5.NBT Millions and Billions of People

Alignments to Content Standards: 5.NBT.A.1

Task

Historians estimate that there were about 7 million people on the earth in 4,000 BCE. Now there are about 7 billion! We write 7 million as 7,000,000. We write 7 billion as 7,000,000,000. How many times more people are there on the earth now than there were in 4,000 BCE?

IM Commentary

The purpose of this task is to help students understand the multiplicative relationship between commonly used large numbers (millions and billions) by using their understanding of place value. This task also builds on students' work on multiplicative comparison from 4th grade. The task 4.NBT Thousands and Millions of Fourth Graders is a good task to do before this one as it requires the same kind of reasoning but the numbers are smaller. The population estimates come from Historical Estimates of World Population from the US Census Bureau.

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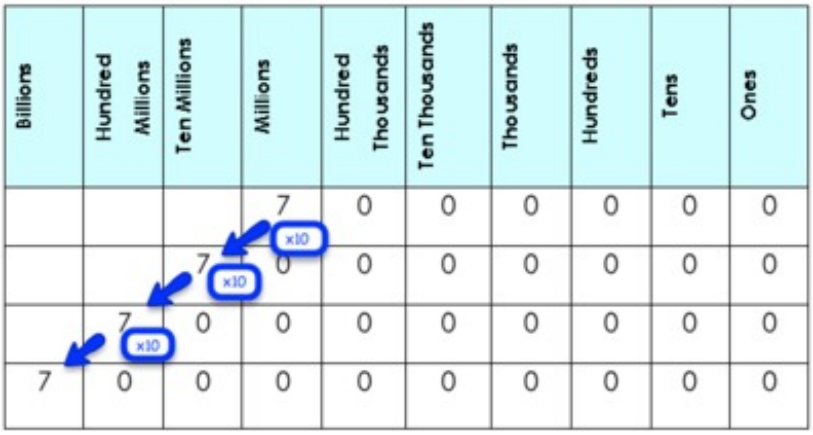
Solution



The value of each place is ten times the value of the place immediately to the right. So:

70,000,000 is 10 times 7,000,000.

700,000,000 is 10 times 70,000,000.

7,000,000,000 is 10 times 700,000,000.

Thus, 7,000,000,000 is $10 \times 10 \times 10$ times bigger than 7,000,000. We see that

$$10 \times 10 \times 10 = 10 \times 100 = 1000$$

So there are 1,000 times as many people on the earth now as there were in 4,000 BCE.

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