

MATH & MOVEMENT INTERVENTION STUDY

2016

INTRODUCTION

Math & Movement is multi-sensory, kinesthetic approach to teaching and practicing math concepts that incorporates physical exercise, stretching, cross body movements, yoga and visually pleasing floor mats. It was originally designed for classroom use, however it has been adapted to fit into many different settings, including Physical Education, Special Education, as well as, in the Intervention Setting.

This manual is going to focus on using Math & Movement in the Intervention Setting with 3rd-5th Grade students to increase multiplication fluency and understanding the application of multiplication in various other math practices, such as word problems, division and fractions.

Intervention is designed for students who are not making adequate gains in the regular classroom setting. The Intervention teacher will use data to determine the students with the most need.

Intervention Study Details

During this study, 3rd and 5th Grade students from a Title One school were used (see school demographics). All students in the class were given a Universal Screening Math test. Students who scored in the bottom 20% were grouped for discussion. The Intervention team, which consisted of the Interventionist, the principal, and the classroom teacher determined the 5 students with the most need, who were not already receiving Math services from another teacher or special education department.

These students then met with the Math & Movement Interventionist daily for 30 minutes from Feb 1, 2016 to March 14, 2016. In total, the students met over a 7 week time frame for 26 total intervention sessions. **Please note there were exceptions to this schedule due to school calendar issues (school cancellation, regular school breaks.

Control Group

A control group was set up in a school with similar size and demographics. All students in 3rd and 5th grades were screened using the same Universal Screening Math test. Students in the Control group were chosen because they scored at the same or about the same level as the students in the Intervention Group. The Control group students were given the same pre-tests as the Intervention group and then tested 7 weeks later using the same tests as the Intervention Group. During this time, the students did not receive and Math & Movement Intervention.

Intervention Group Testing Details

Initial Pre-tests

- Students were given a timed (1 minute) mixed multiplication test.
- Students were given an EASY CBM (multiplication application) test with no time limit.

Week 1 (5 intervention sessions)

Pre-tests

- 2 tests mentioned above
- Timed 1 minute multiplication test of 4's

Post Tests

- Timed 1 minute multiplication test of 4's
- Easy CBM test II with no time limit

Week 2 (5 Sessions)

Pre-tests

- Timed 1 minute multiplication test of 6's

Post Tests

- Timed 1 minute multiplication test of 6's
- Easy CBM test III with no time limit

Week 3 (6 sessions)

Pre-tests

- Timed 1 minute multiplication test of 7's

Post Tests

- Timed 1 minute multiplication test of 7's
- Easy CBM test IV with no time limit

Week 4 (5 sessions)

Pre-Tests

- Timed 2 minute multiplication test of 9's.

Post Tests

- Timed 2 minute multiplication test of 9's
- Easy CBM test V with no time limit

Week 5 (5 sessions)

Pre-tests

- Timed 2 minute multiplication test of 8's.

Post Tests

- Timed 2 minute multiplication test of 8's

Final Post –Test

Post Tests

- Timed 1 minute mixed multiplication test.
- Easy CBM test VI with no time limit.

3rd Grade Intervention Daily Activities

Intervention Daily: 30 minutes

Grade Level: 3rd

Skill Focus: Multiplication Fluency

Choose one multiple per week.

Day 1 of that multiple: Pre- test with multiplication test of that multiple.

2 min 36 problem test

Application problem Test (Easy CBM)- over multiplication concepts: picture problems, skip counting problems, commutative property.

Day 1-

1)Pre test Multiplication and Application Problem Test 1 (10-12minutes)—Do this as soon as the class enters and BEFORE any activity for a true measure of what the brain is capable of before stimulation.

2)Active Math Movements for Specific Multiple (5-7) minutes

3 Whisper Loud Movements coupled with 3 Skip Counting Movements

3) Skip Counting mat- Jump 6 times through Specific Multiple Mat saying the Multiples (10 minutes)

Day 2- Upon entering class students immediately go the Skip Counting Mat and begin jumping.

- 1) Skip Counting Mat- 6 times each (5-7 minutes)
- 2) 5 Active Math Whisper/Loud Movements coupled with Skip Counting Active Math Movements (5-7 minutes)
- 3) Race to _____. Beanbag game—(see attached) (12-18 minutes)

Day 3- Upon entering class students immediately go the Skip Counting Mat and begin jumping.

- 1) Skip Counting Mat with Multiplication Signs- 6 times each
- 2) 2 Active Math Whisper/Loud Movements coupled with Skip Counting Active Math Movements
- 3) Group Work (each group does one station):
 - a. Group 1- Factor Fun Mat- solving Multiplication Problems
 - b. Group 2-Picture Problems (see attached)—Students must solve the problem and then jump the answers on the corresponding skip counting mat.

Day 4- Upon entering class students immediately go the Skip Counting Mat and begin jumping.

