



Brick Math: Teaching Math Using LEGO® Bricks

A. Overview of Resources

Brick Math provides a hands-on approach to help students learn the basics of the K-6 math curriculum by modeling with LEGO® bricks.

The materials included in Brick Math are:

- **Teacher Editions** (physical paperback books) in each content area
- **Student Editions** (physical paperback books) in each content area
- **Brick Sets** (250 bricks in a divided storage box with 2 baseplates) that are meant to be shared between 2 students

The eleven specific math subject areas include:

- **Counting and Cardinality**
- **Addition**
- **Subtraction**
- **Multiplication**
- **Division**
- **Basic Fractions**
- **Basic Measurement**
- **Fraction Multiplication**
- **Fraction Division**
- **Advanced Measurement and Geometry**
- **Decimals**

The subject areas typically correspond to the following grade levels:

- **Grades K – 2: Counting and Cardinality, Addition, and Subtraction**
- **Grades 3 – 4: Multiplication, Division, Basic Fractions, and Basic Measurement**
- **Grade 5 – 6: Fraction Multiplication, Fraction Division, Advanced Measurement and Geometry, and Decimals**

Brick Math provides a comprehensive K-6 math curriculum that covers the following key concepts:

Counting and Cardinality	
Pattern Recognition	Jump Numbers
Skip-Counting	More Than and Less Than
One-to-One Correspondence	Number Fluency

Addition	
Place Value	Adding Sets
Decomposing Numbers	Adding Within 20
Solving for Missing Terms	

Subtraction	
Meaning of <i>Minuend</i> , <i>Subtrahend</i> , and <i>Difference</i>	Subtracting Within 20
Decomposing Numbers	Solving for Missing Terms

Multiplication	
Repeated Addition	One-Digit Multiplication
Basic Multiplication Facts	Two-Digit and Larger Multiplication
Meaning of <i>Multiplicand</i> , <i>Multiplier</i> , <i>Factor</i> , and <i>Product</i>	

Division	
Equal Shares/ Partitive Division	Fact Families
Repeated Subtraction/Quotitive Division	Two-Digit and Larger Division
Meaning of <i>Divisor</i> , <i>Dividend</i> , and <i>Quotient</i>	Number Fluency

Basic Fractions	
Defining Wholes	Like and Unlike Denominators
Different Sized Wholes	Mixed Numbers
Adding and Subtracting Fractions	Equivalent Fractions
Meaning of <i>Numerator</i> and <i>Denominator</i>	

Basic Measurement	
Money and Time	Basic Perimeter
Customary Liquid Measures	Basic Area
Basic Metric Measures	Standard and Non-Standard Units

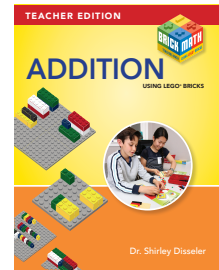
Fraction Multiplication	
Iteration	Multiplying a Fraction by a Whole Number
Area Models	Multiplying Mixed Fractions
Commutative Property of Multiplication with Fractions	

Fraction Division	
Dividing a Fraction by a Fraction	Dividing a Whole Number by a Fraction
Dividing a Mixed Number by a Fraction	

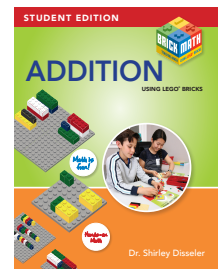
Advanced Measurement and Geometry	
Relationship Between Perimeter and Area	Decomposing Irregular Shapes to Find Area
Surface Area	Volume
Relationship Between Surface Area and Volume	

Decimals	
Place Value	Adding and Subtracting Decimals
Expanded Form	Multiplying and Dividing Decimals
Money Equivalents	Percentage and Fraction Equivalents

Teacher Editions are provided for each of the eleven content areas. These instructional guides break down each content area into learning modules and offer step-by-step lesson plans. The Teacher Editions include thoughtful introductions that set the content foundation, give insight into possible student misconceptions and considerations, and recommend important classroom management tips. One Teacher Edition per teacher is recommended for each content area of interest.



