

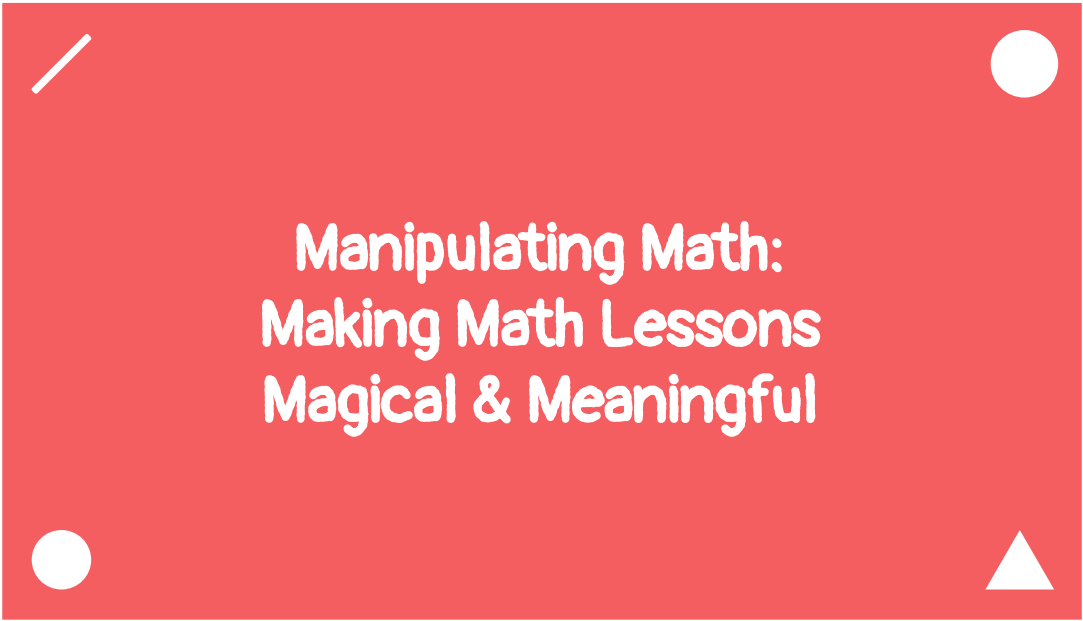
# Why are you here?

Put a tally mark under the topic that you  
are most interested in learning about today

