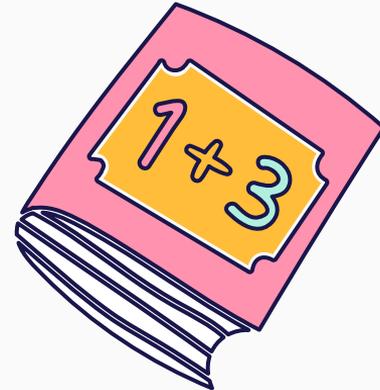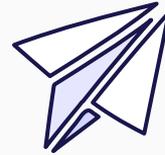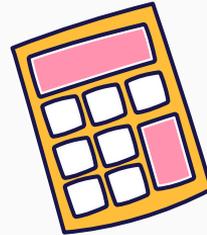# Eureka!

Student Success Multiplies Through Class Engagement!

By: Jacqulyn Schaefer

3RD GRADE

2 + 2

1 + 3

My Internship Placement

1 2 3

I was pleasured to be placed at Hughes Elementary School in Marshall, Michigan!

- Marshall is a beautiful urban town full of historical places to visit
    - Population just under 7,000 people
- Hughes Elementary is part of the Marshall Public School District

My mentor teacher was the wonderful Eva Price!

- We taught a class of 22 highly-educated third-graders
- I also taught in Deb Veale's Class occasionally
    - 21 third-grade students

My Situation and Question

Distracted Students

I found there was a lot of distractions when I was trying to teach students math. It was impossible to get through a problem set without someone getting bored and off-task
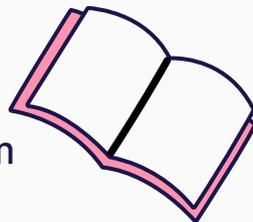
My Research Question

How can I help my students stay focused to complete 3 to 4 Eureka math problem set questions as a class?
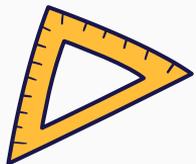
Let's Talk About These Math Lessons...

20 – 50 Minutes

Is the average time we spend doing 3 to 4 Problem Set questions for Eureka Math.

