ACTIVITY 1-1A   **Scientific Notation on the Calculator**

The rules for working with numbers in scientific notation are not complicated:

MULTIPLICATION:	multiply the numbers and add the powers of ten
DIVISION:	divide the numbers and subtract the powers of ten
ADDITION/SUBTRACTION:	powers of ten must be the same; add/subtract the numbers; power of ten remains the same
STANDARD FORM:	the number part must be between 1 and 10.

The handheld scientific calculator does all of these steps automatically. The following example calculations were done using a Texas Instruments TI-30X SOLAR calculator. Steps on other calculators are similar although some key names and procedures are different. Consult the manual if you are using a different calculator.
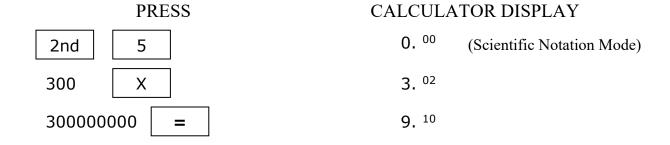
(NOTE: when it says to "PRESS", that refers to a calculator key. If a number is being entered, simply press the digits in order.)

The following are the "Example Problems" from Activity 1.

Multiply: 300 x 300,000,000

PRESS		CALCULATOR DISPLAY
2nd 5		$0.^{00}$ (Scientific Notation Mode)
300 X		$3.^{02}$
300000000 =		$9.^{10}$

Divide: 4000000 / 3 x 10^8

PRESS		CALCULATOR DISPLAY
2nd 5		$0.^{00}$ (Scientific Notation Mode)
400000000 ÷		$4.^{08}$
3 EE 8 =		1.333333333^{00}

Subtract: $2.28 \times 10^{11} - 1.50 \times 10^{11}$

PRESS	CALCULATOR DISPLAY

| 2nd | 5 |

0. ^{00} (Scientific Notation Mode)

| 2.28 | EE | 11 | – |

2.28 ^{11}

| 1.50 | EE | 11 | = |

7.8 ^{10}

Additional Examples:

Subtraction when the numbers have different powers of ten.

Subtract: $4.6 \times 10^{10} - 3.9 \times 10^{9}$

PRESS	CALCULATOR DISPLAY

| 2nd | 5 |

0. ^{00} (Scientific Notation Mode)

| 4.6 | EE | 10 | – |

4.6 ^{10}

| 3.9 | EE | 9 | = |

4.21 ^{10}

Notice that all answers are given in standard form automatically. Also, in the last example there is no need to change the numbers to the same power of ten – that is done by the calculator.