



LEGO Math Activities

By Teri Ann Berg Olsen

www.LittleBrickSchoolhouse.com



The first educational manipulatives designed to suit a child's development were invented by Friedrich Fröbel (1782-1852), founder of the first kindergarten. "Fröbel blocks" were used to teach children mathematical concepts such as geometry, shape, color, number, structure and pattern through interaction with tactile objects.

This "hands on" learning approach has proven to be extremely effective. Today there are many types of manipulative materials on the market including colored tiles, pattern blocks, attribute shapes, counting bears, and snap cubes. These are readily available at teaching supply stores, but they can be rather expensive.

Have you ever noticed that LEGO bricks make excellent math manipulatives? It's likely that you already have plenty of these plastic building toys at home. What better way to construct the foundations of mathematical knowledge in your children! LEGO bricks are colorful and durable, they are useful for many different purposes, and children can enjoy some free play with the bricks in between lessons.

This booklet highlights a suggested order for introducing math concepts through twenty fun LEGO brick activities. It's just a small sample of early childhood activities that can be done with LEGO bricks. I'm working on an even longer e-book which hopefully will be finished soon. Please sign up for my mailing list at the above website to be notified when it is available. In the meantime, enjoy this booklet with my compliments. Remember, kids learn best while having fun!

Teri





1. Color

Have your child sort a bunch of bricks by color. Can he or she name all of the colors?



2. Shape

Show your child the difference between a square and a rectangle. The square brick has four equal sides. The rectangular brick has two sides that are longer than the other two sides. (You can stand it upright so that it is a tall rectangle or lay it down so that it is a short, wide rectangle.) How about circles or triangles? Do you have any LEGO pieces shaped like that?



3. Size

Ask children to sort bricks according to small, medium, and large. (This works even better if you have an assortment of LEGO, DUPLO, and MEGA Baby blocks.)




4. Classification

Have children classify bricks by placing all minifigures in one pile, headgear in another pile, bricks in a separate pile, and miscellaneous pieces in yet a different pile.



5. Matching

Trace around several bricks of different shapes and sizes, then let your child fit the actual bricks into the corresponding outlines.





6. Spatial Relationships

Demonstrate spatial relationships using a small and a large block (e.g., large block in front of the small block, small block on top of the large block, small block on the left, etc.) Ask your child to describe the placement of the blocks.



7. Sequencing

Have your child build a stack of bricks following a sequence that you give them such as “Put a red brick on the bottom, a yellow brick in the middle, and a blue brick on top.” Repeat with other color combinations followed by longer sequences (e.g. “Put two green bricks on the bottom, followed by four red bricks, then three blue bricks, and a white brick on top.”).




8. Patterning

Create several patterns with colored plastic bricks and ask the children to extend the patterns, copy the patterns, or create their own pattern. This can be done simply with stacks of bricks (e.g. alternating black, white, black, white, etc.) or more elaborately with rows of bricks arranged in a colorful mosaic design on a base plate.



9. Ordinal Numbers

Introduce the concept of ordinal numbers (i.e., first, second, and third). Place three different minifigures in a row, as if they are waiting in line. Ask your child which figure comes first, which figure comes second, and which figure comes third. Switch them around and repeat the questions.





10. Counting

Count from one to ten by building stacks of bricks according to the corresponding numbers; e.g. one brick in a stack, two bricks in a stack, three bricks in a stack, four bricks in a stack, and so on. Line up the stacks to show how they get progressively taller.



11. Number Recognition

Place sets of bricks on the table to show what a pile of three bricks, four bricks, five bricks, and so on looks like.



12. Addition and Subtraction

Practice adding and taking away bricks to work on addition and subtraction skills.




13. Word Problems

Make up some word problems to solve. (“If Peter has ten bricks and he lets Jon borrow one, how many bricks will Peter have left?” or “If Josh has six bricks and he finds two more bricks under the bed, how many bricks does he have now?”) Most children find such problems easier to figure out using visual aids.



14. Skip Counting

Stack bricks in sets of two. Practice counting them by two’s. Repeat with sets of five, then ten.





15. Quantity

Make two piles of bricks in which one pile has more bricks and the other pile contains less. Ask your child which pile has more and which has less. (For large differences, your child may be able to tell just by looking; otherwise, he or she will have to count the bricks.)



16. Estimating

Place a random number of bricks on the table. Have your children estimate how many bricks are in the pile without counting them. Then count the bricks and see who came closest. For a bigger challenge, fill a clear plastic jar with bricks and have the children estimate how many bricks are in the jar.




17. Fractions: Halves and Quarters

Stack four bricks together. Make sure they are all the same color so it looks like one solid piece. Show your child how you can break the bricks in half, making two equal parts of the whole. Then show how you can break each of those halves in half again, explaining how four quarters make a whole. Put them all back together again to make one whole piece.



18. Fractions: Thirds and Sixths

Stack six bricks together. Make sure they are all the same color and size so it looks like one solid piece. Divide the stack into three equal parts. Talk about how one of those parts is one of three, so it is called one third. Divide each of the thirds in half. Now we have six smaller pieces. Show how they all fit back together to make one whole piece.



19. Measuring

Build towers of different heights and measure how tall they are with a ruler or yardstick.

20. Scales and Weights

Let your children weigh and balance plastic bricks using a kitchen scale, postal scale, or balance.

Did You Know...?

LEGO building toys aren't just for imaginary adventures. These colorful plastic pieces hold virtually unlimited potential for hands-on learning. In fact, you can study just about every subject from math and science to history and literature using LEGO elements. LEGO bricks may be used in all grade levels, from preschool to high school. For more examples of educational activities that utilize interlocking plastic bricks, please see www.LittleBrickSchoolhouse.com.

About the Author

Teri Ann Berg Olsen is a wife, mother, home educator, and author of *Learning for Life: Educational Words of Wisdom*. Visit her website at www.KnowledgeHouse.info for information, ideas, and inspiration.



Little Brick Schoolhouse

Building foundations for learning... brick by brick.

"For brick must be upon brick, row upon row; here a little, and there a little."