Off-Task Behavior

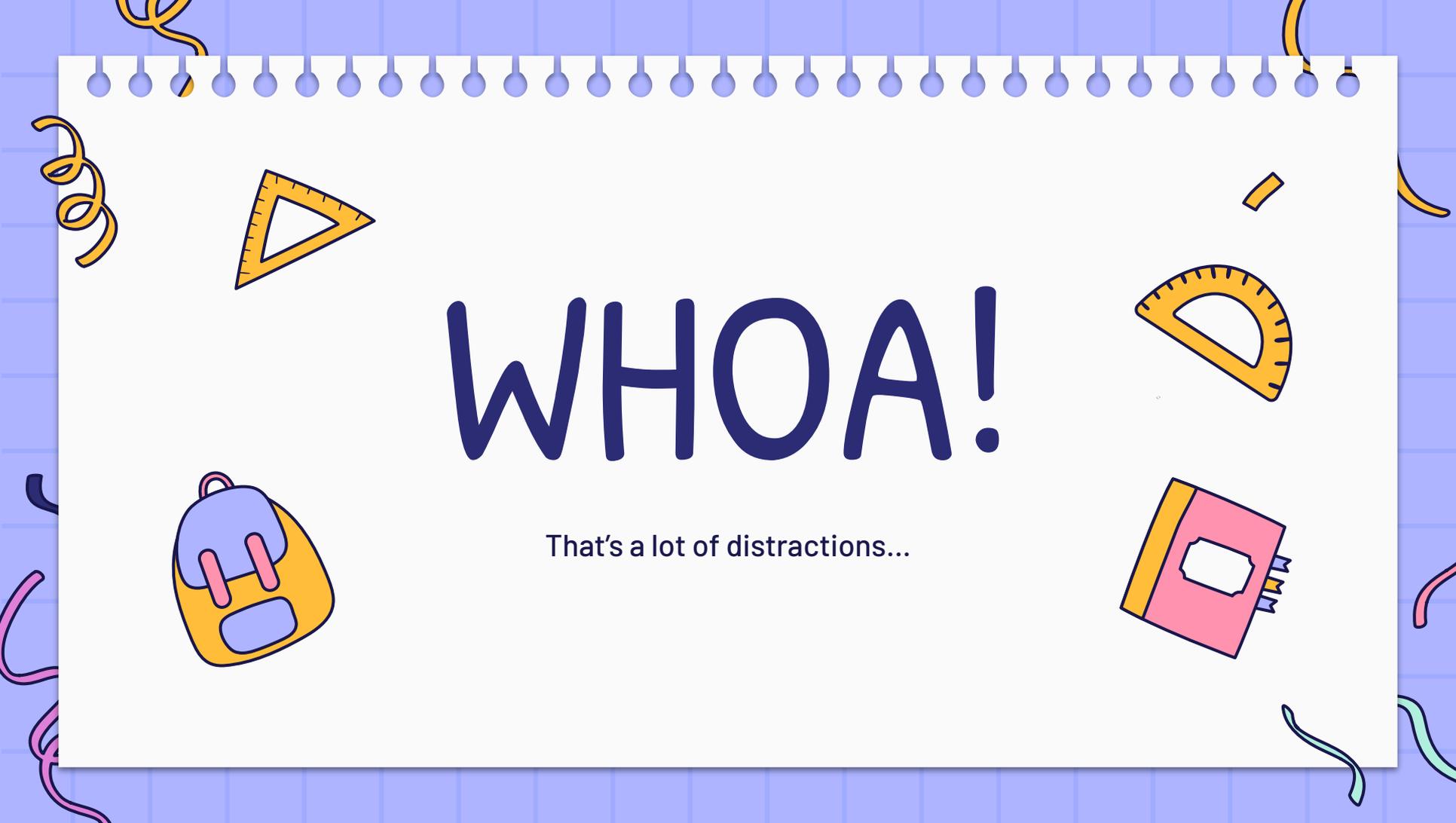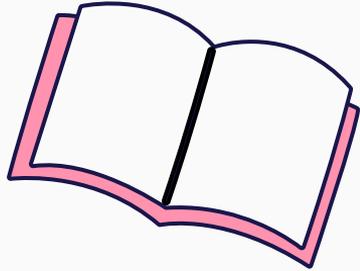For us it's usually talking to a friend, dancing, singing, or blurting unnecessary words.

About 71

Off-task behaviors during an average math lesson. Most of our off-task behavior is due to boredom.

WHOA!

That's a lot of distractions...

So, I asked my students...

What do you want me to do to help make math lessons more engaging? What can I do that would help you as a learner?
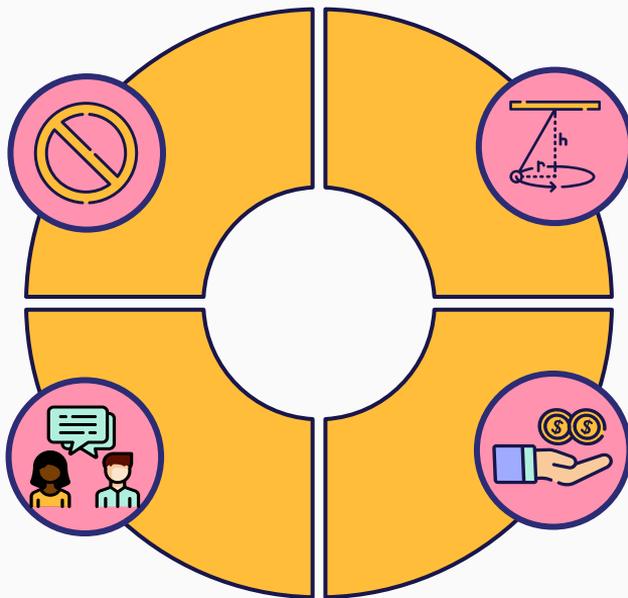
What Students Thought Would Help

NOTHING!
Satisfied with they way lessons were going

Working with Partners
They wanted to write their own response for the word problems to avoid "teacher speak"

Movement
Letting them move around in some way during the lesson

Hands-On
Using manipulatives or doing hands-on activities with the problem set
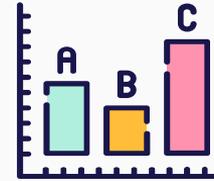
I Collected Data in 3 Ways

Off-Task Behavior

I recorded the lesson, then I counted every time there was an off-task behavior.

