

# Warm-up

- Solve at least two of the problems from the problem sheet.
- Then, discuss similarities and differences between the problems with a partner.

The background of the slide is a spiral-bound notebook with a brown cover and a light beige, textured paper. The spiral binding is on the left side, with the metal wire visible. The title is centered on the page in a large, bold, black serif font.

# **Developing a Research Lesson for Preservice Teachers: Lesson Study in Higher Education**

## Presenters

Patrick Coen (Eastern Kentucky University)

Landrea Miriti (Bluegrass Community & Technical College)

Michael Ratliff (Lindsey Wilson College)

Edna Schack (Morehead State University)



# Who we are!

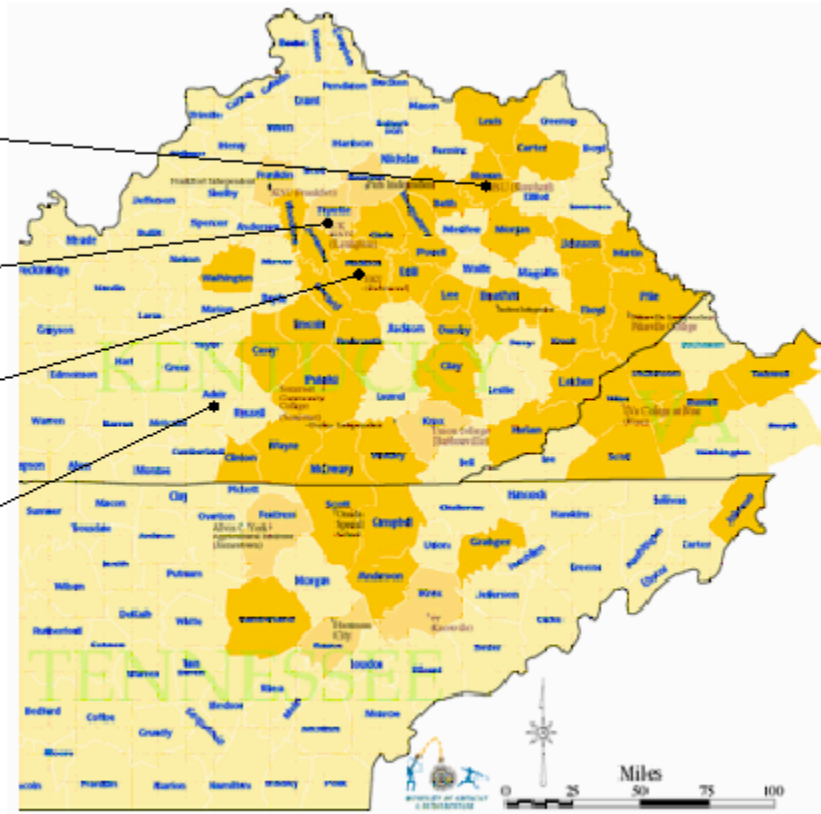


**Edna (Morehead)**

**Landrea (Lexington)**

**Pat (Richmond)**

**Mike (Columbia)**



# What is Lesson Study?

**Lesson Study** is a form of professional development where groups of teachers (educators) meet regularly over long periods of time to work on the design, implementation, testing, and improvement of one or several “research lessons” – a modified working definition from *The Teaching Gap* (Stigler & Hiebert, 1999).



