Math "Kinect"-ions in Middle Grades

Keri Johnson – UW Seattle

Sarah Woolley – Chief Leschi School (Puyallup Tribe)

Tammi O'Brian – Entiat Middle-High School

Robin Angotti – UW Bothell

This project was funded in part from a grant from Global Partners in Learning, a division of Microsoft Corporation

Agenda for Today

- Rationale for using an XBox360 and Kinect in a math classroom
- Demonstration: Xbox360/ Kinect Games in Math
- Demonstration of Kinect Math
- Voices from the Field

The Conceptual Age

Today, the defining skills of the previous era – the "left brain" capabilities that powered the Information Age – are necessary but no longer sufficient. And the capabilities we once disdained or thought frivolous – the "right brain" qualities of inventiveness, empathy, joyfulness, and meaning – increasingly will determine who flourishes and who flounders (Pink, 2005, p. 3)

Seven Trans-Disciplinary Habits of Mind

(Mishra, Koehler, & Hendrikson, 2011)

Perceiving

- Observing & Imaging

Patterning

- Recognizing & Forming

Abstracting

- Basics & Analogies

Embodied Thinking

- Kinesthetic & Empathetic

Modeling

- Abstraction & Dimensional Thinking

Deep (Transformational) Play

- Open-endedness

Synthesizing

- Ties all other tools together
- 5 senses & emotions

Video Games in Education

Partners in Learning Challenge

- Can I find a use for it in the classroom "off the shelf"
- Demo

Data from Dance

- Black Box Phenomena

Lesson Plans

Common Core

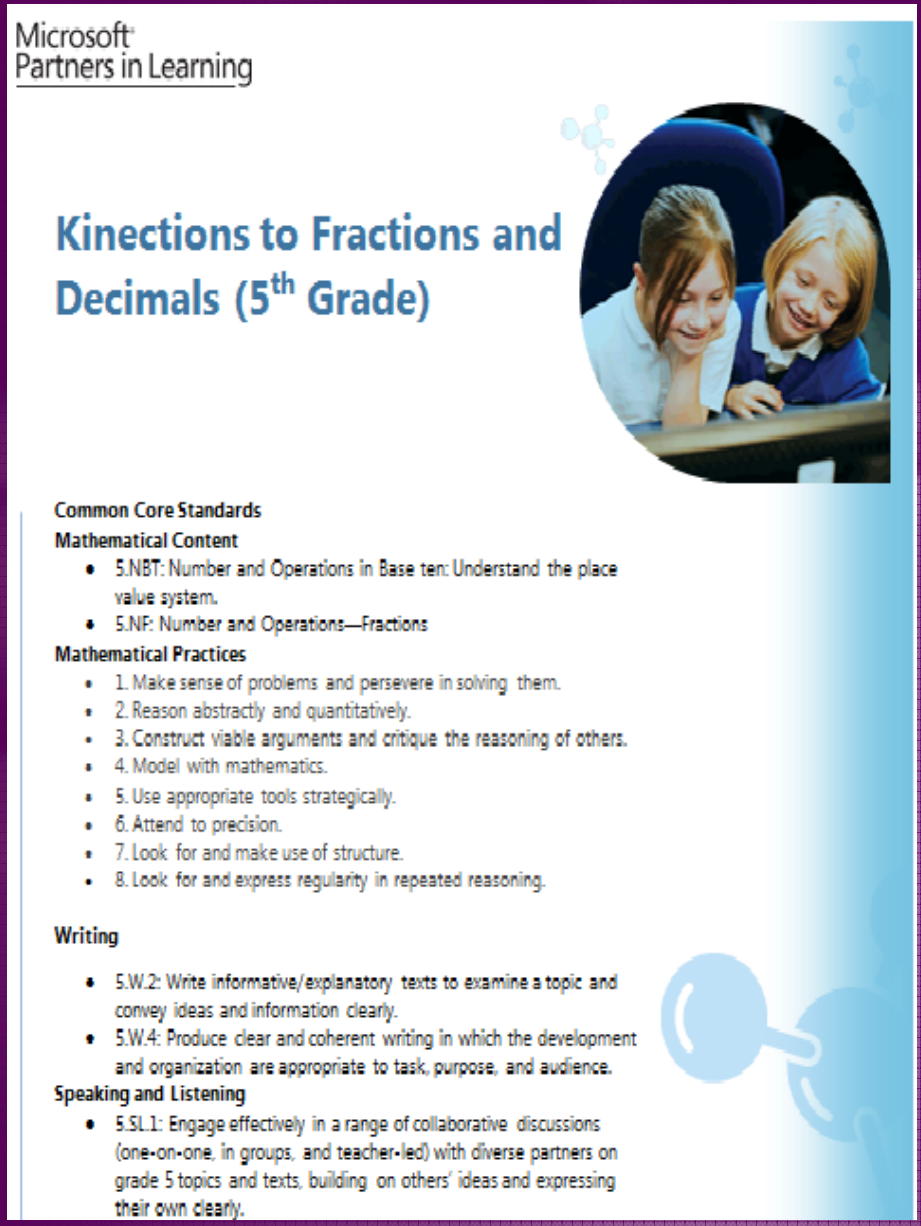
Curriculum 5th - Calculus

- As a platform not a product

http://www.pil-network.com/Resources/LearningActivities

Questions:

- Engagement
- Effectiveness



Microsoft Partners in Learning

Kinections to Fractions and Decimals (5th Grade)

Common Core Standards

Mathematical Content

- 5.NBT: Number and Operations in Base ten: Understand the place value system.
