

From: Beth Tsoumas, Assistant Superintendent for Curriculum, Assessment & Instruction
Date: March 1, 2017
Re: Superintendent Math Task Force

Guiding Questions: *What was the charge of the Superintendent Math Task Force? What was the process utilized? What is the repeatable, predictable, collaboratively designed tool that will be utilized to identify students for advanced and accelerated math?*

DESCRIPTION

Guided by our District Strategic Plan goals, D34 educators are dedicated to maximizing students' growth and development and preparing them for future learning environments in a global, dynamic society. Additionally, our educators are committed to ensuring the most effective instruction and learning for every student. This instruction is based on curriculum that reflects our community values and resources.

It is with the spirit and intent of these goals of the Strategic Plan, as well as the continual goal of providing high quality mathematics programs for all students, that the Superintendent Math Task Force was developed this year to revisit the identification process for our advanced and accelerated math placement for grades four through eight. Of specific importance was the development of an improved process that would include various measures and strategies specifically designed to identify students who would benefit from participation in advanced and accelerated courses. Therefore, it was determined that this would be a high priority task for the 2016-2017 school year.

As shared in the board update on December 2, 2016, the Superintendent Math Task Force was convened by Interim Superintendent Patricia Wernet and facilitated by consultants from the Consortium for Educational Change (CEC). The committee was comprised of teachers, administrators, Glenbrook South High School staff, parents, and a D34 board member. *(Please see Appendix A for the complete membership list.)*

District 34's Philosophy for Math Programs and Placement

*District 34's fundamental goal is to assure that each student is provided a full opportunity to master critical foundational knowledge, skills and reasoning competencies at every grade level. Consistent with that fundamental goal, D34 strives to provide every student with an appropriate mathematics curriculum and aligned instructional support designed to promote sustained growth and challenge consistent with demonstrated aptitude and potential.

*District 34 is committed to providing the resources necessary to give every student access to an appropriately leveled math program. Accordingly, we provide advanced and accelerated instruction to all students believed likely to benefit from that path. *There are no fixed targets or caps for the number of students able to participate in the advanced/accelerated math program.*

*Our math placement criteria and processes are intentionally designed to provide students opportunities for advanced/accelerated instruction. This includes providing multiple opportunities to be re-evaluated and, as appropriate, re-leveled into advanced classes throughout Grades 4-8. At the same time, we are also mindful that “over-inclusion” in advanced and accelerated classes can be a disservice to those students for whom a well-designed grade-level program is the most appropriate placement. Therefore, our placement criteria and processes are intended to balance those interests.

Math Task Force Charge

To realize these beliefs in full, the Superintendent Math Task Force was charged with revising the District 34 identification method to ensure that greater opportunities exist for students to participate in the advanced and accelerated math program. Therefore, an explicit **purpose statement** was designed for the task force and remained at the core of the committee’s work throughout the process:

The Advanced and Accelerated Math Identification Task Force will research, design, and recommend a repeatable, predictable, collaboratively designed student identification process for advanced and accelerated math.

As a reminder, it is important to note that a **non-purpose statement** was also created to support the committee’s sole focus on the identification process. Thus, it was *not* the group’s purpose:

To discuss or address scheduling, mid-terms, finals, staffing, class size, grading practices, or make changes to the math program or curriculum.

Task Force Meetings

The task force met from November 2016 to February 2017. Meetings were facilitated by CEC consultants, who regularly utilized the Adaptive Schools norms and effective team techniques to ensure that the entire process was highly collaborative. Detailed minutes were shared among committee members, with agreed upon talking points provided for staff and the community on the District 34 website.

Throughout the process, task force members were asked to read articles, research various placement methods from other districts, review D34 and GBS student data, draft products collaboratively in small groups, vote on processes and products and take part in various group exercises to arrive at final decisions to be shared with the Board.

The committee has now completed its charge. The following analysis section includes the four components of the final recommendation to the Board of Education:

1. Identification Process
2. Identification Matrix
3. Appeal Process
4. Provisional Placement / Exit Process

ANALYSIS

What is the repeatable, predictable, collaboratively designed tool that will be utilized to identify students for advanced and accelerated math?

