

GRADE 6 MATHEMATICS

March 13, 2023

MS MATH

Grade 6 Mathematics

Simple Sums

*Insert any of the signs below
between any numbers on the left of
the equal sign to make them
correct. You may join numbers on
the left together if you wish: e.g.,
3 6 may become 36.*

+ - × / ()

$$4\ 1\ 4\ 3 = 111$$

$$5\ 9\ 5\ 3 = 222$$

$$4\ 8\ 5\ 7 = 333$$



Beth Terry
MS Math
Department Chair
and Grade 6 Math
Teacher



Jason Windust
MS Instructional
Coach and Grade 8
Math Teacher



Melissa Trainor
MS Math Specialist
and Grade 8 Math
Teacher



Chris Beingessner
MS Principal



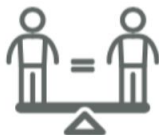
**CONTRIBUTING PRODUCTIVELY
AND POSITIVELY**

COMMUNITY NORMS

As an SAS community member I agree to hold myself to a high standard of personal conduct in my interactions and communications with students, faculty, and parents. This means I will adhere to the SAS Statement of Community by:



**ASSUMING POSITIVE
INTENT**



**REFRAINING FROM
DISCRIMINATION**

(religious, ethnic, racial, sexual, or gender)



**SHARING ACCURATE
INFORMATION**



**GOING TO THE
SOURCE**

OUR TIME TOGETHER



- **Middle School Math Program**
- **Math Review & Working Group Recommendations**
- **Support Structures**
- **Timeline & Next Steps**

CAPTURING YOUR THINKING



MS Math Engagement Session: Grade 6 Math

March 13, 2023

Throughout our session today, please jot down thoughts that come up related to each section. At the end of our session, you will be able to use this to process your ideas and to share feedback with us.

<i>I am excited about...</i>	<i>I am surprised about...</i>
<i>I am worried about...</i>	<i>Questions I have:</i>



**What is one thing you would like to be true for
all students in Grade 6 next year?**



SINGAPORE
AMERICAN
SCHOOL

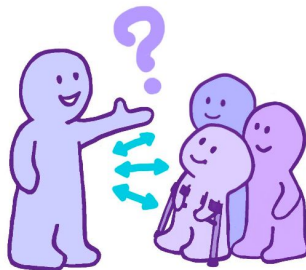
MS MATH PROGRAM

ILLUSTRATIVE MATHEMATICS

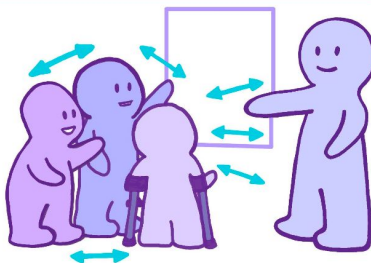
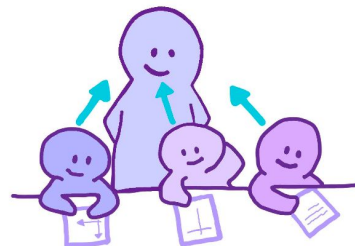


**Illustrative
Mathematics**

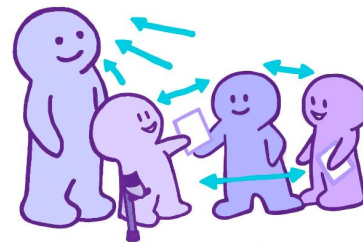
1. Teacher ensures students understand the question.