Formatting Lessons

Using Manipulatives

Making It Stick



# Manipulating Math: Making Math Lessons Magical & Meaningful

Ellen Noel & Colleen WySS

# What Math Program Do You Use?

Math In Focus

Everyday Math

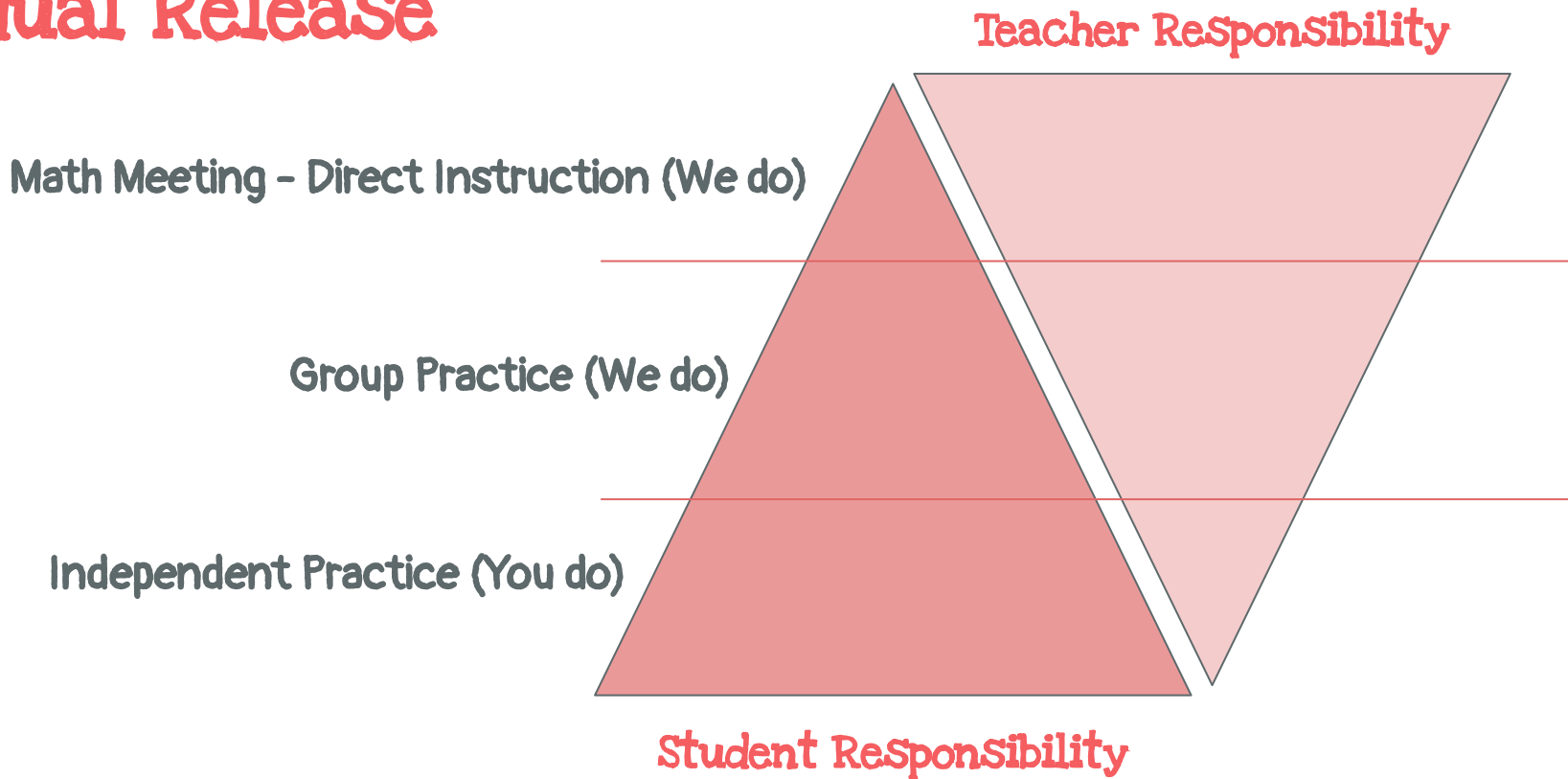
Investigations

EngageNY

Something else...

# Overview of a Lesson

# Gradual Release



# Direct Instruction- We Do

Students should be involved, engaged, and have the opportunity to experience their own **CLICK**

## MIX it up & keep them listening

- wait time
- think-pair-share
- write or whisper in hand
- answer on 3



# Group Practice - We Do

Student book on the whiteboard

Games

Manipulative work



# Independent Practice - You Do

Student workbook

HIGH Expectations for independence

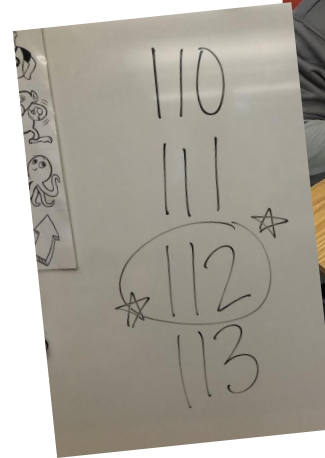
Differentiation - "Wherever you are is the right place to be."

assign all the pages for your topic

pick the one page you will check

fast finishers - work backwards

Pull Small Groups Now (Fast Five)



# USing Manipulatives

*"I hear and I forget. I see and I remember. I do and I understand."*

- Confucious

# Manipulatives in Math

“Research from both learning theory and classroom studies shows that using manipulatives to help teach math can positively affect student learning. **This is true for students at all levels and of all abilities.** It is also true for almost every topic covered in elementary school mathematics curricula. Papert calls manipulatives “objects to think with.” Incorporating manipulatives into mathematics lessons in meaningful ways helps students grasp concepts with greater ease, making teaching most effective.”