1. Identification Process

The proposed identification process is strategically designed to have **multiple phases** in which students can be considered for advanced/accelerated placement. The task force is committed to proposing a multi-phase process that keeps students at the center of the decision-making process, expands opportunities, and offers flexibility for entering the advanced programming beyond grade 4.

Additionally, the proposed identification process is repeatable and predictable due to its utilization of: 1) clearly defined phases, 2) a matrix with clearly defined cut scores, and 3) a clearly defined timeline to be followed each school year. (*See Appendix B for the Identification Process Flowchart.*)

- a. **Phase 1** (*initial phase beginning in January/February of each school year for ALL students*)
 - i. The District will determine each student's math placement based upon his/her individual performance results using the measurements and cut scores in the proposed Identification Matrix (*described below in item #2*). *The task force voted on cut scores for determining placement into Double Accelerated, Single Accelerated, Advanced, and Regular Math courses.*
 - ii. A letter will be sent home to parents communicating this placement decision *and how it was determined. All scores will be shared with parents.* If a student does not automatically qualify for an advanced/accelerated placement based on the matrix cut scores, parents will be informed of additional phases in the process through which the student can be re-evaluated.
- b. **Phase 2** (*March of each school year for SOME students*)
 - i. Students who do not qualify for advanced/accelerated placement in Phase 1, but place within a specified range of scores on the matrix, are automatically identified by the District for Phase 2. This is a new step in the process, in which the District advocates for students to be re-evaluated for advanced/accelerated placement. In Phase 2 the following steps occur:
 1. A grade level **supplemental math test** is administered.
 2. A **student survey** is administered.
 3. Additional **teacher input** is provided including the student's test score average (in-class final chapter/unit tests).
 - ii. A letter will be sent home to parents communicating the results of Phase 2. *All scores will be shared with parents.* If a student does not qualify for an advanced/accelerated placement (based on the required scores), parents will be

informed of procedures for the appeal process, should they desire to pursue this option.

c. Phase 3 / Appeal Phase (April/May for SOME students)

- i. If a student does not qualify for advanced/accelerated placement in Phase 1 and/or Phase 2, there is still an appeal option. This phase may be initiated by the parent, the student, or the student's teacher. It is important to note that if a student initiates an appeal, the appeal must be supported by either the child's teacher or the child's parent.
- ii. In Phase 3, the appeal process, additional data will be collected. The following steps occur.
 1. A grade level **supplemental math test** is administered.
 2. A **student survey** is administered.
 3. A **parent survey** is administered.
 4. Additional **teacher input** is provided including the student's test score average (in-class final chapter/unit tests).
- iii. A District Appeal Committee will review the appeal data and make the placement decision.
- iv. A letter will be sent home to parents communicating the Appeal Committee's decision. *All scores will be shared with parents along with the placement decision.*

2. Identification Matrix

The task force voted on a matrix method of identifying students for placement. A matrix is a tool that identifies the components, or measurements, being used in the process, the values assigned for various scores on each measure, and the cut-scores used to place students into the most appropriate courses.

Matrix Measures

The task force voted to use the following measures in the Identification Matrix. While the measures are similar to prior placement methods, the committee has revised the manner in which the measures will be used to assign points to ultimately identify placement. One example is the use of multiple, historical data points for MAP math and reading. Additionally, the committee changed the values (weighting) and the cut-scores based upon additional research and feedback from staff and community members. The following measures and methods are utilized in the proposed identification matrix:

- NWEA Measure of Academic Progress (MAP) – Math
 - We will now use a student's most recent five MAP math percentile scores (rather than the RIT scores), dropping the lowest score of these five.
 - The average of the four remaining percentile scores will be used to determine points in the matrix.
- NWEA Measure of Academic Progress (MAP) – Reading
 - We will now use a student's most recent five MAP reading percentile scores (rather than the RIT scores), dropping the lowest score of these five.