Student Editions are also provided for each of the eleven content areas. These engaging, research-based workbooks are scaffolding tools that lay out key content vocabulary and serve as a place for students to draw brick models, explain their mathematical thought processes in writing, and maintain a record of their growth and progress. Written assessments for each of the topics covered are also included in each book. One Student Edition per student is recommended for each content area of interest.



Brick Sets that contain 250 LEGO-compatible bricks, specially curated for the Brick Math program, are provided. Bricks are packaged in a divided plastic storage box that keeps bricks organized by size for ease of use. The brick set also includes two 6" x 6" baseplates, which are required for building brick models. Each brick set is designed to be shared between two students, facilitating student collaboration.

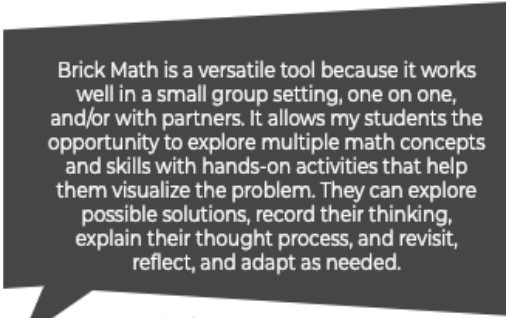


Standards Alignment:

Brick Math's research-based math lessons are designed to help introduce foundational concepts and build mastery through hands-on engagement. Brick Math is aligned to the [Principles, Standards and Expectations of the National Council of the Teachers of Mathematics](#) (NCTM). Brick Math units and lessons explicitly scaffold targeted mathematical understanding and content knowledge for students. Specific alignment to Common Core or State Standards is available for any and all of the eleven content areas.

Using Brick Math to Differentiate Instruction

Brick Math's interactive math lessons are designed for *all* learners, helping teachers scaffold and differentiate instruction in meaningful, engaging ways. Brick Math's implementation is versatile and can be utilized with a whole class, in centers, as a modeling strategy, with students one-on-one, in a small group, or as part of the RTI data collection process, making it an excellent tool for math intervention.



Brick Math is a versatile tool because it works well in a small group setting, one on one, and/or with partners. It allows my students the opportunity to explore multiple math concepts and skills with hands-on activities that help them visualize the problem. They can explore possible solutions, record their thinking, explain their thought process, and revisit, reflect, and adapt as needed.

Tonya Robbins, 3rd Grade Teacher
Reeds Elementary
Davidson County Schools, NC


Brick Math takes abstract math concepts and makes them more conceptual, accessible and concrete. By modeling with bricks, students are better able to grasp math concepts because they become more real life and, at the same time, they work to deepen mathematical understanding and correct misconceptions.

Those struggling with math concepts will benefit from the tactile and visual nature of the materials as the bricks themselves provide the opportunity for learners to actually *feel, manipulate, and see* math content. Additionally, each lesson includes vocabulary that could be highlighted in kinesthetic, auditory, and visual ways to reach English Language Learners and/or appeal to student's specific learning styles(s). For gifted students, or those who might need a chance to extend their learning, challenge problems are included.

Differentiation opportunities are plentiful and easy to access for both teachers and students, helping to increase learners' abilities to successfully engage with the content and materials.

Sample Lesson Plan and Assessment Chart

The following five pages (pp. 7 – 11) show a sample lesson from the Brick Math curriculum. The first three pages are from the Teacher Edition for Division and the next two pages are from the companion Student Edition for Division. Each Lesson Plan includes suggested bricks, student outcomes, a foundational statement with examples, and instructions for student work. Finally (page 12), there is a sample of a Student Assessment Chart, which is in the Appendix of each Teacher Edition. The sample chart shown is from the Basic Measurement book.



FINDING FACTORS

Students will learn/discover:

- What factors are
- How to find all the factors of numbers
- How to make models of factor families
- Vocabulary:
 - **Factors:** Factors are numbers you can multiply together to get another number. Example: 2 and 3 are factors of 6; 2 and 4 are factors of 8.

Why is this important?
 Students need to be able to identify all the factors of numbers before they can work on equivalent fractions, simplifying fractions, and addition or subtraction of unlike denominators. For example: adding and subtracting fractions with unlike denominators requires a common denominator. Finding a common denominator requires knowing factors.

