

Negative Numbers for Young Students

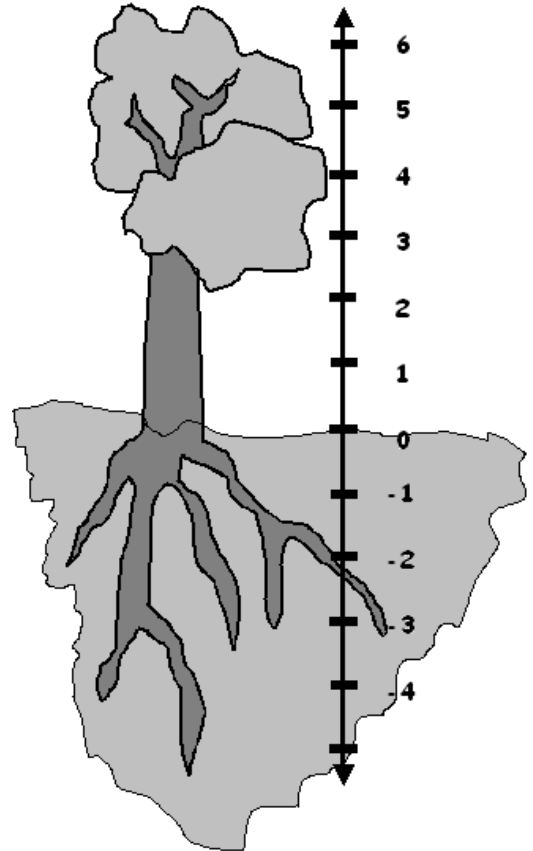
With a whimsical number line, negative numbers are easy for children to understand.

Get a sheet of poster board, and paint a tree with roots—or a boat on the ocean, with water and fish below and bright sky above. Use big brushes and thick poster paint, so you are not tempted to put in too much detail. A thick, permanent marker works well to draw in your number line, with zero at ground (or sea) level and the negative numbers down below.

ORAL STORY PROBLEMS

Hang the number line on your wall, and then tell each other little story problems while you run your fingers up for the positive numbers and down for the negatives to count out your answers.

- ♦ “I climbed up three meters into the tree, but then I decided I'd rather dig a hole to China. I went down a total of five meters from my lofty perch. How deep was my hole?”
Written as a math equation, that story looks like this: $(+3) + (-5) = -2$
- ♦ “Dad thought he could dig a better hole than that. He dug down one meter, and then he dug down two more meters, and then he dug three more after that! How deep did he go?”
That would be: $(-1) + (-2) + (-3) = -6$
- ♦ “A squirrel went into Dad's hole looking for nuts. Then the dog ran outside to bark at him, so he scrambled up the tree as fast as he could go. From the bottom of the hole, the squirrel climbed ten meters. Did he get safely out of Fido's reach?”
This time: $(-6) + (+10) = +4$



Have fun exploring how negative numbers work. How are they different from positive numbers? You can see from stories like the ones above that adding a negative number will make your total smaller, because it puts you deeper in the hole. This is a great beginning for young children.

STRETCH THEIR UNDERSTANDING

If your children are old enough to enjoy the mental challenge, however, you might ask them to consider a few questions like these:

- ♦ What would happen if you subtracted a negative number? Subtraction is the opposite of addition, so it would “undo” whatever addition does. If adding a negative number is like digging a hole, then subtracting it would be like filling the hole back in. So subtracting a negative number *moves you up the number line*. It works the same as adding a positive number. Cool!
- ♦ Can you figure out how to multiply negative numbers? Certainly, $1 \times (-1)$ has to be -1 , since anything times one is itself. What is $2 \times (-2)$? Start at zero and count -2 twice, to get -4 .
- ♦ What about division? This is getting harder, but let's try $(-6) \div 2$. If you cut -6 in half, what would it be? Oh, that is not so hard after all: it's -3 .

Negative numbers are fun. And, despite that third grade teacher who told us we couldn't subtract six from four, negative numbers help clarify many real-life situations: winter temperatures, lost football yardage, or the bank account of someone who relies too much on credit cards.