Teaching with Desmos:
Engaging and Challenging Students of All Levels

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Traditional vs. “Desmos” Classroom

Traditional Classroom

- Teacher led and students taking notes
- Lack of student collaboration
- Lack of student engagement
- Feedback given on assessments

“Desmos” Classroom

- Teacher facilitated and student led
- Students collaborating
- Engaging lessons with hands-on opportunities
- Feedback given throughout daily lessons

How is Desmos Changing the Math Classroom

- Improves instruction - allows for collaboration and challenge for ALL students
- “Low floor and high ceiling”
- Allows for students to lead the classroom discussion
- Ease of use
- State testing - 21/50 states including Ohio and California

Why Challenge?

- ...struggling to make sense of mathematics is a necessary component of learning mathematics with understanding. (H.K. Warshauer, 2014)

- Effective teaching of mathematics consistently provides students...with opportunities and supports to engage in productive struggle (NCTM)

Why Challenge?

- This is true for ALL students. Challenging problems should not be reserved solely for "extension" or for students of "greater mathematical ability".

- Furthermore, students of lesser mathematical ability need challenging problems that engage, stimulate prior knowledge, and give students a sense of pride and accomplishment.

- Challenging students creates “cultures of thinking”

“Cultures of Thinking”

- “places where a group’s collective as well as individual thinking is valued, visible, and actively promoted as part of the regular, day to day experience” - Project Zero (Harvard)
- “dynamic learning communities that engage students, promote deep understanding, and sustain a lifetime of inquiry” - Ron Ritchhart
- an environment where “understanding is not a precursor to application, analysis, evaluating, and creating, but a result of it (Wiske, 1997)

What will you be doing?

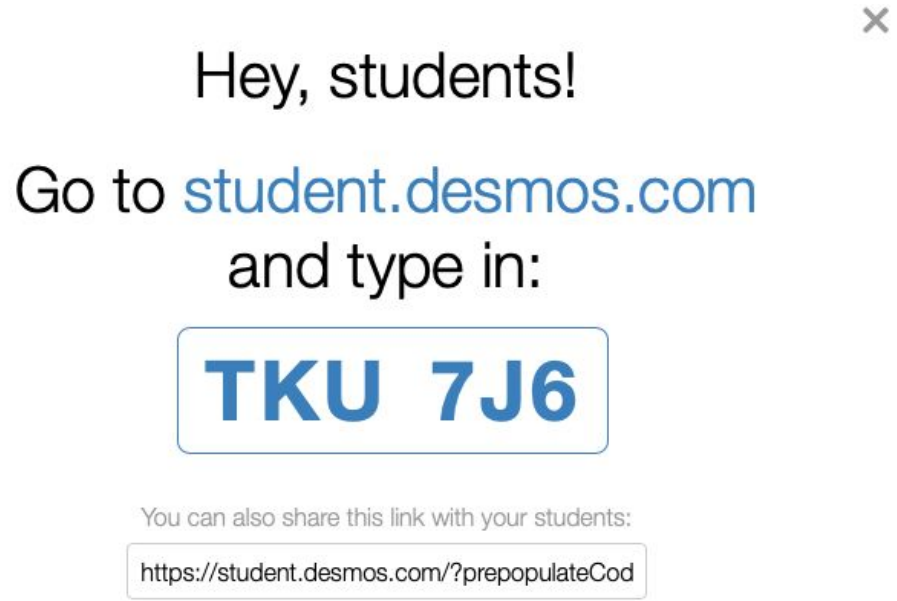
The purpose of this session is to demonstrate how Desmos can be used to engage and challenge students of all levels.

- Two classroom activities:
  - Analyze My Graph
  - Mulching

- Characteristics of “Desmos” classrooms
- Q&A

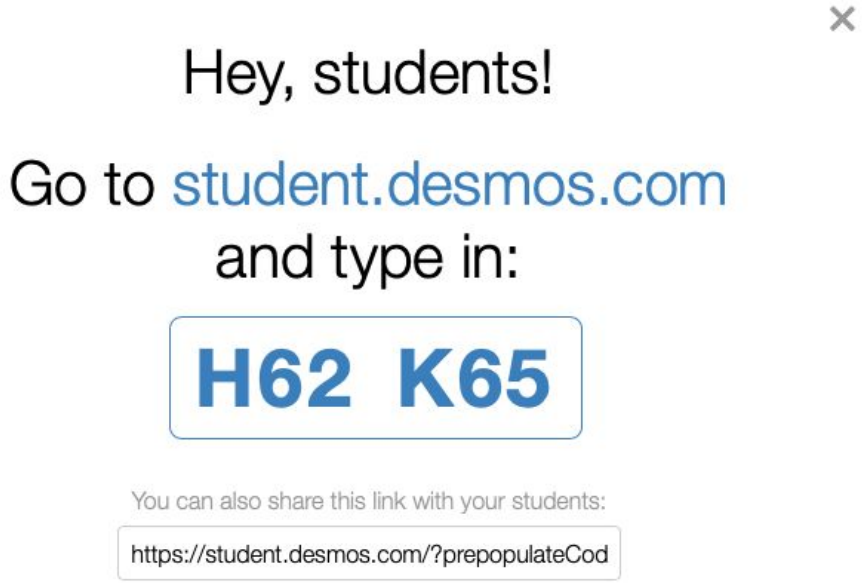
Analyze My Graph

Introducing the concept of graphical transformations via equations.



Mulching - A Real Look at Volume

Introducing the concept of volume using a real world application.



“Desmos” Classrooms

- a “low floor and a high ceiling”
- potential for the use of multiple strategies
- engaging aspects such as hands on tasks, technology, etc.
- opportunities for students to make mistakes and time to learn from them
- a means for teachers and/or students to give effective and meaningful feedback

Q&A

Please complete the survey to give me feedback on my presentation.

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