- The average of the four remaining percentile scores will be used to determine points in the matrix.
- Student Performance Rating Scale
- Cognitive Abilities Test (CogAT) - Non-Verbal
 - We will now use the Non-Verbal score in the matrix, rather than the composite score.
- Cognitive Abilities Test (CogAT) - Quantitative
 - We will now use the Quantitative score in the matrix, rather than the composite score.

The task force values the blend of achievement and ability data combined with teacher input. The committee agreed to place *greater weight* in the matrix on MAP math and the Student Performance Rating Scale. This decision is based on the findings from our data consultant, using last year’s placement data, where it was determined that these two factors are the greatest indicators of student readiness and success in advanced placement.

The **matrix** below was developed to identify students for advanced math placement in grades 4 and 5. The advanced placement provides students with instruction aligned to grade level curriculum; however, the pace is much faster in this program as students grasp skills and concepts more quickly. In the advanced class, math skills and concepts are applied at a more rigorous level, and students will encounter more non-routine problems. It is expected that students in the advanced class are more independent, persevere longer when faced with challenging problems, and are able to use a variety of skills and thought processes to make generalizations across different mathematical situations.

Students Entering Grades 4-5

	4	3	2	1	0
CogAT (Non-verbal)				65% +	< 65%
CogAT (Quantitative)				80% +	< 80%
NWEA MAP Math	99%-95%	94%-90%	89%-85%	84%-80%	< 80%
NWEA MAP Reading				70% +	< 70%
Student Performance Rating Scale		40-35	34-32	31-30	< 30

- *Students who score 7-10 points place in Advanced Math.*
- *Students who score 3-6 points place in Regular Math and automatically enter Phase Two* Identification for Advanced Math.*
- *Students who score lower than 3 points place in Regular Math.*

A second matrix was designed to identify students for advanced and accelerated placement in grades 6-8. Starting in 6th grade, students may be identified for Grade Level, Single Accelerated, or Double Accelerated Placement.

Students Entering Grades 6-8

	4	3	2	1	0
CogAT (Non-verbal)				65% +	< 65%
CogAT (Quantitative)				85% +	< 85%
NWEA MAP Math	99%-98%	97%-96%	95%-94%	93%-80%	< 80%
NWEA MAP Reading				70% +	< 70%
Student Performance Rating Scale		40-35	34-32	31-30	< 30

- *Students who score 8-10 points place in Double Accelerated Math.*
- *Students who score 6-7 points place in Single Accelerated Math and automatically enter Phase Two* Identification for Double Accelerated Math.*
- *Students who score 5 points place in Single Accelerated Math.*
- *Students who score 3-4 points place in Grade Level Math and automatically enter Phase Two* Identification for Single Accelerated Math.*
- *Students who score lower than 3 points on the matrix place in Grade Level Math.*
- *Students entering Grade 8 cannot have a placement change from 7th Grade Single Accelerated to 8th Grade Double Accelerated since that would mean they would skip the Algebra 1 course, which cannot be done.*

As mentioned earlier in this memo, a goal of the task force was to ensure that greater opportunities exist for students to participate in the advanced math program. Therefore, while the measures in the matrix remain similar, the committee re-evaluated the weights and cut scores.

Rationale for Weighting

- Through research of our prior matrix and methodology results, the task force determined that MAP math and Student Performance Rating Scale scores are the two strongest indicators of student readiness and success in advanced/accelerated math.
 - MAP Math
 - Weighting of the percentile ranges within the matrix for grades 6-8 reflects the need to consider the three potential pathways at the middle school level. A wider percentile range (80-93%) exists in the one point range on the matrix, where many of our students perform and may, ultimately, place in Single Accelerated Math. Smaller incremental ranges exist for more points in the matrix where one would anticipate placing in the Double Accelerated pathway.
 - Student Performance Rating Scale
 - The committee elected to place a higher weight value on the Performance Rating Scale. This means that higher performing students can receive up to three points. However, it allows students to score one, two or three points compared to the prior matrix that only allowed for one or two points. 30 remains the lowest overall score on the scale (out of a possible 40) to receive points on the matrix. This equates to a student being “proficient” or regularly demonstrating all of the skills, work habits, and habits of mind expected for their grade level.
- There is a strong positive correlation between the Quantitative CogAT score and student mathematics achievement. The committee values the use of CogAT non-verbal and quantitative performance data due to information provided regarding student’s inductive and mathematical

reasoning skills. The committee used current data of students presently finding success in advanced courses to determine the most appropriate percentile scores to be used in the matrix. Additionally, the weighting has been revised in the proposed matrix to separate the two batteries of this assessment (non-verbal and quantitative) and assign one possible point for each battery.

