, and approximate them by rational numbers.Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.	hide students					
Failing Students		Struggling Students		Pass	sing Students						
CHRISTI BAUER	RANDALL LITTLE	ADRIAN ALLISON	AVERY HODGES	STAC	CEY ABEL FA	ABIAN LANGE					
EDUARDO BLOCK	ADRIANA PUGH	DELMER BOSTON	RACHAEL HOGUE	NAD	DINE ALEXANDER EF	RINLOONEY					
MORGAN BROUSSARD	XAVIER SHORT	JULIE BRYAN	HOUSTON HONEYCUTT	JAK	E BLACKBURN M	ILDRED LORD					
DEIRDRE CLIFTON	DEE SPAULDING	ETHEL DAUGHERTY	MALLORY JOSEPH	EFFI	IE BLAIR FA						
	DOMINIC TOBIN	CASSIE EMERSON	VERNON KNOX	CAL	LIE BOONE M						
		VANCE ERVIN		BRIA							
	DELMAK TATES	<u>3COTT MAINES</u>		ERIK	KA BRITT CH	ESAR MOCK					



GROWTH

The Quantile[®] measure is used to determine:

- A student's readiness to learn math
- Difficulty of instructional content



The Quantile[®] Framework for Mathematics Linking assessment with mathematics instruction Students are grouped into a performance level:





BENCHMARK DATA

Benchmark	🌻 🔮 🛛 BETA						Benchmark	Roster	Bend	hmark 🌹	ВЕТА							Benchmark Roster
<u>Demo District</u> ▼ >	All Schools V								Demo D	istrict ▼ > <u>Test S</u>	chool1 ▼ > Classr	<u>oom 1</u> ▼						
Administratio	n								Adm	inistration								
1,400 Enrolled Students	8% 112/1,400 No Tests Completed	91% 24% 1,274/1,400 1,274/1,4 Completed B1 Comple	400 ted B2 Co	ompleted B3					24 Enroller	Students C	3% completed No Tests	91% Completed B1	24% Completed B2	 Complete	d B3			
Growth									Grov	vth								
Courter	Davasharanta									Group by	Benchmark							
Q School	Benchmark 1	to 2 to 3 🔻					₽ ₹		٩	Student	 Benchmark 	1 to 2 to 3 🔻						₽ ± ■
Name	Benchmark	Performance o	Complete	Avg. Quantile Growth	Avg. Wee	kly Usage 🛛	Avg. Bene	Time in chmark	First	Last	Benchmark	Performance	Instructional Grade	Quantile Score	Quantile Growth	Avg. Wee	kly Usage	Time in Benchmark
Test School 1	Benchmark 1		724	N/A	N/A O	N/A 🖻	0	0:31 0	Jeff	Cappugi	Benchmark 1	Basic	1st	65Q	N/A	N/A O	N/A 🗎	00:31 Ø
	Benchmark 2		214	122Q	00:31 0	1.9 🖹	0	0:31 0			Benchmark 2	Proficient	2nd	122Q	57Q	00:31 Ø	1.9 🗎	00:48 Ø
	Benchmark 3				: Ø	🖹		: ©			Benchmark 3					: 0	🗎	
School demo 2	Benchmark 1		643	N/A	N/A O	N/A ₿	0	0:31 0	Brad	ley Pinto	Benchmark 1	Below Basic	2nd	85Q	N/A	N/A O	N/A 🗎	00:39 ©
	Benchmark 2		132	201Q	00:31 ©	1.9 🖻	0	0:31 Ø			Benchmark 2	Advanced	2nd	234Q	149Q	00:46 @	2.6 🖻	00:43 Ø
	Benchmark 3				: Ø	Ē		: 0			Benchmark 3					: Ø	🗎	

How does data from technology help to drive your math vision?

ACTION PLAN

- Take 2 minutes to think about the following:
 - What do you need to achieve your purpose for data?
 - Write down 2 practical steps for how you will achieve your purpose for data.
 - How will you reflect and adjust your plan?
 - How can technology fit into your data plan?



Reflect, Adjust, Repeat!

In this session we

- Connected data practices to research
- Shared best data practices from Midland ISD
- Created an action plan for your own data practices