# The Lesson Study Process

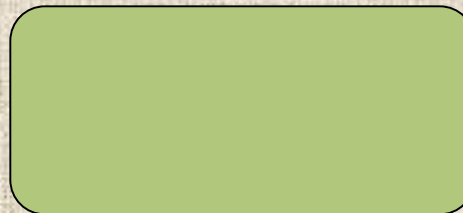
1) Focus on a  
concept or topic



# The Lesson Study Process

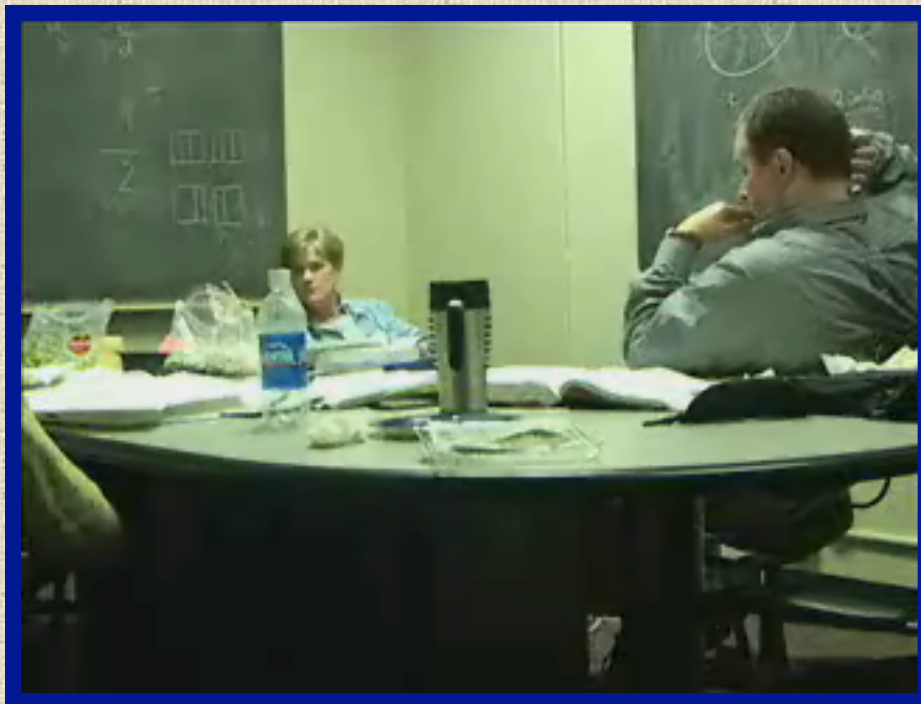
1) Focus on a  
concept or topic

2) Plan the lesson  
collaboratively





# The DEFINITION Conversation

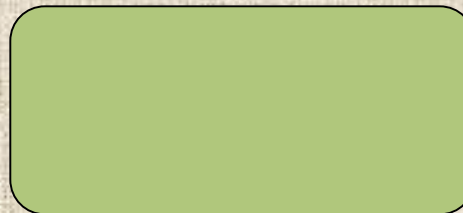


The Math Resource Center (i.e., The Mathskeller)  
University of Kentucky  
April 6, 2005

# The Lesson Study Process

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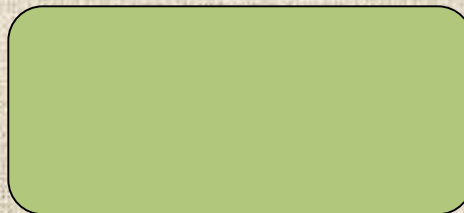


# The Lesson Study Process

1) Focus on a  
concept or topic

2) Plan the lesson  
collaboratively

3) Teach and  
observe the lesson



# Teaching and Observing



The First Teaching  
Eastern Kentucky University  
May 31, 2005



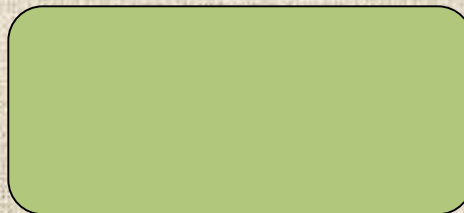


# The Lesson Study Process

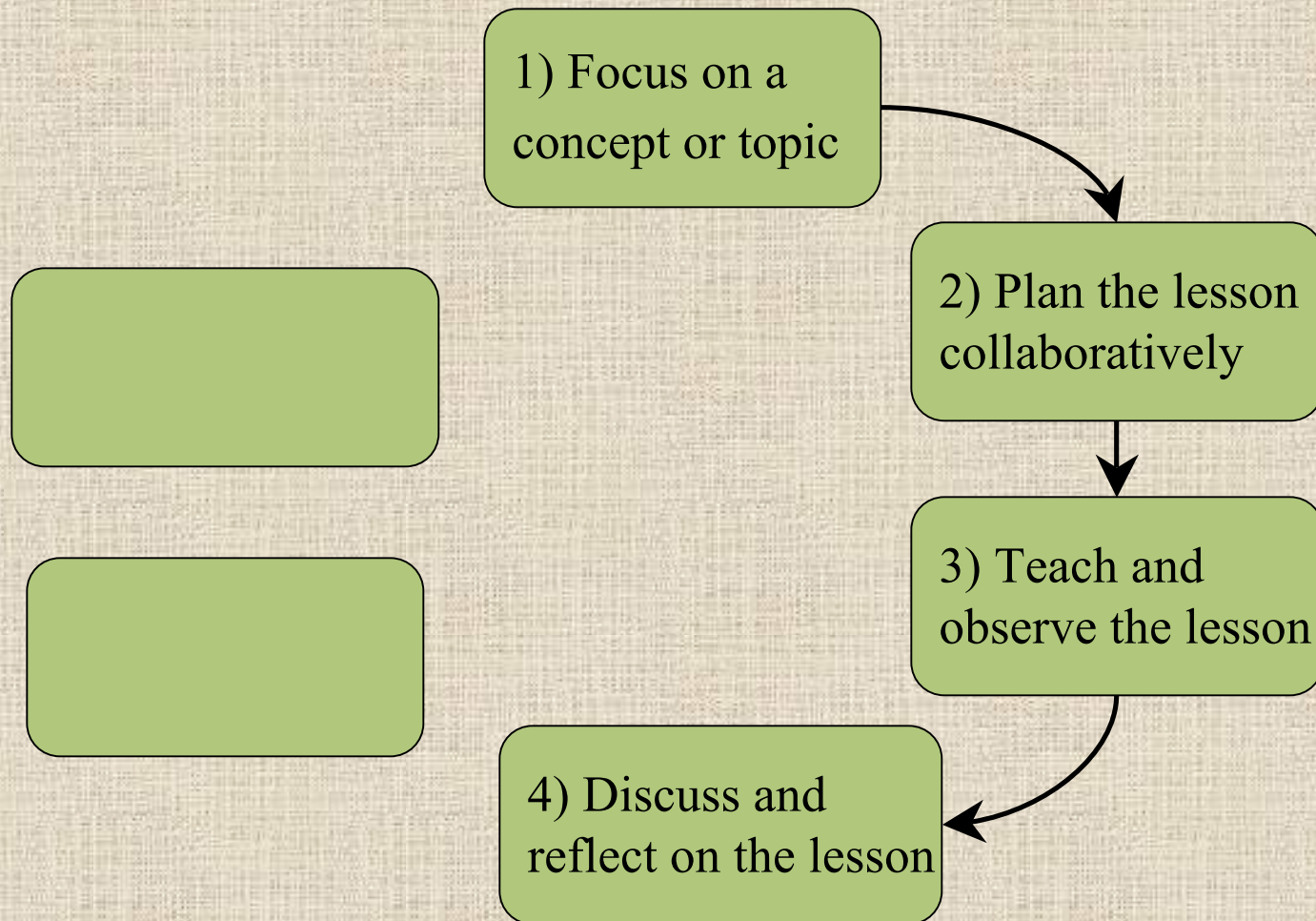
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# The Lesson Study Process