- 5.NF: Number and Operations—Fractions

Mathematical Practices

- 1. Make sense of problems and persevere in solving them.
- 2. Reason abstractly and quantitatively.
- 3. Construct viable arguments and critique the reasoning of others.
- 4. Model with mathematics.
- 5. Use appropriate tools strategically.
- 6. Attend to precision.
- 7. Look for and make use of structure.
- 8. Look for and express regularity in repeated reasoning.

Writing

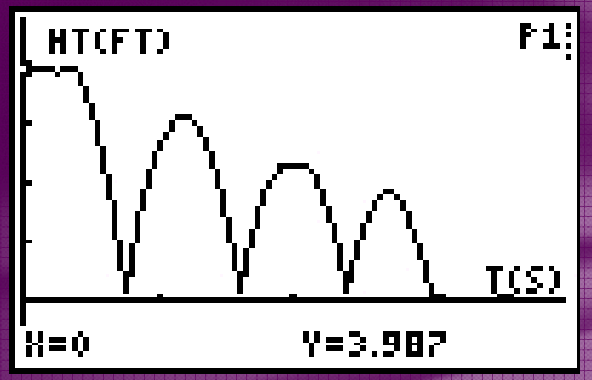
- 5.W.2: Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
- 5.W.4: Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

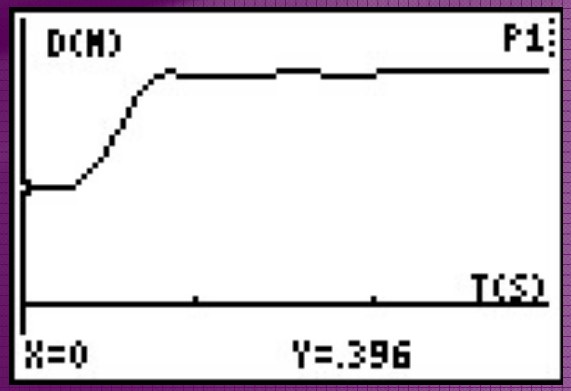
Speaking and Listening

- 5.SL.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

Kinect Math

Motion Technology





Kinect

- Infrared Laser Tracking
- Voice Recognition
- Facial Recognition

Kinect Effect

Kinect Math

Demo

Voices from the Field

Sarah Woolley

- Chief Leschi Schools
- 9 – 12 Geometry classes
- Setup: whole classes on half-day schedule, periodically through year
- Lessons learned: time to play, overcoming embarrassment, adjustments to lessons
- Results: Improved attendance and engagement

Tammi O'Brian

- Entiat Middle-High School
- 6-12 Applied Math
- Setup: small homogenous groups, 2-hour block schedule for whole week
- Lessons learned: allow time for students to play before giving them the lessons, overcome embarrassment, adjust lessons, not have homogeneous groups but split the groups more diversely, some students need more scaffolding and help to complete the lessons
- Results: Improved student engagement, cooperative learning, improved math skills for lower math students

Questions?

Links:

Microsoft Partners in Learning Lessons

www.pil-network.com/resources/learningactivities

Kinectmath.org - email riderr@uw.edu for the latest version