Houston Area Calculus Teachers

Gifted and Talented Training Development Sessions, School Year 2020-21

Overview:

The Houston Area Calculus Teachers (HACT) professional development sessions address the needs of teachers of GT students by including the GT content of Curriculum (how teachers can differentiate the curriculum of AP Calculus to meet the needs of gifted students) and Nature and Needs (helping teachers understand the nature and needs of the gifted student.)

Sessions Offered in the 2020-21 School Year:

The September 19, 2020 session, "Lessons Learned from a Very Strange Year," emphasizes differentiation of questioning strategies based on stems using multiple representations and communication of deep understanding of complex content using the language of the discipline.

The November 7, 2020 session, "Connecting Calculus and Pre-Calculus," emphasizes how to incorporate advanced, conceptually challenging material in classes prior to the AP level in order to build a more inclusive and diverse AP environment.

The January 23, 2021 session, "Ideas for Integration," focuses on differentiation of the material in unit 8 of the Curriculum and Exam Description (CED) in order to move students beyond basic expectations so that they can make higher level connections based on improved questioning strategies.

The February 27, 2021 session, "2020 Mock AP Calculus Exams: Solutions and Scoring Guidelines," will be led by textbook author and former chief reader Dr. Stephen Kokoska. This session will demonstrate how to assess students' responses to determine if they have communicated deep understanding of complex material. Emphasis will be on the mathematical practices of justification and communication/notation, using the language of the discipline.

HACT Sessions also meet the needs of GT teachers and students as follows:

- Teachers who participate in the sessions will learn how to select and adapt problems and learning tasks that incorporate advanced, conceptually challenging, in-depth, distinctive and complex content.
- Since GT students require less review, they need additional problems that are pitched to the higher levels of Bloom's Taxonomy and require connections that other students don't readily make. Each HACT session provides rich problems that go well beyond those presented in textbook or in other resources.
- HACT sessions provide examples and encourage teachers to develop their own questions that require deeper thinking and that require responses that are written in the language of the discipline of mathematics rather than in the colloquial terms that might otherwise be accepted.
- Because GT students often have strong mathematical intuition, they sometimes have difficulty in presenting or explaining their thought process. HACT sessions stress the importance of teaching correct communication of mathematical concepts and processes.
- Many HACT sessions allow teachers to collaborate to address the unique needs of teaching highly capable students at a very advanced level.
- HACT sessions are led by master teachers who can model solid instruction and differentiation that will address the needs of ALL learners, providing both appropriate challenge and support as needed.

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