- MAP Reading remains as a component in the Identification Matrix as the committee recognizes the strong presence of informational text, vocabulary, and problem-solving embedded in text. Students are expected to read and comprehend various forms of text to gather critical information to solve problems and critique each other’s thinking. They are expected to analyze problems and explain their reasoning, both orally and in writing. Therefore, while not as highly weighted as the MAP math, reading continues to be a component worth one point in the matrix.

The following tables show the percentage of D34 students scoring in each of the national percentile bands for each measure in the proposed Identification Matrix.

4th and 5th Grade 2017-2018

Matrix Indicator	Number of 4th Grade Students (2017-2018)	Local Percent of Students in 4th Grade (2017-2018)	Number of 5th Grade Students (2017-2018)	Local Percent of Students in 5th Grade (2017-2018)
Math MAP 95-99% (4)	31	6%	47	9%
Math MAP 90-94% (3)	51	10%	59	11%
Math MAP 85-89% (2)	49	9%	45	9%
Math MAP 80-84% (1)	38	7%	47	9%
Math MAP 0-79% (0)	343	65%	306	60%
Reading MAP 70-99% (1)	312	59%	317	62%
CogAT (Non-Verbal) 65-99% (1)	312	59%	277	54%
CogAT (Quantitative) 80-99% (1)	175	33%	148	29%
S.P. Rating Scale 35-40 (3)	135	26%	124	24%
S.P. Rating Scale 32-34 (2)	51	10%	29	6%
S.P. Rating Scale 30-31 (1)	33	6%	50	10%
S.P. Rating Scale 1-29 (0)	303	58%	310	60%
S.P. Rating Scale (incomplete)	4	1%	1	0%
Total students in Grade Level	526		514	

6th - 8th Grade 2017-2018

Matrix Indicator	Number of 6th Grade Students (2017-2018)	Local Percent of Students in 6th Grade (2017-2018)	Number of 7th Grade Students (2017-2018)	Local Percent of Students in 7th Grade (2017-2018)	Number of 8th Grade Students (2017-2018)	Local Percent of Students in 8th Grade (2017-2018)
Math MAP 98-99% (4)	19	3%	36	6%	24	4%
Math MAP 96-97% (3)	35	6%	34	6%	25	4%
Math MAP 94-95% (2)	22	4%	11	2%	35	6%
Math MAP 80-93% (1)	152	27%	135	23%	158	27%
Math MAP 0-79% (0)	321	58%	359	61%	342	58%
Reading MAP 70-99% (1)	345	62%	363	62%	382	64%
CogAT (Non-Verbal) 65-99% (1)	320	57%	293	50%	305	51%
CogAT (Quantitative) 85-99% (1)	192	34%	176	30%	211	36%
S.P. Rating Scale 35-40 (3)	133	24%	252	43%	127	21%
S.P. Rating Scale 32-34 (2)	54	10%	62	11%	62	10%
S.P. Rating Scale 30-31 (1)	45	8%	30	5%	141	24%
S.P. Rating Scale 1-29 (0)	319	57%	240	41%	251	42%
S.P. Rating Scale (incomplete)	6	1%	1	0%	12	2%
Total students in Grade Level	557		585		593	

Rationale for Cut Scores

- Simulation data was analyzed by members of the task force to ensure a thorough review of the potential number of students placing in each level/pathway.
- Data showing the number of students in each course takes into consideration that students will remain on the advanced pathway once they are identified for advanced/accelerated courses and are performing successfully.

