



PARAMOUNT UNIFIED SCHOOL DISTRICT

GREAT THINGS ARE HAPPENING IN PARAMOUNT SCHOOLS

Thinking Math Classroom Pilot: Progress and Plans



Board Study Session – April 28, 2020

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Purpose of Presentation

- Review the need to improve outcomes in middle school math.
- Understand the key components of the Thinking Math Classroom; the pilot program at Jackson and data showing progress to expand this program in 2020-21.
- Review what accelerated math is and why there is a need to change the point of entry for students.
- Share next steps for 2020-21.



PARAMOUNT UNIFIED SCHOOL DISTRICT

PREPARING STUDENTS FOR COLLEGE AND CAREERS

Thinking Math Classroom



District, County and State Outcomes Show Need in 6th Grade Math

	2016-17	2017-18	2018-19
PUSD	22%	23%	21%
LA	34%	36%	38%
CA	36%	37%	38%



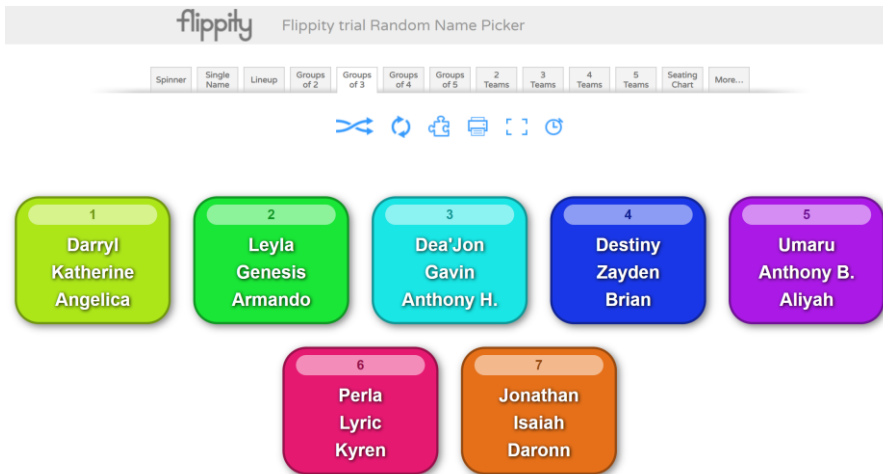
What is a Thinking Math Classroom?

- In a Thinking Math Classroom, teachers use research-based approaches to shift the responsibility for thinking to students.
- Students think individually and collectively, learn together and construct knowledge and understanding through activity and discussion.

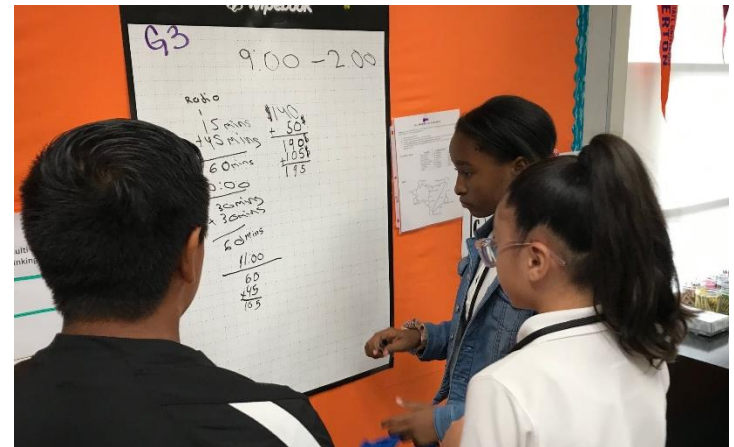


What are the key components of a Thinking Classroom?

Visual Randomized Groups



Vertical, Non-Permanent Surfaces



Begin the school year with rich, inquiry-based math tasks.



Rich, Inquiry-Based Tasks

Open Up Resources 6-8 Math (2017)