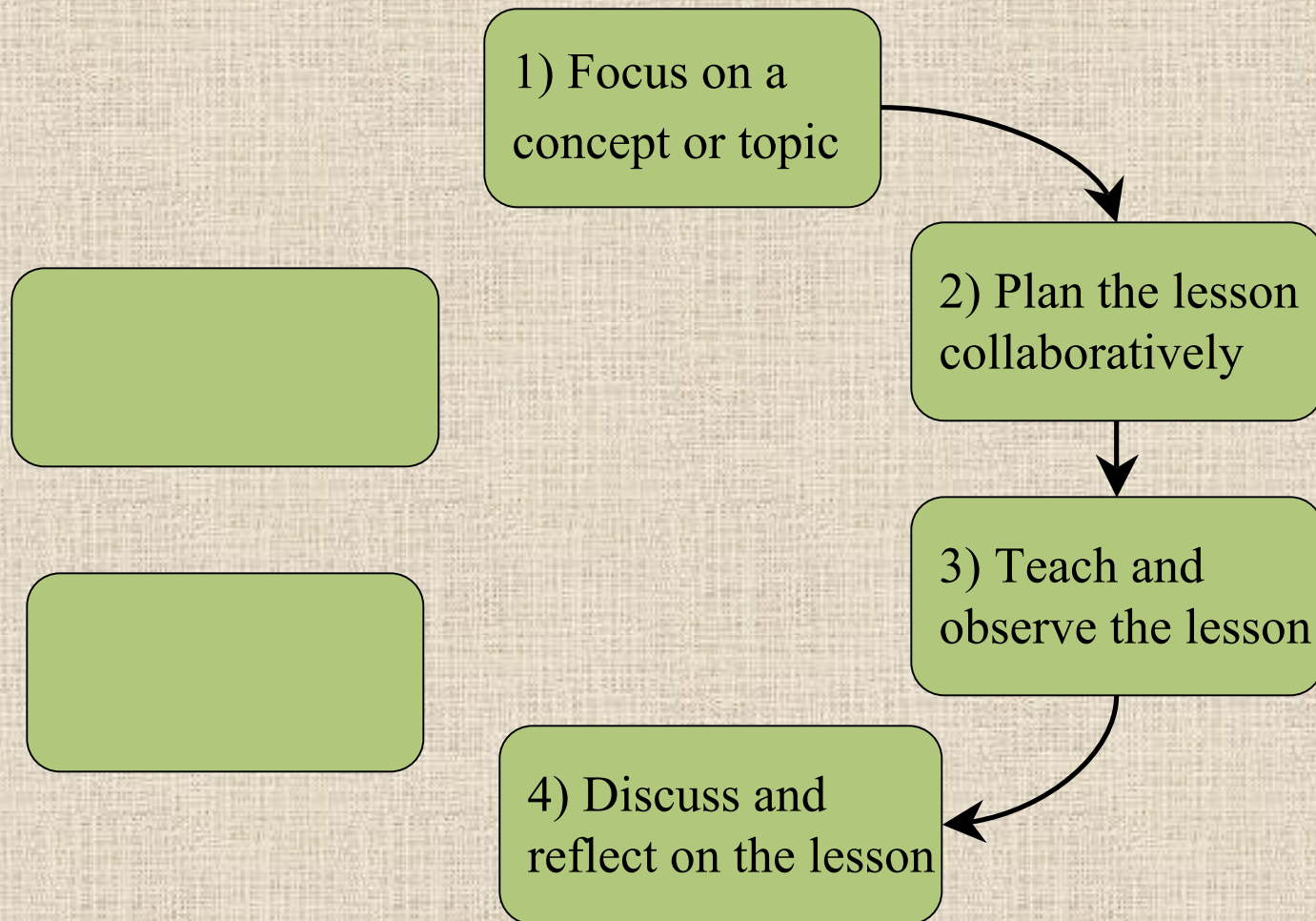


# Discussing and Reflecting

The Debriefing Session  
Eastern Kentucky University  
May 31, 2005

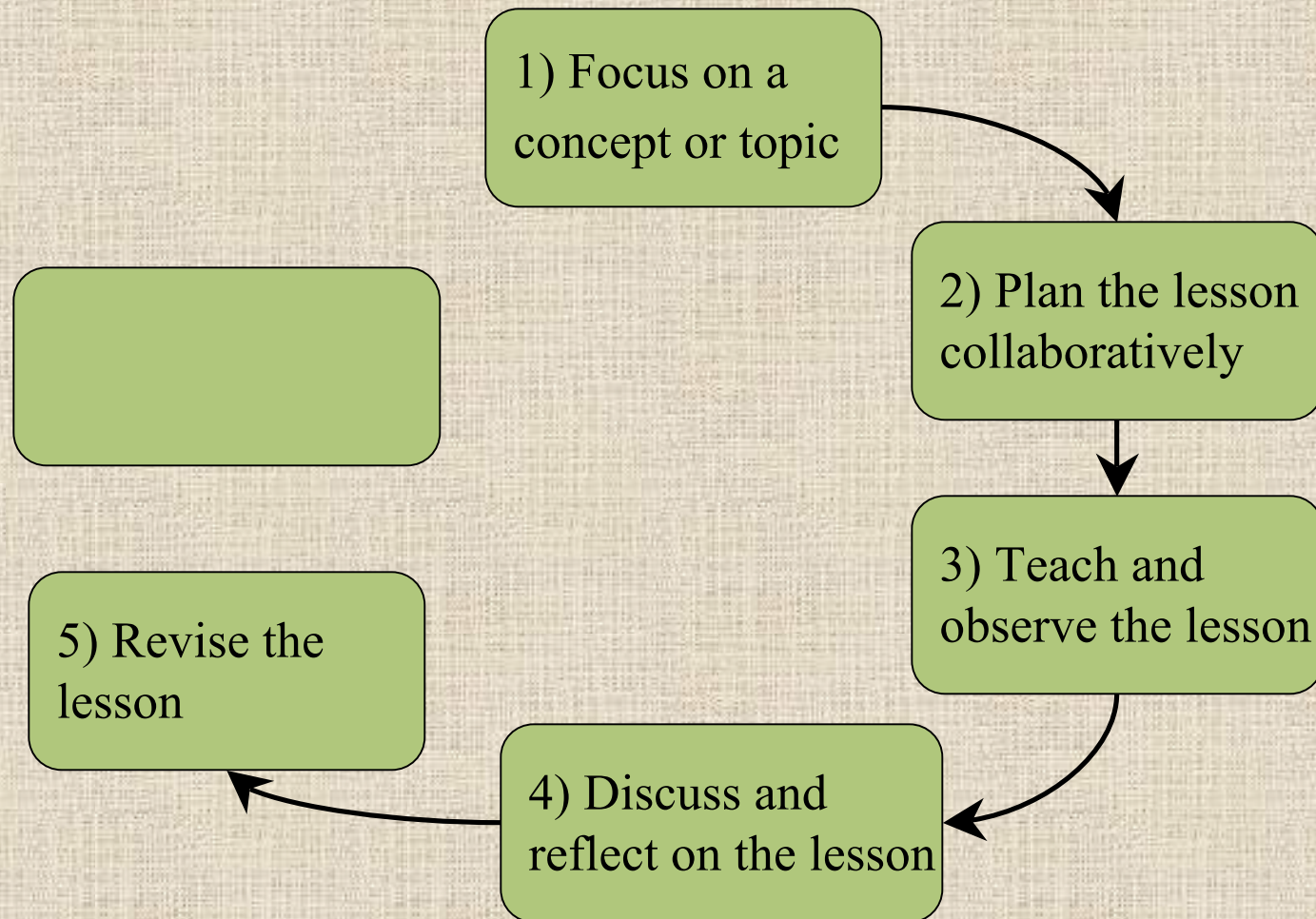


# The Lesson Study Process

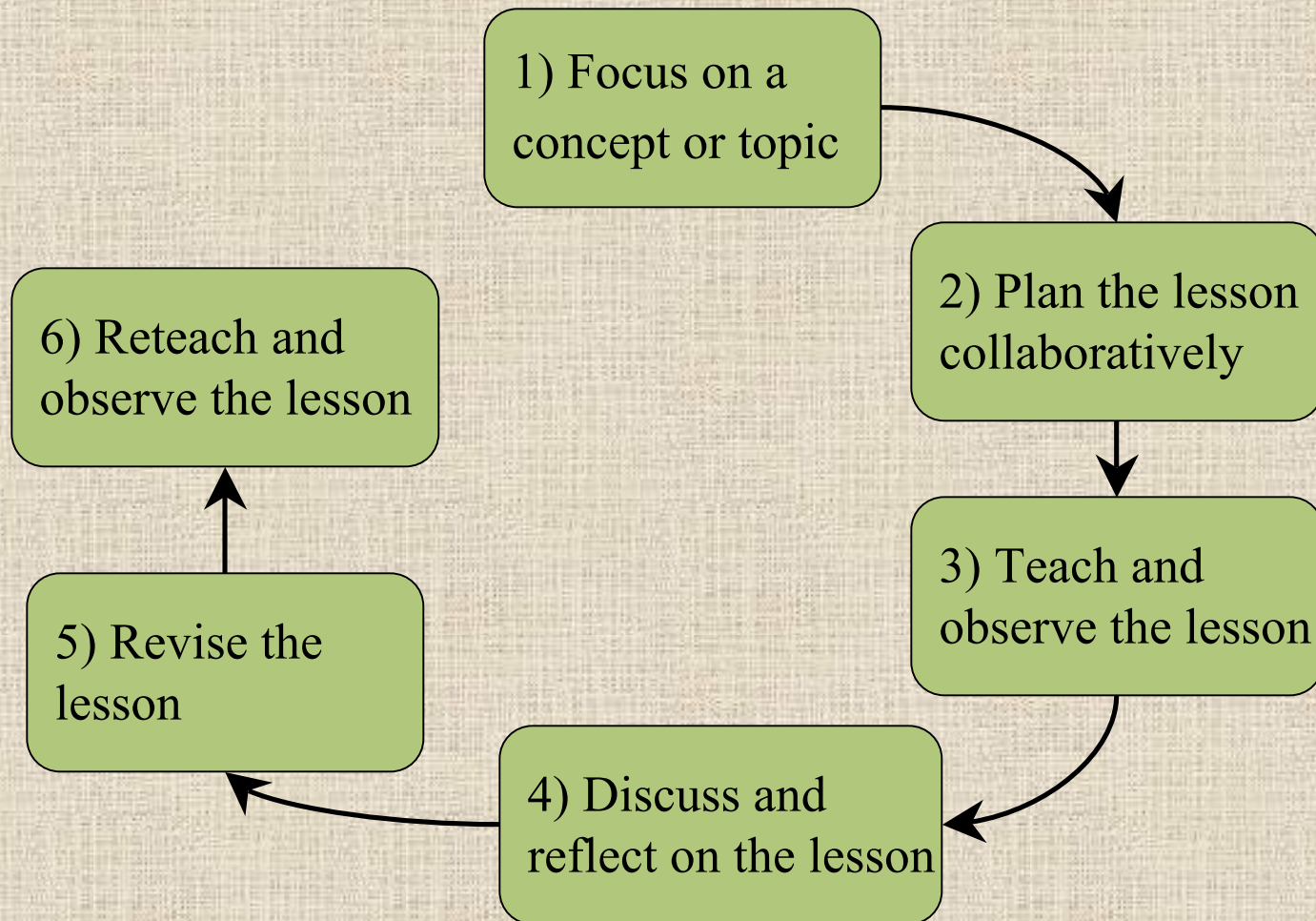




# The Lesson Study Process

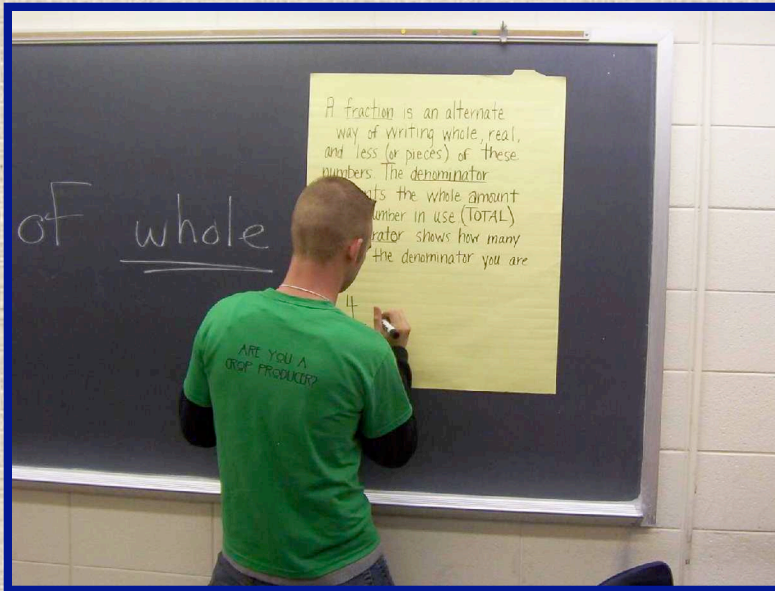