Brick Math Student Edition:
 After students build their models, have them draw the models and explain their thinking in the Student Edition. Recording the models on paper after building with the LEGO® bricks helps to reinforce the concepts. Use the Assessment in the Student Edition to gauge student understanding of the content.

SUGGESTED BRICKS

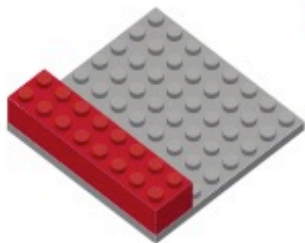
Size	Number
1x1	20
1x2	6-8
1x4	4-6
1x16	2
2x2	4-6
2x4	9-12
2x8	2

Note: Using a base plate will help keep the bricks in a uniform line. One base plate is suggested for these activities.

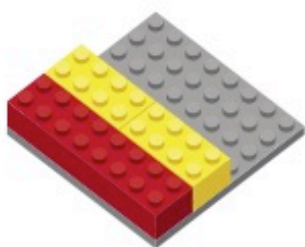
DR. SHIRLEY DISSELER | TEACHING DIVISION USING LEGO® BRICKS **13**



Part 1: Show Them How Model how to find all the factors of 16



1. Place a 2x8 brick or a 1x16 brick on a base plate.



2. Place two bricks that are the same and, when placed next to the 16-stud brick, are equivalent in size and show two halves of the 16-stud brick. Use two 2x4 bricks or two 1x8 bricks.

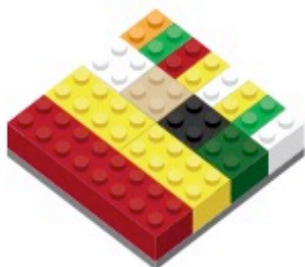
3. Ask students: Can you find three bricks of equal size equivalent to the size of the 16-stud brick?

Let students look and think, and discover that the answer is no.



4. Ask students: Can you find four bricks of equal size equivalent to the size of the 16-stud brick?

Let students look and think, and discover that the answer is four 2x2 bricks or four 1x4 bricks.



5. Ask students: Can you find the next number of equal-sized bricks that are equivalent to the size of the 16-stud brick?

Let students discover that five, six, and seven bricks don't work. Let them discover that the answer is eight 1x2 bricks.

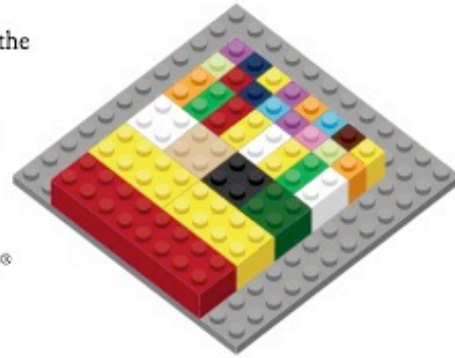


- 6.** Ask students: Can you find the next number of equal-sized bricks that are equivalent to the size of the 16-stud brick?

Let students discover that the answer is sixteen 1x1 bricks.

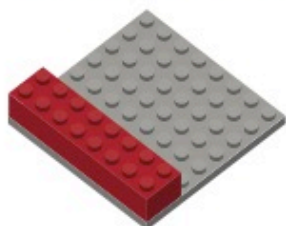
- 7.** Name all the factors of 16 by looking at the LEGO® bricks on the base plate.

(Answer: 16, 8, 4, 2, and 1.)





FINDING FACTORS



1. With bricks, build this model.

How many studs are on the brick? _____ What does the number of studs mean? _____

Locate two same-sized bricks that together are the same length and width as the 2x8 brick. Place them next to the 2x8 brick. Which bricks did you use? _____ How many bricks did you use? _____ What do these two bricks mean?

Write a division sentence for this model. _____

Explain your thinking.



Can you find three same-sized bricks that will fit into the model? _____

Find four same-sized bricks that will fit next to the model that together are the same length and width as the last bricks you added. Place them on your model next to the bricks. Which bricks did you use? _____ How many bricks did you use? _____

Write a division sentence for this problem. _____

Explain your thinking.

What other bricks work with this model? _____
Add those bricks to your model.


