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**A M I D  N**  
**A P L A N E T**

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# **PD @ Bramlett Elementary School**

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# Agenda

The Goal

Number Routines

Cognitively Guided Instruction

General Principles

Resources

# Standards for Mathematical Practice

Make sense of problems and persevere in solving them.

Reason abstractly and quantitatively.

Construct viable arguments and critique the reasoning of others.

Model with mathematics.

Use appropriate tools strategically.

Attend to precision.

Look for and make use of structure.

Look for and express regularity in repeated reasoning.

# Number Routines



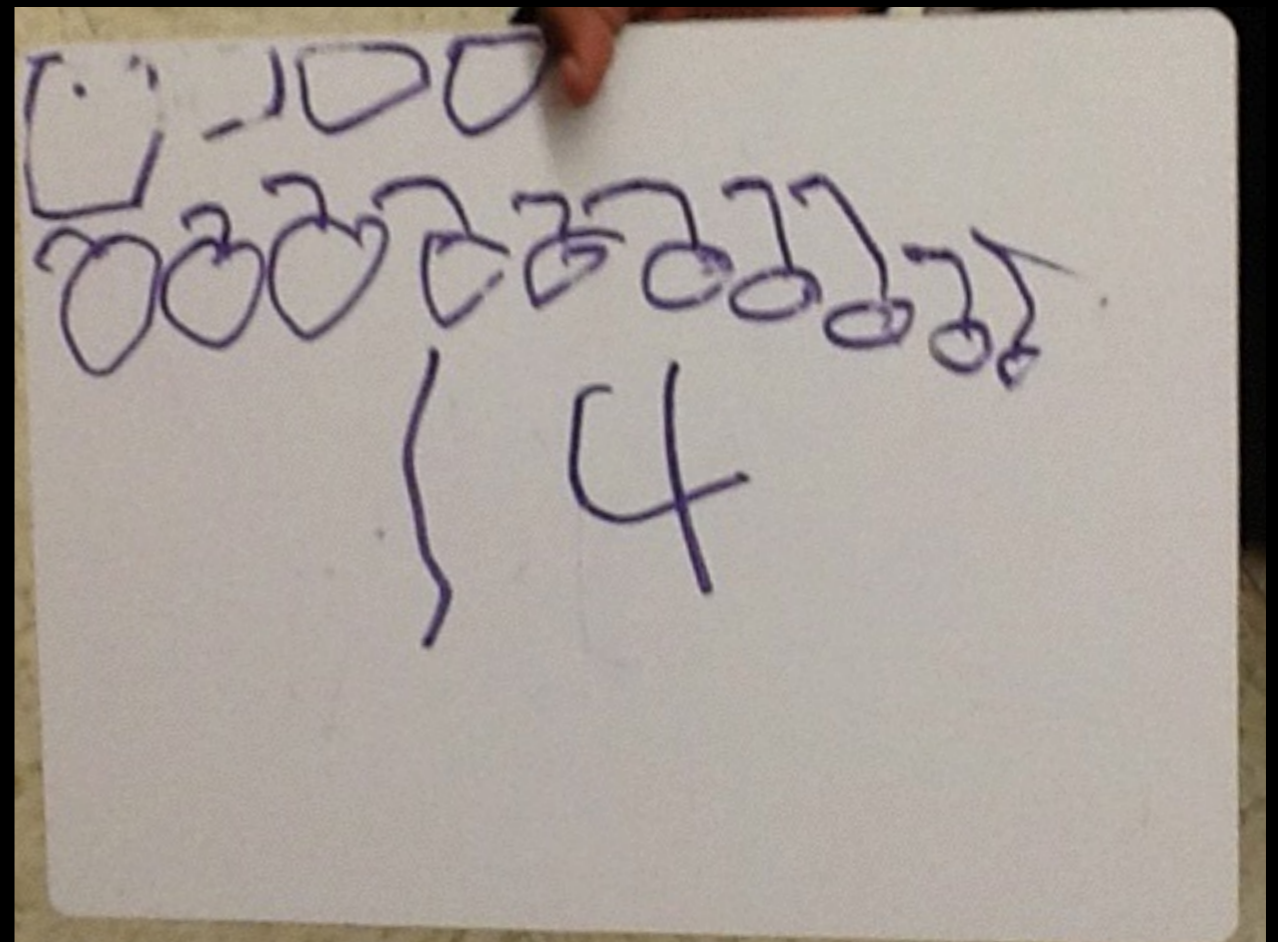
# Messy Problems

Joel went to the store to get 4 bags of chips and some apples.