- 1) Skip Counting Mat with Multiplication Signs- 6 times each (7-9 minutes)
- 2) 2 Active Math Whisper/Loud Movements coupled with Skip Counting Active Math Movements (3-4 minutes)
- 3) Group Work (15-20 minutes): Groups complete station they did not do on Day 3.
 - a. Group 1- Factor Fun Mat- solving Multiplication Problems
 - b. Group 2-Picture Problems (see attached)—Students must solve the problem and then jump the answers on the corresponding skip counting mat.

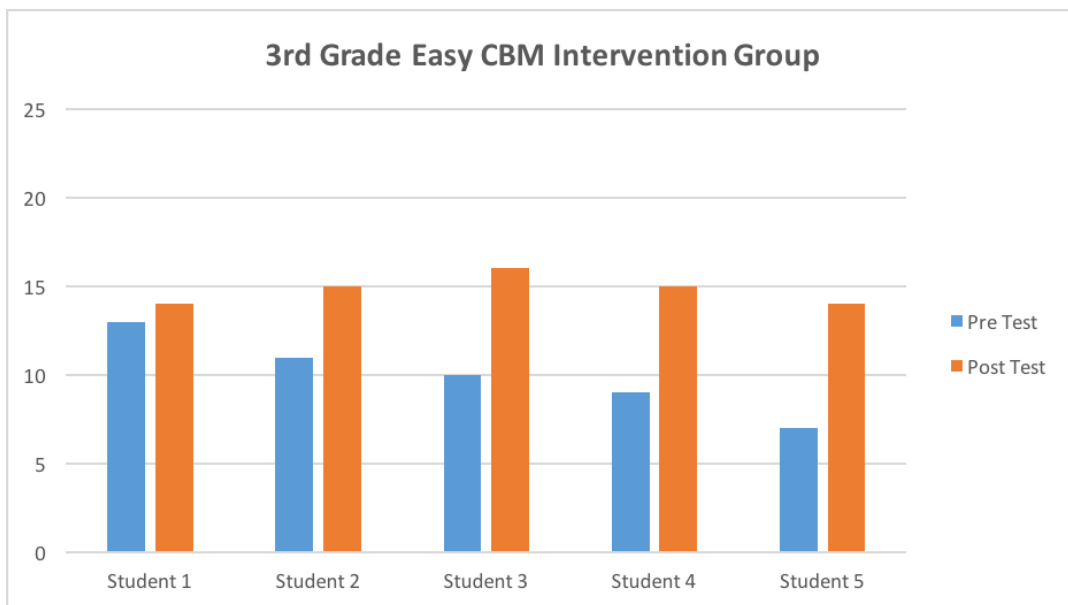
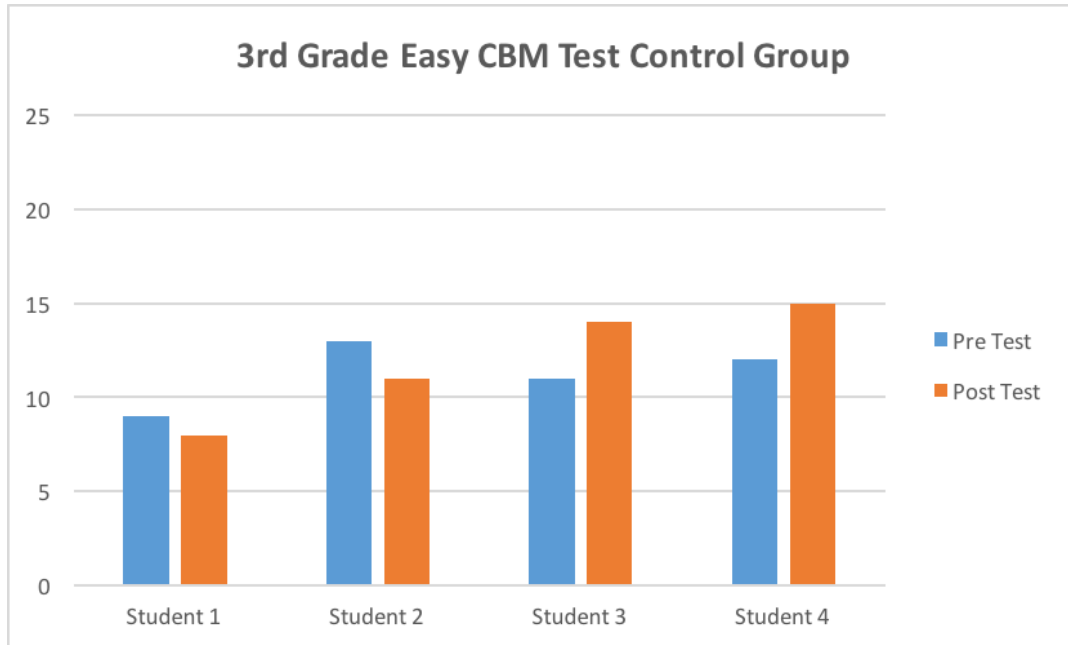
Day 5: Upon entering class students immediately go the Skip Counting Mat and begin jumping.