Exit Tickets

1 or 2 questions that students completed at the end of the lesson.

Student Reflection

At the end of each lesson I asked students to reflect on their engagement and enjoyment.

Math Survey

1. Circle one: How *engaged* were you in this math lesson?

    a. I was bored, and I don't feel like I learned.

    b. It was okay, I learned a little.

    c. I learned, but I got a little distracted

    d.   This was a fun lesson, and I learned a lot!

2. What did you like about this lesson? What changes would you make?
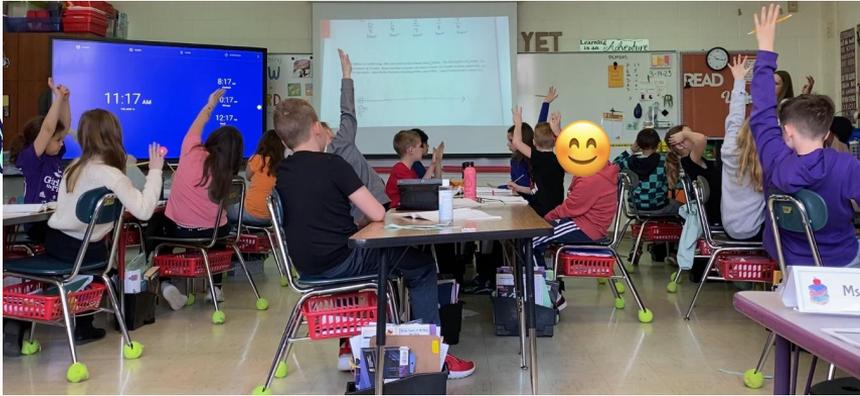
Baseline Observation

I usually do an interactive lecture where I help scaffold student answers:

- 20 minute lesson
- 71 Distractions
- Average 3.6 distractions per minute
- Average Exit-Ticket Grade: 69%

Student Reflection

Baseline Observations

Typical day is where I walk students through the first example, then ask pulling questions to encourage them to become independent

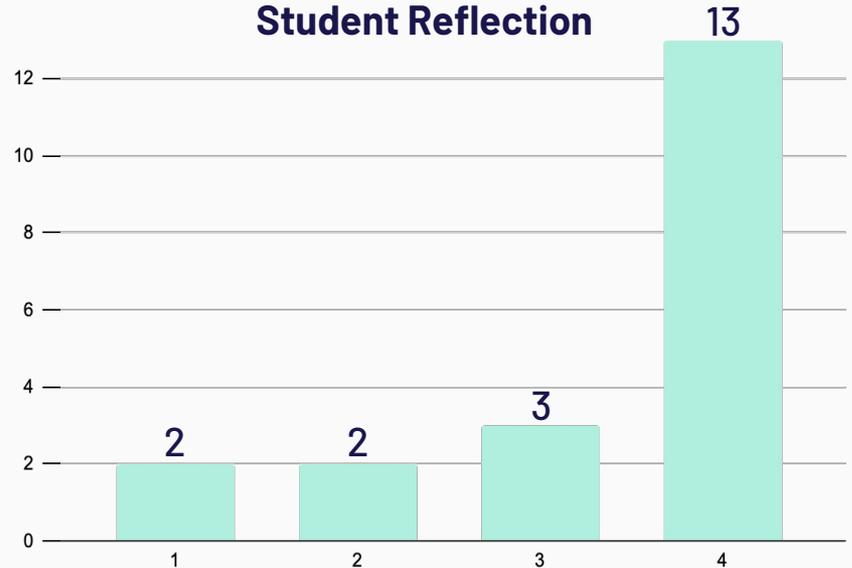Keep in mind this is the shortest lesson out of all the trials...

Trial 1: Partner Work!

I walk through the first question, then have the students work with partners for the rest:

- 51 minute lesson
- 33 Distractions
- Average .6 distractions per minute
  - That's a 83% decrease of off-task behavior!
- Average Exit-Ticket Grade: 94%
  - 25% grade jump from baseline!

Student Reflection

Partner Work Observations

Almost all conversations were on-topic with partners.
(Which was very impressive!)