Write division sentences for these brick models. What do you notice about all the bricks on the base plate model?

Write all the division sentences for the 2×8 model.

What do all of these statements have in common? _____

What are the factors of 16? _____


As an engaging hands-on workbook-based solution, we provide a Student Assessment Chart in the Appendix of each Teacher Edition. This example highlights the specific Performance Skill covered in the Basic Measurement unit in a rubric format, enabling the teacher to quickly assess mastery and comment on engagement.




BASIC MEASUREMENT

Student Assessment Chart


Name _____



Not yet



With help



On target

Performance Skill	Not yet	With help	On target	Comments
I can identify standard units of measure (customary/metric).				
I can compare measures using different units.				
I can model coin values up to one dollar, using bricks.				
I can add coin values (pennies, nickels, dimes, and quarters) within one dollar.				
I can tell time to the nearest hour, half hour, and 5-minute intervals.				
I can determine elapsed time.				
I can determine the number of quarts, pints, and cups in a gallon.				
I can identify the units in the metric system.				
I can describe how the metric system is related to the base ten system.				
I can relate place value to reading decimal numbers.				
I can make basic conversions using the metric system.				
I can use a model to find the perimeter of rectangular shapes.				
I can use the mathematical formula for perimeter.				
I can use a model to find the area of rectangular shapes.				
I can use the mathematical formula for area.				

Professional Development

One full day of on-site Professional Development is suggested to implement the Brick Math program. This training focuses on an introduction to Brick Math and select lesson practice across three topics. In addition, the training will engage a full Build-Write-Draw sequence, modeling best practices.

Ongoing PD support throughout the year is also available. All PD is designed around specific grade level bands: K-2, and 3-5. The minimum number of attendees per session is 8; the maximum number of attendees per session is 30.

Dr. Shirley Disseler, Lead Brick Math Trainer, is Associate Professor at High Point University and the STEM Coordinator for the BA to MEd Program. She has over 25 years of educational experience, from elementary school teaching through higher education, including gifted education and exceptional students. Dr. Disseler is the author of the Brick Math series of books.



More information about Brick Math Professional Development can be found on our website at www.brickmathseries.com/pd.

Price List:

Brick Math can be purchased in several ways:

- A. **Quantity Purchases of Brick Math materials**
- B. **School Sets (materials only)**
- C. **School Sets bundled with Professional Development**
- D. **Professional Development purchased separately**

The program is modular, so you decide what works best for your school and your budget.

We are happy to provide a custom quote based on your specific needs.

We provide free shipping to schools within 5-10 business days and ship approved exchanges within 3-5 business days. Brick Math enforces a 90-day return policy with a pro-rated amount based on the use.

Individual pricing of Brick Math components:

Teacher Edition: \$14.95

Student Edition: \$9.95

Brick Set (shared between 2 students): \$60.00

A. Quantity Pricing (program materials only)

We provide a 5% discount on quantity purchases over \$5,000 and a 10% discount on quantity purchases over \$10,000. Note: These quantity discounts do not apply to School Sets (discounts are built in to those prices) or Professional Development.

Full catalog can be found at www.brickmathseries.com/products.html.

B. School Sets Pricing (program materials only)

Small Group Center-Based Set	
Teacher Editions:	3 Teacher Editions (1 each of 3 titles)
Student Editions:	24 Student Editions (8 each of 3 titles)
Brick Sets:	4 two-student brick sets
Cost:	\$450

Class Set	
Teacher Editions:	3 Teacher Editions (1 each of 3 titles)
Student Editions:	72 Student Editions (24 each of 3 titles)
Brick Sets:	12 two-student brick sets
Cost:	\$1,300

Whole School Set	
Teacher Editions:	18 Teacher Editions (3 of each of the 6 titles)
Student Editions:	450 Student Editions (75 of each of the 6 titles)
Brick Sets:	72 two-student brick sets
Cost:	\$8,000

C. School Sets Pricing (bundled with Professional Development)

Tier 1: Getting Started	
Description:	Use Brick Math across several classes for station rotations, or use as school-wide enrichment or remediation. <ul style="list-style-type: none"> • 6 Teacher Editions (2 books each for 3 titles) • 72 Student Editions (24 books each for 3 titles) • 48 two-student brick sets • 6 hours of Professional Development, held on one day
Cost:	\$5,000

