Rethinking How We Teach Ratios & Proportional Relationships

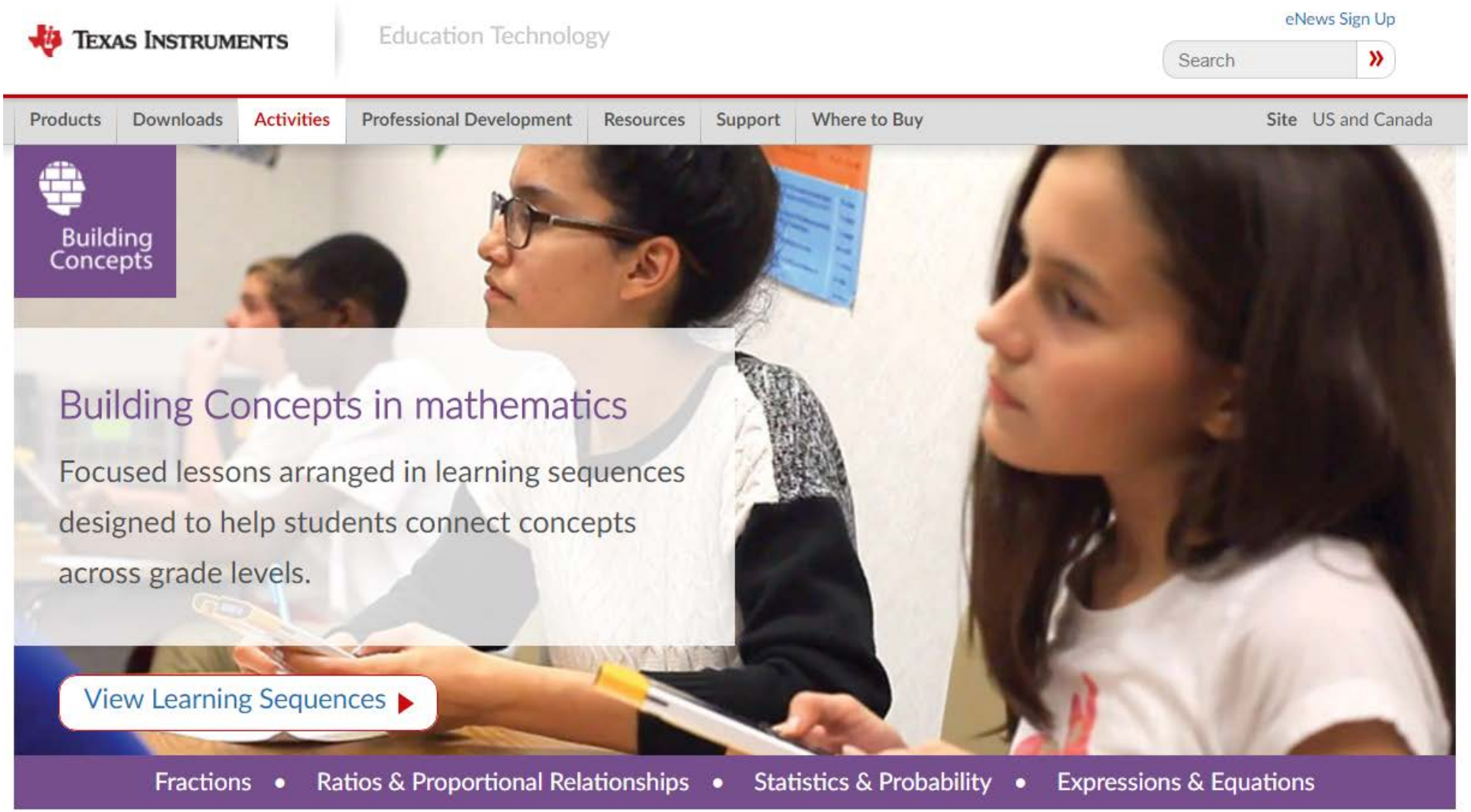
Michelle Rinehart
Math Consultant
Region 18 Education Service Center
@HowWeTeach

Angie Slicker
Math Department Chair
Ford Middle School, Allen ISD
@slick_math

Agenda

- Welcome
- Building Concepts Overview
- Building Concepts in the Classroom
- Building Concepts for Educators
- Q&A
- Final Thoughts

Building Concepts



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GRADE LEVEL 6

Ratios & Proportions

1. What is a Ratio?

This lesson helps students to understand that ratios associate two or more quantities that vary together.

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Ratios & Proportions

2. Intro to Rates

This lesson helps students to understand that every ratio has an associated unit rate. Unit rates are important in understanding slope as a rate of change and as a problem-solving strategy for finding solutions to problems involving proportional relationships.

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Ratios & Proportions

3. Building a Table of Ratios

Students generate equivalent ratios in a table, where values in each row of the table are a multiple of the values in the original ratio and that the entries in each column can be obtained by adding the original values in the ratio to the previous row.

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Ratios & Proportions

4. Ratio Tables

The lesson engages students in reasoning about ratios and proportions using their knowledge of multiplication tables. They learn that ratio tables are one strategy to solve problems involving ratios.

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Ratios & Proportions

5. Comparing Ratios

This lesson allows students to reason about ratio tables, which helps their understanding of what a ratio describes in a context and what quantities in equivalent ratios have in common.

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Ratios & Proportions

6. Ratios and Fractions

This lesson allows students to explore the differences and similarities between ratios and fractions. A ratio may be associated with a value; the value of a ratio a:b is the quotient $\frac{a}{b}$ (if b is not 0).

