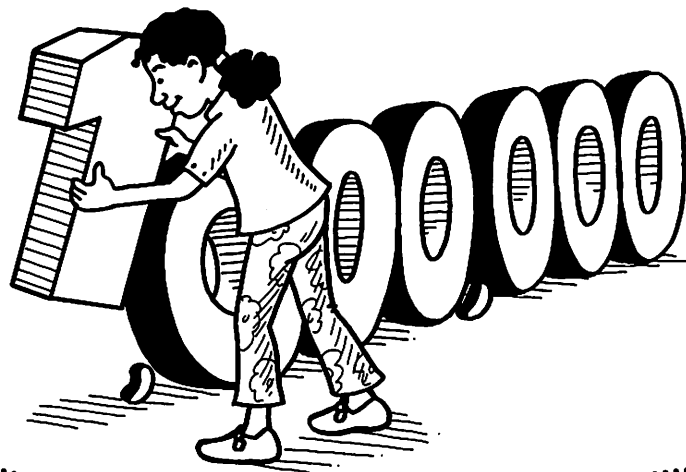


Playing with Place Value

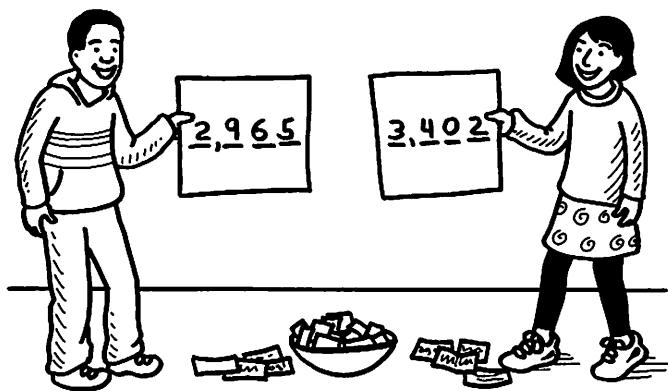
The digit 1 seems like such a small number, but in the thousands place, that 1 is worth 1,000! Or that digit 1 could be worth 10 or maybe 1,000,000—all depending on where it's placed in a number. Place value is a key concept for your youngster to understand, and these activities will help.



Fill in the blank

Composing, or putting together, a number shows your child what each digit's value really is. This game can make it fun as well.

Have each player write “_ _ _ _” on a sheet of paper. On separate slips of paper, write the numbers 1–9 (1, 2, 3...), 10–90 by tens (10, 20, 30...), 100–900 by hundreds (100, 200, 300...), and 1,000–9,000 by thousands (1,000, 2,000, 3,000...). On four other slips, write: “no ones,” “no tens,” “no hundreds,” and “no thousands.” Fold all the slips, and put them in a bowl.



On each turn, a player draws a slip and fills in a number on her paper. If she picks 3,000, she will write 3 in the thousands place. If she gets “no tens,” she would put 0 in her tens place. If there's already a number in the spot, she does nothing.

Play until everyone has filled in their numbers, and read them aloud. The person who created the largest number wins.

Variations: Make the smallest number the winner. Add more places by including ten-thousands and hundred-thousands.

Hide, seek, and bundle

Play “hide and seek” to illustrate bundling of ones, tens, and hundreds.

Together, cut four different colors of paper into strips (at least 30 strips each). Decide which place each color represents (perhaps red = ones, blue = tens, yellow = hundreds, and green = thousands). On each strip, write the place value it represents (1, 10, 100, or 1,000). Hide the strips, and send your youngsters hunting for them.

Then, each child uses the strips he collects to form a number. For each color, he should bundle groups of 10 to add to the next place value up. Say he gathers 4 green thousands, 8 yellow hundreds, 14 blue tens, and 12 red ones. He would stack 10 reds and wrap a rubber band around them—now he has another ten to put with his 14 blue tens, for a total of 15 tens. The 2 leftover red strips stay in the ones spot. Next, he would bundle 10 tens to make a hundred—and add that to his 8 yellow hundreds to equal 9 hundreds. He'll have 5 tens left over for the tens spot. Now he has 4 thousands, 9 hundreds, 5 tens, and 2 ones—his number is 4,952.