- Upon review of the simulation data, adjustments were made to the original matrix, resulting in the proposed cut scores, *which maximize the opportunity for students to be considered for advanced placement.*
- In research conducted by the task force, the 95thile, nationally, was a cut score on standardized assessments recommended for accelerated placements. This is reflected in the matrices for grades 4-5 and 6-8.

(Please see Appendix C for Enrollment Percentages using simulation data to compare 2016-2017 placement in each pathway to potential 2017-2018 placements.)

3. Appeal Process (Identification Process, Phase 3)

The appeal process is, technically, Phase 3 of the Identification Process. It is an OPTIONAL phase of the process. However, it does provide students with an additional opportunity to be re-evaluated for an advanced/accelerated placement. This phase provides the opportunity for additional information to be reviewed, including supplemental test scores, parent and student survey information, teacher input, and classroom performance data. A District Appeal Committee will make final appeal decisions.

4. Provisional Placement Process

Should a student be placed in advanced/accelerated math as a result of Phase 2 or after an appeal decision, a provisional placement process will be communicated to the parent(s) and student. The math teacher will closely monitor the student's progress during the first trimester to ensure appropriate placement. The following will occur during the provisional stage of placement:

- a. Mid-Point of Trimester 1 – Parents will receive a mid-term report providing an update of the student's classroom work habits and performance levels, including test scores.
- b. End of Trimester 1 – Parents will receive a letter at the end of Trimester 1 providing the student's performance data. A student must meet two of the three criteria to remain in the advanced/accelerated course:
 - i. Class average of test scores (must be 70% or higher)
 - ii. Student Performance Rating Scale (must be 30 points or higher)
 - iii. District Trimester 1 Math Assessment (must be 75% or higher)

If a student meets two of the criteria, s/he will remain in the advanced placement course. If, however, s/he does not meet the required performance levels, the student will move to a more appropriate course and be supported to make a successful transition. Schedule changes would be made to accommodate the more appropriate placement. For this reason, the committee recommends that placement changes be made at the end of Trimester 1.

Math Course Progressions and Communication with Glenbrook South High School

As stated earlier, four GBS staff members participated on the Superintendent Math Task Force. As two districts serving a common population of students, we aim to provide curriculum and course pathways that maximize students' learning throughout their K-12 educational experience. As it relates to advanced and accelerated math programming, we have particularly been interested in how our students perform once they transition to GBS as freshmen and then throughout their high school experience. Our goal is to ensure that regardless of the course in which students are placed, they are successfully continuing on a pathway that is the most appropriate fit, provides appropriate rigor, and meets their individual needs.

The table below shows a typical progression of courses and where our students place upon entering 9th grade, given successful completion of their 8th grade course.

8th Grade Math Courses ↓	High School Grade Levels			
	9th Grade	10th Grade	11th Grade	12th Grade
8th Grade CC (Grade-Level)	Algebra	Geometry	Algebra 2	Pre-Calculus
Algebra (Single Accelerated)	Geometry	Algebra 2	Pre-Calculus with Statistics	Pre-Calculus with Discrete Mathematics*
	Geometry Honors	Algebra 2 Honors	Pre-Calculus Honors	AP Calculus AB or BC*
Geometry (Double Accelerated)	Algebra 2	Pre-Calculus with Statistics	Pre-Calculus with Discrete Mathematics*	Calculus*
	Algebra 2 Honors	Pre-Calculus Honors	AP Calculus AB or BC*	AP Statistics or Advanced Topics*

* There are various course options available at this point in the pathway.

We are currently in the process of analyzing historical data recently provided by GBS. The information offers additional performance data of our highest achieving students and will provide further rationale and justification for the scores in our proposed matrix. Information from the analysis will be provided as a future update for the BOE.