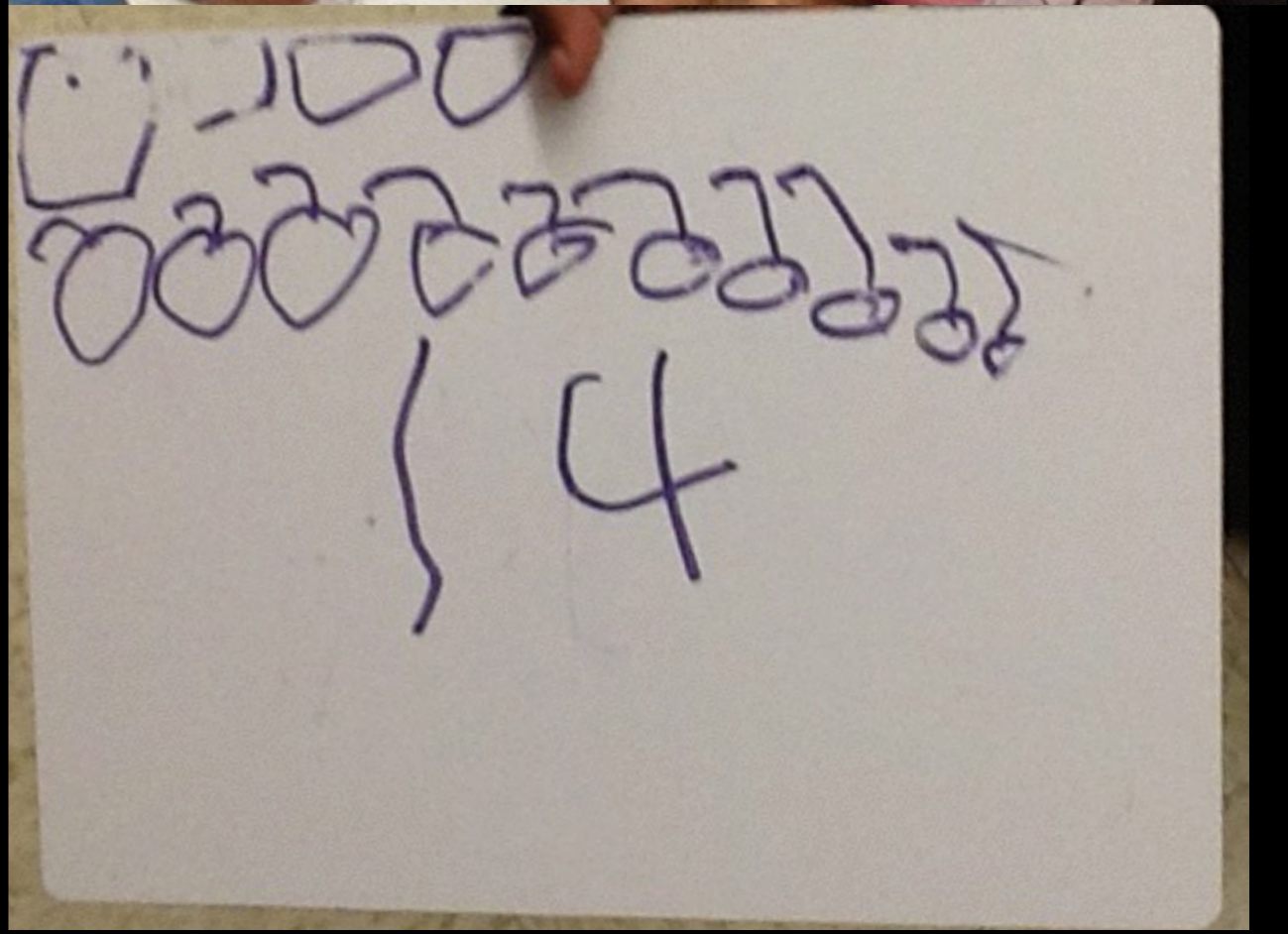
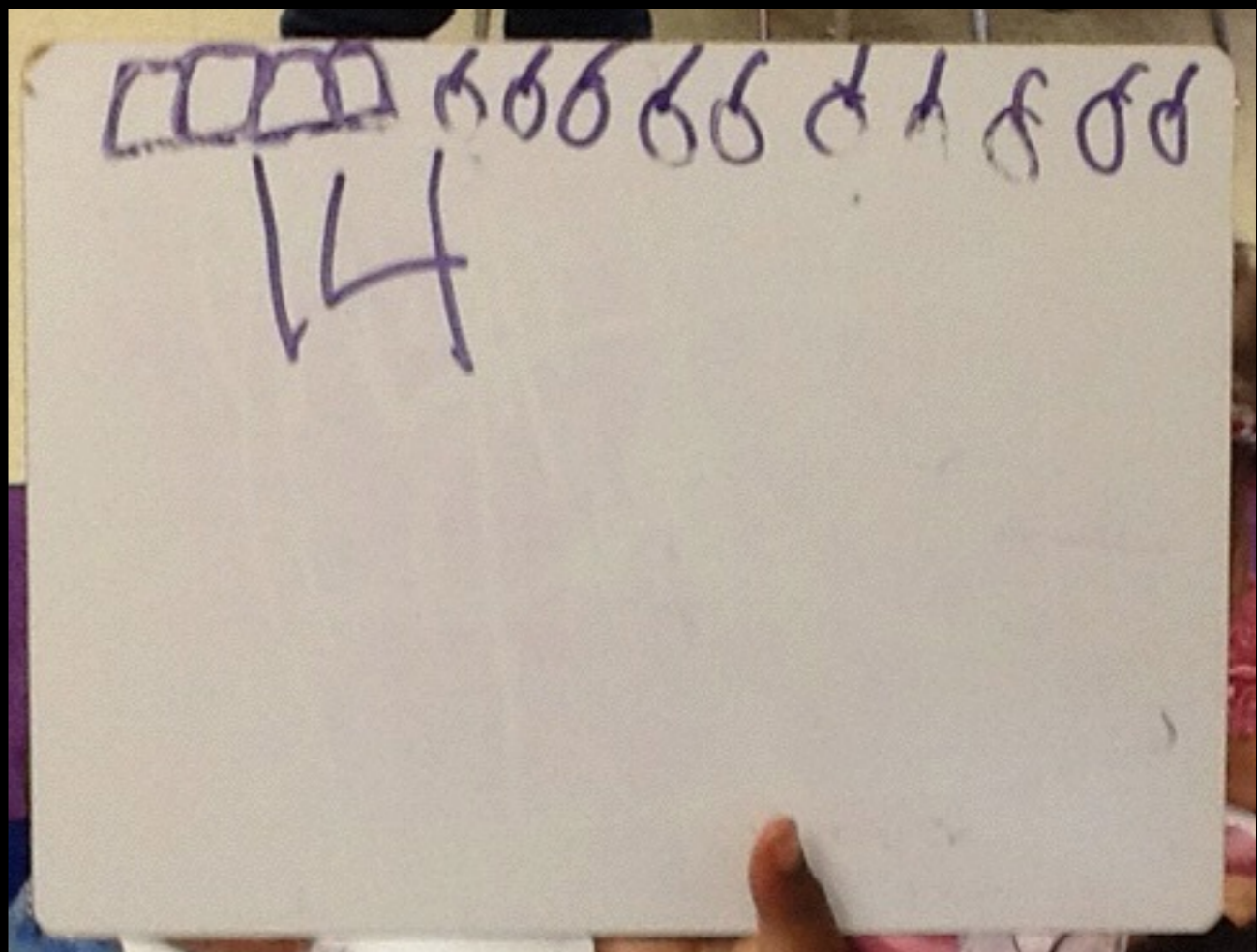
Jack - Jack grabbed the apples while Joel wasn't looking.

