



## ELEMENTARY EXTENDED MATH PROGRAM GUIDELINES

### Catalina Foothills School District

### Overview for Parents/Guardians

*Catalina Foothills School District, a caring and collaborative learning community, ensures that each student achieves intellectual and personal excellence, and is well prepared for college and career pathways.*

#### **Purpose**

CFSD's Elementary Extended Math Program addresses the needs of K-5 students who consistently demonstrate the ability to think, learn, and perform at advanced levels in mathematics. The concepts and skills addressed in the K–5 mathematics standards are rigorous and extremely important, and students need time to learn them properly. Therefore, the students who qualify for Extended Math have demonstrated a significant, deep, and complete understanding of grade level concepts and skills.

School administrators and classroom teachers share responsibility for communicating with parents/guardians and others about the mathematics curriculum, Extended Math Program, and the ways in which individual student needs will be met.

#### **Program**

Flexible grouping, compacted instruction, tiered lessons, and differentiated instruction will be used to provide an environment that encourages enriched and accelerated learning in Extended Math. Students are assessed annually for Extended Math placement and participation.

Advanced mathematics students are those who perform strongly in their current grade level class and demonstrate a deep understanding of the material from that class before being considered for an Extended Math class or acceleration to the next grade level. Additionally, advanced students have a genuine interest in math, the ability to learn material on their own, are comfortable asking questions when not sure of an answer, are able to work independently, and often look for extensions to the work they are doing in class. Once it is determined that a student qualifies for placement into Extended Math, ongoing assessment and performance will determine continued placement.

#### **Process for Determining Participation**

Students are identified for participation in the Extended Math Program at the beginning of each school year through a process that evaluates achievement and potential based on a set of data points/criteria. The data points/criteria listed below reflect student mastery of current and prior math class standards (essential concepts and skills).

- Beginning-of-Year CFSD Math Diagnostic assessment(s) that measure the concepts and skills from the previous year's math class. Performance on this assessment determines whether further assessments are necessary.
- Savvas *Investigations* end-of-year math test from prior year math level.
- AASA (state achievement test) Math Scale Score (grades 4 and 5).
- Math Facts – accuracy and fluency (addition, subtraction, multiplication, division), which varies by grade level.

- Prior and current year teacher recommendations based on a rubric that includes indicators/observations of positive mathematical dispositions (e.g., confidence, perseverance, self-monitoring, flexibility, interest).
- Standardized test score(s) from Cognitive Abilities Test (CogAT), as applicable.\*

Teachers review these multiple data points to make placement decisions. In certain cases, placement may change during the school year based on demonstrated performance and classroom assessment results that indicate this need. The goal of the process is to ensure that all students succeed in math, are challenged at an appropriate level, and feel good about their engagement with math.

\*Annually, the Cognitive Abilities Test (CogAT) will be administered to students with parent/guardian permission. The CogAT is a test of verbal, quantitative, and nonverbal reasoning ability. Students who score at the 97<sup>th</sup> percentile or higher on the quantitative subtest may be considered for participation in the Extended Math Program at the elementary level and accelerated mathematics at the middle school level after a review of all criteria. Please note that students with quantitative scores at the 97<sup>th</sup> percentile or higher from the mid-year administration of the CogAT may be considered for participation the following school year since they will have missed one semester or more of content. A decision will be made based on classroom performance and criteria that demonstrate ongoing advanced mathematical abilities and dispositions. The CogAT is administered at different times during the school year based on grade level.

### **Extended Math Timeline and Structures**

Structures for delivering the Extended Math program may vary at the grade levels at each elementary school depending on the number of students who qualify for the program. Although there may be structural differences at each elementary school, the procedures, protocols, and timeline for math placement, as described below, will be consistently used and followed at each school.

#### **Timeline**

- Classroom teachers and the site gifted specialist will begin observing and assessing students during the first two (2) weeks of the school year. They will also teach a selected unit or domain in mathematics.
- The timeline for determining math placement varies among grade levels:
  - Formalized math classes and Extended Math will begin during the third week of school for grades 2-5.
  - Grade 1 teachers may use the first 4 weeks to determine math placement. A plan will be in place to serve students who qualify for placement in mathematics at grade 2 so that they do not miss essential content.
  - Kindergarten teachers may use the first trimester to determine placement, if needed. During the first trimester, teachers will be providing differentiated instruction to students who demonstrate the need for more advanced mathematics.
- Kindergarten teachers at each school will ensure that a plan is in place to serve students who qualify for out-of-level placement at grade 2 or higher.