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Ratios & Proportions

7. Double Number Lines

This lesson uses double number lines to organize and solve problems involving ratios of two or more different quantities.

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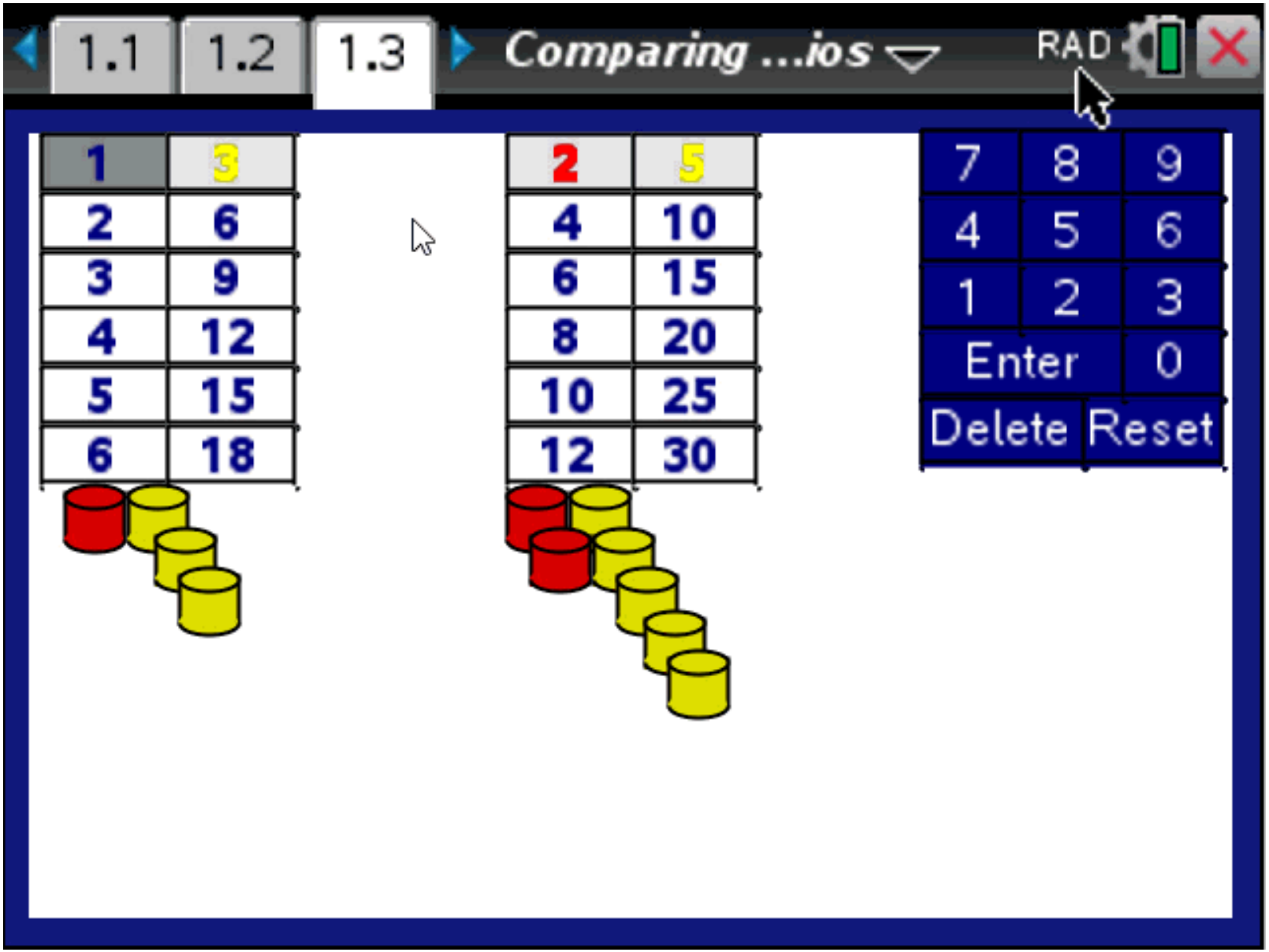
Ratios & Proportions

8. Connecting Ratios to Graphs

Students consider the values in a ratio table as ordered pairs and graph them on coordinate axes. Students learn that the graph of a collection of equivalent ratios lies on a line through the origin.