When Joel went to the 10 or less checkout line they said he had too many items. How many apples did Jack-Jack grab?

# Messy Problems

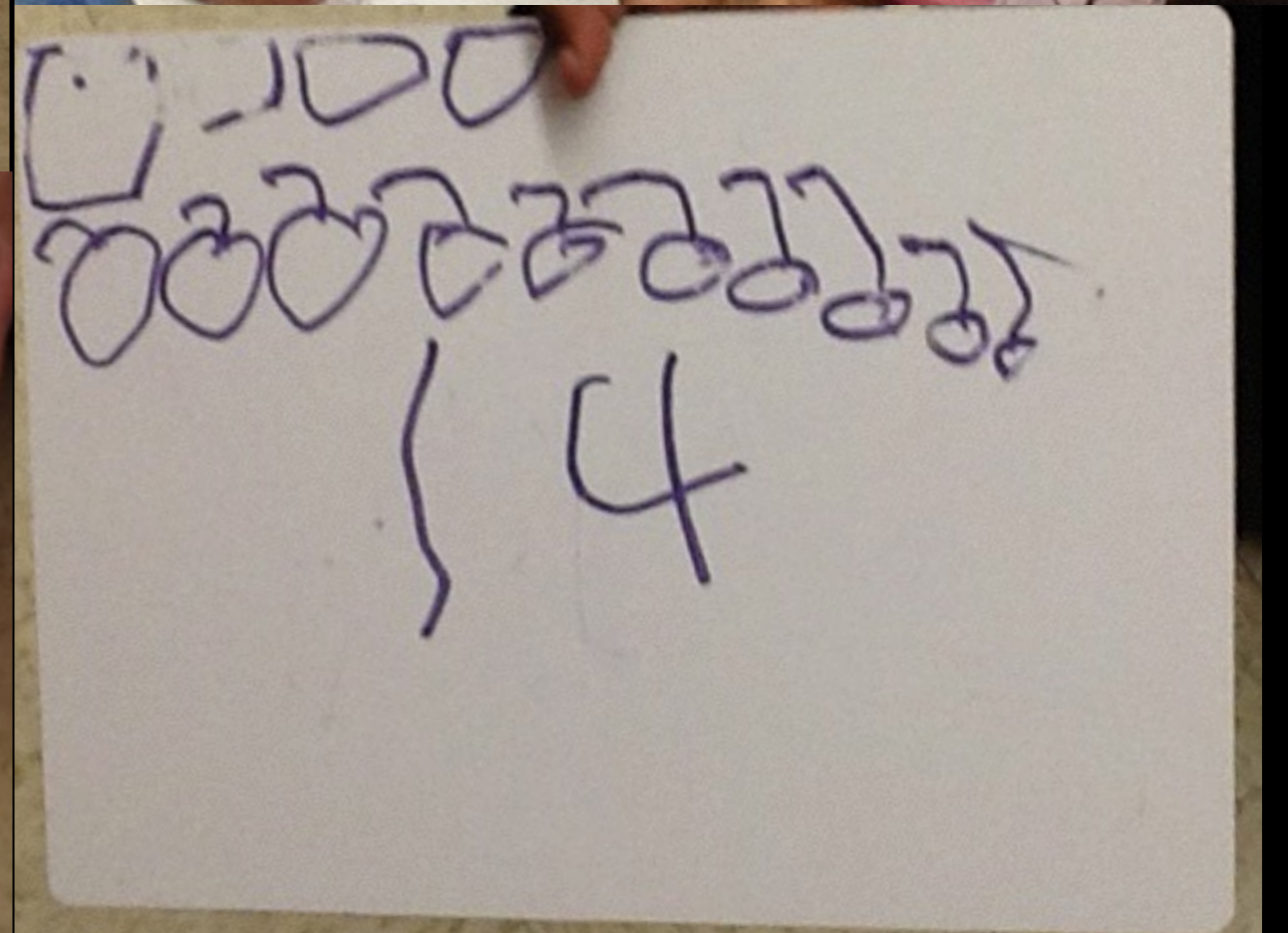
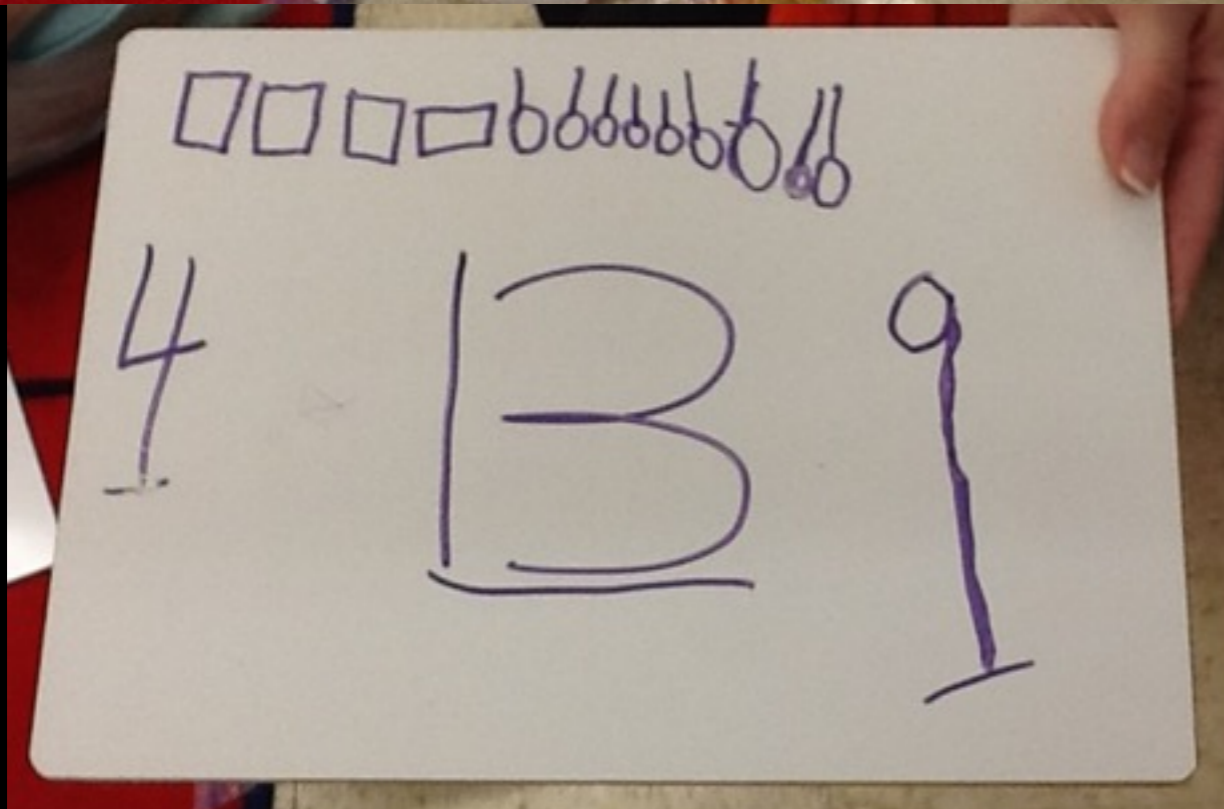