#### **Structures**

- Structures for enrichment and Extended Math may include in-class grouping (cluster of students within the regular classroom), cross-same-grade level grouping, and/or out-of-level placement.
- Formal Extended Math classes will begin at grade 4 so that students develop a deep understanding of the essential skills and concepts in the standards at grades K-3. The grade level standards are rigorous and challenging. New mathematics standards that were implemented in Arizona between 2010 and 2016 shifted standards from high school to middle school and from middle school to the elementary level.

- Students who meet the qualifying data/criteria at grades 1-3 will be moved to the next grade level for math. Only students who qualify based on the placement data/criteria will be placed in the next grade level or in Extended Math classes at grades 4 and 5. Evidence of data is required for placement.
- Kindergarten students will be provided with enrichment/extensions by classroom teachers unless they qualify for out-of-level placement (grade 2 or higher).
- The gifted specialists at each school will support advanced mathematics students. Each elementary school has a full-time gifted specialist. In addition to providing a comprehensive gifted program, which includes Interdisciplinary Studies (IDS) at grades 3, 4, and 5, the gifted specialist will provide math instruction to students who meet the qualifying criteria, with a focus on the primary grades (1-3). Other options may include teaching an Extended Math class, combining 1-2 qualifying students (or more, as needed) at two grades levels (e.g., grades 1-2 or 2-3). This will be determined annually by the schools based on assessment data and identified student needs.
- A two-year transitional period (2024-2025 and 2025-2026) will be in place to accommodate the existing Extended Math classes at the primary levels (at the applicable sites). However, students who are scoring well-below the eligible criteria will be enriched in the regular grade level math classroom. We want to ensure that accelerated placement does not happen at the expense of creating gaps in student understanding by skipping foundational learning standards.

Math placement will take each student's performance into account and allows for movement between pathways offered at CFSD schools.

### **The Extended Math Classroom**

Instruction in the Extended Math Program is based on the next grade level's academic standards for mathematics. The program addresses the unique needs of mathematically talented, high achieving students; the pace at which students learn; the depth to which topics are explored; and the complexity of content and materials. Instruction is differentiated across four dimensions: content, process, product, and learning environment. District adopted mathematics resources / materials are used to teach Arizona's Mathematics Standards, which were adopted by the State Board of Education and CFSD's governing board.

#### **Content Modification**

To make content more appropriate for mathematically precocious learners, teachers can select or modify content so that it is more abstract, complex, and varied. Content might also include the study of creative and productive people in the discipline and use methods of inquiry to develop generalizations basic to the field.

#### **Process Modification**

Although the way mathematical information is used cannot be separated from content, teachers can modify the level or type of thought processes emphasized, open-ended questions, inquiry/discovery methods, the overall approach to reasoning (inductive/deductive reasoning and processing), choice, group interaction, and pace of instruction.

#### **Product Modification**

The principles of product modification build upon the principles of content and process differentiation. Student products should approximate, to the extent possible, those of creative, productive professionals. This means that the product should be the result of a real problem or concern, be directed toward a real audience, and represent a transformation or synthesis of existing information.

#### **Learning Environment Modification**

Teachers can shape experiences that stimulate construction of ideas and ask students to think about them by using varied patterns of thinking to process information gained from experience. The learning environment is a

safe place for students to share innovative ideas, debate issues, and express opinions (mathematical discourse); it is characterized by attempts to understand new ideas and reserve judgments. Student independence and initiative are encouraged.

### **Fluency in Mathematics**

Whenever the word “fluently” appears in a math standard, it is referencing efficiently, accurately, flexibly, and appropriately. Being fluent means that students are able to choose flexibly among methods and strategies to solve contextual and mathematical problems. They understand and are able to explain their approaches, and they are able to produce accurate answers efficiently (NCTM). In short, fluency is the ability to solve a problem with understanding (including flexibility), accuracy (attention to precision), and efficiency (strategy, memory, reasonableness of time).

- **Efficiency:** carries out easily, keeps track of sub-problems, and makes use of intermediate results to solve the problem.
- **Accuracy:** reliably produces the correct answer.
- **Flexibility:** knows more than one approach, chooses a viable strategy, and uses one method to solve and another method to double-check.
- **Appropriately:** knows when to apply a particular procedure.

Please contact your student’s school if you have questions about the mathematics curriculum and/or the Extended Math Program.