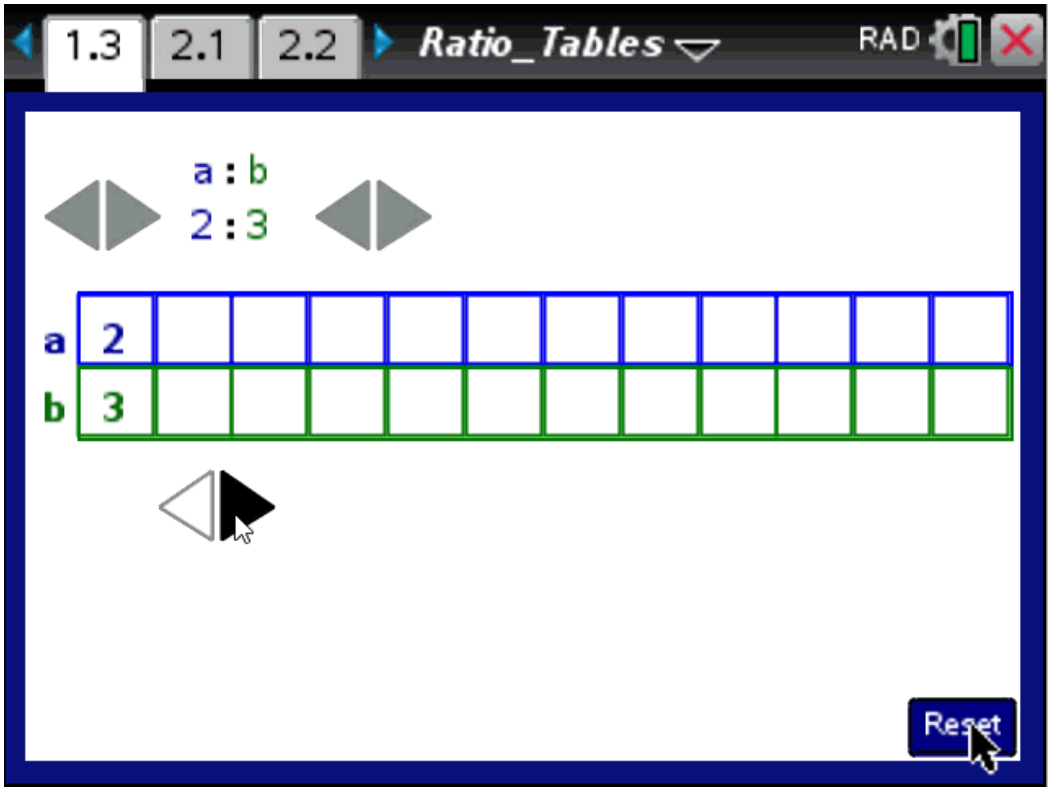
Multiple Representations

Gives students several perspectives to draw from

Different levels of application

Lessons blend seamlessly

Ratio Tables



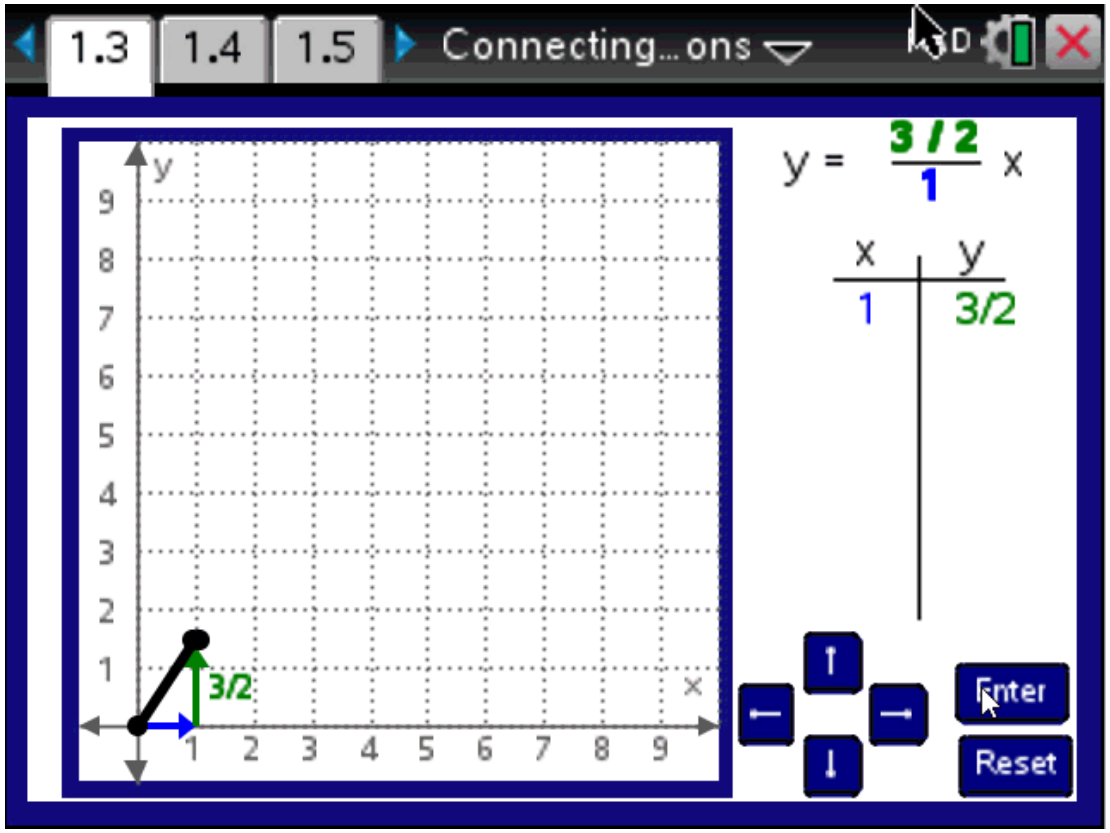
Unit Rate and Constant Rate of Change

Leads into Slope

Number talks

Building Numeracy

Connecting Ratios to Equations

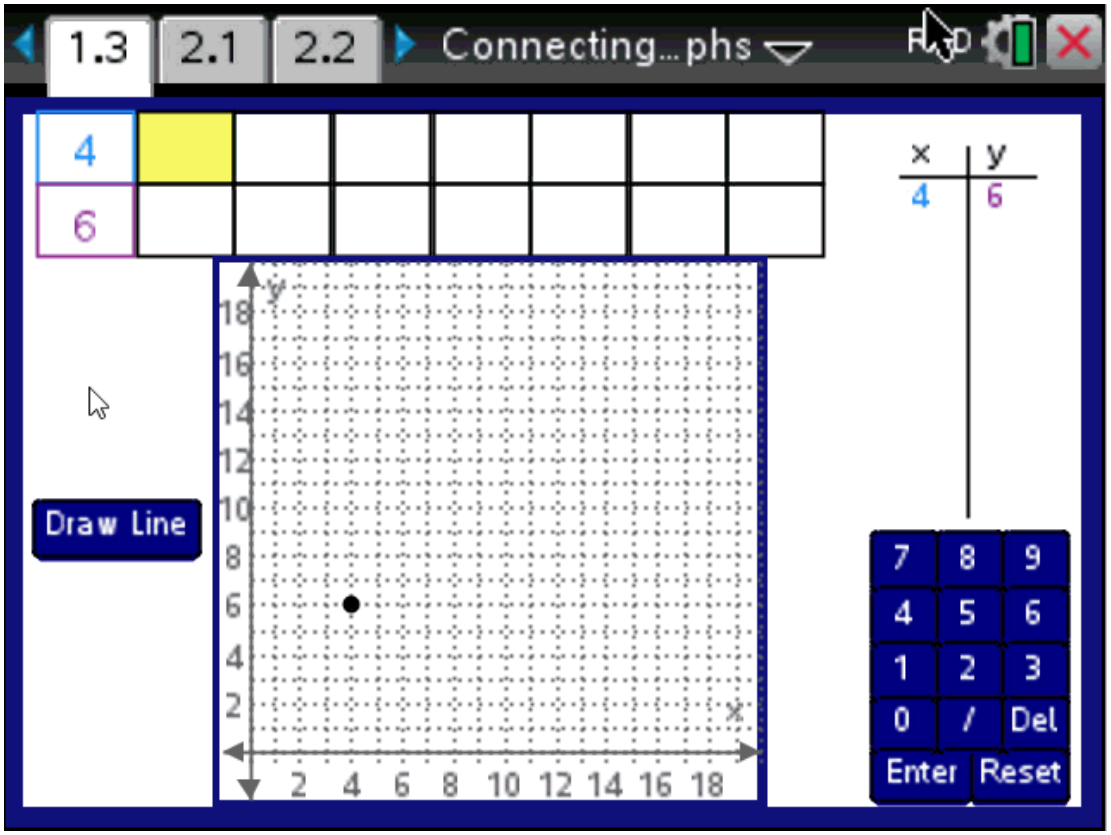


Moving from abstract to concrete

Making connections to different representations

Builds foundations for linear relationships

Connecting Ratios to Graphs



Build and make connections between multiple representations