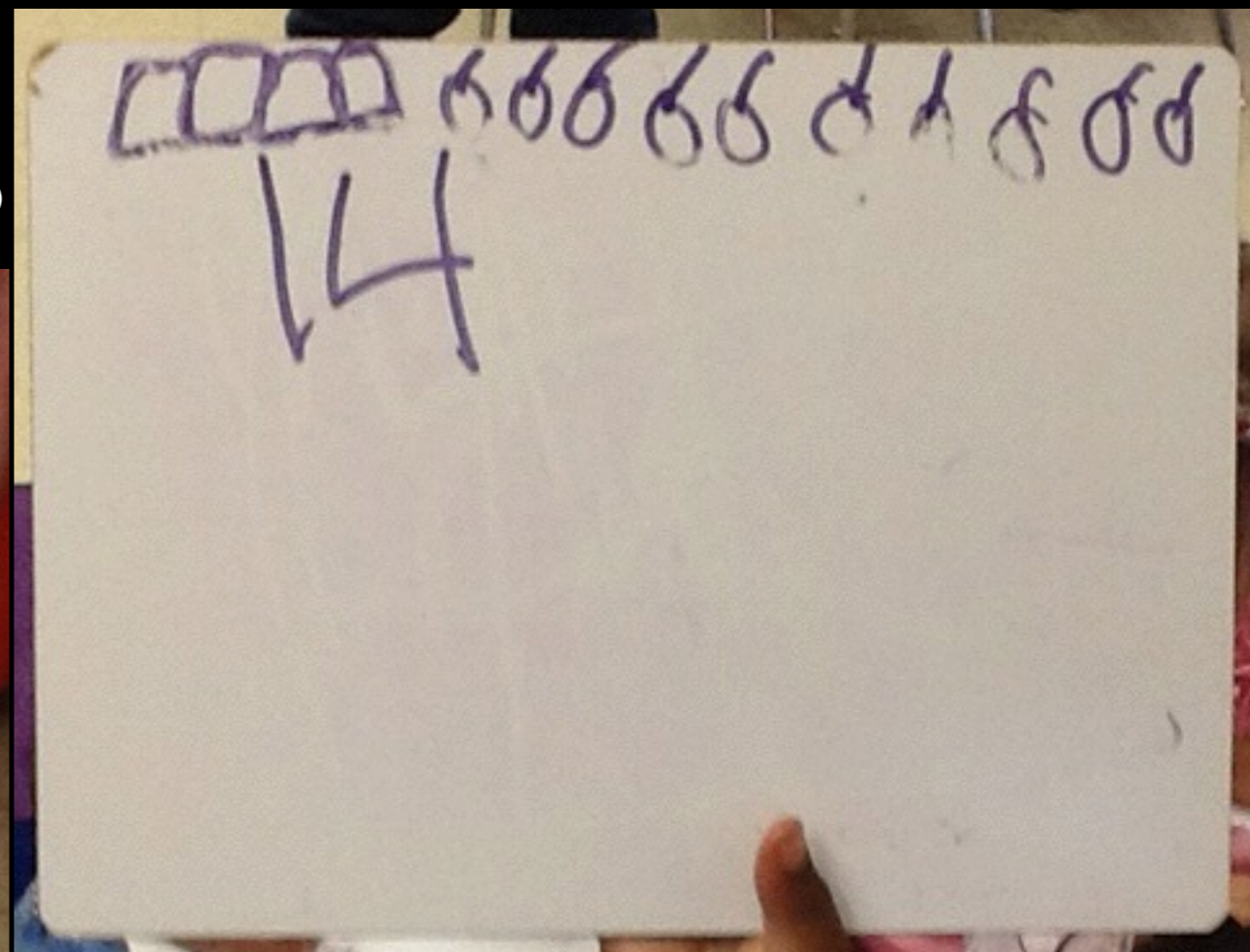
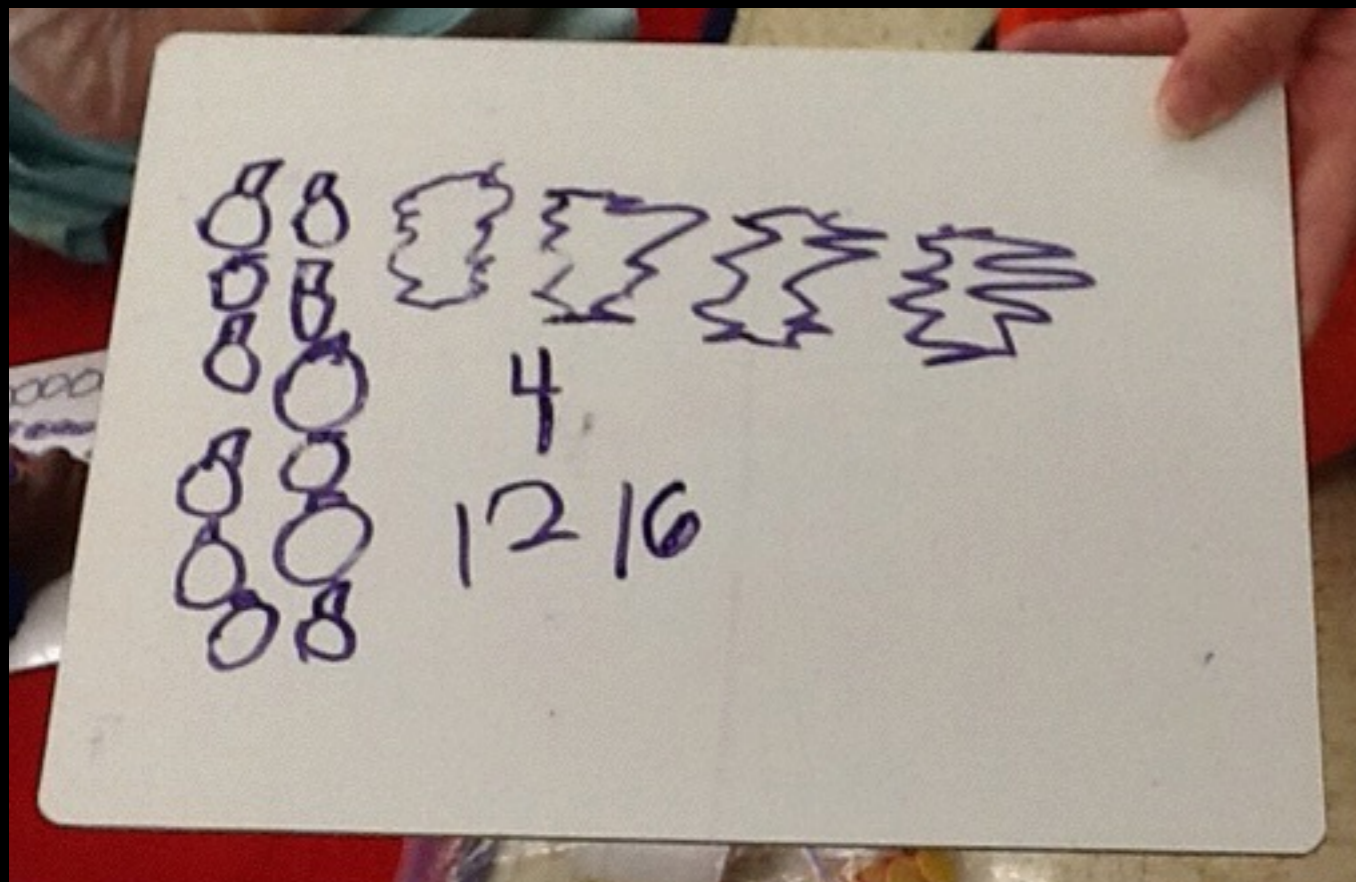