2. Students work individually. Teacher monitors, listens, questions.

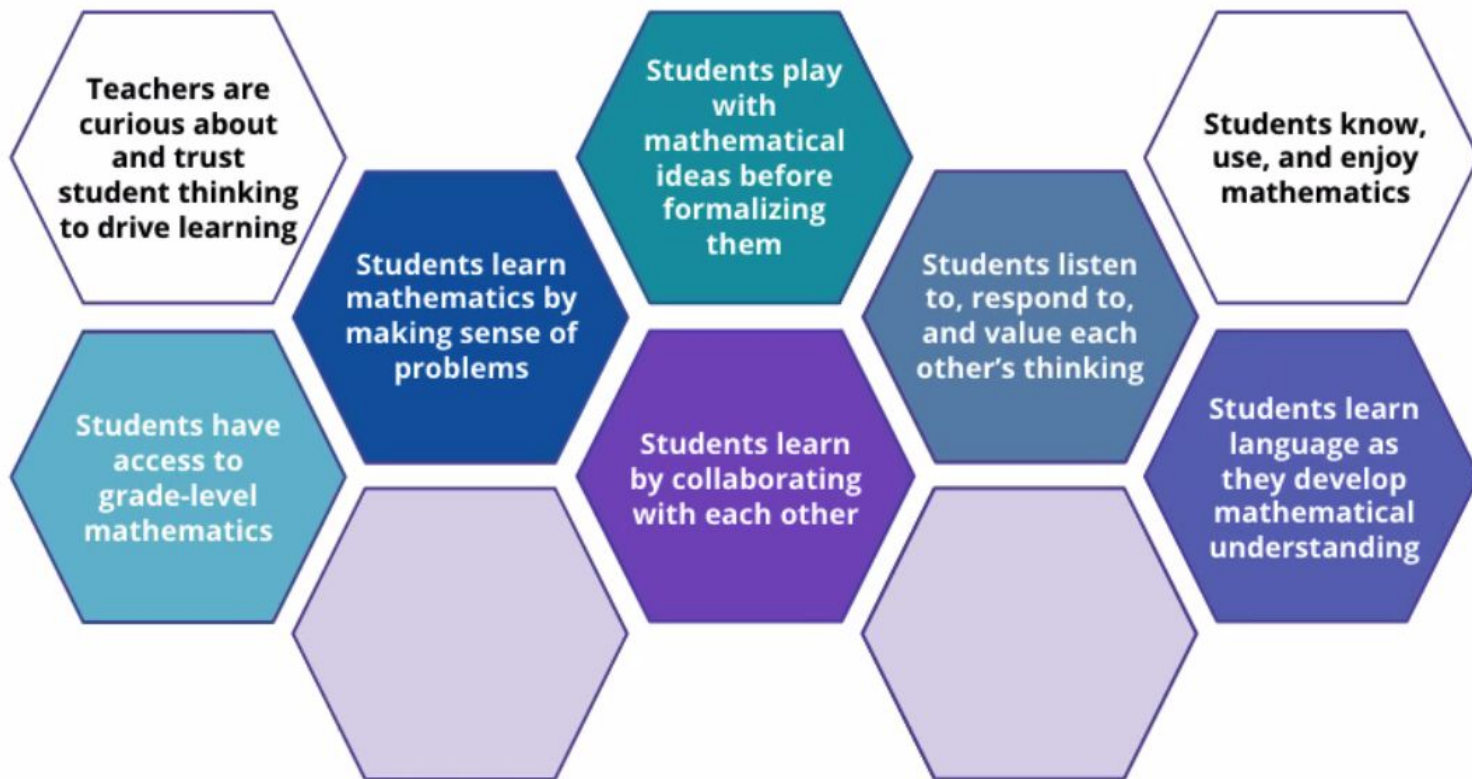


4. Teacher helps students synthesize their learning.



3. Students work in groups. Teacher monitors, listens, and asks questions to understand students' thinking.

ILLUSTRATIVE MATHEMATICS



MS MATH DEPARTMENT: MATH SPECIALISTS





PLC Questions

1. What do we want all students to know and be able to do? (Power standards)
2. How will we know if they have learned it? (Assessments)
3. How will we teach it? (Instruction)
4. What will we do when they haven't learned it? (Intervention)
5. What will we do when they already know it? (Extension)

AFTER SCHOOL MATH HELP SESSIONS



The MS Math Department offers grade-level, drop-in math help sessions from 3:15-4:15 pm on Tuesdays, Wednesdays, and Thursdays. Facilitated by grade-level math teachers, these after school Math Help sessions are open to all students and can provide your child...

- a collaborative space to do their math work
- support with questions on concepts covered in class
- support on their identified areas of growth
- math extension opportunities