Ease for Teachers

Easily altered to the needs of individual classrooms

Technology itself is easy to use

If you can download to the devices, you can run it!

Teacher Notes

Time management

Reading in Mathematics

Beneficial for varied reading levels and abilities

Building Concepts files allow students to build, demonstrate, experience, and communicate about their mathematical understandings without being held up on a lengthy word problem

Building Concepts: Ratios PD

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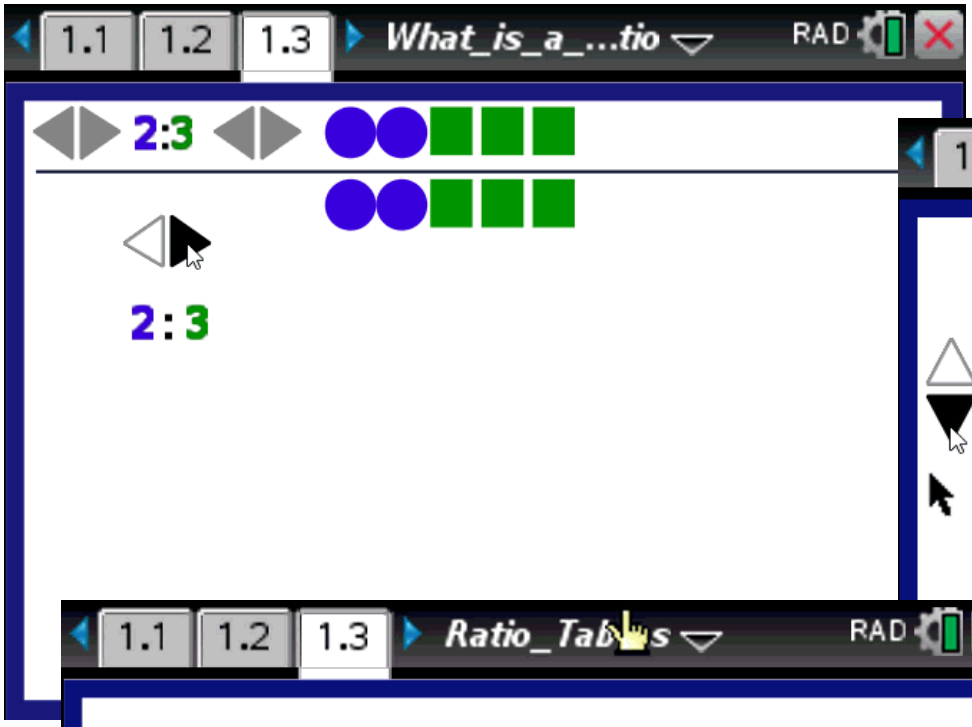