- 1) Skip Counting Mat with Multiplication Signs and going with a buddy (see attached).
- 2) 1 Active Math Whisper/Loud Movement and Skip Counting Movement.
- 3) Post Test- Multiplication Test and Easy CBM Application Test

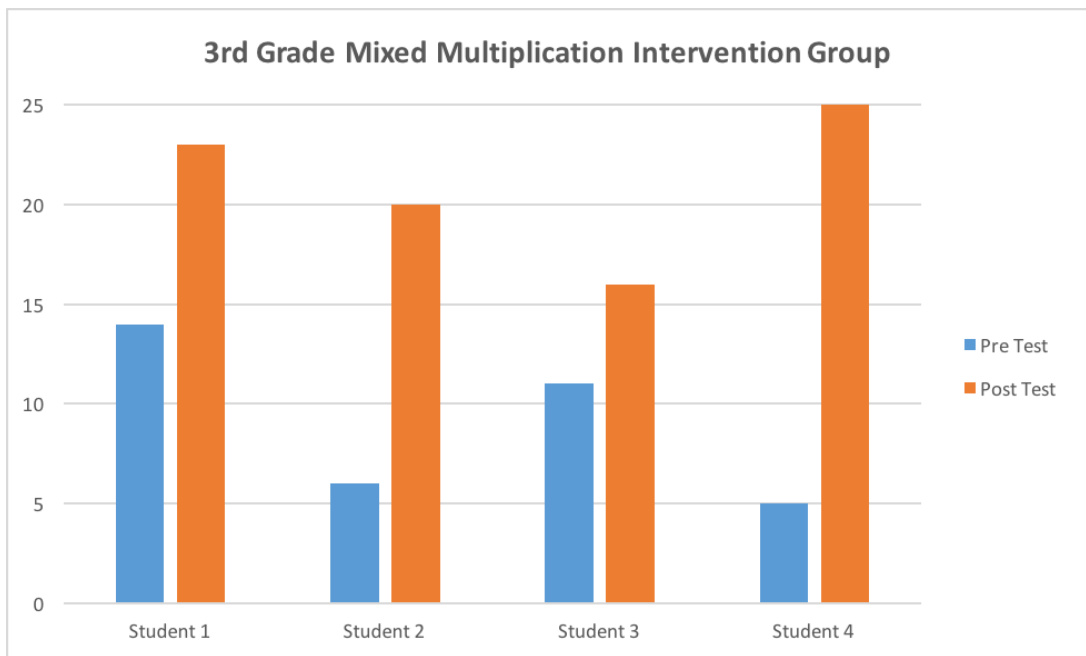
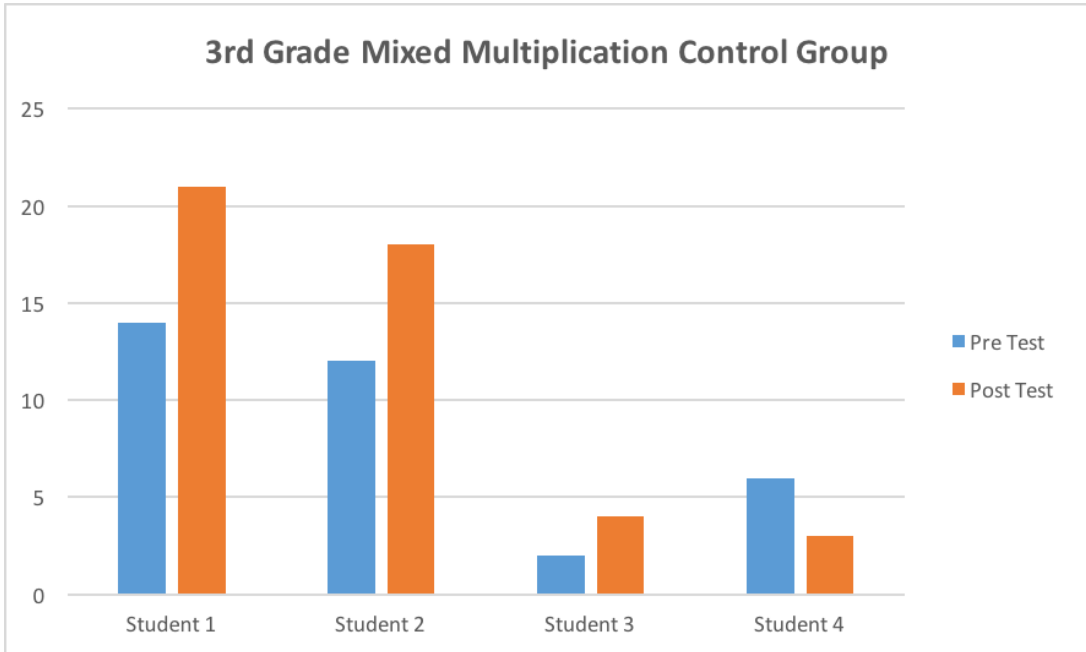
The process repeats again with a new multiple the next week, unless posttests do not show substantial growth.

MATH & MOVEMENT

3RD GRADE INTERVENTION STUDY RESULTS



7% increase in Control Group vs 48% increase in Intervention Group.



35% increase in Control Group vs 213% increase in Intervention Group.