MATH EXTENSION





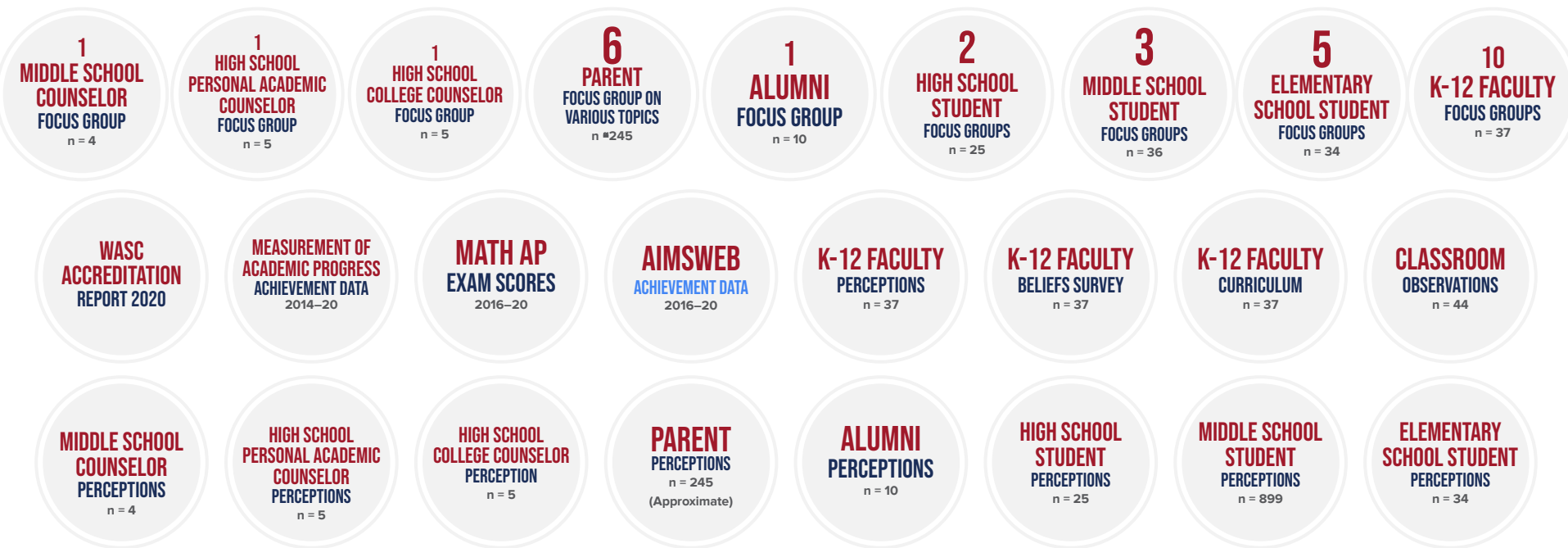
All 6th grade students engage in a common Accelerated Math 6 class supported by high quality differentiated instruction with strategic interventions and extensions.



SINGAPORE
AMERICAN
SCHOOL

MATH REVIEW RECOMMENDATION

K-12 MATH REVIEW TEAM 2020-2021





Perception data on math pathways from the K-12 Math Review Team revealed:

- faculty and parents feel that requirements are unclear or may prevent them from accessing high level math based on “gatekeepers” such as grades, course prerequisites, or exams.
- students seek to be in higher mathematics classes.
- students and parents feel there is a need to be in the Math “+” classes to access higher level courses



RECOMMENDATIONS

1. Share a consistent schoolwide math philosophy of teaching and learning

2. Pathway options in middle school

3. Investigate revisions to divisional schedules and programs to support multiple levels of intervention and extensions

4. Revise units course standards to ensure the curriculum and assessment is focused on depth, rather than breadth

5. Professional learning on consistent, high quality mathematics instruction

6. Professional learning and systems in classroom intervention

7. Professional learning and offerings in extension



SINGAPORE
AMERICAN
SCHOOL

MATH PATHWAYS WORKING GROUP

2021-23

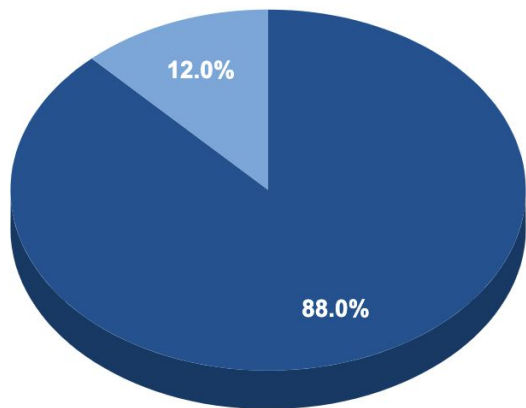


How might we ensure that all middle school students have access to high-level mathematics, with appropriate support and challenge, while nurturing a positive math identity?