# Messy Problems

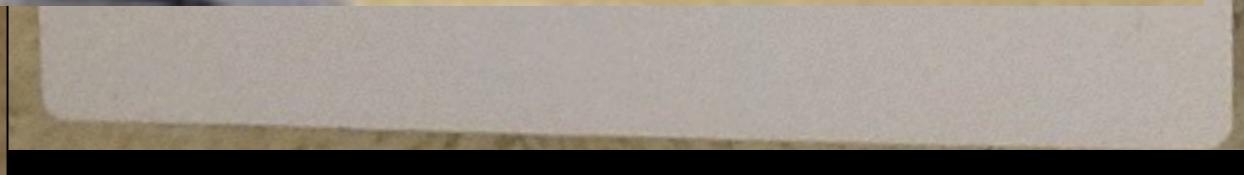
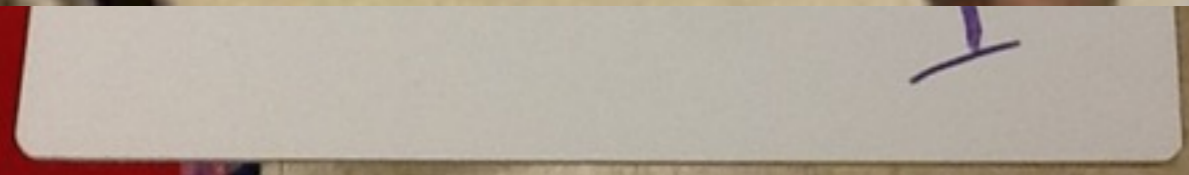
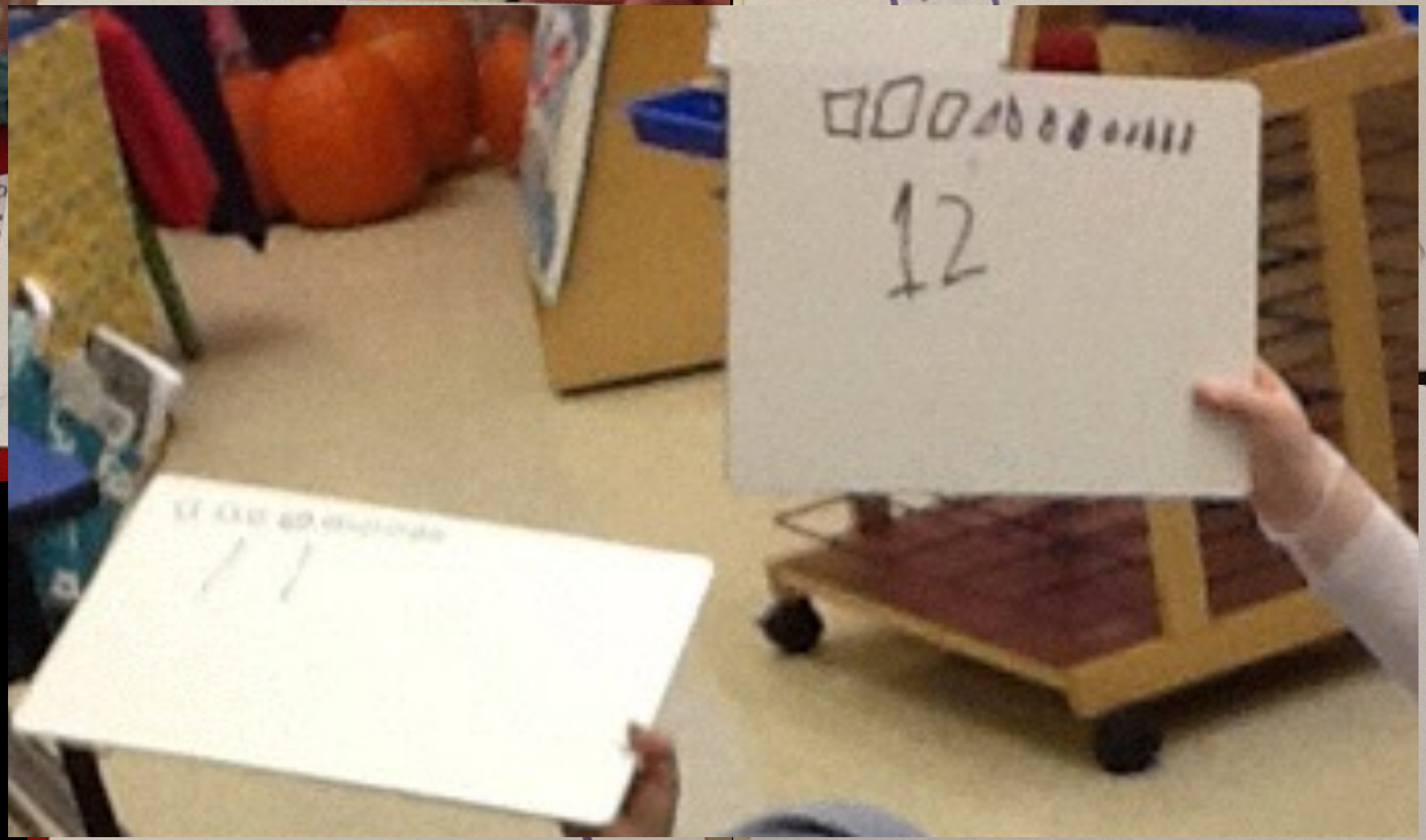
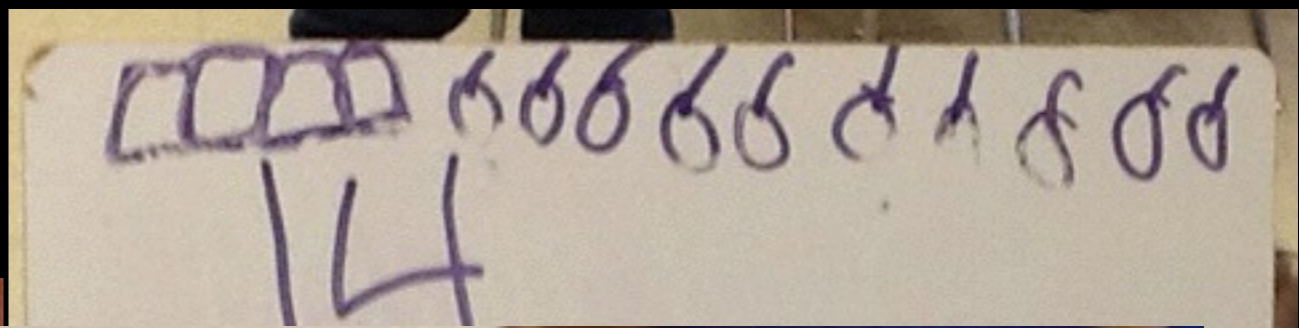