RECOMMENDATION

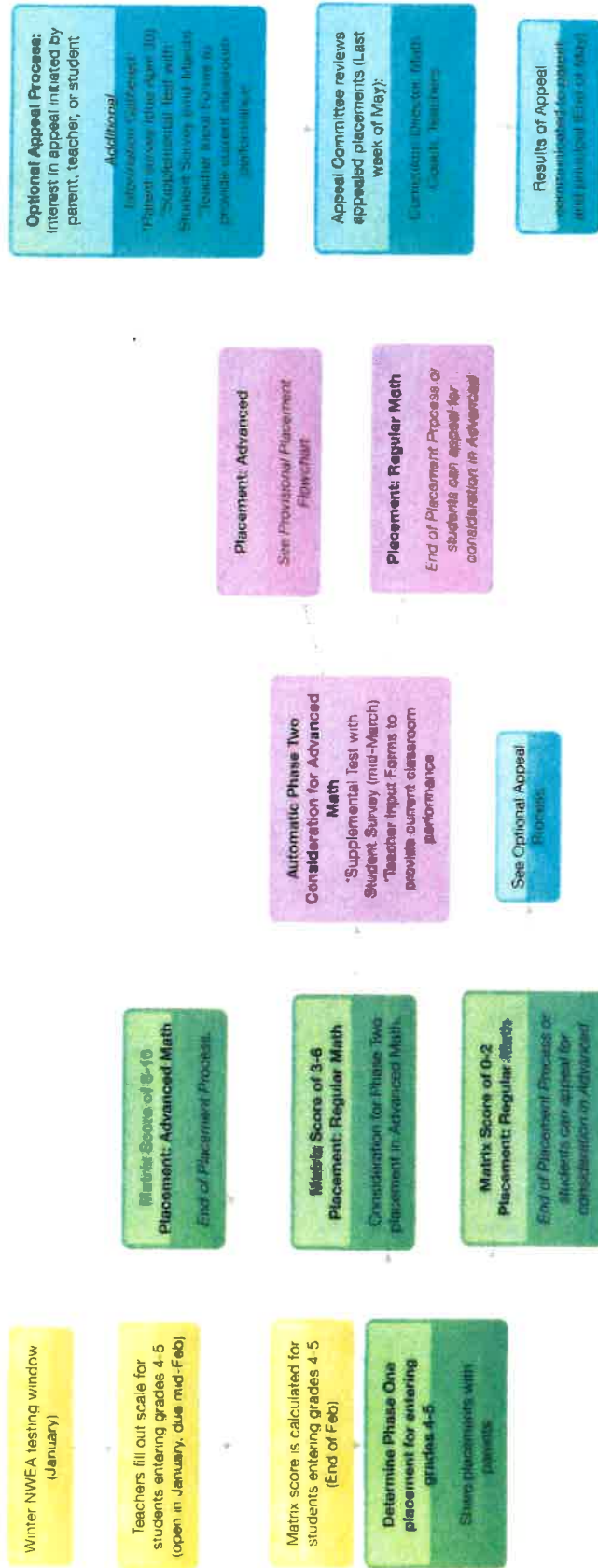
It is recommended that the Board of Education approve the Math Placement Identification Process (including the Identification Matrix, Appeal Process, and Exit Process) as proposed by the Superintendent Math Task Force.

Appendix A. Superintendent Math Task Force Membership

- Co-Chairpersons: CEC Consultants
 - Jill Meciej
 - Crystal Conley
- Grades K-2 Teachers
 - Rachel Davidson (HE)
 - Alison Keller (LY)
 - Ally Krueger (WB)
- Grades 3-5 Teachers
 - Betsy Allen (HO)
 - Sam Brottman (PR)
 - Matt Vogel (GG)
- Grades 6-8 Math Teachers
 - Danae Ciske (AT)
 - Carol Cunard (AT)
 - Katey Kalkounos (SP)
 - Colleen Lueder (SP)
 - Felicia Stern (AT)
 - Ashley Ubik (SP)
- District 34 Principals
 - Jason Kaiz (SP)
 - Helena Vena (GG)
- District 34 Math Instructional Coach
 - Jenny Bergeron
- District 34 Administrator
 - Beth Tsoumas
- GEA President
 - Nan Ross-Meridith
- Parents
 - Betsy Allen (D34)
 - Stacie Brown (D34)
 - Mandy Chiarieri (D34/GBS)
 - Mary Patronik (GBS)
- District 34 Board of Education Member
 - Sam Ach
- Glenbrook South High School Staff
 - Beth Bushek (Algebra Teacher)
 - Phil Gartner (Math Instructional Supervisor)
 - Cameron Muir (Associate Principal)
 - John O'Malley (Geometry Teacher)

