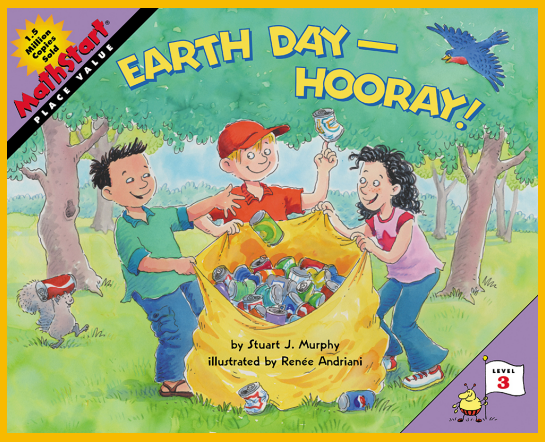

Stuart J. Murphy's

MathStart®

Understanding place value is key to working easily with large numbers

Members of Maple Street Save-the-Planet Club are cleaning up Gilroy Park when Ryan has a brainstorm: Instead of throwing aluminum cans in the garbage, why not bring them to the Recycling Center and use the money to buy flowers to decorate the park for Earth Day? Mrs.Watson, the club's advisor, figures out that they're going to need 5,000 cans, so the kids start a big collection campaign at school. Cans are grouped in bags of 10, 100 and 1,000. Recycling facts are sprinkled throughout. Illustrated by Renee Andriani.

Level I Activities (Pre-K):

Young children will enjoy having the story read to them, and may even learn a little about Place Value, but the skills emphasized in the Activities below are geared more for their age group: Counting, Sorting and Counting On.

- Read the story together with your child and talk about each illustration with bags. How many yellow bags are there? How many red bags? How many blue bags? How many single cans?

- Start a can recycle program at home or at preschool. When there are between 20 and 30 cans, play a sorting game, arranging the cans by color. (Only adults handle the cans!) Talk about shape of a can. Who can find a circle? Count the cans together. Is there an even number of cans or an odd number? How do you know?

- Counting On Cans: Using small construction paper rectangles to represent cans, place 3 “cans” on the table. Together count them. Now add one more, counting on as you go (“3 plus 1 = 4”). Now add 2 more to that (“5, 6”). Now try 3 more! How high can you go?

The following activities are based on grouping skills that help to develop an understanding of place value.

Level 2 Activities (~ Grades K and 1)

- Read the story together with your child and talk about grouping. Now play a little grouping game. Using buttons, small straws, pennies or any small objects that can be easily handled, ask your child to create groups of 10 objects each. When you have 10 groups, combine them, explaining that 10 groups of 10 equals 100.

- Start a recycle program at home or in your classroom. Keep a running tally each day of the number of newspapers, or cans or plastic bottles added to the recycle bin each day using tally marks. (Four straight lines plus one diagonal line running through the other four equals one tally bundle. It's a little like four fingers and a thumb! For more on tallying, see Tally O'Malley). Explain how 2 tally groups equal 10. Arrange the tally bundles in groups of 2 and when you have 10 groups of 2 bundles each, explain that equals 100.

- As you read the story together, look at the illustrations of the bundles. For example, on the day the kids collect 359 cans, they use 3 bags of 100 and 5 bags of 10, but there are 9 single cans. How many more single cans are needed to make another bag of 10? How many more bags of 10 are needed for another bag of 100?

Level 3 Activities (~ Grades 2 and 3)

- As you read the story together with your child, point out how the cans are bundled together in groups of 10s, 100s and 1000s. Discuss how 10 ones equal one "10," ten 10s equal 100, and ten 100s equal 1000. How many would ten 1000's be?

- Retell the story, making up different amounts of can collected. For example, tell your child that 5 bags of 100, 6 bags of 10 and 3 single cans were collected. How many cans is that? Write out the number. Then keep going until the total is over 5,000. At the end of the story, figure out how many bags of 1000, how many bags of 100 and how many bags of 10 were needed.

- Play the Paper Plate Game!: Write digits 0 to 9 on 10 paper plates. Turn the plates over and have the child choose 4 of them, then turn them face up. Ask questions such as, "What's the biggest number you can make using these digits?" "What's the smallest number? Discuss the place value of the numbers created. For example, for the number 1,259, point out that this number has 1 thousand, 2 hundreds, 5 tens and 9 ones.