Tier 2: Multiple Use	
Description:	Additional resources to use in multiple ways: place sets in classrooms, remediation labs, or enrichment centers. The wide variety of books and number of brick sets allows for greater flexibility in the use of the program. <ul style="list-style-type: none"> • 18 Teacher Editions (3 books each for 6 titles) • 144 Student Editions (24 books each for 6 titles) • 100 two-student brick sets • 12 hours of Professional Development, held on two days
Cost:	\$10,000

Tier 3: School-Wide Implementation	
Description:	Resources for full implementation across all classes. Professional Development sessions kick off the program, and additional quarterly Professional Development sessions are presented throughout the year to build teachers' fluency with Brick Math techniques. <ul style="list-style-type: none"> • 36 Teacher Editions (6 books each for 6 titles) • 288 Student Editions (48 books each for 6 titles) • 144 brick sets • Initial on-site PD, up to 6 hours for early grades and 6 hours for upper grades, plus quarterly PD throughout the year
Cost:	\$15,000

Professional Development Pricing (without program materials)

Professional Development: Full Day On-Site	
Description:	Introduction to Brick Math, select lesson practice across three topics. Full Build-Write-Draw sequence practice.
Cost:	\$1,200

Professional Development: Half Day On-Site	
Description:	Basics of using bricks in math, introduction to the program, strategies, and problem practice. Available only as optional add-on to full-day implementation training (back-to-back days only).
Cost:	\$600

Professional Development: Multiple Day Implementation	
Description:	In-depth lesson content training, including introduction to the program, brick basics, lesson-by-lesson training with Build-Write-Draw sequence. Includes one full day implementation training session, three full-day on-site quarterly check-ins during the year, with content at school or district's discretion.
Cost:	\$4,500

Custom quotes for Professional Development are available. Call Neil Raphel at 802-751-8802 or email at neil@brigantinemedia.com with any questions or clarifications about Brick Math pricing or implementation.

Additional Information

Flexible Implementation

Brick Math is a hands-on supplementary curriculum that can be implemented with our accompanying Brick Math Brick Sets or your existing classroom LEGO® bricks. Every chapter details the *Suggested Bricks* for those lessons and activities, and the *Total Brick Inventory* highlights the bricks needed for two students for the entire Brick Math program. We recommend that each student have a baseplate on which to build brick models to keep the models from shifting.

The Brick Math curriculum can be utilized 1:1, at centers, during interventions, in small groups, or for whole group lessons. In addition to print Teacher and Student Edition books, we offer engaging videos to support visual learning and aid in implementation on the Brick Math website at <https://www.brickmathseries.com/videos.html>.

With the ability to implement at the classroom, school, district and state level, Brick Math is flexible to meet schools' specific needs.

References

The following references highlight clients who have seen impact from Brick Math in their classrooms.

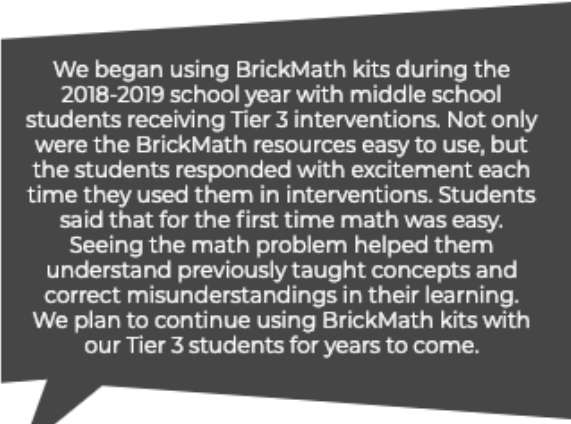
Spartanburg One School District	
Address:	121 Wheeler St. Campobello, SC 29322
Point of Contact:	Kelli Coons, Coach
E-Mail:	kelli.coons@spart1.org
Phone # and Fax #:	864-472-2846 (p) and 864-472-4118 (f)
Provided Brick Math middle grades math curriculum materials (Teacher Editions, Student Editions, and brick sets), supported by comprehensive on-site PD for the 2016-17 school year.	