This was the longest of all the trials and I felt students stayed focused during whole group discussion more than the baseline.
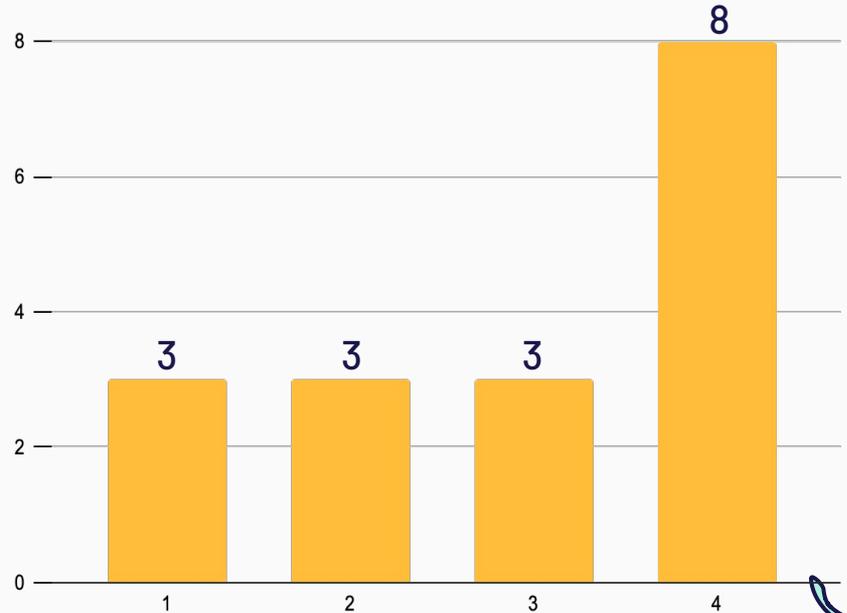
Trial 2: Hands-On

We used fraction strip manipulatives to experiment with equivalent fractions:
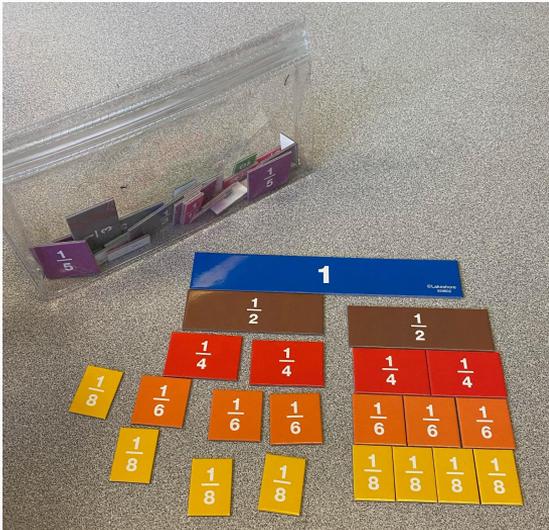
- 36 minute lesson
- 51 Distractions
- Average 1.4 distractions per minute
  - 61% decrease of off-task behavior
- Average Exit-Ticket Grade: 70%
  - 1% higher average than the baseline

Student Reflection

Hands-On Observations

In their reflections, some students noted the manipulatives didn't help.

Lots of off-task talking and/or dancing when I asked them to take out parts of their fraction strips from the bags.

Trial 3: Movement

We did a math competition where the class was randomly split into two teams:

- 38 minute lesson
- 45 Distractions
- Average 1.2 distractions per minute
  - 67% decrease of off-task behavior
- Average Exit-Ticket Grade: 80%
  - 11% higher average than the baseline