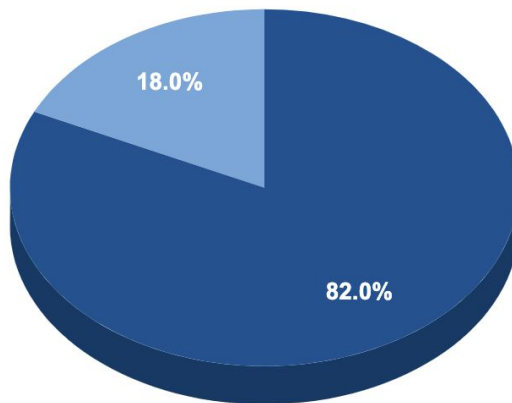
RESEARCH: INTERNATIONAL SCHOOLS



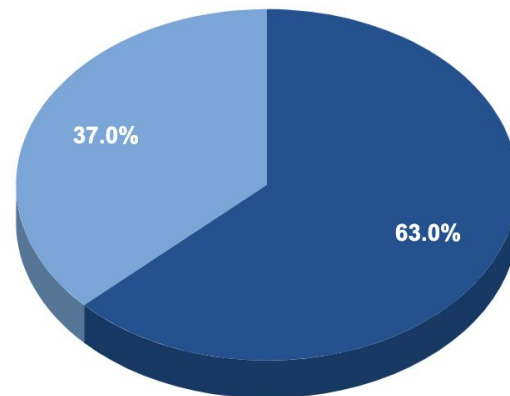
- One course
- More than one course



One math course
in Grade 6



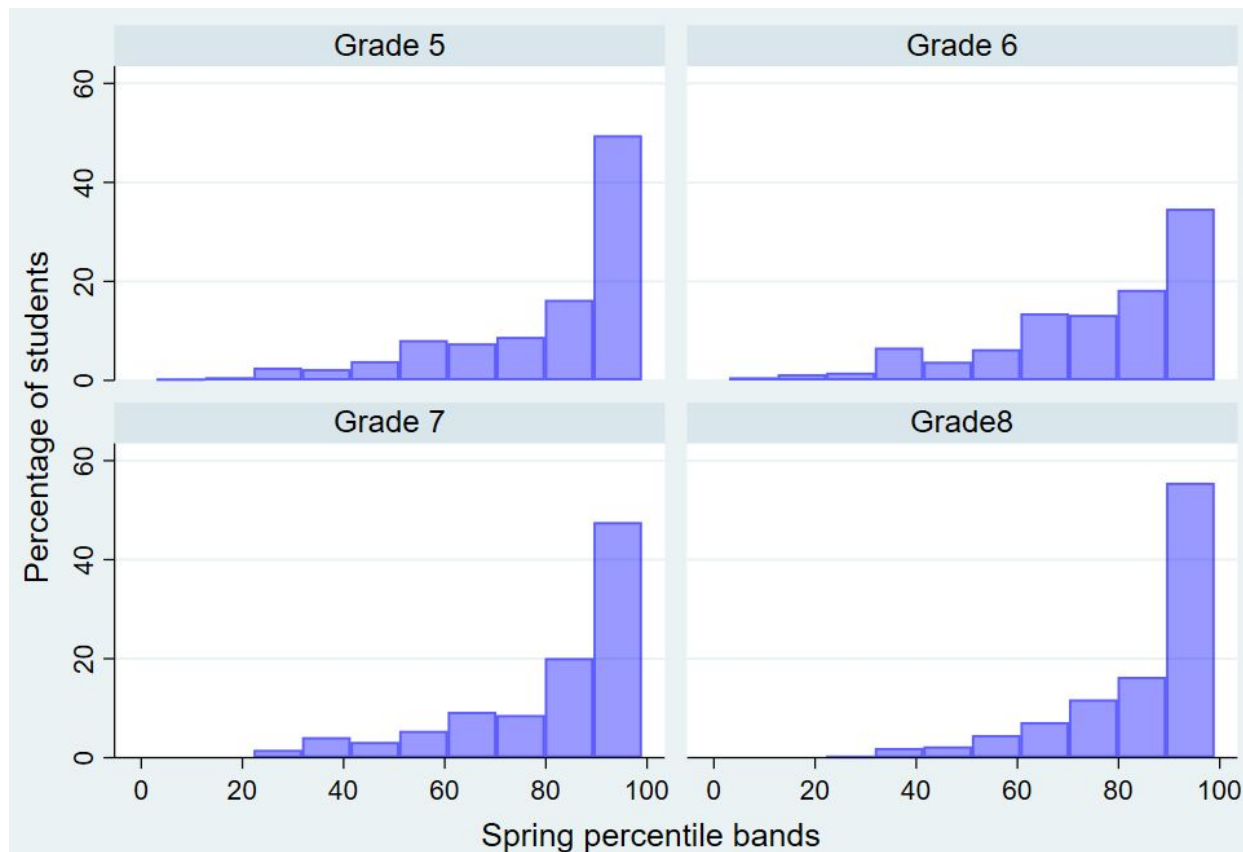
One math course
in Grades 6 & 7



One math course
in Grades 6 - 8

60 international schools surveyed

DISTRIBUTION OF STUDENT PERCENTILES FOR MAP (SPRING '22)



INFORMED FAMILY CHOICE



What is Informed Family Choice?