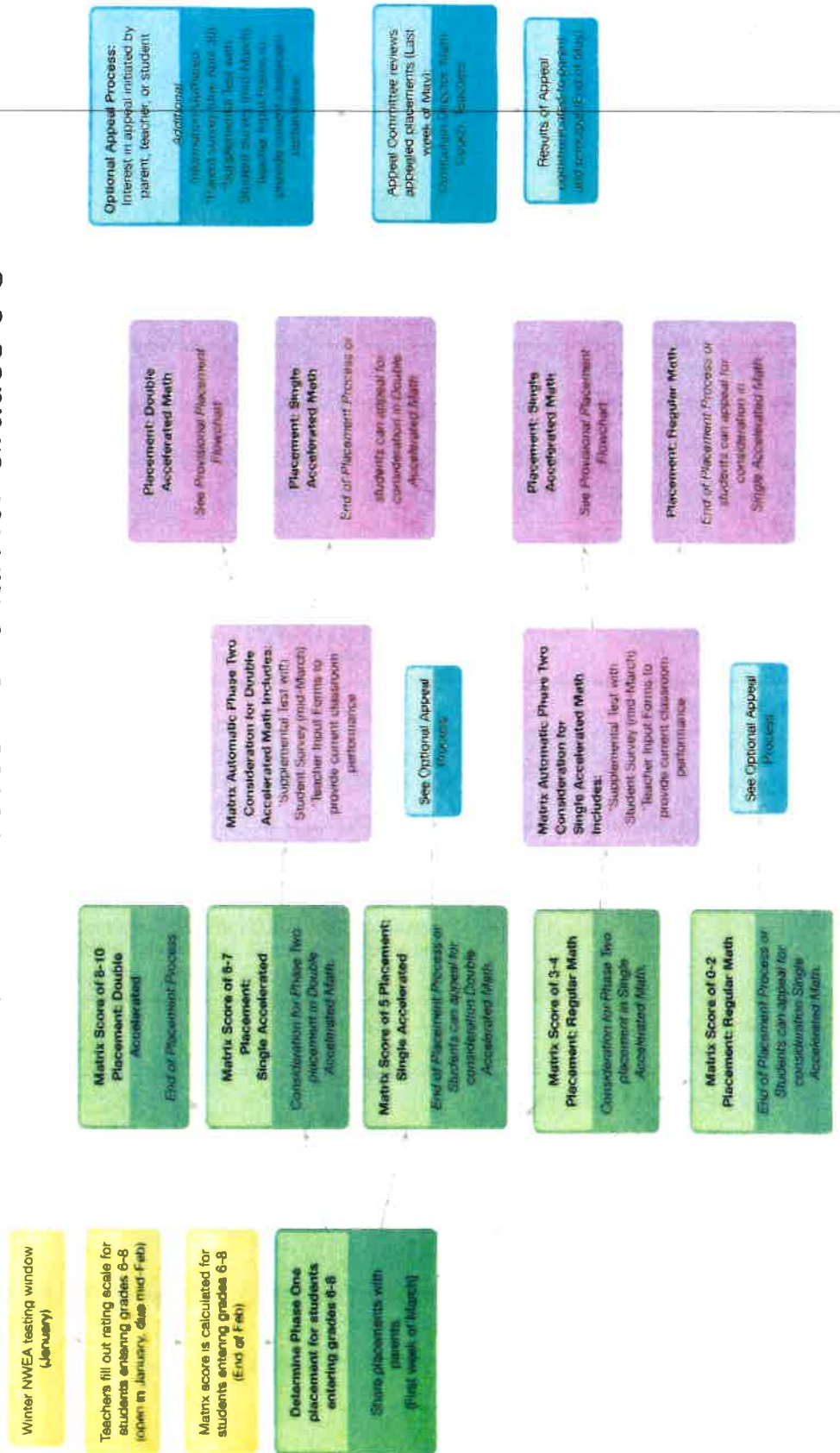
Appendix B. Identification Process Flowchart, Grades 4-5

