



Using Technology to Enhance Algebra Instruction Grades 7–12

Video Note Taking Guide

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Using Technology to Enhance Algebra Instruction




This session will include the following:


- ≠ Overview
- ≠ Resource guides
- ≠ Computer exploration
- ≠ Group discussion
- ≠ Evaluation

Overview




This workshop, designed for 7–12 teachers, will explore a range of free web-based resources that can be used to enhance the teaching and learning of mathematics.


 Participants will learn how to find interactive math applets, Internet-based lesson plans, and projects that utilize technology.

Overview 

- Participants will explore technology tools that can be used to help students better comprehend algebraic concepts.
- Participants will complete the workshop with a collection of resources and ideas that they can incorporate into their classrooms.

Viewing Tips 

- Open 2 browsers, one for video viewing and another for viewing web links explored in the program.
- When the presenter mentions web links, type in the internet address.
- Navigate through the program as the presenter directs.

The Fraction Model
<http://illuminations.nctm.org/> 

- Version 1**
 - http://illuminations.nctm.org/tools/tool_detail.aspx?id=11
 - The range of the numerator is limited to values from 0 to 20 and the denominator is limited to benchmark values 1, 2, 4, 5, 8, 10 and 20.
- Version 2**
 - http://illuminations.nctm.org/tools/tool_detail.aspx?id=44
 - The range of the numerator and denominator is limited to values from 0 to 20.
- Version 3**
 - http://illuminations.nctm.org/tools/tool_detail.aspx?id=45
 - The range of the numerator and denominator is limited to values from 0 to 100.

Fraction Model Version 1

Use the sliders to change the values of the ratio and observe the corresponding decimal and percent representations.

| Fraction | Decimal | Percent |
|---------------|---------|---------|
| $\frac{1}{4}$ | 0.25 | 25.0% |

Fraction Model Version 2

Use the sliders to change the values of the ratio and observe the corresponding decimal and percent representations.

| Fraction | Decimal | Percent |
|---------------|---------|---------|
| $\frac{1}{4}$ | 0.25 | 25.0% |

Fraction Model Version 3

Use the sliders to change the values of the ratio and observe the corresponding decimal and percent representations.

| Fraction | Decimal | Percent |
|---------------|---------|---------|
| $\frac{1}{4}$ | 0.25 | 25.0% |

Algebra Balanced Scale

Click arrows to place unit blocks and x-boxes on the pans to represent the equation.

$$2x + 1 = x + 5$$

Combine Clear Show Problem

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Grapher
http://www.mattl.usu.edu/nlvm/nav/category_g_4_t_2.html

Algebra (Grades 9 - 12)
 Virtual manipulatives related to the NCTM Algebra standard for grades 9 - 12.

- Algebra Balance Scales** - Solve single linear equations using a balance beam representation.
- Algebra Tiles** - Visualize multiplying and factoring algebraic expressions using tiles.
- Base Blocks** - Illustrate addition and subtraction in a variety of bases.
- Coin Problem** - Use deduction to find the lighter coin.
- Function Machine** - Explore the concept of functions by putting values into this machine and observing its output.
- Grapher** - A tool for graphing and exploring functions.

Grapher

f(x) =

Compute Window Function

Parameters: -10.0 < a < 10.0

a = 1.00

Trace

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<http://www.neirtec.org/math/>



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Projects

NEIRTEC offers a variety of opportunities for educational leaders, including a mix of face-to-face institutes and online "any time, any place" workshops.

Collaborative Evaluation Led by Local Educators: Evaluation Institutes

Date: ongoing
 Contact: Ann Brackett, abackett@neirtec.org
 Web site: <http://www.neirtec.org/evaluation>

Collaborative Evaluation Institutes and Follow-Up Support Systems for Groups of School or District Teams

NEIRTEC Projects:

- Collaborative Evaluation Led by Local Educators: Evaluation Institutes
- Mission: Algebra**
- Changing the Technology Mindset
- CoTech Leaders: Online

Mission Algebra

Mission: Algebra – Technology Promoting Student Success: A Resource for District Leaders

Date: ongoing
 Contact: Alan Feldman, alan_feldman@neirtec.org
 Web site: <http://www.neirtec.org/mia>

Mission: Algebra is designed to provide guidance to district and school leaders in addressing the question: How can technology support teachers and students in getting students ready for Algebra I? The intended audience is school leaders - those with the responsibility to make program decisions or to advise decision-makers about these topics.

Discussion Questions



1. Which websites did you explore?
2. Which website did you find most useful?
3. Describe how you intend to integrate technology into your classroom using the tools you explored today.
