

THE BUILDING BLOCKS OF MATH

By Marilyn Burns

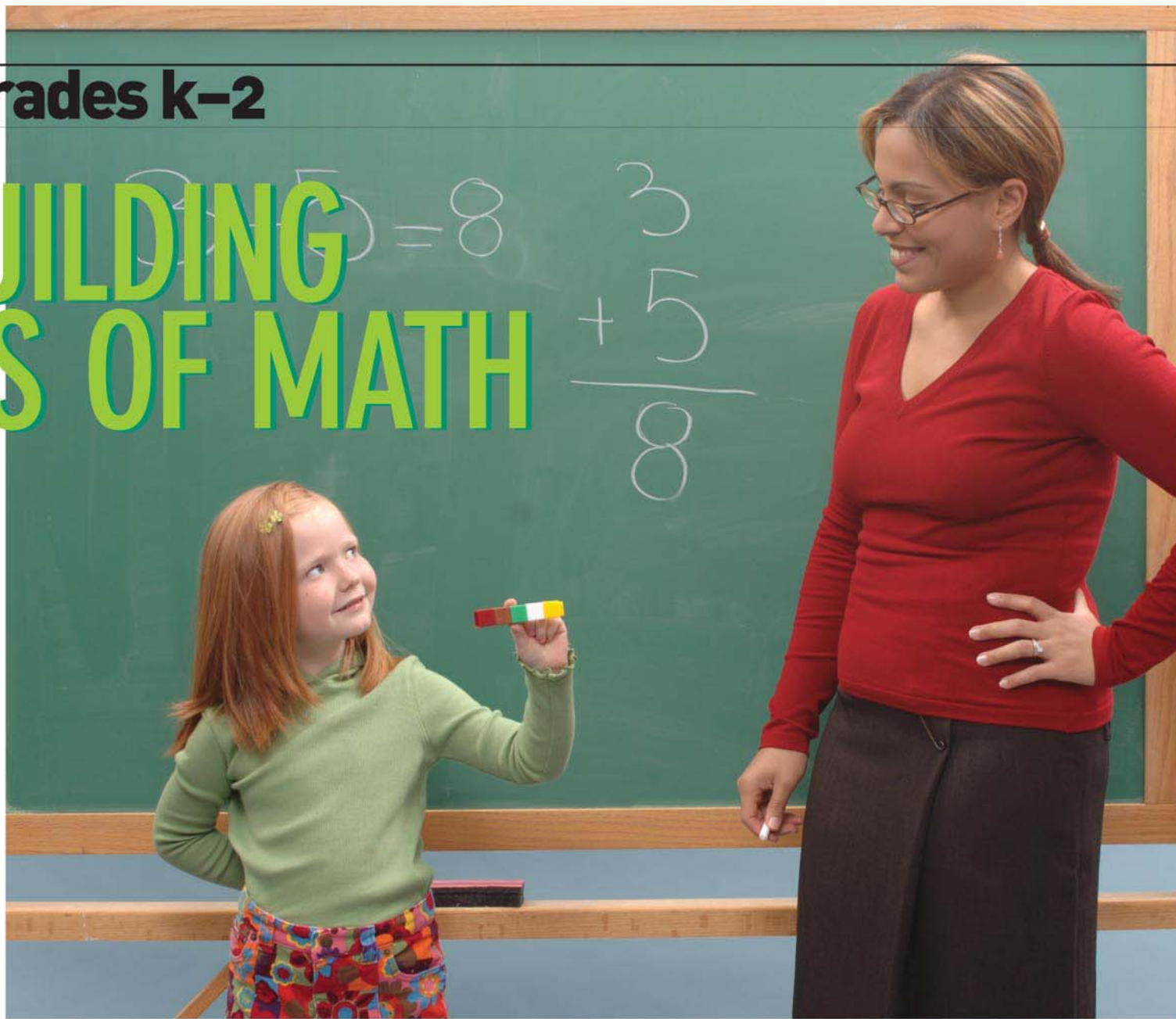
My favorite ways to teach addition and subtraction in the early grades.

One of the most important jobs of an early primary teacher is to develop students' abilities to add and subtract and encourage them to use a variety of strategies to do so. It's good to have a repertoire of lesson ideas since you never know what will resonate with one child and not with another.