[https://www.hand2mind.com/pdf/learning\\_place/research\\_math\\_manips.pdf](https://www.hand2mind.com/pdf/learning_place/research_math_manips.pdf)

# Why Use Manipulatives

- improves ability to visualize
- makes abstract more concrete
- deepens understanding of concepts
- support engagement and differentiation
- Gives kids ownership of their learning

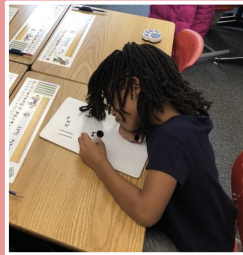


# Making the abstract more CONCRETE!

Concrete -  
start by using  
manipulatives and  
realia



Pictorial -  
gradually transition  
to pictures and  
diagrams



Abstract -  
using numbers and  
symbols to solve with  
deeper understanding



# Making manipulatives work for you

2 minutes to explore

Using the “bank”

Organization

Helper to pass out and collect materials

Use on assessments if used during independent work

High Expectations and loss of privilege



# Making it Stick!

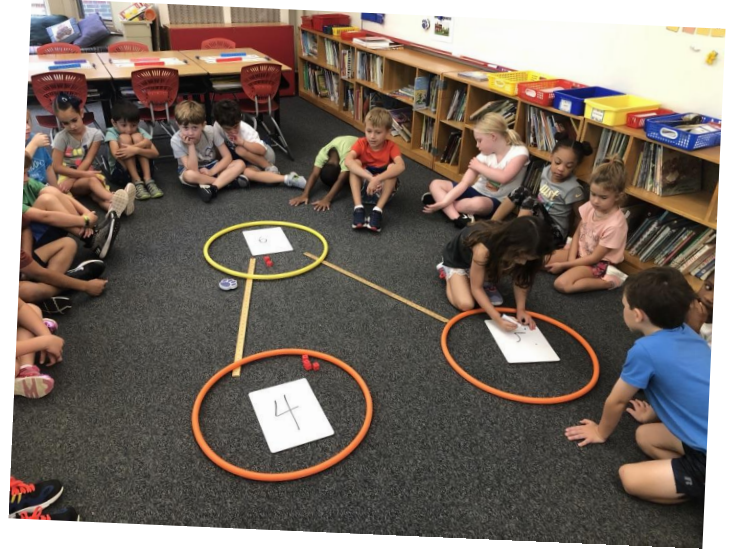
Bringing your lesson to life

# Total Physical Response (TPR)

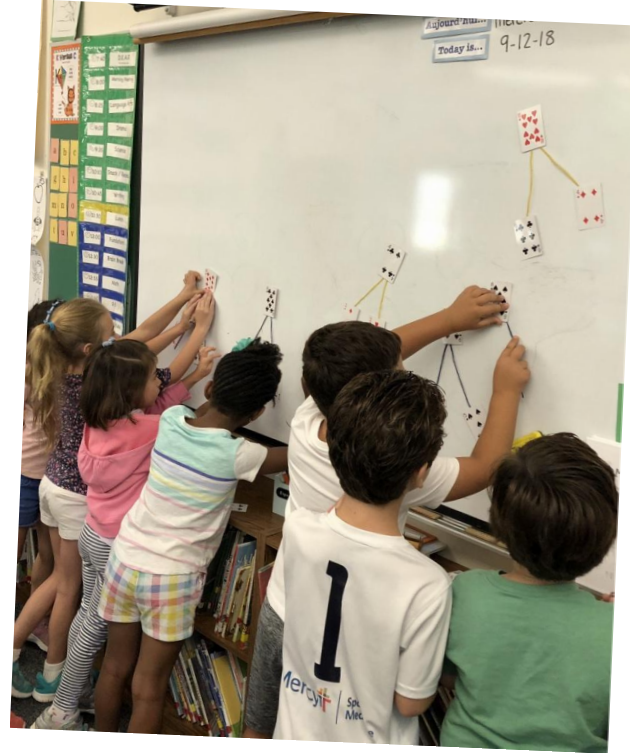
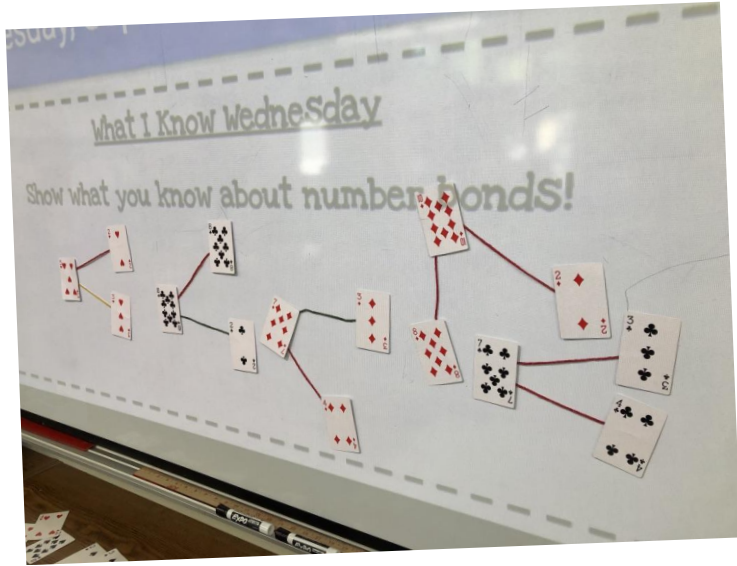
Total Physical Response (TPR) is a method of teaching language or vocabulary concepts by using physical movement to react to verbal input. The process mimics the way that infants learn their first language, and it reduces student inhibitions and lowers stress. The purpose of TPR is to create a brain link between speech and action to boost language and vocabulary learning.