# The Lesson Study Process





# Students and Definition



Students wrote a definition, and then applied (tested) it.

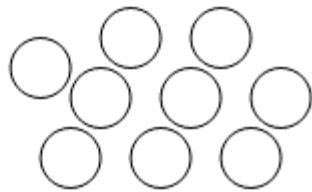
The Second Teaching  
Bluegrass Community  
& Technical College  
November 9, 2005



# Activity 3 Handout

Use the definition of a fraction to identify  $\frac{2}{3}$  of the following wholes.

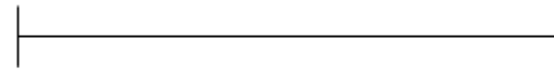
1.



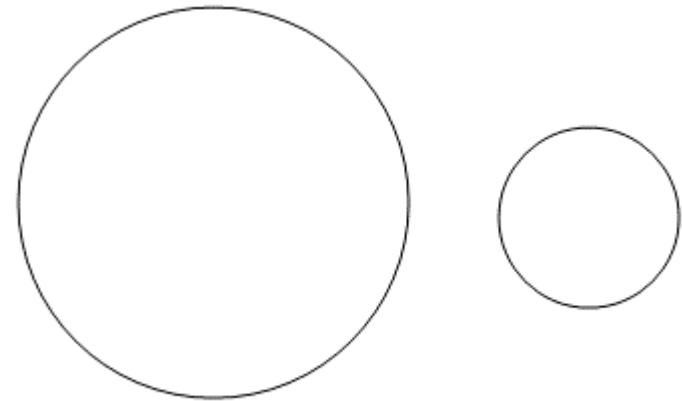
2.



3.



4.



5.

\$30




# Students' Final Definition

After the collaborative group work, students evaluated each definition and chose one as the 'best' definition.

By testing it with the activity problems, modifications were made to the definition.

~~Exa~~  
Fraction - a chosen portion  
of the total amount of parts in  
a whole.

