



## Lesson Plan: Paying for Crime

### Worksheet #3: Average Spent per State (scientific notation)

**Concept:** In the U.S. \$22 billion dollars are spent on prisons. If we want to find the average per state, we need to know how many states were included in the study (51, as shown in table of states in Excerpt 3a).

**Calculations:** \$22 billion/ 51 states = .43 billion which is about  $\frac{1}{2}$  a billion, which is 500 million

**Concept:** How many zeroes would a billion have? Write on the board and count off place values up to one billion 1,000,000,000.

**Calculations:** We can use scientific notation to represent such a large number:  $1 \times 10^9$

22 billion would be  $22 \times 10^9$

$22 \times 10^9 / 51 = .43 \times 10^9$

AND finally:  $.43 \times 10^9 = 430,000,000$  (430 million)

**Concept:** Let's check the reasonableness of our answer. Looking back at the chart on page 2, we can see that the amount of money for individual states is listed like this: 497,838. BUT, at the top of the table it tells us that this is in 1,000's of dollars, therefore it really means 497,838,000, which is reasonably close to our average.