Do Now: Turn Wkbk pages into the bin. (Staple them)

1. Tell whether the number is very small or very large.

a. 1.234×10^{5} Very large

b. 1.234×10^{-5} Very small

2. Explain how you can tell whether a number is very small or very large when the number is written in scientific notation.

$1.234 \times 10^{5} = 123,400$

1.23400

$1.234 \times 10^{-5} = .00001234$

.00001.234

4.8 Scientific Notation

7.NS
8.EE

- SWBAT read and write numbers using scientific notation.
- SWBAT understand patterns and how operations are related.

- Calculators: No

Scientific Notation

A number is written in scientific notation if it has the form:

3.2000000 → 32,000,000

c x 10^{n}, where $c \geq 1$ and $c < 10$

Standard form	Scientific Notation
120,000,000	1.2×10^{8}
0.00012	1.2×10^{-4}
32,000,000	3.2×10^{7}
.0000869	8.69×10^{-5}

.00008.69

	Scientific Notation	Standard Form
1	7.2×10^{5}	720,000
2	4.65×10^{-7}	.000000465
3	4.1×10^{5}	410,000
4	2.15×10^{-3}	.00215
5	3.5×10^{3}	3,500
6	2.48×10^{6}	2,480,000
7	5.1×10^{-4}	0.00051 (4)

There are over 300,000,000,000 stars in the Andromeda Galaxy. Write in scientific notation.

3×10^{11}

3.0×10^{11}

A molecule has a diameter of approximately 0.000000004 cm. Write in scientific notation.

9 places
8 zeros

4×10^{-8} 4.0×10^{-8}

4×10^{-7}

4×10^{-9}

The thickness of a soap bubble is about 0.000009 meter. What is the thickness of a soap bubble written in scientific notation?

A cubic meter of aluminum has a mass of 2700 kg. What is the mass written in scientific notation?

Write the product in scientific notation.

$(4.5 \times 10^3) * (6.3 \times 10^7)$

Add $3+7=10$

$(4.5 \cdot 6.3) \times (10^3 \cdot 10^7)$

$28.35 \times 10^{10+1}$

2.835×10^{11}

Write the product in scientific notation.

$(3.2 \times 10^{-4}) * (4.1 \times 10^{-8})$

Add $-4+(-8)$

$(3.2 \cdot 4.1) \times (10^{-4} \cdot 10^{-8})$

$13.12 \times 10^{-12+1}$

1.312×10^{-11}

Write the product in scientific notation.

$(2.6 \times 10^7) * (3.1 \times 10^{-3})$

8.06×10^4

Write the quotient in scientific notation.

$$\frac{4.08 \times 10^6}{3.4 \times 10^2}$$

$\left(\frac{4.08}{3.4}\right) \times \left(\frac{10^6}{10^2}\right)$ Subtract $6-2$

1.2×10^4

Write the quotient in scientific notation.

$$\frac{2.765\times10^{21}}{7.9\times10^{9}}$$

$2.765 \div 7.9 = 0.35$

$10^{21-9} = 10^{12-1} = 10^{11}$

$3.5 \cdot 10^{11}$

Exit Pass 4.8

1. Write 250,000 and 0.000025 in scientific notation.

2. Explain how you can tell whether a number is very small or very large when the number is written in scientific notation.

3. Explain why 12.5×10^{7} is ***not*** written in scientific notation.

"Don't blame the sea if you cannot catch a fish."

Working individually or with a partner, complete the workbook.

Workbook pg.

Reflection of Today's Lesson

4.8 Scientific Notation

7.NS
8.EE

- SWBAT read and write numbers using scientific notation.
- SWBAT understand patterns and how operations are related.

- Calculators: No

Homework

pg. 207 #11-28, #33, 35, 38