Student Reflection
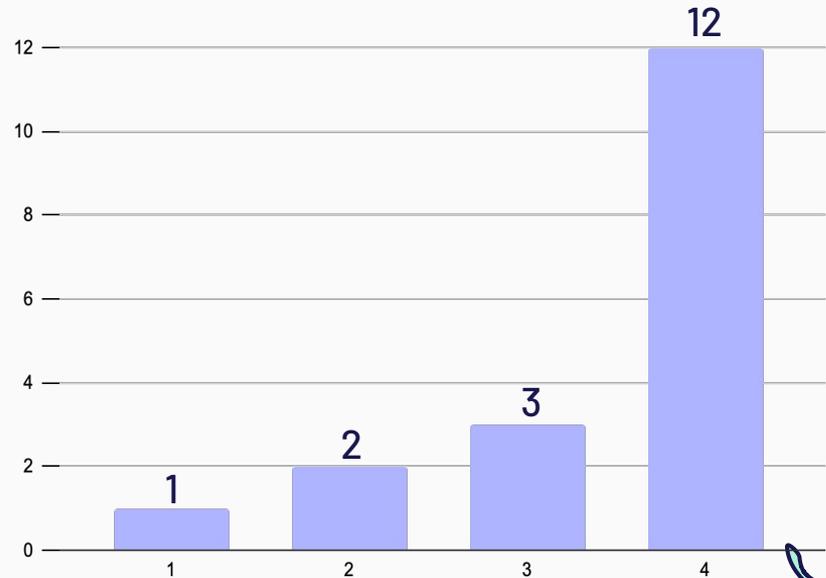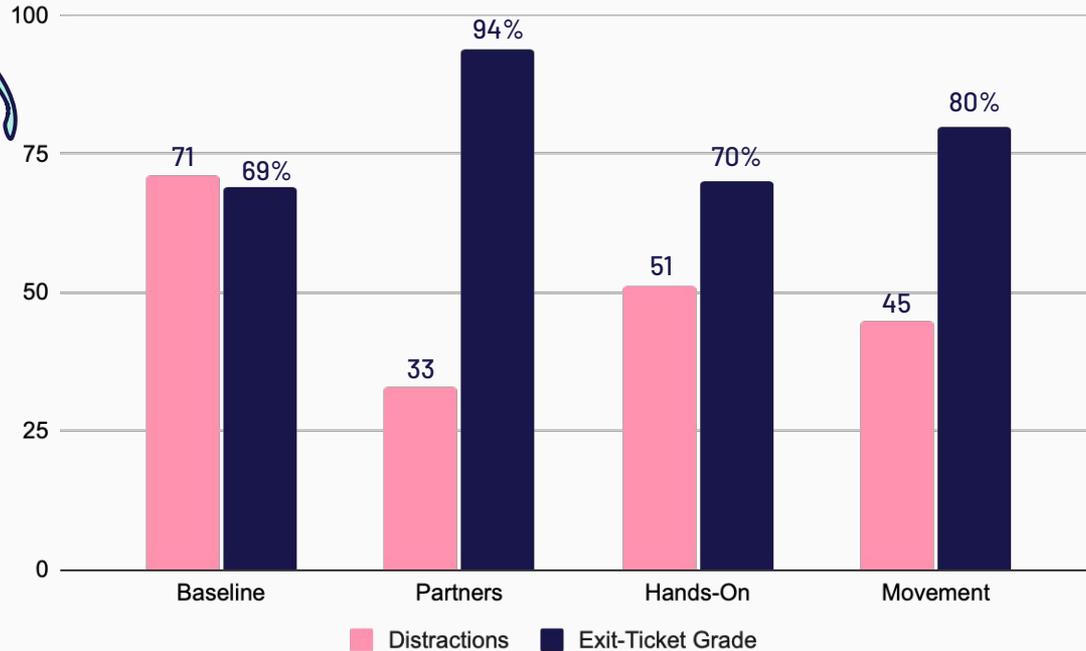
Movement Lesson Observations

The strong performers did well but the underperforming students continued to struggle as indicated by their exit tickets.

Trial with the most talking between students, but most were productive conversations.

Data Analysis

100

75

50

25

0

71 69%   94%   51 70%   45 80%
33

Baseline   Partners   Hands-On   Movement

■ Distractions ■ Exit-Ticket Grade

Best Exit-Ticket Grade

1. Trial 1: Partners
2. Trial 3: Movement
3. Trial 2: Hands-On
4. Baseline: Interactive Lecture

Least Distractions

1. Trial 1: Partners
2. Trial 3: Movement
3. Trial 2: Hands-On
4. Baseline: Interactive Lecture

The less distractions during the lesson, the higher the exit-ticket grade was!