Below are some of my favorite addition and subtraction activities. A few common features stand out, which may be useful to keep in mind when planning your own lessons. First, these ideas give children experience joining and separating quantities. Second, they use concrete materials, giving children a way to figure and verify solutions. Finally, they involve a step in which you record problems numerically, modeling for children how to connect their thinking to mathematical notation, thus preparing them for recording on their own.

ACTIVITY #1: THE GAME OF SNAP

"Snap" is easy to teach, engaging for children, and effective for developing familiarity with breaking numbers into two addends. First I give each child the same number of interlocking cubes—say eight—and ask students to connect the cubes into a train. When I say, "snap!" the children each break their train into two parts and hold one part in each hand



behind their backs. Then, one by one, I ask them to show the cubes first in one hand and then in the other while the rest of the class says the combination; for example, "three plus five." I record the problem two ways to familiarize children with both representations:

$$\begin{array}{r} 3 + 5 = 8 \\ 3 \\ + 5 \\ \hline 8 \end{array}$$

Later, I have children show only one hand and give the others the chance to predict how many cubes are in the other.

ACTIVITY #2: CLASSROOM ROUTINES

Everyday routines provide real-world problems for adding and subtracting.

For example, you might ask children for their help in taking attendance by each morning having them move tongue depressors with their names written on them from a basket to an "I am here" can. You can call the names of the children whose depressors are still in the basket to check that no child has forgotten. Then, invite children to use the information about how many children are absent to figure how many are present. They can check their answer by counting the depressors in the can.

ACTIVITY #3: STORY PROBLEMS

Acting out story problems encourages children to interpret the actions that relate to addition and subtraction and

frogs equals five frogs. Three plus two equals five." Rather than have children act out the parts, you can also give each child counters to represent the people, animals, or objects on a storyboard.

ACTIVITY #4: INDEPENDENT IDEAS

It's beneficial to provide children independent experiences with addition and subtraction. Introduce these activities to the whole class and then have children do them on their own.

For a subtraction activity for partners, teach "Grab Bag." Each pair will need a small paper lunch bag and some cubes. (Four or five cubes will be suitable for some; others may be ready for ten cubes.) One child reaches in, takes out some of the cubes, and shows them so both can count them. They each predict how many cubes they think are left in the bag. Then they check their predictions. If appropriate, each records an addition and a subtraction equation to represent what happened. Then they return the cubes to the bag. The children take turns removing cubes.

"Roll and Add" is an individual activity. Have the child roll two 1-6 number cubes, figure the sum of the two numbers that come up, and on a worksheet with 2 through 12 across top record the addition expression underneath its sum, continuing until one column is completely filled in. To differentiate this activity, give children who need more support cubes with dots on each face instead of numbers, or use one cube with numbers and one with dots to encourage children to count on. For example, if 4 comes up on the number cube and three dots on the dots: "Four . . . five, six, seven." Give more able students a 1-6 cube and a 5-10 cube.

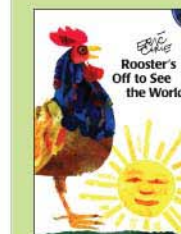
The key to all these activities is encouraging children to think on their own, providing them with ways to verify their solutions, and helping them make the connection to standard mathematical notation.

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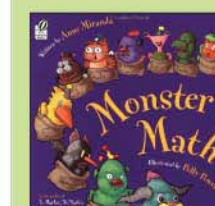
Story Books That Can Help

Children's literature provides valuable resources for addition and subtraction lessons. Here are three books I've used and ideas to help get you started. Have a different title you like to use? E-mail instructor@scholastic.com.



ROOSTER'S OFF TO SEE THE WORLD

By Eric Carle (Aladdin, 1972) When Rooster sets off on his journey, other animals join him along the way. But when darkness arrives, they realize they should go back home. After reading the story aloud, reread it, this time asking the class how many animals join—or leave—the rooster each time you turn the page.



MONSTER MATH

By Grace Maccarone (Cartwheel, 1995) This counting-back book begins with twelve silly monsters waking up in two rows of beds. When you read, put out 12 counters to represent the monsters and remove one counter each time a monster jogs, sneaks, runs, or strolls away.



TEN FLASHING FIREFLIES

By Philemon Sturges (North-South, 1995) Give each child 10 cubes and a worksheet with a jar drawn on one half. As you read this story about collecting fireflies, kids move the cubes to the jar and back again.