<http://www.theteachertoolkit.com/index.php/tool/total-physical-response-tpr>

# What It Looks Like IRL...



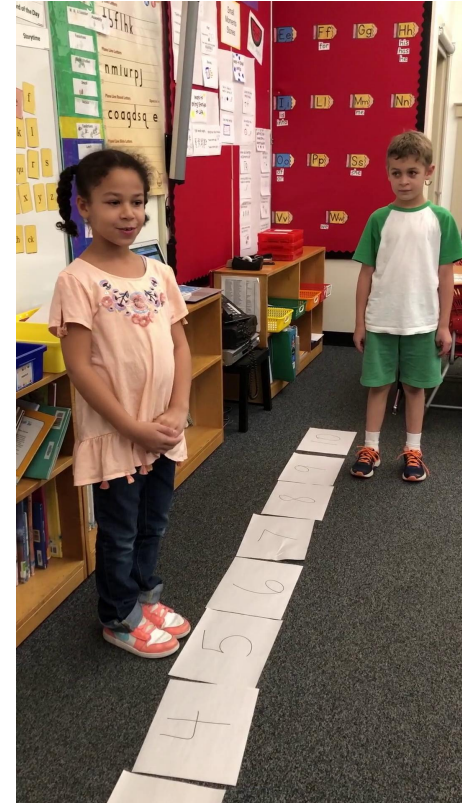
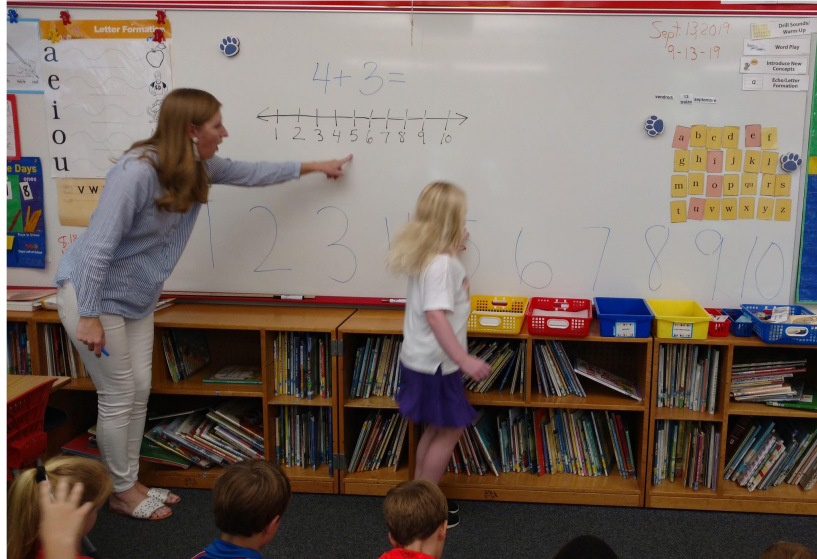
## What It Looks Like IRL...



# Use stories to teach concepts



# Movement can help solidify concepts



# Provide strategies for their struggles



Those wild ones...