Freehold Township School District	
Address:	384 W. Main St. Freehold, NJ 07728
Point of Contact:	Bradley Millaway, Principal
E-Mail:	bmillaway@freeholdtwp.k12.nj.us
Phone #:	732-431-5460
Provided complete Brick Math K-6 math curriculum materials (Teacher Editions, Student Editions, and brick sets), supported by comprehensive on-site PD for the 2017-18 school year.	

Davidson County Schools	
Address:	250 County School Rd. Lexington, NC 27292
Point of Contact:	Deana Coley, Assistant Superintendent of Curriculum & Instruction
E-Mail:	dcoley@ davidson.k12.nc.us
Phone # and Fax #:	336-249-1062 and 336-249-1062
Provided complete Brick Math K-6 math curriculum materials (Teacher Editions, Student Editions, and brick sets) for Davidson County schools. Professional Development was also provided, with two sessions at 6 hours each, plus quarterly on-site updates of PD throughout the 2018-19 school year.	

Research

Brick Math is a challenging, rigorous, and engaging way to motivate students to enjoy math and learn. Developed from theories of Constructionism and brain research, testing of Brick Math shows an average gain from pre- to post-test of 7-9 points versus traditional teaching methods. Our track record of supporting an increase in student academic performance is documented by the following research reflecting successful implementation resulting in student growth.



We began using BrickMath kits during the 2018-2019 school year with middle school students receiving Tier 3 interventions. Not only were the BrickMath resources easy to use, but the students responded with excitement each time they used them in interventions. Students said that for the first time math was easy. Seeing the math problem helped them understand previously taught concepts and correct misunderstandings in their learning. We plan to continue using BrickMath kits with our Tier 3 students for years to come.

**Crystal Sexton, Principal
South Davidson Middle School
Davidson County Schools, NC**

Study of Grades K - 2

A mixed-method study shows significant gains in test scores for math content in grades K - 2 after instruction using Brick Math. The findings from a study of 600 students in kindergarten, first grade, and second grade show that 398 of the 600 students, or 66.3%, made pre- to post-assessment gains of 4 or more points on a 10-point scale.

Participants:

This study was conducted in public and private school classrooms in New Jersey and North Carolina, in rural, suburban, and urban settings for 200 kindergarten, 200 first grade, and 200 second grade students. Schools participating included Joseph J. Catena School in Freehold, NJ, and schools in Davidson County, NC.

Implementation:

Each student was given ten problems to complete, in writing or orally, in the areas of counting and cardinality, addition, or subtraction prior to being taught with the Brick Math methods. The same problems were then used with the Brick Math program. Before starting Brick Math, students were asked questions about why they responded in certain ways to the problems to help the researcher identify misconceptions held by students about number sense and computational understanding. Once the problems were completed using the Brick Math methods, the problems were again scored on a scale of 1 - 10 (correct versus incorrect).

Students were then asked to discuss the meaning of the models with the researcher. Students were also encouraged to ask questions for clarity during the teaching process. The discussion of the models yielded some important information about how students learn and understand math. Students in kindergarten made comments such as: "Now I see why 8 is larger than 3," and "5 is between 3 and 8." Students learning about place value said, "Counting bricks in the tens and ones place helps me know what number goes in each place." A student further explained, "Two 1x2 bricks and four 1x1 bricks show that the tens place is 2 and the ones place is 4, and the whole number is 24."

Data and Findings:

The data was analyzed using a one-way ANOVA from SPSS, indicating that achievement was statistically significant across all three grade levels and all content materials. A Pearson correlation shows no significance between the performance of girls versus boys. This finding is interesting, in that many believe LEGO® bricks are preferred by boys. In this study, the girls did as well as the boys in achievement when using Brick Math. The variables measured in the study included: focus and body language when using Brick Math, verbal participation and questioning by the student, the degree to which students were able to make conceptual meanings in the models, performance pre- to post-test (before Brick Math instruction and after Brick Math instruction). It was interesting to note that the degree of focus was significant ($p = 0.03$) upon introduction of the bricks to do the math problems. The findings also suggest that both the level of performance and the degree of perseverance are directly related to the degree to which the student could focus ($p < .05$) in all correlations of these variables. The median pre- to post-test difference in the study across all groups was 4 with a range from 0 – 10.