Published By: Open Up Resources



GRADE LEVEL

USABILITY RATING



Illustrative Mathematics

Grade 6 Math

Sixth Grade

37/38

Seventh Grade

14/14

18/18

Meets Expectations

37/38

Eighth Grade

14/14

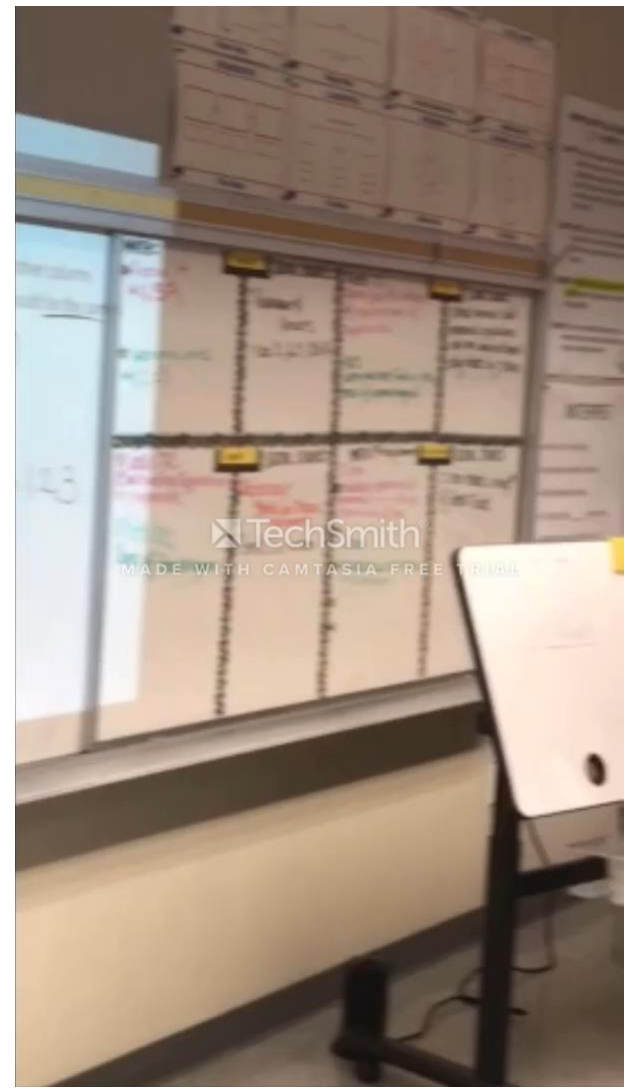
18/18

Meets Expectations

37/38



The Thinking Math Classroom pilot in action at Jackson School





The Thinking Math Classroom pilot in action at Jackson School





Students made academic gains in learning rigorous math content.

Assessment scores show more students met standard and fewer students were in the lowest level.

FALL 2019

SPRING 2020

Performance Band (minimum % correct)	# of Students	% of Students
Exceeded (80%)*	3	3%
Met (60%)*	8	7%
Nearly Met (40%)	28	26%
Not Met (0%)	70	64%
Total	109	100%

10%

Performance Band (minimum % correct)	# of Students	% of Students
Exceeded (80%)*	5	5%
Met (60%)*	19	20%
Nearly Met (40%)	23	24%
Not Met (0%)	49	51%
Total	96	100%

25%



Student Work Reflects Progress

Student work reflects improvements in the quality of thinking and responding.

Pre-Assessment

- How many minutes per lap is that?
- How many laps per minute is that?
- If Lin runs 21 laps at the same rate, how long does it take her?

- How many minutes per lap is that?
2 minutes
- How many laps per minute is that?
0.5 per minute
- If Lin runs 21 laps at the same rate, how long does it take her?
10.5 minutes.

