Proposed Revisions: 5th Grade Math Program

Presentation Overview

Why change the program?

What will the changes look like?

What will remain the same?

How will students be identified for acceleration?

The Current Model

Double acceleration occurs in grade 5.

Double accelerated students skip grade 5 curriculum and have the opportunity to enroll in:

AP Environmental Sciences in grade 8

Multivariable Calculus in grade 12

Why Change the Current Model?

- 89% of curriculum in grade 5 is brand new
- Current enrichment practices are not available/effective for all
- AIS services take the place of regular instruction
- Limited entry points to advanced math courses
- Tremendous stress placed on students at a young age

Acceleration or Enrichment: A sprint or a journey?

Acceleration is about the destination and moving faster through the curriculum.

Enrichment is about the journey and extending the experience with depth and complexity.

Acceleration or Enrichment?

Acceleration is appropriate when students demonstrate significant depth of understanding of **all** content that would be skipped.

Acceleration or Enrichment?

If a student demonstrates significant depth of understanding of **some but not all** of the content that would be skipped, then enrichment is more appropriate.

Acceleration or Enrichment?

Acceleration should not happen at the expense of creating gaps in student understanding by skipping foundational learning standards.

Proposed Revisions to our 5th Grade Math Model

Heterogeneously group students in grade 5

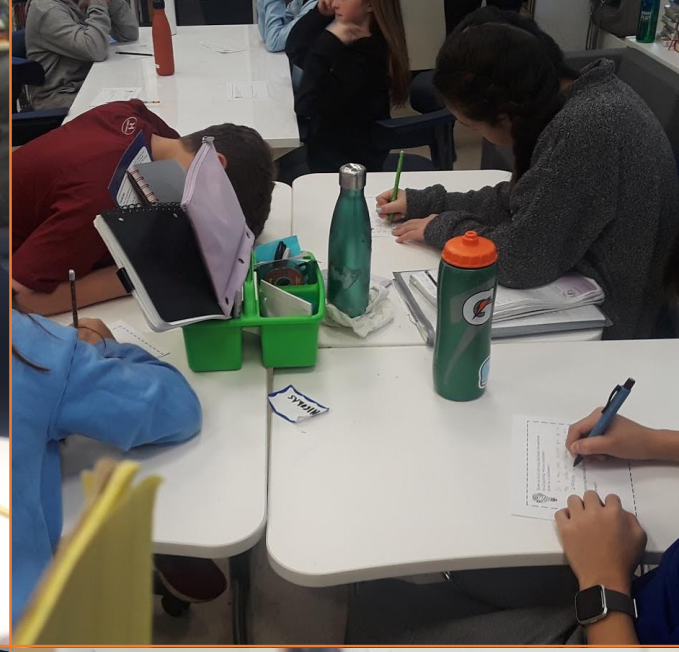
Provide targeted enrichment blocks during the school day to provide more students with access to deeper conceptual understanding of mathematics.

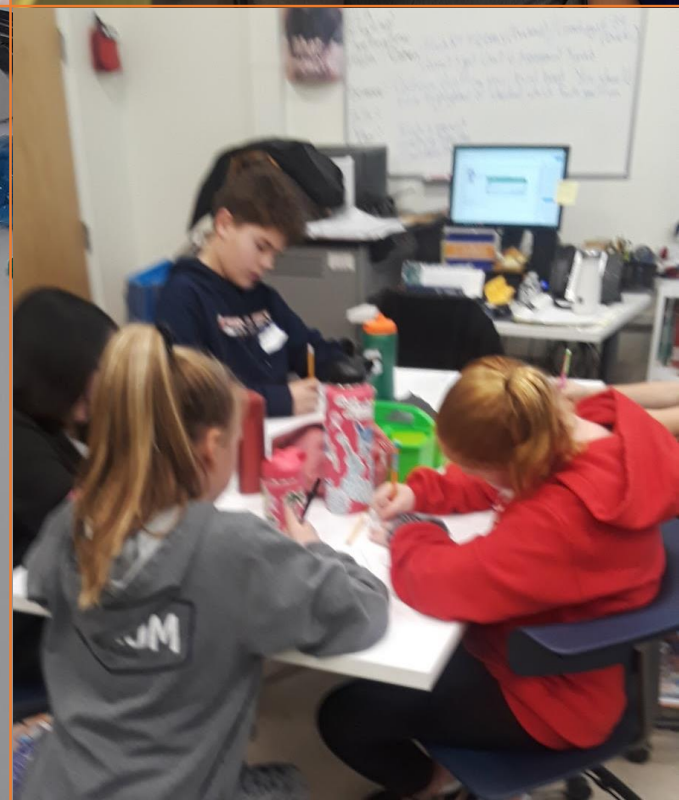
Enrichment Time

- Increase math time by 30 minutes two times per week
- All 5th grade students will receive either enrichment or AIS services during this time.
- Takes the place of after-school math enrichment