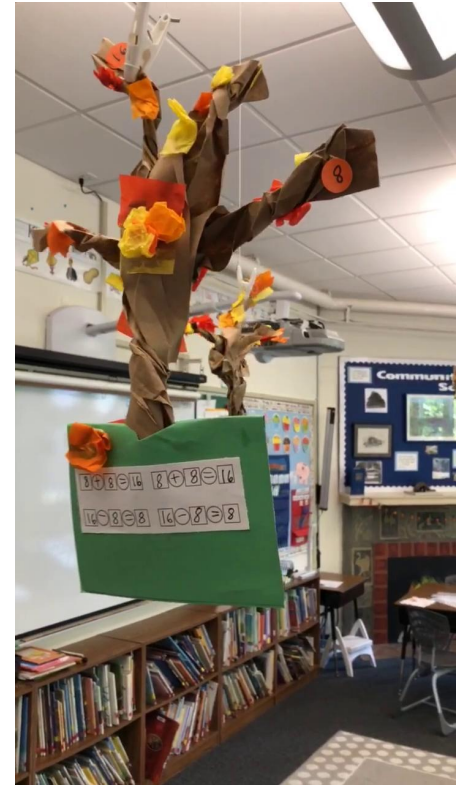


# Karate Chop - HiiiiiiiYA!



# Other Favorite Ideas and Resources

- Brainpop Jr.
- Teachers Pay Teachers
- Morning Meeting (What I Know Wednesday)
- Graphing, Estimation & Money in calendar
- Math Games during Indoor Recess
- gregtangmath.com
- Kakooma Challenge
- Service Learning

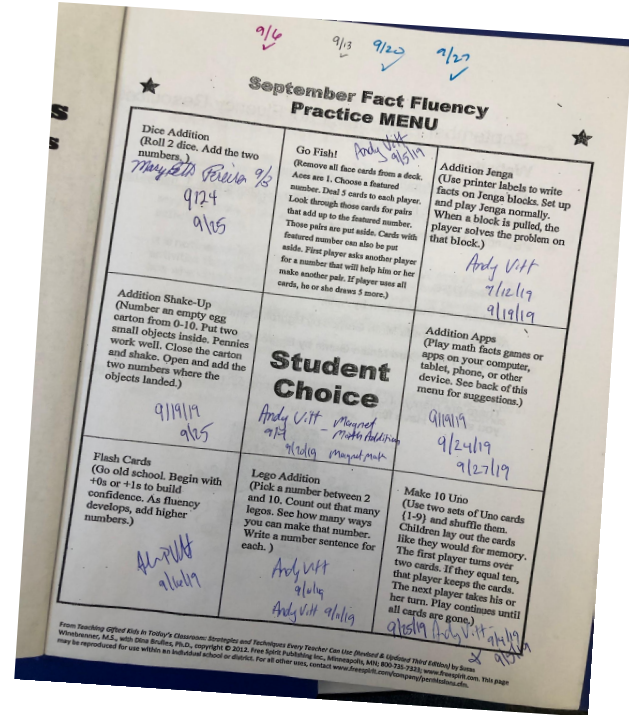
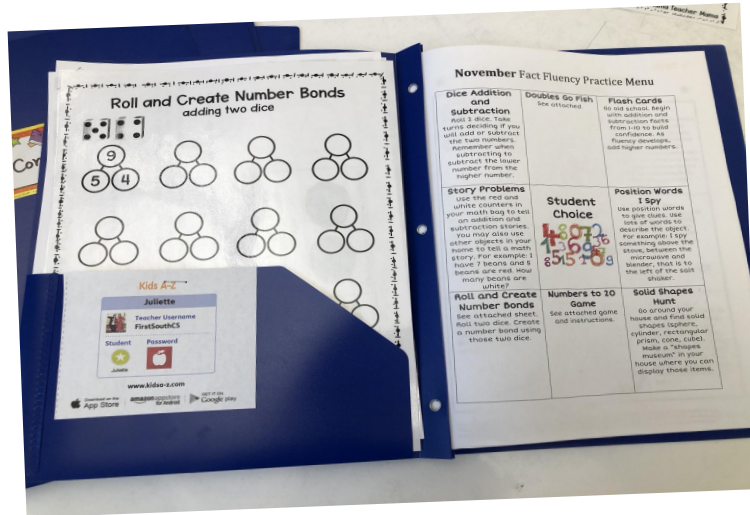


Homework  
without the headache...

# Fact Fluency Practice Menu

Grids provide differentiation

Easy to add in practice packs when needed



# Being a Reflective Practitioner...

It's not always going to work but you need to be willing to ask why...and then do something about it

Practice Packets

Reteach

Retest



Questions  
Comments  
Clarification?

# Tips, Tricks, and Takeaways

let them experience their own CLICK

karate chop - HIIIIIIYA

get a stepstool (IKEA)

fact fluency menu

star page & fast five

best friend 10

post-its for bookmarks

use your BANK!

TPR

stories stick