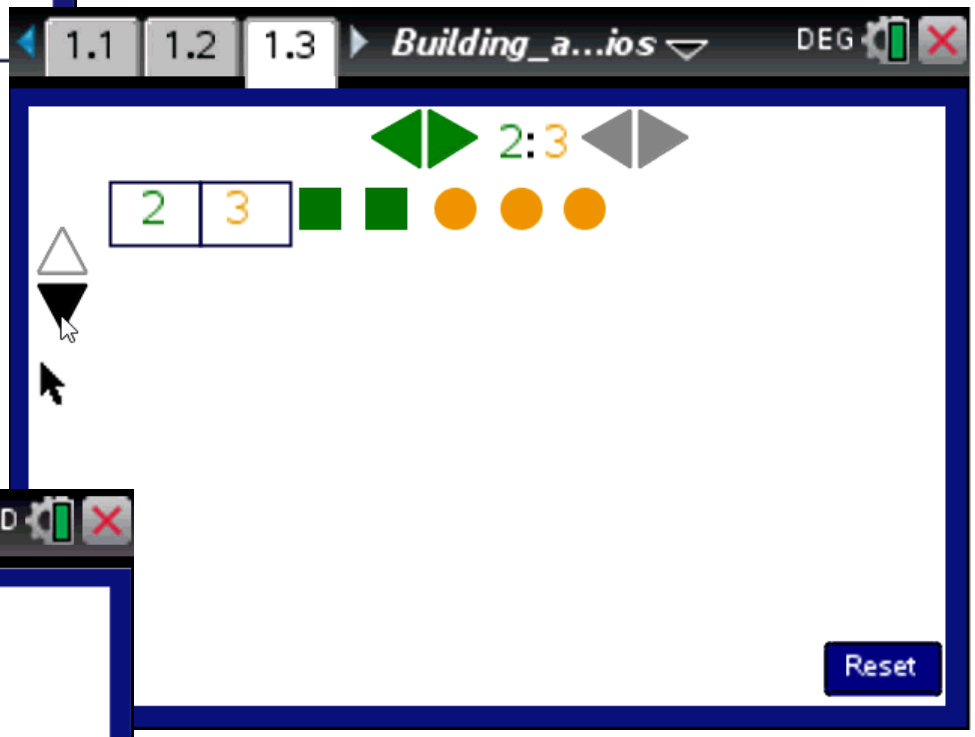

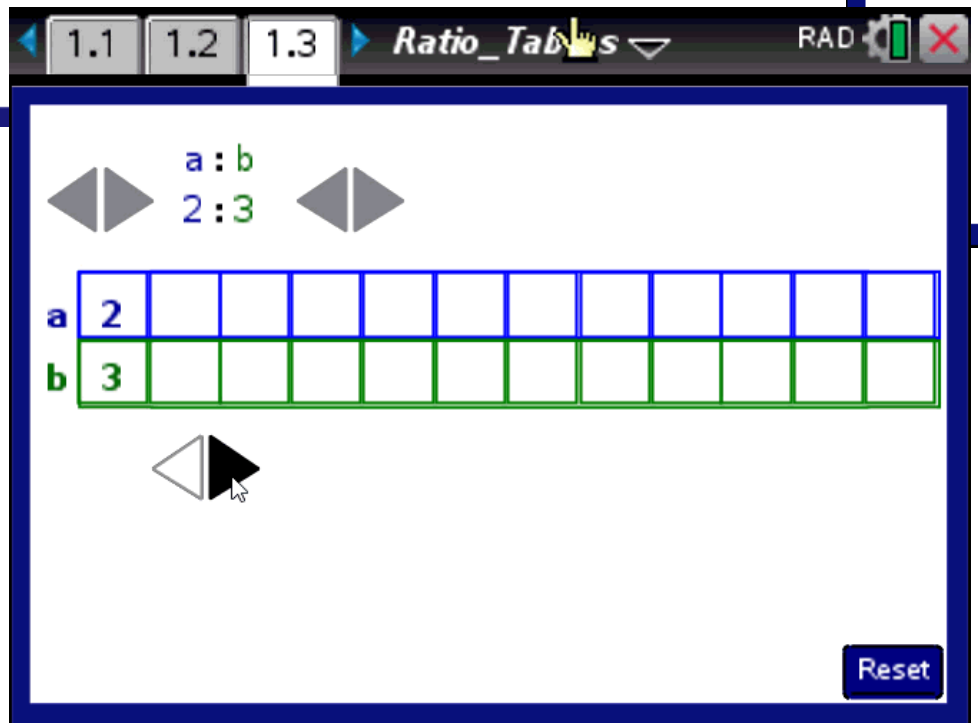

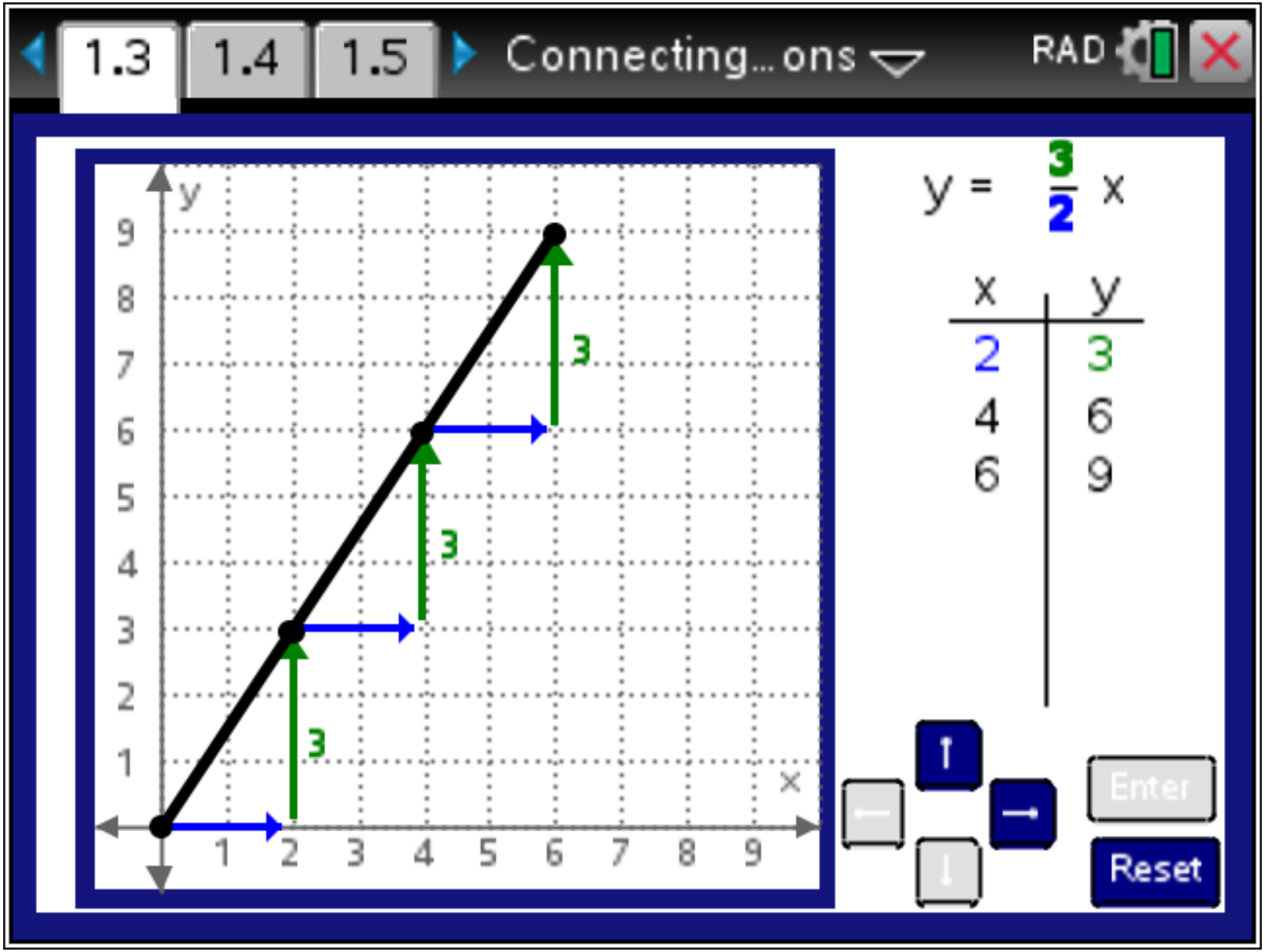