Enrichment Time

- Opportunities for creative and non-routine problem solving
- Interactive activities that go beyond grade-level standards
- Emphasis is placed on depth of curriculum (enrichment) rather than speed through content (acceleration).





Enrichment vs Skill Work

5th grade curriculum standard: NY-5.NF Use equivalent fractions as a strategy to add and subtract fractions.

Skill-based work	Enrichment based work
$5\frac{4}{5} - 2\frac{3}{4}$	Create three different mixed numbers that will make the equation true by using the digits 1 to 9 at most one time each. You may reuse the same numbers for each of the the three mixed numbers. $5\frac{4}{5} - \square\frac{\square}{\square} = 3\frac{1}{20}$

Enrichment vs. Skill Work

5th grade curriculum standard: NY-5.OA.1: Apply the order or operations to evaluate numerical expressions.

Skill-based work	Enrichment-based work
3 x (4 + 1 – 2)	Use the operation symbols (+, -, x and ÷) to make the equation true. Operations may be used more than once. $2 \square (3 \square 7 \square 9) = (1 \square 5) \square (8 \square 4)$

Double Acceleration occurs in grade 6.

Double accelerated students have the opportunity to enroll in:

AP Environmental Science in grade 8

Multivariable Calculus in grade 12

The Revised Model

Why move double acceleration to grade 6?

- Greater overlap in content exists between grade 6 and 7
- Facility with fractions and decimals is often a solid predictor of potential for success in advanced math
- Would not affect a student's ability to take Multivariable Calculus or AP Environmental Science

Advantages of shifting the model

In grade 5, teachers could explore certain 6th grade topics during the enrichment period

Expand and formalize enrichment practices during the school day

Students eligible for math AIS will receive additional time for math concepts

Identifying Students for Double Acceleration

Changes to the identification process

- Classroom exams and final exams are no longer part of the identification process
- Introduction of a rubric to take a more holistic approach to identifying students
- Introduction of teacher feedback through the Renzulli-Hartman scale and student work samples
- Introduction of a committee process to review eligible students

