Gifted & Talented and Advanced Potential in Mathematics

Identifying giftedness and potential for success in advanced academics in Mathematics takes into consideration a student's abilities in mathematical reasoning and communications in conceptual understanding.

The Maryland Department of Education (MSDE) defines Mathematics as a comprehensive program that develops and prepares students' mathematical competencies, reasoning, proficiencies and conceptual understanding to enable them to apply their knowledge to solve authentic and real problems, helping them to "fulfill personal goals and become productive members of a global society."

AREAS OF IDENTIFICATION

Gifted students may display various identifying indicators of atypical mathematical talents. The following is a non-exhaustive list of identifying behaviors and characteristics that can be used to identify advanced potential in Mathematics, at various stages and areas of development.

Students with advanced potential in mathematics may be able to:

- Significantly above average achievement on MSDE-approved assessments. (MCAP, NAEP, SAT, PSAT, ACT, CogAT, iReady etc.)
- grasp and retain mathematical concepts and strategies quickly.
- accurately compute and estimate
- possess a deep interest and extensive knowledge of mathematical topics and concepts.
- demonstrate mathematical habits of mind and can identify mathematical concepts in their lived experience.
- think logically and symbolically about quantitative, spatial, and abstract relationships.
- identify and analyze numeric and non-numeric patterns and relationships.
- apply analytical, inductive, and deductive reasoning.
- demonstrate multiple reasoning processes and methods.
- communicate, and justify mathematical concepts in creative and intuitive ways, both verbally and in writing.
- transfer and apply learning to new and familiar situations.
- formulate complex, analytical, and philosophical inquiry about mathematical concepts and themes.
- organize data in a variety of ways.

- apply transfer skills to relate mathematical concepts in authentic situations within and across content areas.
- provide multiple solutions or alternatives in problem-solving.

Additional evidence should include some of the following measures:

- A portfolio
- nominations from families and/or teachers.
- Student interviews
- formative data; work samples, projects, and portfolios.
- anecdotal data, including classroom observations.
- Alternative Assessments
    - TOMAGS- Test of Mathematical Abilities for Gifted Students
    - TEMA - Test of Early Mathematics Ability

Sources:

https://www.davidsongifted.org/gifted-blog/mathematically-gifted-students-how-can-we-meet-their-needs/

https://www.m-a.org.uk/resources/Vol-9-No4_Sep_1980_Identification_of_mathematically_gifted-pupils.pdf