Cornell Notes	Topic/Objective: Scientific Notation (8.2C)	Name: **Key**
AVID Decades of College Dreams		Class/Period:
		Date:

Essential Question: How do I convert between standard decimal notation and scientific notation?

Questions:	Notes:
	Standard decimal notation is the **typical** way we see numbers written.
	Example: 2,310,000
	0.000973
	Scientific notation is a way to express **very** **large** and **very** **small** numbers.
	Scientific notation is written as a **product** of a number **greater** **than** or equal to 1 and **less** **than** 10, times a power of 10.
	Example: 2.31×10^6 ← Very large number
	9.73×10^{-4} ← Very small number
	→ The first **factor** in scientific notation **MUST** be between 1 and 10. ←
	$1 \leq x < 10$
	Are all of these written correctly in scientific notation? Why or why not?
	1.8×10^3 0.6×10^{-8} 45×10^4
	Yes! 1.8 is between 1 and 10. No! 0.6 isn't between 1 to 10. No! 45 isn't between 1 to 10.

Summary:

Questions:	Notes:
	Standard Decimal Notation → Scientific Notation
	1. Draw an arrow so there is one number to the left of the arrow. Put a decimal point at the tip of the arrow. You just created a number between 1 and 10.
	2. Count the spaces from the arrow to the original _decimal_ point. This number is your exponent number. It will be _positive_ or _negative_ depending on which way you moved when you went from arrow to decimal. _(when you counted)_
	Move right: _positive_ exponent
	Move left: _negative_ exponent
	3. Write in scientific notation by using the number from Step 1 (with the new decimal instead of the arrow) times 10 raised up to the exponent number from Step 2.

$62,000 = 6.2 \times 10^4$ $125 = 1.25 \times 10^2$

$0.00008852 = 8.852 \times 10^{-5}$ $0.073 = 7.3 \times 10^{-2}$

Scientific Notation → Standard Decimal Notation

1. Circle the exponent.
2. Move the _decimal_ point left or right the number of times shown by the exponent.

     Positive exponent: Move decimal _right_

     Negative exponent: Move decimal _left_

3. Rewrite the number
4. Put zeros in the _empty_ _spaces_ .

$7.25 \times 10^5 = 725,000$
725000

$5 \times 10^{-2} = 0.05$

$9.06 \times 10^{-4} = 0.000906$ $6.024 \times 10^6 = 6,024,000$

6.024000