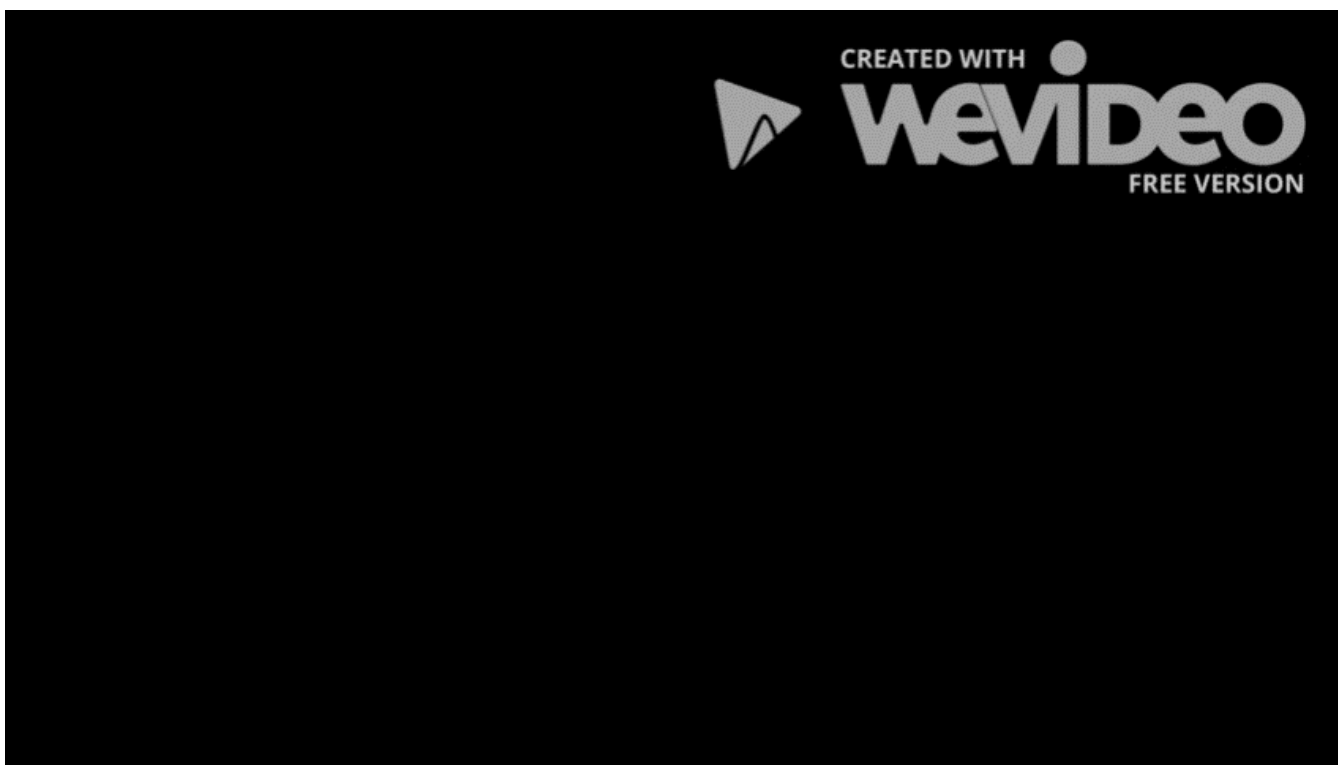
Post-Assessment

laps	Minutes
5	6
10	12
<i>unit rate</i>	2
0.5	1
21	10.5

Handwritten annotations on the table include: $\times 2$ (between 5 and 10 laps), $\div 10$ (between 6 and 12 minutes), $\div 2$ (between 12 and 6 minutes), $\div 2$ (between 2 and 1 minutes), and $\times 21$ (between 1 and 21 laps).