Parents and students, with information and support from the school, select their middle school math course. To make an informed decision, families will use:

MS MATH COURSE ENROLLMENT DATA		
Course Name	21-22	22-23
Accelerated Math 6 (Math 6+)	42%	91%
Accelerated Math 7 (Math 7+)	61%	84%
Accelerated Math 8 (Algebra 1)	69%	86%

***Grade 5 to Math 6+ transition requires no units of independent study unlike the Math 6 to Math 7+ and Math 7 to Math 8+ transitions, which require 1 - 2 units of independent study.*



SINGAPORE
AMERICAN
SCHOOL

PAUSE AND JOT



02:00

DATA FROM MS-HS MATH PATHWAYS 2022-23

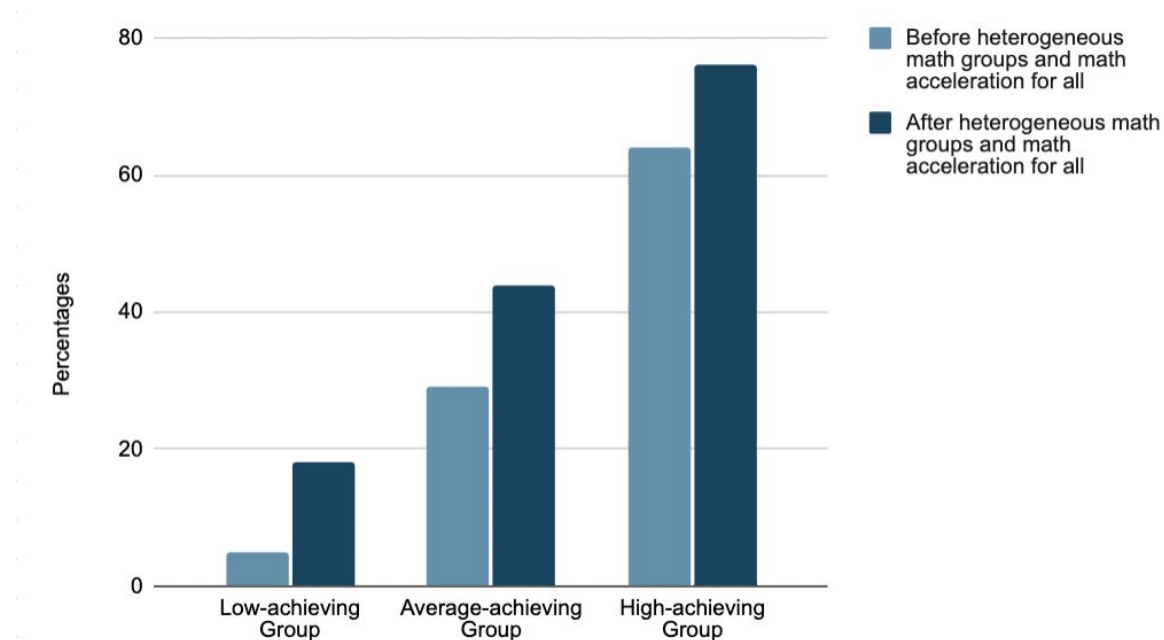


- **Students, Parents, Faculty, Admin:** 6-12 Math Pathways Working Group Focus Group
- **Faculty:** Focus group sessions with Grade 5 Team & Math Leaders, Grade 5 Learning Support Teachers, Grade 6 Math Teachers, Grade 6 Learning Support Teachers, Grade 7 Math Teachers, Grade 7 & 8 Learning Support Teachers; MS Counselor Survey
- **Parents:** Math 6 Parents Focus Group, Grade 5 and 6 Parents Focus Group, Grade 5 - 8 Families Survey Data (n = 207)
- **Students:** Grade 5 - 8 Student Survey (n = 1138)

RESEARCH: ACCELERATION FOR ALL



SUCCESSFUL COMPLETION OF AP CALCULUS



Source: Burris, Carol Corbett, et al. "[Accelerating Mathematics Achievement Using Heterogeneous Grouping](https://doi.org/10.3102/00028312043001105)." *American Educational Research Journal*, vol. 43, no. 1, 2006, pp. 137–154., <https://doi.org/10.3102/00028312043001105>.

WHY AP CALCULUS?



“Calculus is an easy answer to a complicated question. Institutions are looking for a simple gatekeeper. We are looking for ways to determine excellent and extraordinary students.”

As described in the following 2022 research study by the National Association for College Admission Counseling (NACAC), selective universities still seek “Calculus” in students’ transcripts.