Table 1 shows the means of pre- and post-test scores for each grade. The spread of the mean shows wide differences before and after the instruction in each of the three grades, with the largest difference found in grade 2.

TABLE 1:

Grade	Number	Pre-	Post-
K	200	3.45	7.28
1	200	3.92	7.64
2	200	3.60	8.03

Study of Grades 3-4-5

A mixed-method study showed significant gains in test scores for math content in fractions in grades 4 - 5 after instruction using Brick Math. The findings from a 2016 study of 309 students in fourth and fifth grades show average pre- to post-assessment gains of 7-9 points. Significance in areas of engagement and time on task as related to performance was noted across all students participating in the study ($p < 0.01$).

Participants:

This study was conducted in public and private school classrooms in North Carolina, in rural, suburban, and urban settings for 225 third and fourth grade students using Brick Math multiplication and division materials, and 309 fourth and fifth grade students using Brick Math fractions materials (N= 240 rural; N = 140 suburban; N = 154 urban). 100 students were instructed using the multiplication materials in grades 3 and 4; 125 were instructed using the division materials in grades 3 and 4; and 309 were instructed using the fractions materials in grades 4 and 5.

Data and Findings:

A one-way ANOVA was used to analyze the relationship between student focus/attention to content, engagement/on-task, confidence, and performance across all participants. These variables, when analyzed, showed significance between groups ($p < .01$). A two-tailed t-test was utilized to analyze the relationship between interest in learning mathematics, body language during the learning segment, and engagement of the students in grades 3-5. With equal variance assumed, data showed significance ($p < .01$), with the largest correlation being between engagement and interest in learning math.

Research About Hands-On Math

In addition to the studies presented, the following articles reference an extensive collection of research-based evidence that showcases how hands-on math instruction improves student engagement, scaffolds content learning, and differentiates learning.

[Back, Jenni. "Manipulatives in the Primary Classroom." NRIC \(October 2013\).](#)

[Boggan, Matthew, Sallie Harper, and Anna Whitmire. "Using Manipulatives to Teach Elementary Mathematics." *Journal of Instructional Pedagogies*, no. 3 \(June 2010\).](#)

[Carbonneau, Kira J., Scott C. Marley, and James P. Selig. "A Meta-analysis of the Efficacy of Teaching Mathematics with Concrete Manipulatives." *Journal of Educational Psychology*, 105 \(2013\): 380-400. doi: 10.1037/a0031084](#)

[Gaetano, Jaime. "The Effectiveness of Using Manipulatives to Teach Fractions." Rowan University *Theses and Dissertations Paper 495* \(May 2014\).](#)

[Moyer-Packenham, Patricia S. "Are We Having Fun Yet? How Teachers Use Manipulatives to Teach Mathematics." *Educational Studies in Mathematics*, 47 \(2001\): 175-197.](#)

[Puchner, Laurel, Ann Taylor, Barbara O'Donnell, and Kathleen Fick. "Teacher Learning and Mathematics Manipulatives: A Collective Case Study about Teacher Use of Manipulatives in Elementary and Middle School Mathematics Lessons." *School Science and Mathematics*, 108 \(November 2008\): 313-325. doi:10.1111/j.1949-8594.2008.tb17844.x](#)

[Raphael, Dennis and Merlin Wahlstrom. "The Influence of Instructional Aids on Mathematics Achievement." *Journal for Research in Mathematics Education*, 20 \(March 1989\): 173-190. doi:10.2307/749281](#)

[Schunk, Dale H., Paul R. Pintrich, and Judith L. Meece. *Motivation in Education: Theory, Research, and Applications*. Upper Saddle River, N. J.: Merrill Prentice Hall, 2008.](#)

[Skemp, Richard R. *The Psychology of Learning Mathematics*. Hillsdale, N. J.: Lawrence Erlbaum Associates, 1987.](#)

[Thompson, Greg. "Teaching the Brain to Learn." *THE Journal* \(June 2014\).](#)