Identification Process Flowchart for Grades 4-5



Identification Process Flowchart, Grades 6-8

Identification Process Flowchart for Grades 6-8



Appendix C. Enrollment Percentages (using simulation data)

GRADE 5

Course	Phase 1 Simulation Enrollment	Range of Student Enrollment after Phase 2 is Complete	Current enrollment
5th Grade Regular	372 (72%)	269 (52%) - 372 (72%)	403 (72%)
	<i>103 students who placed in Regular are eligible for Phase 2 consideration for Advanced Math. They could end up in either Advanced Math or Regular Math.</i>		
5th Grade Advanced	142 (28%)	142 (28%) - 245 (48%)	158 (28%)
Total Students in 5th Grade	514		561

Current 5th grade advanced enrollment is 28%; potential enrollment for next year after Phase 2 is 48%. This does not include a projection for any appeals.

GRADE 6

Course	Phase 1 Simulation Enrollment	Range of Student Enrollment after Phase 2 is Complete	Current enrollment
6th Grade Regular	374 (67%)	293 (53%) - 374 (67%)	339 (58%)
	<i>106 students who placed in Regular are eligible for Phase 2 consideration in Single Accelerated Math. They could end up in either Single Accelerated Math or Regular Math.</i>		
6th Grade Single Accelerated	123 (22%)	60 (11%) - 204 (37%)	171 (29%)
	<i>63 students who placed in Single Accelerated are eligible for Phase 2 consideration in Double Accelerated Math. They could end up in either Double Accelerated Math or Single Accelerated Math.</i>		
6th Grade Double Accelerated	61 (11%)	61 (11%) - 124 (22%)	78 (13%)
Total Students in 6th Grade	558		588

Current 6th grade Single Accelerated enrollment is 29%; potential enrollment for next year after Phase 2 is 37%.

Current 6th grade Double Accelerated enrollment is 13%; potential enrollment for next year after Phase 2 is 22%.

This does not include a projection for any appeals.

GRADE 7

Course	Phase 1 Simulation Enrollment	Range of Student Enrollment after Phase 2 is Complete	Current enrollment
7th Grade Regular	335 (57%)	313 (53%) - 335 (57%)	310 (52%)
	<i>22 students who placed in Regular are eligible for Phase 2 consideration in Single Accelerated Math. They could end up in either Single Accelerated Math or Regular Math.</i>		
7th Grade Single Accelerated	167 (28%)	100 (17%) - 189 (32%)	210 (35%)
	<i>67 students who placed in Single Accelerated are eligible for Phase 2 consideration in Double Accelerated Math. They could end up in either Double Accelerated Math or Single Accelerated Math.</i>		
7th Grade Double Accelerated (Algebra)	85 (14%)	85 (14%) - 152 (29%)	74 (12%)
Total Students in 7th Grade	587		594

Current 7th grade Double Accelerated enrollment is 12%; potential enrollment for next year after Phase 2 is 29%. This does not include a projection for any appeals.

GRADE 8

Course	Phase 1 Simulation Enrollment	Range of Student Enrollment after Phase 2 is Complete	Current enrollment
8th Grade Regular	309 (52%)	282 (47%) - 309 (52%)	351 (59%)
	<i>27 students who placed in Regular are eligible for Phase 2 consideration for Single Accelerated Math. They could end up in either Single Accelerated Math or Regular Math.</i>		
8th Grade Single Accelerated (Algebra)	211 (36%)	211 (36%) - 238 (40%)	191 (32%)
	<i>All Double Accelerated placements in 8th grade must be rolled over from 7th grade Double Accelerated. No new students can join the course because it would be skipping Algebra 1.</i>		
8th Grade Double Accelerated (Geometry)	74 (12%)	74 (12%)	50 (8%)
Total Students in 8th Grade	594		592

Current 8th grade Single Accelerated enrollment is 32%; potential enrollment for next year after Phase 2 is 40%. This does not include a projection for any appeals.