SAS-SPECIFIC DATA (SAS COHORT FROM GRADE 6 TO 12)

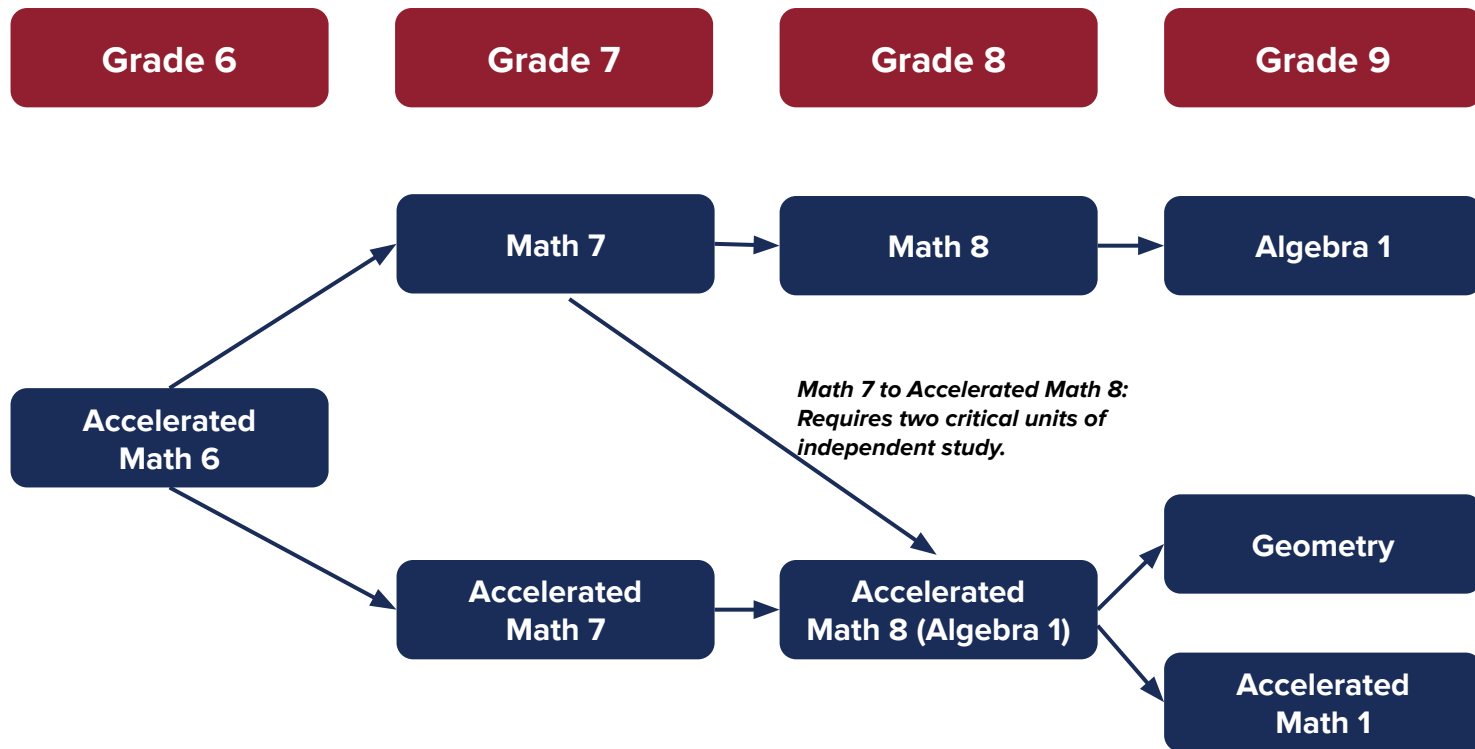


A student initially placed in Math 6+ was **10 times more likely to complete an AP Calculus** course by the time students graduated.