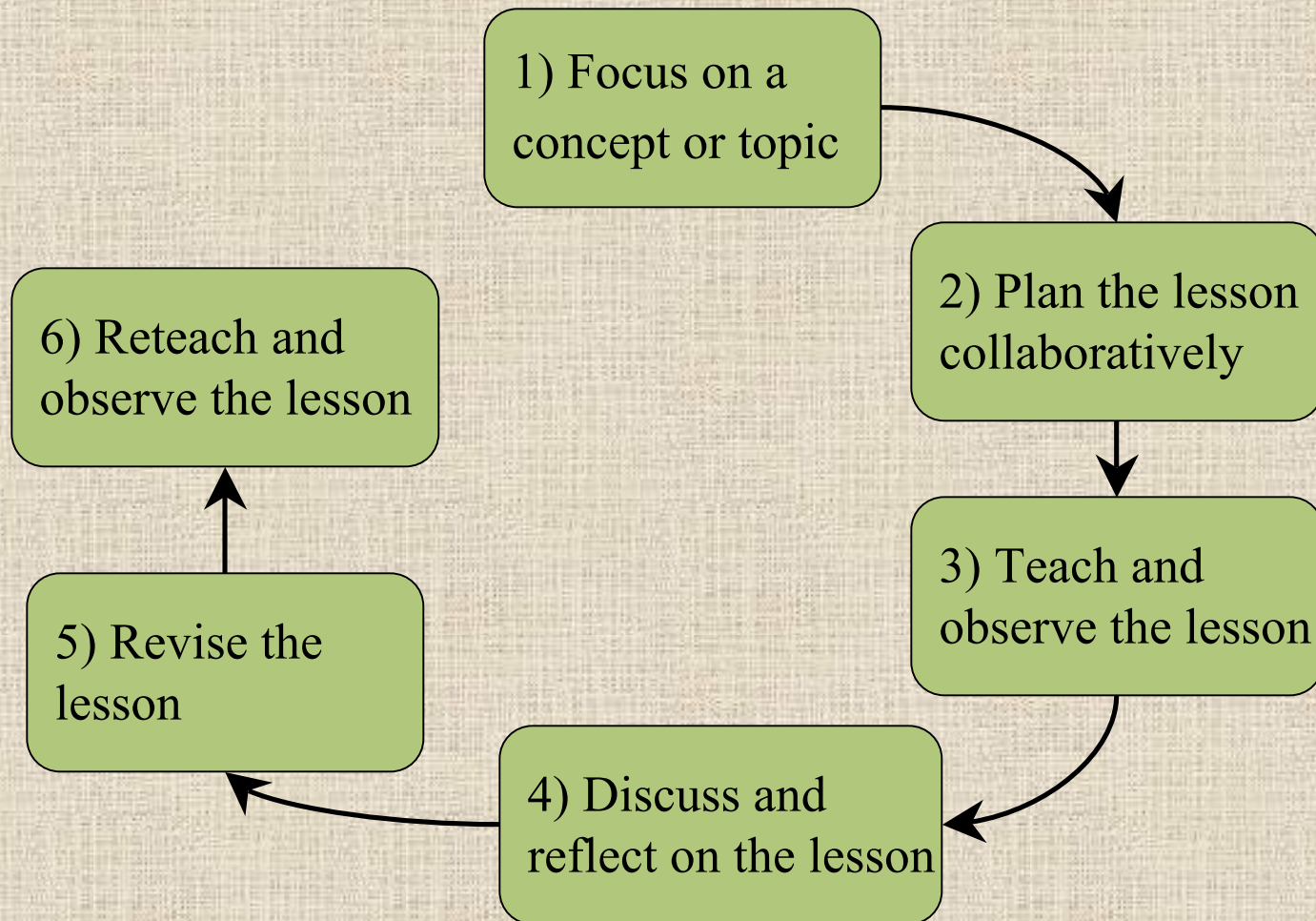
$\frac{1}{4}$  

numerator: The <sup>amount of equal</sup> ~~chosen~~ <sup>parts</sup> ~~portion~~.  
denominator: The total amount of ~~from~~ ~~the~~ ~~total~~ ~~amount~~  
equal. parts in a whole.

<sup>the</sup>  
or make  
total amount of objects

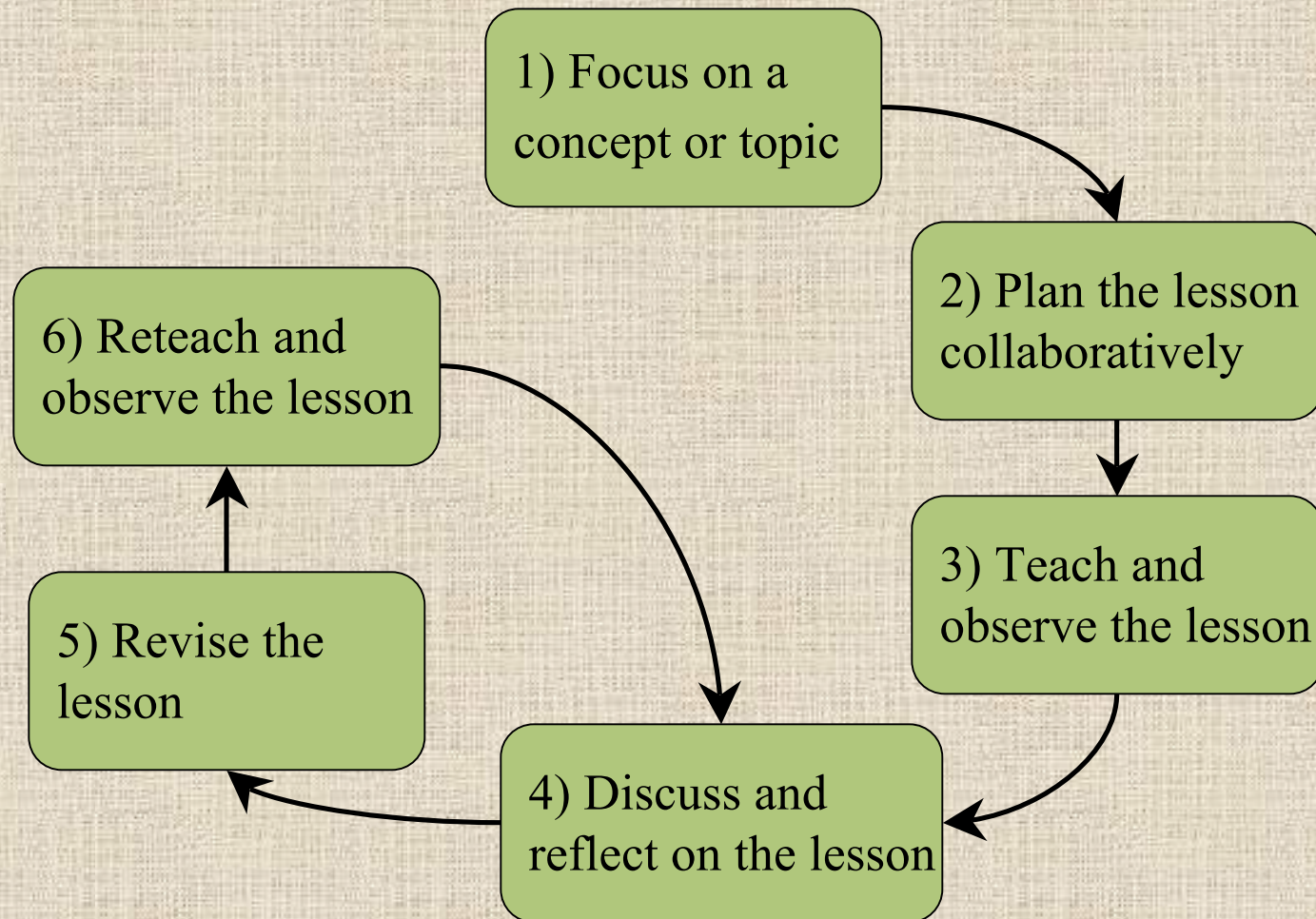
Meredith  
Derek  
Susan.