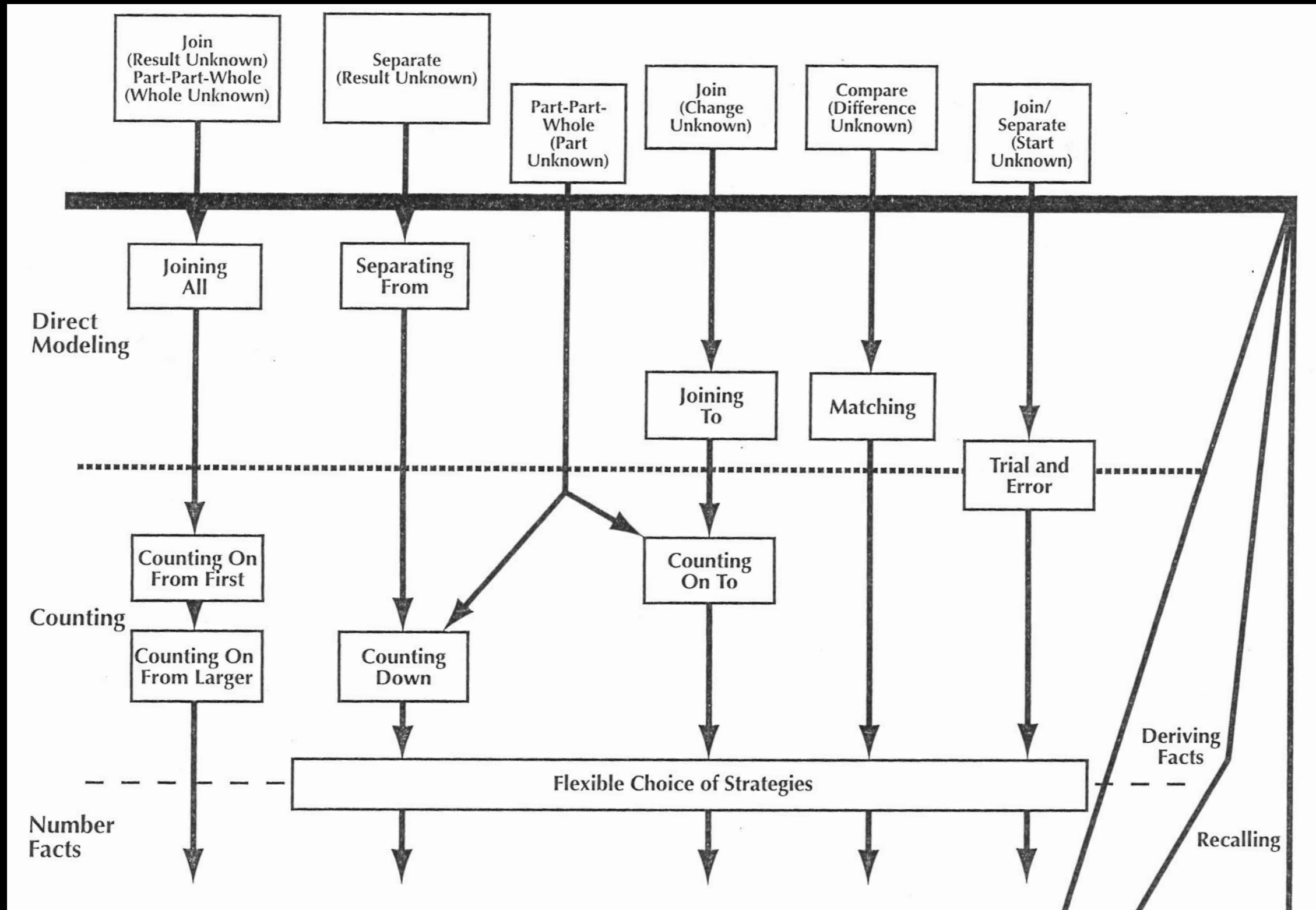
# Messy Problems



# Messy Problems



# Cognitively Guided Instruction



# General Principles

Play → Task → Strategy

Concrete → Pictorial → Abstract

# Resources

[Center for Mathematics and Science Education](#)

## Websites

Amidon Planet's [Common Core State Standards for Mathematics Resources](#)

[Common Core State Standards for Mathematics Progressions](#)

What does it look like: [Illustrative Mathematics](#), [Inside Mathematics](#), [Implementing the Practice Standards](#)

National Council of Teachers of Mathematics (NCTM) [Lesson Resources](#) and [Illuminations](#)

[Kahn Academy](#)

[Math Coach's Corner](#)

## Books

on Number Routines:

- [Number Sense Routines](#) by Jessica F. Shumway
- [High-Yield Routines for K-8](#) an NCTM publication, by Ann McCoy, Joann Barnett, and Emily Combs
- [Math Talk](#) by Char Forsten and Torri Richards
- [Math Sense](#) by Christine Moynihan
- [It Makes Sense! Using the Hundreds Chart to Build Number Sense](#) by Melissa Conklin and Stephanie Sheffield
- [It Makes Sense! Using Ten Frames to Build Number Sense](#) by Melissa Conklin

[Children's Mathematics: Cognitively Guided Instruction](#) by Carpenter, Fennema, Franke, Levi, and Empson

[The Creative Curriculum: Mathematics](#) by Copley, Jones, Dighe

[Teaching Problems and the Problems of Teaching](#) by Magdalene Lampert

[Smarter Together! Collaboration and Equity in the Elementary Math Classroom](#) an NCTM publication

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