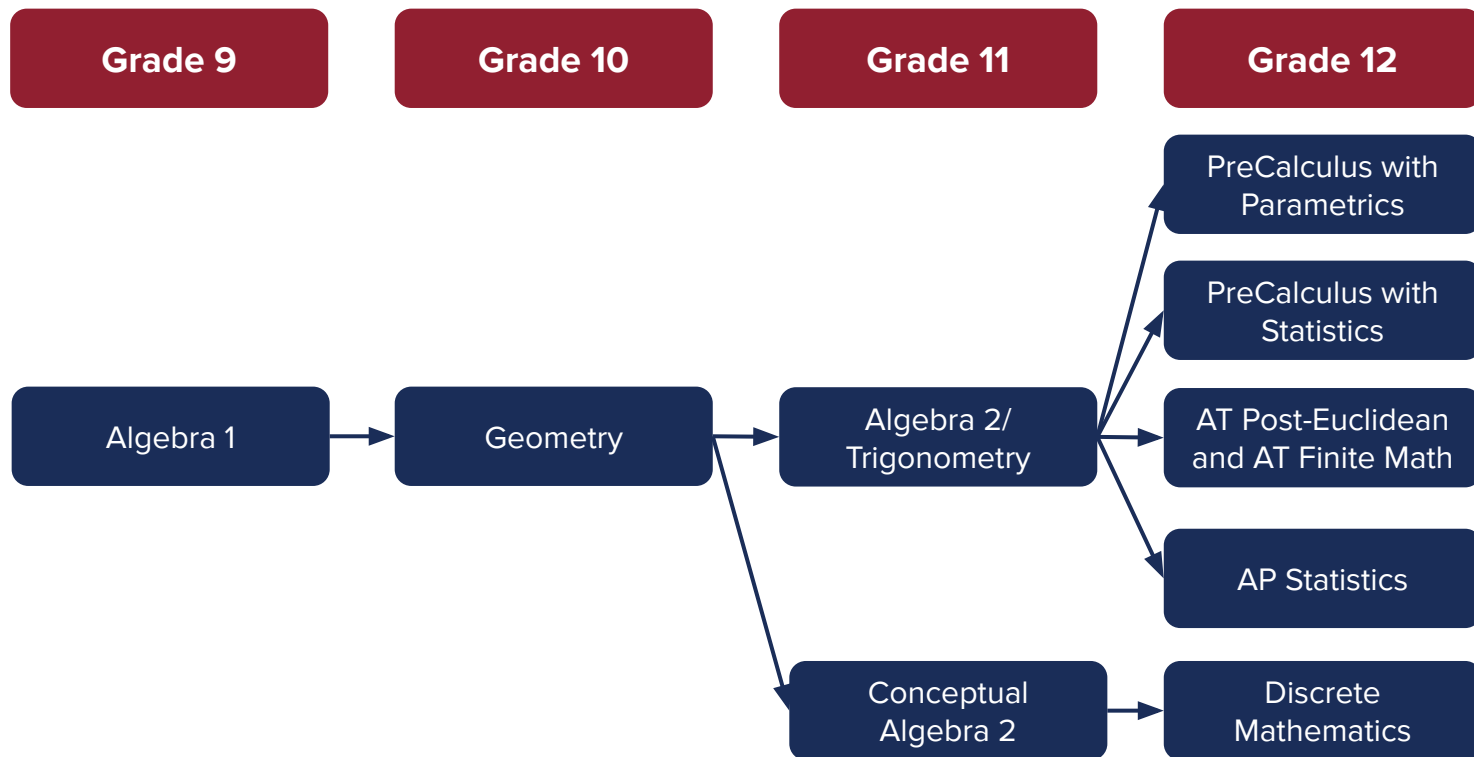
Logistic Regression Completion of Calculus

<u>Independent Variable</u>	<u>Slope</u>	<u>Std. error</u>	<u>Prob.</u>	<u>Exp (B)</u>
Math 6 (yes or no)	2.343	0.343	< 0.001	10.410
Constant	-0.0834	0.208	< 0.001	0.434