# The Lesson Study Process

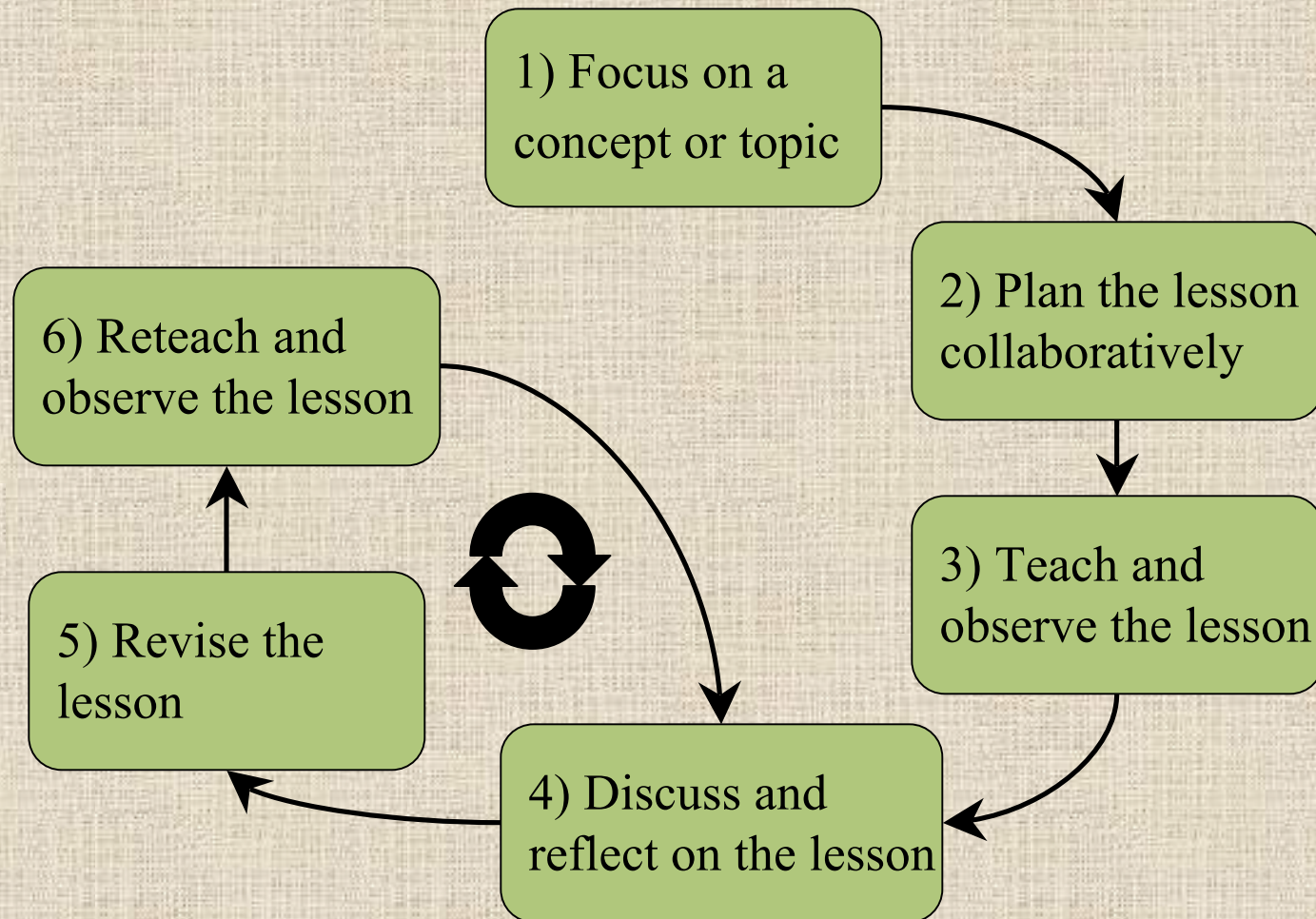




# The Lesson Study Process

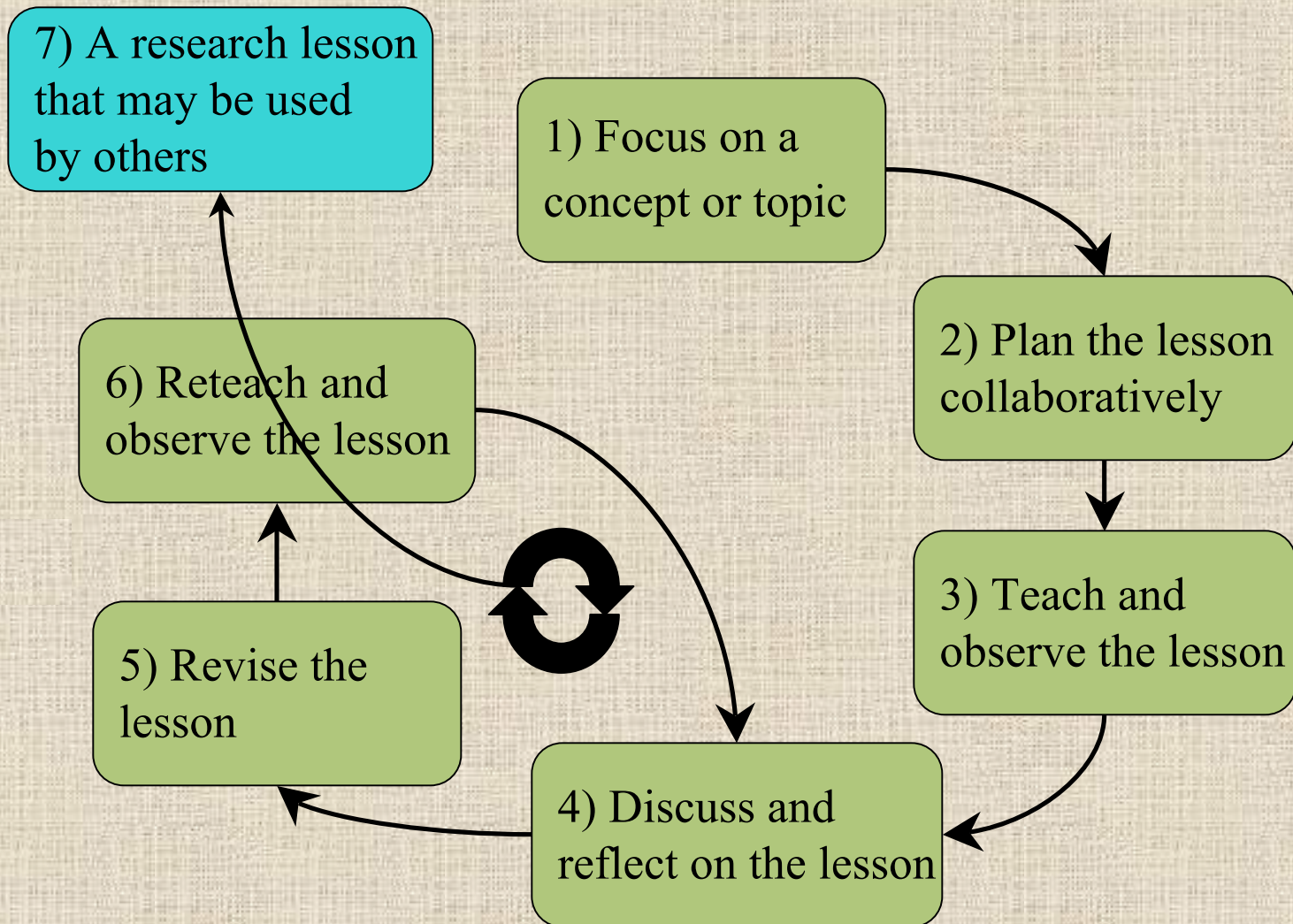


# The Lesson Study Process





# The Lesson Study Process



# What is the “research” in a research lesson?

- Analysis of data collected via observations
- Using resources to inform the lesson
- Using team members’ experiences to inform the lesson
- Literature review to identify misconceptions



# Challenges

- Physical distances
- Incongruent schedules
- Investment of time
- Meeting locations

# Benefits

- Self-reflection and life-long learning
- Mechanism for increasing content knowledge
- Opportunities to observe student learning
- Increased pedagogical content knowledge
- Improved individual lesson planning
- Collegiality
- Respect and trust



# References

Beckmann, S. *Mathematics for Elementary Teachers* (2005) Boston: Pearson Education, Inc.

Fugitt, J., Ratliff, M., and Smith, R. (2007). *What are your chances? Lesson study with an introductory probability lesson*. Unpublished manuscript.

Musser, G., W. Burger, and B. Peterson. *Mathematics for Elementary Teachers: A Contemporary Approach, 6<sup>th</sup> Edition* (2004) Hoboken, NJ: John Wiley & Sons.

Stigler, J., and Hiebert, J. (1999). *The teaching gap*. New York: The Free Press.

Lewis, C. (2005). "How many seats? – Excerpts from a Lesson Study Cycle" Oakland, CA: Catherine Lewis for Mills College Lesson Study Group.

Lewis, C., and Tsuchida, I. (1998). "A lesson is like a swiftly flowing river." *American Educator*, 12-17; 50-52.

Lewis, C. "Lesson study PowerPoint presentation." Can be found at:  
<http://www.lessonresearch.net/res.html>