When each person has determined his number, compare them. Whose is largest? Smallest?

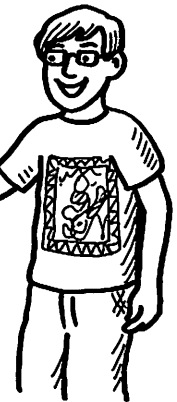
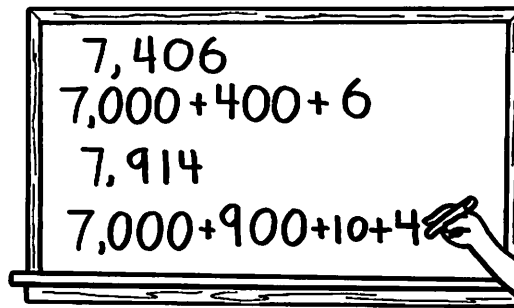


continued

Decompose to compare

Comparing big numbers is made clear and simple by decomposing (taking apart) the numbers.

Give your youngster two numbers to compare, such as 7,406 and 7,914. Ask him which is greater. Have him write them in expanded form, so 7,406 becomes $7,000 + 400 + 6$, while 7,914 becomes $7,000 + 900 + 10 + 4$. To compare the numbers, he should start with the largest place value. He will see that the thousands place is the same in both (7,000), so he has to move on to comparing the hundreds. He'll find that in the hundreds place, 9 is bigger than 4, so there is no need to go any further—he knows that 7,914 is bigger than 7,406. But if the hundreds were equal, he would compare the tens, and so on.



Your child might enjoy comparing really big numbers—he'll see that no matter how big they are, he can always decompose them and compare the place value parts.

Snack on math



Use place value to work on addition and subtraction—and throw in snacks to make it a tasty adventure.

To start, let your youngster pick a snack for each place value, such as pretzels for thousands, grapes for hundreds, cereal puffs for tens, and blueberries for ones. Then, she can create a four-column table for working out the math problems. In the left column, she would write 1,000 and draw a pretzel. In the next column, she would write 100 and draw a grape. In the third column, she would write a 10 and draw a cereal puff, and in the last column, a 1 and a blueberry. To do the problems, have her line up the actual snacks in the correct columns.

Adding. Pose an addition problem like $5,421 + 298$. First, she would make 5,421 by placing 5 pretzels in the thousands column, 4 grapes in the hundreds, 2 puffs in the tens, and

1 blueberry in the ones. Then, she would add snacks to represent 298 (2 grapes, 9 puffs, and 8 blueberries). Now, she'll need to group any 10 snacks of one kind into 1 for the next type up (for example, turning 2 + 9 puffs into 1 grape and 1 puff). Since $5,421 + 298 = 5,719$, she should end up with 5 pretzels, 7 grapes, 1 puff, and 9 blueberries. Now have her make a snack place-value addition problem for you.

Subtracting. Using the same snacks, pose subtraction problems, only this time your child gets to demonstrate subtraction by taking snacks away—or eating them! If the problem is $4,873 - 458$, she would create 4,873 (4 pretzels, and so on). To subtract, she could start with the ones place. Since 8 is greater than 3, she'll need to change one snack in the tens place (1 puff) into 10 ones (10 blueberries). Adding those 10 ones to the 3 she already had gives her 13 ones. Now she can take away 8 of the 13 blueberries, leaving 5. She would then move to the tens place, and so on. By the time she is done, she should have the answer ($4,873 - 458 = 4,415$) in the form of 4 pretzels, 4 grapes, 1 puff, 5 blueberries. When her answer is correct, let her eat the snacks she subtracted! Then, she could snack her way through a few more subtraction problems.