Teacher Insights





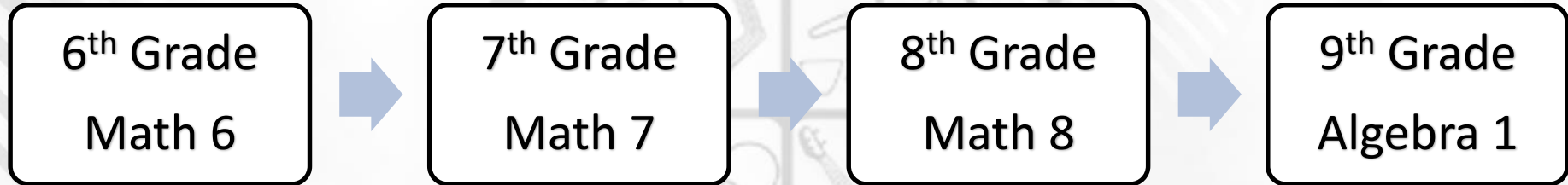
PARAMOUNT UNIFIED SCHOOL DISTRICT

PREPARING STUDENTS FOR COLLEGE AND CAREERS

Middle School Mathematics Pathways



Grade-level Math Pathway





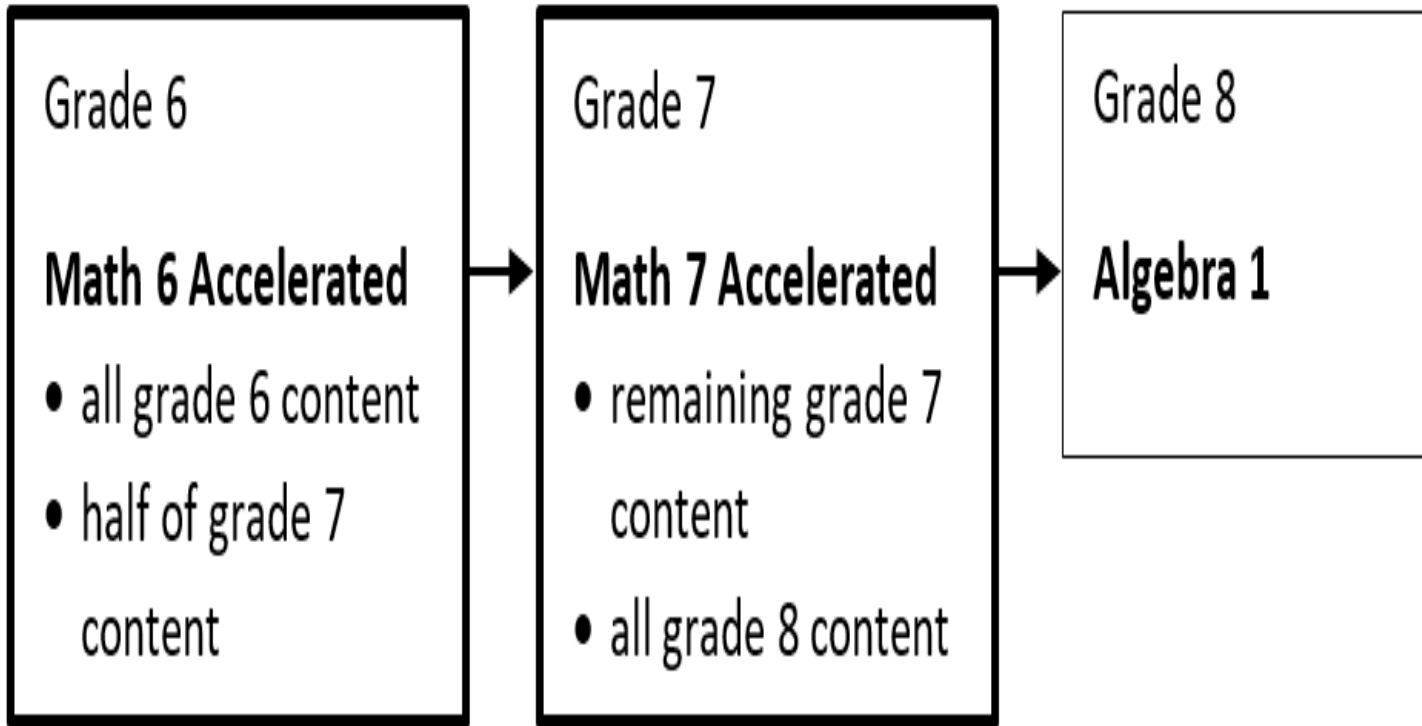
What is the Accelerated Math Pathway in Middle School ?

- For the past five years, PUSD has offered a pathway to accelerate math courses. Selected students are identified at the end of 5th grade to participate in these challenging courses, which begin in 6th grade.
- This pathway compacts content from Math 6, 7 and 8 so students can take Algebra in 8th grade.
- One of the challenges has been to increase participation and equity in this pathway—including participation of English Learners and African American students.



Accelerated Math Pathway

Students
identified
in 5th
grade





Accelerated Math Programs in Surrounding Districts

District	Acceleration Point
ABC	Grade 7
	Grade 8
Norwalk-La Mirada	Grade 7
Montebello	Grade 7
Downey	Not offered
Long Beach	Grade 6
	Grade 8



Identify Students for Accelerated Math in 6th Grade rather than 5th Grade

- A Thinking Math Classroom provides a rigorous, common learning for all 6th grade students.
- By identifying students at the end of 6th grade we increase the opportunity for more students to participate in accelerated courses, including African American and English Learners.
- Accelerated Math courses that lead to Algebra in 8th grade will continue.



Accelerated Pathway Recommendation

Grade 6

Math 6

- All students participate in a Thinking Math Classroom



Grade 7

Math 7 Accelerated

- all grade 7 content
- half of grade 8 content



Grade 8

Algebra 1

- integrate remaining grade 8 content with the complete Algebra 1 course

Students identified in 6th Grade



Projected Cost and Funding

Service	Projected Cost	Funding Source
Printing Costs	\$15,000*	LCAP Supplemental/ Concentration Funds
Whiteboards and Supplies	\$5,000*	
Professional Development (4 days)	\$15,000	LCAP Supplemental/ Concentration Funds
	Total: \$35,000	

*These expenses replace current costs of \$16,000 for McGraw Hill consumables and \$23,000 for supplemental software.



Building on Success: Plans for 2020-21

- Based on early success, expand the Thinking Math Classroom pilot using Open Up Resources to include sixth grade classes at all middle schools in 2020-21.
- Change the entry point for the Accelerated Math Pathway from grade 6 to 7 to provide equity and access to higher-level math courses.



Proposed Next Steps

Provide Thinking Math Classroom virtual field trip and debrief with sites.



Provide ongoing professional development to teachers, coaches and principals in Thinking Math Classroom and Open Up Resources.



Monitor and evaluate student achievement data in Thinking Math Classrooms and the Accelerated Program.



Expand Thinking Math Classrooms and Open Up Resources to grades 7 & 8 in 2021-22.