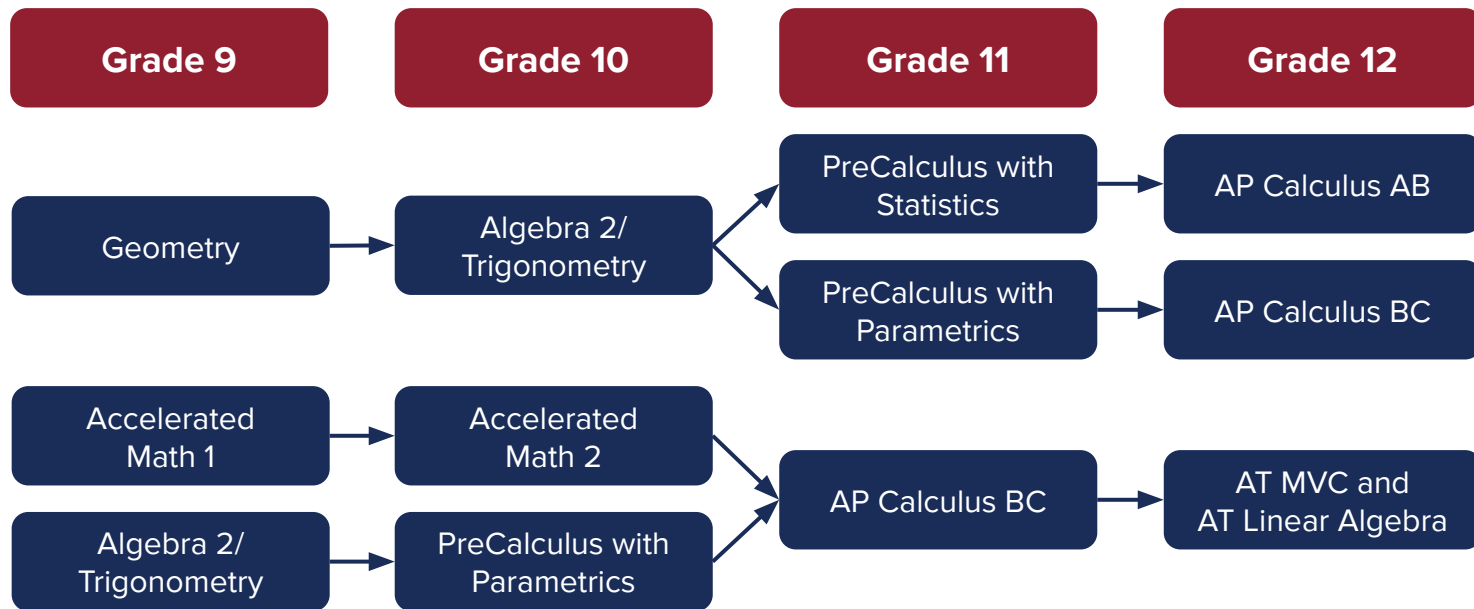
MIDDLE SCHOOL MATH PATHWAYS



SAMPLE 4-YEAR PLAN - WITH STANDARD-LEVEL COURSES



SAMPLE 4-YEAR PLAN - WITH CALCULUS



STUDENT VOICE



What was the point of 6+ and 6, the only thing it did was create a gap in students learning since everyone learned the same thing in 5th grade. It created not only a gap in learning but a gap of people, constantly i hear around “your meets is my below” from students and the gap only continued to expand going forward and now going into high school. People can’t even take the same classes because of the learning gap the school created. Personally for me it gives me a lot of stress and makes me feel behind in my learning since in high school you are now separating students into calc and algebra 1 and having algebra 1 students AN ENTIRE YEAR BEHIND OTHER STUDENTS all because the school separated students into categorys of elite and normal even though we learned the same thing in 5th grade.

Panorama Student Survey Response (Oct ‘21)



SINGAPORE
AMERICAN
SCHOOL

ONE GRADE 6 MATH COURSE

ACCELERATED MATH 6 FOR ALL



All 6th grade students engage in a common Accelerated Math 6 class supported by high quality differentiated instruction with strategic interventions and extensions.

BENEFITS

- Greater access to higher-level mathematics and increased enrollment in advanced courses
- Fosters positive math identity and a strong sense of student agency
- Increased sense of belonging and community
- Simplified math placement to allow students space to mature as learners before making choices
- Reduces high-stakes stress from Grade 5 SAS readiness exam and Spring MAP Math assessment
- Commitment to systematic and equitable math support structures



All 6th grade students engage in a common Accelerated Math 6 class supported by high quality differentiated instruction with strategic interventions and extensions.

CHALLENGES

- What might happen if a student struggles in the Accelerated Math 6 course?
- With the wider range of learners, what might be the overall impact on achievement and identity?
- How might we support our students in need of extension in the Accelerated Math 6 course?

ACCELERATED MATH 6 FOR ALL



All 6th grade students engage in a common **Accelerated Math 6** class supported by high quality differentiated instruction with strategic interventions and extensions.

SUPPORT STRUCTURES

- [After-School Math Help Sessions](#) facilitated by MS Math teachers
- K-12 math intervention through Bridges and Numeracy Project
- Extension and enrichment for **all** students with support from two dedicated math faculty members
- Flexible scheduling to provide interventions and extensions with a math content area expert teacher
- Further develop instructional practices through our coaching model with two Math PLC coaches, one Learning Support PLC Coach, and one Math Specialist
- Ongoing professional development on differentiated instruction strategies for all MS Math teachers



SINGAPORE
AMERICAN
SCHOOL

TIMELINE & NEXT STEPS

TIMELINE



Dates	Events
March 13, 2023	Grade 4 & 5 Math Parent Coffee
March 27, 2023	G5 Student Presentation about Grade 6 in Auditorium
March 28, 2023	ES to MS Transition Night for Parents
March 31, 2023	Course Registration Opens for Parents
April 17-20, 2023	G5 Classroom Visits: Counselors/G6 Students
May 8-12, 2023	G6 Students Join G5 Lunches to share information
May 16, 2023	Move-Up Day for G5 Students

TURN AND TALK



With the person sitting on your left, share your thinking about the following questions.

1. What did you learn today that **excited** you?
2. What did you learn today that **surprised** you?
3. What did you learn today that **worries** you?
4. What lingering questions do you have?

QUESTIONS & ANSWERS



Thank You!

ENDING WELL



We welcome your feedback about the session today! Using your notes, we invite you to respond to the questions on the Google Form.

<https://bit.ly/G6MathEngagementSession>