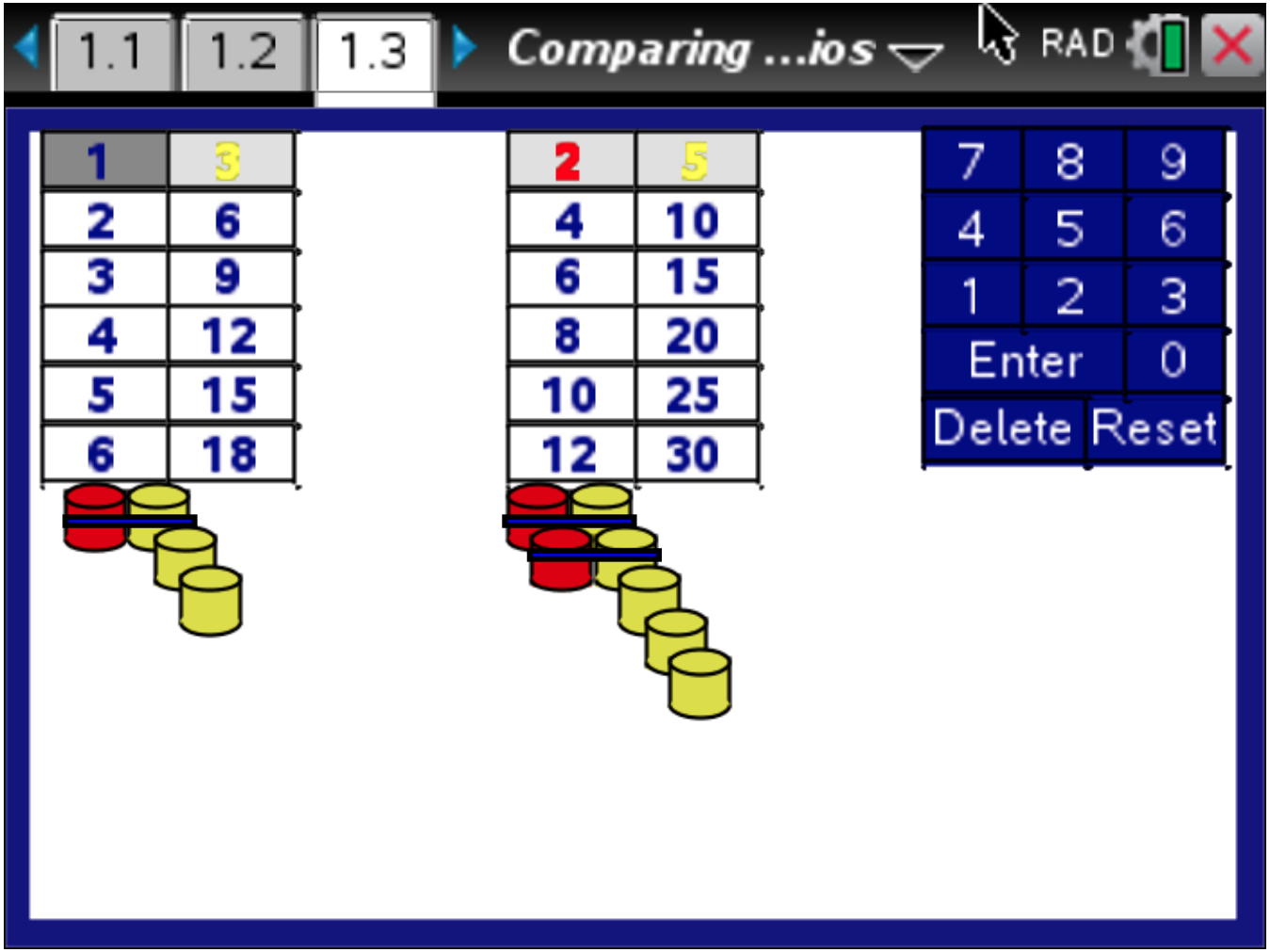

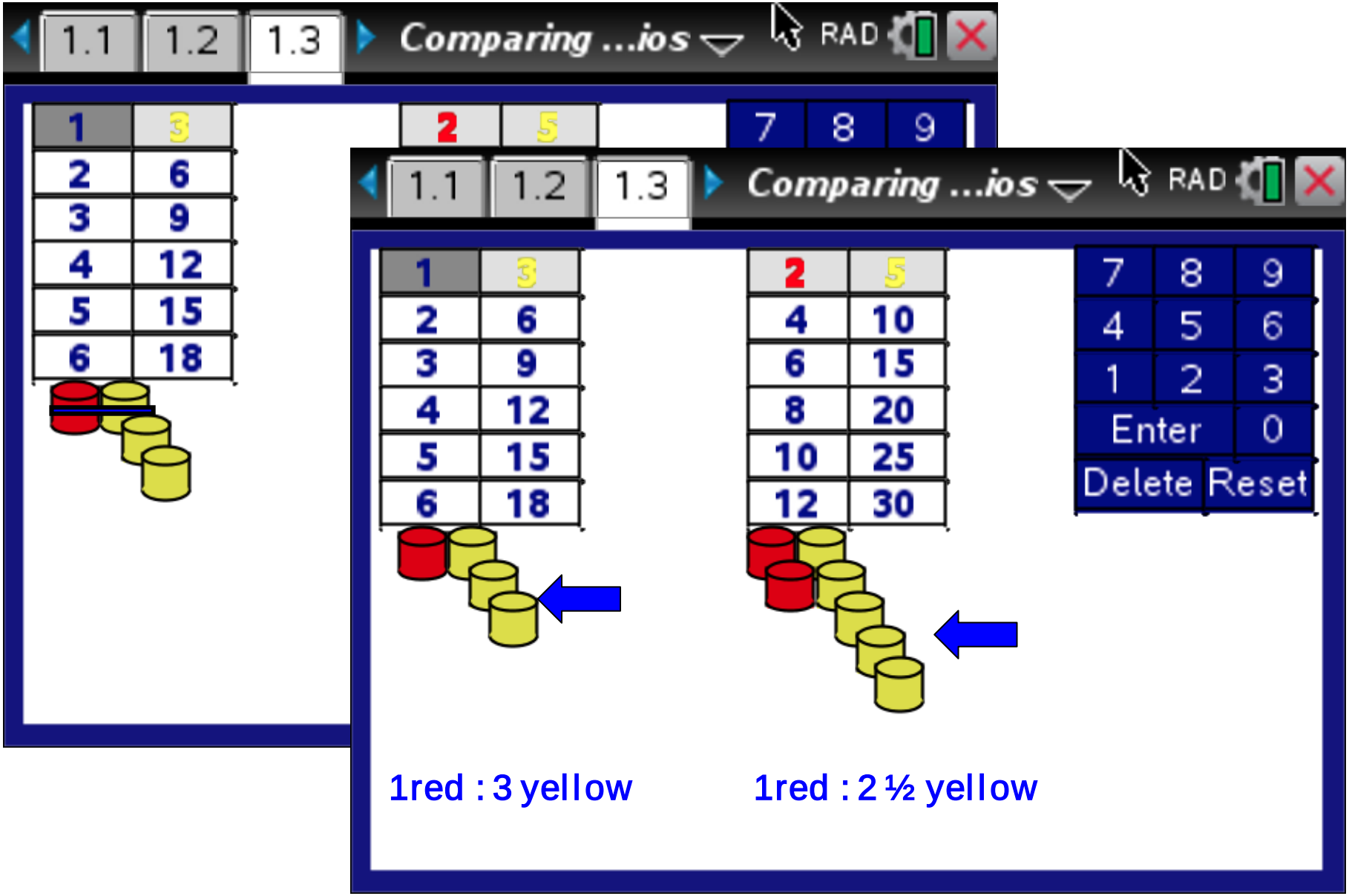

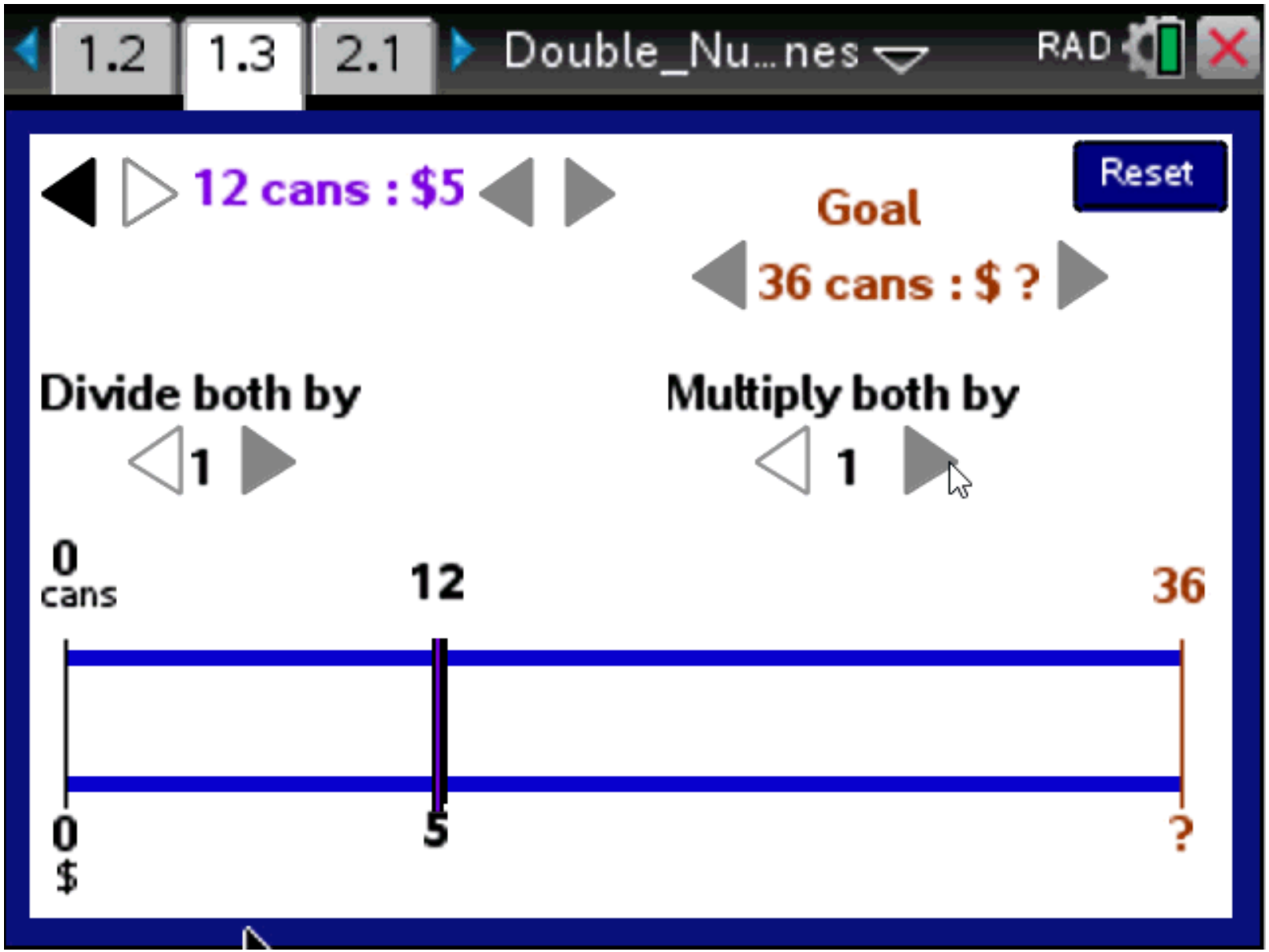


