Supporting Spatial Measurement Tasks with Technology

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Strengthening Tomorrow’s Education in Measurement (STEM)
Session Overview

• Brief Introductions (ourselves & STEM project)
• Explore Applets:
  • Area of Rectangular Region - Lower Grades Elementary
  • Area of Irregular Region - Upper Grades Elementary
• Discussion
Presenters

• **Rani** – 2nd year Ph.D. student in Mathematics Education at Michigan State University, 2nd year on STEM project.

• **Eryn** – 3rd year Ph.D. student in Mathematics Education at Michigan State University and 3rd year on STEM; Taught mathematics and Math for Preservice Elementary Teachers at Minnesota State, Mankato
Strengthening Tomorrow’s Education in Measurement

Curricular treatment - Length, Area & Volume

• Do current U.S. elementary math curricula provide sufficient opportunities to learn spatial measurement?

Putting findings to use

• Professional Development with PD facilitators in MI
• Lesson Study with Preservice Elementary Teachers
• Communication with Curriculum Authors
Session Goals & Resources

• **Session goals:**
  - Explore applets and measurement ideas
  - Brainstorm how to integrate applets into classroom lessons

• [STEM website and applets](msu.edu/~stemproj)
Length, Area, and the Common Core

- **K-2**: Focus on length measurements
- **3rd grade**: Concepts of area are introduced
- **4th grade**: Apply the area formula for rectangles
- **5th grade**: Length and area concepts used to study area of shapes other than rectangles
Applet 1 - Area of Rectangular Region

Lower Elementary

1. Go to: https://www.msu.edu/~stemproj/MIA-2014.html

2. Click on “Applet 1: Area of Rectangular Region”

3. Answer the question and explore the applet with a neighbor.

4. Think about: What would your students do?
Applet 1 - Area of Rectangular Region

Summarize

• Overall reaction
• Student engagement
• Instructional support
Applet 2: Area of Irregular Region
Upper Elementary

1. Go back to: https://www.msu.edu/~stemproj/MA-2014.html
2. Click on “Applet 2: Area of Irregular Region”
3. Answer the question and explore the applet with a neighbor.
4. Think about: What would your students do?
Activity 2 – Irregular Region

Summarize

• Overall reaction
• Student engagement
• Instructional support
Applet Exploration

Click on other area applets on the website:

Go to https://www.msu.edu/~stemproj/simulations.html, scroll to bottom, and click on Area Virtual Manipulatives and Simulations

Work in pairs, find one that looks interesting to you, and explore it in more detail. Report back to the entire group with a few things you found interesting about it.
Discussion

• What stood out to you today while working in these activities?
• How could it be integrated into a lesson?
• What resources would you need in order to integrate it as part of the lesson?
Thank you!

Please feel free to contact us with questions, suggestions, or any comments:

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Please visit our site: msu.edu/~stemproj