Name: _____

Date: _____

Exploring patterns and relationships: Scientific Notation

Pattern Matching

1. Take a look at the lists of numbers below. Match the numbers in each column and describe the pattern.

1,234,000,000	1.234×10^{10}
342,000,000	3.42×10^{-6}
12,340,000,000	1.234×10^{9}
0.00000342	3.42×10^{8}
0.0000000001234	1.234×10^{-10}

2. Describe the pattern in words below.

Making a Table

Write your matches in the table below. Study the pattern and formula for writing scientific notation. Take turns explaining each match to the other members of your group.

Number in Standard Form	Number in Scientific Notation

"Formula" for scientific notation:

$a \times 10^{b}$ where $0 < a < 10$ and b is an integer

Extending

Scientific notation is a way of writing very large or very small numbers in a form that is more efficient than writing out the entire number.

Use your observations and pattern work to write the following numbers in either scientific notation or in standard form.

1,435,000,000,000 _____

376,000,000 _____

8.23×10^{7} _____

6.38×10^{-5} _____

2.546323×10^{6} _____

There are limitations to writing numbers in this way. Discuss any issues that might come up and write them below

Using a Calculator

Most calculators already "know" scientific notation, but sometimes it is hard to recognize. Do these problems on your calculator, look at the answer and write down the answer in scientific notation.

8,000,000,000 x 2,000,000,000 =

920,000,000 x 6,200,000 =

.0000000015 x .000000128 =

Try entering scientific notation into your calculator by using the designated key. The key often has EXP (exponent) or EE (enter exponent) on it.

$1.2 \times 10^{5} =$

$1325 \times 10^{9} =$

$2.5 \times 10^{-6} =$