

Speaker:

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Position: Math Department Head

Title: Spiraling Through the Big Ideas with Activity-Based Learning

Intended Audience: High School

Type of Presentation

Preferred: Long Presentation (60 minutes)

Language(s) of

Presentation: English

Description:

In our classes, activities are no longer just for introducing concepts or summarizing units. We spiral through the curriculum with activity-based learning, repeating the big ideas to allow students multiple opportunities to extend their learning and demonstrate their understanding. Using images, video and manipulatives, we develop students' abilities to ask good questions and make reasonable guesses. Hands-on activities allow to students develop mathematical concepts while they 'play' with ropes, cups and dominoes.

Differentiation occurs naturally as students, grouped by ability level, approach problems at their own level. Graphing calculators offer an entry point to students with weaker algebra skills and help all students connect algebra to graphical representations.

To further develop opportunities for critical thinking, we don't constrain lessons within stands or units of study. Activities often connect two or more strands. Students have increased awareness of the overall expectations and have more opportunity to develop process skills such as the selection of tools and computational strategies.

This approach has significantly increased student engagement, reduced failure and dropout rates and improved results on our Board-wide exams. In this presentation, we will outline our overall approach with its challenges and successes and share some of the activities that we use from Grade 9 to 12.