Student Reflection Analysis

Student Engagement Findings

1. Trial 3 ranked highest, but only had second highest exit-ticket grade
2. Hands-On ranked lowest even though it had less distractions than the baseline

Overall, the 2 most engaging lessons (according to students), produced less distractions and higher exit-ticket grades than the baseline and hands-on lessons.
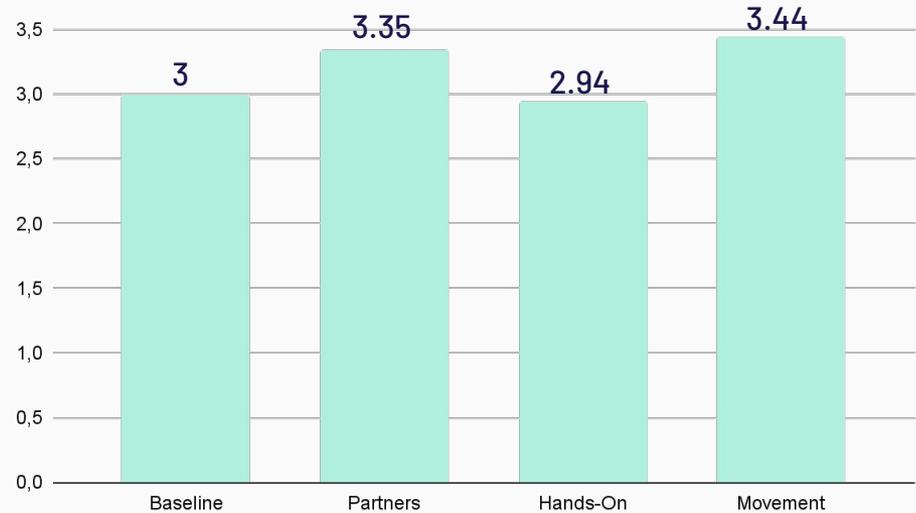

Average of student reflection scores (out of 4)

Baseline 3 · Partners 3.35 · Hands-On 2.94 · Movement 3.44 · Average Engagement

Overall Findings

These are the results for our 3rd grade class. All classes are different and have different needs and preferences for whole group instruction.

○ The two trials students claimed were least engaging (baseline and hands-on) produced the lowest exit-ticket grades and highest off-task behavior.

○ The students claimed to be most engaged during the two longest trials (partners and movement) which also had the least amount of distractions and highest exit-ticket grades.

○ Working with partners to complete the problem set resulted in the lowest amount of distractions and the highest exit-ticket grades!
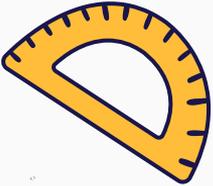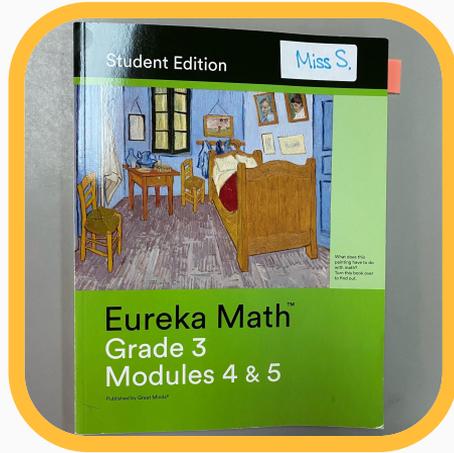
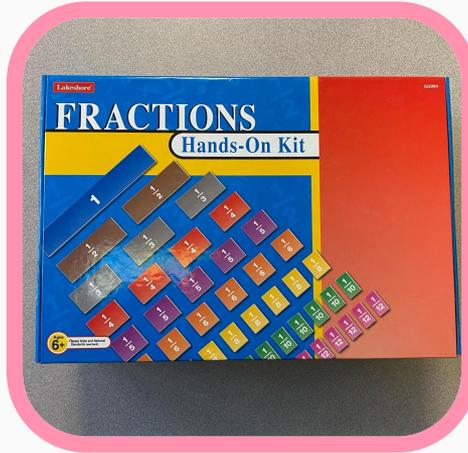**How can I help my students stay focused to complete 3 to 4 Eureka math problem set questions as a class?**
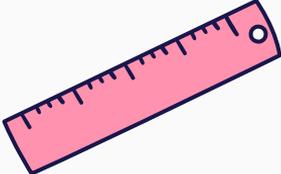
To help students stay engaged, I began allocating more time for partner work during our whole group instruction and have continued to see positive results!

Acknowledgements and Sources

Eureka Math Book

Problem sets used for the lessons.

Lakeshore Fraction Strips

Hands-on kit used in the second trial.

Prodigy Math

Supplemental supports for our math lessons.

HUGE Thank you to...

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Thanks for being here!

Do you have any questions?

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