Phase 1: Screening

COGNITIVE ABILITIES TEST

AT LEAST 98TH NATIONAL PERCENTILE ON QUANTITATIVE/NON-VERBAL COMBINED SCORE

Phase 2: Data Gathering

Renzulli-Hartman Rating Scale

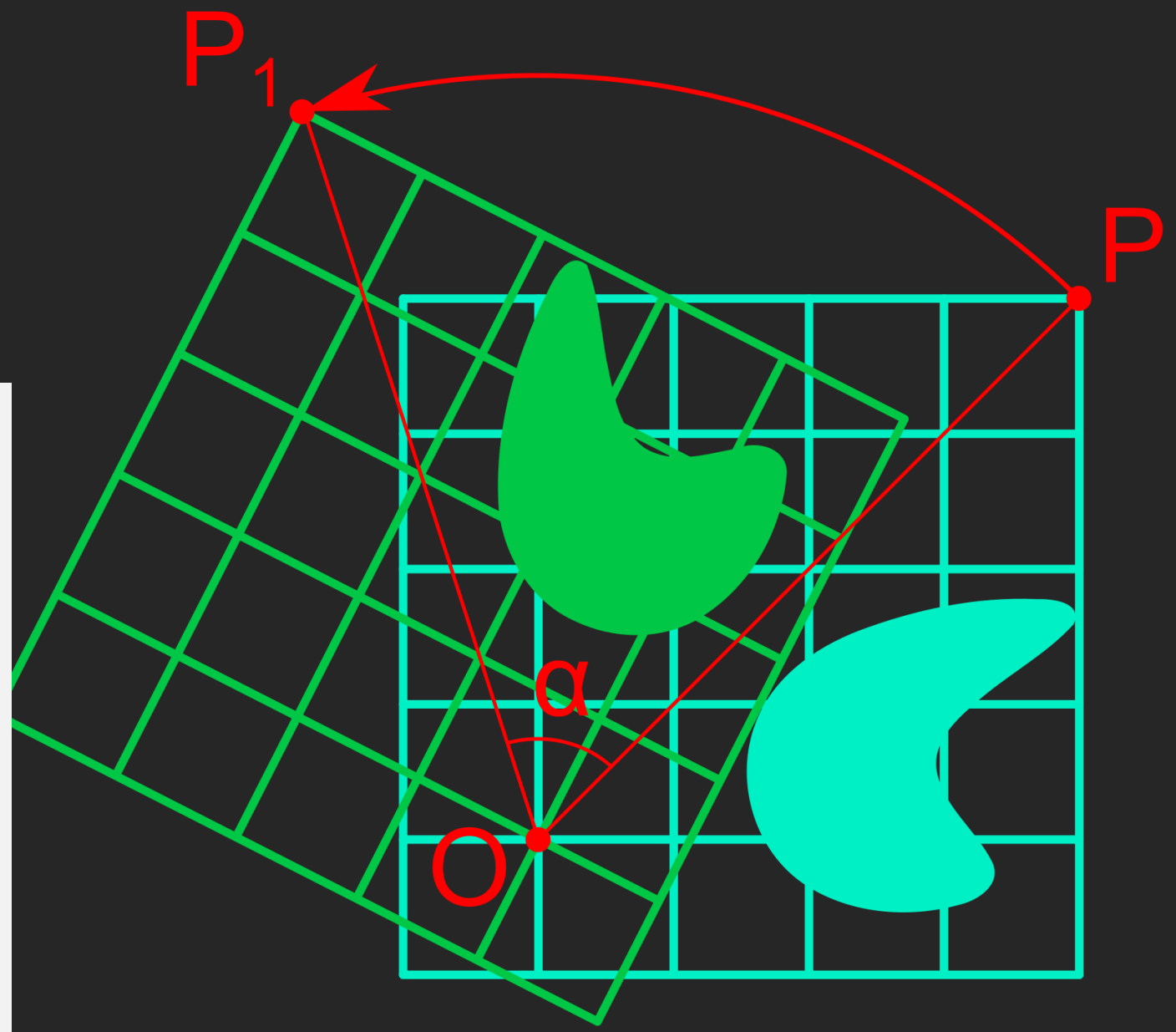
Work sample review

On-demand mathematical tasks

Renzulli-Hartman Rating Scale

Helps identify students who…

- have natural curiosity and interest
- can solve problems in a variety of ways
- can discover mathematical patterns
- can display a strong number sense
- can readily switch between strategies
- understand new concepts more easily than others



Phase 3: Committee Review

- Coordinator of Mathematics
- Math Specialists
- Building Administrator

Identification Rubric Draft

Identification Criteria, 2020-2021

Threshold for acceleration: Rubric sum of __ or more.

	Score			
Element	1	2	3	4
Renzulli-Hartman Rating Scale - Teacher feedback (median of teachers if more than one)	Renzulli-Hartman Rating Scale score less than or equal to __.	Renzulli-Hartman Rating Scale score in __ to __ range.	Renzulli-Hartman Rating Scale score in __ to __ range.	Renzulli-Hartman Rating Scale score of at least __.
Current classroom work sample	Student work sample contains misconceptions.	Work sample represents work that is characteristic of the grade level.	Work sample shows a high quality of mathematical work performed accurately without sufficiently sound mathematical reasoning.	Work sample shows a high quality of mathematical work performed accurately and a strong use of mathematical reasoning.
On demand problem tasks ***(double weight)***	More than _ problems are solved incorrectly.	_ to _ problems are solved incorrectly but the remaining problems contain written evidence of mathematical understanding.	_ to _ problems are solved incorrectly but the remaining problems contain written evidence of mathematical understanding.	All of the problems are solved correctly and contain written evidence of mathematical understanding.

Cognitive Abilities Test (CogAT)

CogAT will be used to identify students for the following:

Double Accelerated Math program

5th and 6th grade after school enrichment for humanities and science

CogAT is an optional assessment to which parents must opt-in.

CogAT will be administered in mid May.

Cognitive Abilities Test

This year:

- Administered to students in grades 4 and 5 in May (as an opt-in) for the purpose of identifying students for enrichment in ELA and Science.

Next year:

- Administered to students in grades 4 and 5 in the Spring (as an opt-in) for the purpose of identifying students for double accelerated math as well as ELA and science enrichment.