A Box Full of Math

It's a shoebox…wait, it's a math kit! Your youngster can explore numbers, measurement, and shapes by making and using these fun-filled boxes. Help him collect the materials listed and put them into shoeboxes for games and activities that he'll enjoy at home or on the go.

Counting

1-2-3

Materials: *playing cards (ace = 1, face cards removed), small bouncing ball*

Stack the cards facedown. One player secretly draws a card and bounces a ball the number of times shown (draw a 9, and bounce the ball 9 times).

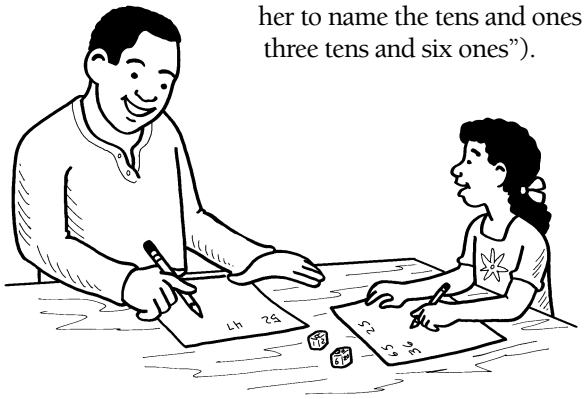
The other player listens carefully and counts the bounces. If he announces the right number, he takes the card, and it's his turn to draw a new card. If not, the bouncer keeps the card and gets another turn. The first player to collect 10 cards wins.

Ones and tens

Materials: *2 dice, masking tape, pencil, paper*

Put a square of masking tape on each side of the dice. Number the faces of one die 1–6. On the other die, write 10, 20, 30, 40, 50, and 60.

Have your child roll both dice and use them to write a two-digit number. For example, if she rolls a 30 and a 6, she would write 36. The tens digit represents how many groups of 10 there are—3 groups of 10 = 30. The second number, 6, represents ones. After she writes each number, ask her to name the tens and ones ("36 has three tens and six ones").



Addition

Six in a row

Materials: *paper, pencil, 2 dice, crayons*

Draw a grid with six rows and six columns. Randomly write the numbers 2–12 in the boxes three times each, one number per box. Include three "free spaces" so every square is full.

To play, your youngster rolls two dice and adds the numbers (say, 2 + 3). Then, she colors in one box with the answer (5). Keep rolling and coloring—the goal is to color six squares in a row, either vertically, horizontally, or diagonally. Encourage her to think strategically—she should color in the boxes that will help her get six in a row the fastest.

Domino dots

Materials: *dominoes, index cards, pencil*

Help your child number the index cards, 1–12. One player picks a card and says the number shown. Then, he pulls out dominoes until he finds one whose two halves add up to that number.

For instance, if he drew a 7, he'd need a domino with 3 and 4 dots, 2 and 5 dots, or 1 and 6 dots. He keeps drawing until he gets a correct combination and says the number sentence (3 + 4 = 7). He should lay that domino on the card and return the extra dominoes to the shoebox. Now it's the next player's turn. Who can make the most matches?

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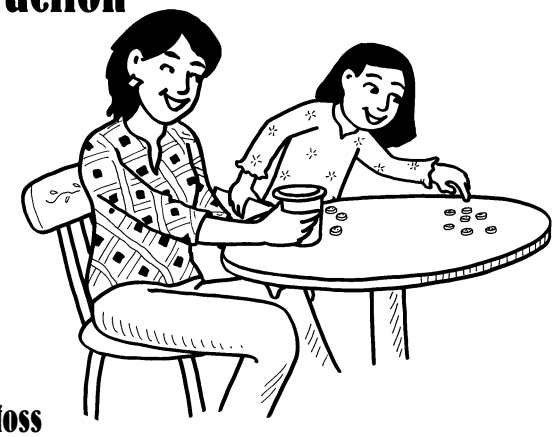
Subtraction



Button toss

Materials: *plastic cup, 10 buttons, paper, pencil*

Have your youngster sit on one side of a table, and place the cup on the other side. Tell her to try to throw 10 buttons, one at a time, into the cup. Once she has attempted all 10, she looks at the result and writes a subtraction sentence to figure out how many successful shots she made.

For instance, if there are 3 buttons outside the cup, she would write "10 – 3 = 7" to show that 7 buttons landed in the cup. Now she can dump out the buttons and count them to check her answer.

Heads or tails

Materials: *12 pennies*

Let your child toss a dozen pennies in the air, one at a time. Encourage him to count the number of heads and the number of tails that land facing up (*example:* 7 heads, 5 tails).

His first job is to figure out whether there are more heads or tails. Then, you can ask, "How many more are there?" To answer that question, he'll need to subtract the smaller amount from the larger one (7 – 5 = 2). His answer tells him there are 2 more heads than tails.

Measurement

Balancing act

Materials: *ruler, 2 sandwich bags, tape, marbles, a variety of small objects (crayon, toy car, notepad)*

Your youngster can make a balance scale by taping the center of one open sandwich bag to each end of the ruler. Help her balance the center of the ruler on the arm of a chair.

To weigh objects, she should hold down the middle of the ruler with her finger and put a small item in one bag. Then, she can add one marble at a time to the other bag until the ruler balances and she's able to let go. Ask her to tell you how many marbles the item weighs. ("A toy car weighs about 7 marbles.")

What's the length?

Materials: *index cards, crayons, string, scissors*

On separate index cards, ask your child to draw objects to measure (couch, magazine, board game). Then, he takes out a card, finds the item, and cuts a piece of string that he thinks is about the same length.

He can use the string to test his guess. If it's too long, he could cut it again. If it's too short, have him cut a second piece of string and try again. Suggest that he keep the string pieces in his box to pull out later—he can estimate other objects that might match those lengths.

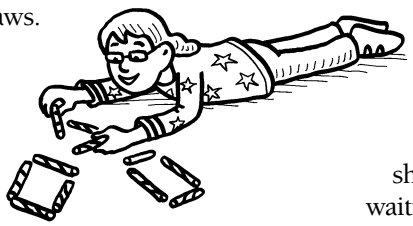
Geometry

Mix and match

Materials: *drinking straws cut into 1-inch, 2-inch, and 3-inch pieces*

How can your youngster make squares, triangles, and rectangles out of straws?

Using the pieces in her shoebox, she might form an equal-sided triangle out of three 3-inch straws. Or she can make a triangle that does not have equal sides with two 3-inch pieces and one 1-inch piece. After she creates each shape, have her name the shape and count its vertices (corners) and sides. She could say, "A square has four sides and four vertices."



Shape hunt

Materials: *solid shapes from around the house—cube (die), sphere (Ping-Pong ball), cone (funnel), cylinder (marker), rectangular prism (the shoebox); index cards; crayons*

Ask your child to look for solid shapes that match the ones in his box—and the box itself!

For instance, he might see a crayon box that's a rectangular prism. When he finds a solid shape, he can draw and label it on an index card and keep the picture in his shoebox. Let him tell you how many faces (flat sides) and vertices each item has. ("The crayon box has six faces and eight vertices.") *Idea:* He could look for solid shapes when he's out and about—perhaps in a waiting room or at the post office.

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