MATH TRANSFORMATIONS

**Leading Vertical Lesson Study:**
How to Authentically Improve Math Instruction Across the Grades

NCTM Annual Conference
Session 94
San Diego, CA

Andrea Barraugh, Veronica Kitts, Artemisa Perucho-Green
www.mathtransformations.com
abarraugh1@gmail.com

# Lesson Study


## Part I: Introduction

Lesson Topic:

Lesson Study Overarching Goal:

Lesson Study Research Question:

What are some of the instructional strategies you are interested in exploring?

Relevant Standards:

What will a successful student be able to do as a result of this lesson.

## Part II Research:

What will you do to learn more about the strategies you are interested in? What resources will you use? Who will you talk to?

## Part III: Situating the Lesson:

What unit is this lesson part of? Where does it fall within the unit?

What prior knowledge do students have?

## Part IV: Lesson Plan

**Research Question:**

**Student Learning Goal:**

| Timing | Lesson Parts | Activity Description | Teaching Roles |
|---|---|---|---|
| | **Launch** | | |
| | **Explore** | | |
| | **Summary** | | |

**What evidence of student learning will we look for?**

**Differentiation:**

## Part V: Reflections

## Prep

| Materials | Person Responsible |
|---|---|
| | |
| | |
| | |
| | |

## Implementation Schedule

| Date | Time | Class | Co-Teachers | Data Collectors |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## Resources:

Fernandez, C., and Yoshida, M. (2004). Lesson Study: A Japanese Approach to Improving Teaching and Learning. Mahwah, NJ: Lawrence Earlbaum Assoc.

Lewis, C.L, and Hurd, J. (2011). *Lesson Study Step by Step: How Teacher Learning Communities Improve Instruction*. New Hampshire: Heinneman.

Stepanek, J., Appel, G., Leong, M., Turner Mangan, M., and Mitchell, M. (2007). *Leading Lesson Study: A Practical Guide for Teachers and Facilitators*. Thousand Oaks, CA: Sage Publications.

Teaching through Problem Solving (TTP). Mills College Lesson Study Group. http://lessonresearch.net/ttp/lessonstudyresources.html

MATH TRANSFORMATIONS

# Vertical Lesson Study Tasks

## Features of a Task Well-Suited for Vertical Lesson Study

- Is mathematically intriguing
- Engages students in significant mathematics and problem solving
- Can be modified across the grades
- Invites higher level thinking, constructive struggle, and perseverance.
- Allows for multiple entry points and perspective – "low floor, high ceiling"
- Leave behind mathematical residue

## Specific Tasks We Recommend for Vertical Lesson Study (modifiable across grades)

Stacks of Soda (from Mind of an April Fool)
https://themindofanaprilfool.com/stacks-of-soda/

Donut Delight (from Tap into Teen Minds)
https://tapintoteenminds.com/3act-math/donut-delight/

M&M Pyramid (from Mind of an April Fool)
https://themindofanaprilfool.com/mm-pyramid/

## Websites with Tasks

Mind of an April Fool – 3 Act Tasks
https://themindofanaprilfool.com/3-acts/

Graham Fletcher – 3 Act Tasks (Grades K-7)
https://gfletchy.com/3-act-lessons/

Andrew Stadel – 3-Act Tasks (Elementary - HS)
http://mr-stadel.blogspot.com/p/3-act-catalog_17.html

Kyle Pearce – 3 Act Tasks (3rd Grade - HS)
https://tapintoteenminds.com/3act-math/

Andrew Gael – 3 Act Tasks (range of grades)
https://andrewgael.com/?s=3+act

Daniel Ehler (3-Act Tasks – When Math Happens – 3rd grade - HS)
https://whenmathhappens.com/3-act-math/

Mike Flynn – 3 Act Tasks
http://mathleadership.org/projects/3-act-math-tasks/

Dan Meyer (originator of 3 Act Tasks)