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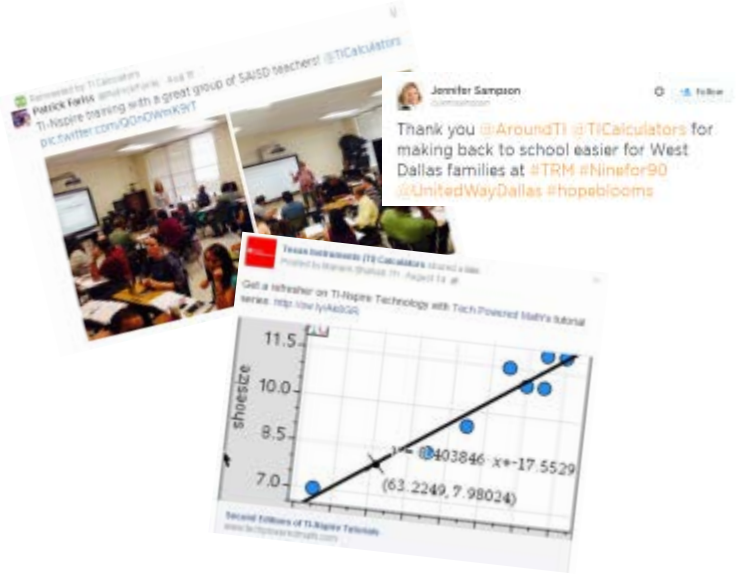

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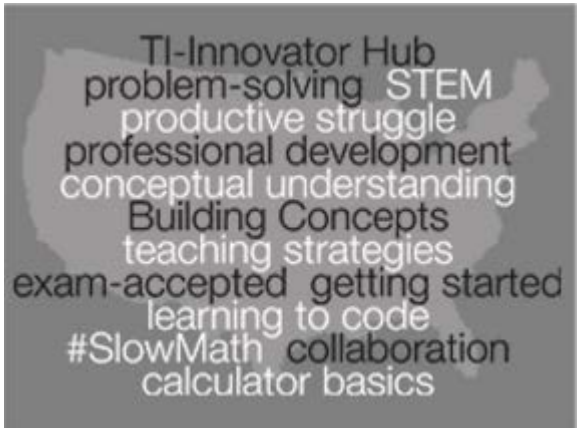

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