Scientific Notation Webquest

Quest Warm-up

1. Answer the following questions.
    a. Write each expression in standard notation.

    5.02×10^{5} _____

    5.41×10^{-3} _____

    0.03×10^{-2} _____

    b. Write each number in scientific notation.

    6,560,000 _____

    0.00203 _____

If you need more practice converting to and from scientific notation, go to *Tier One*. Otherwise, go to *Tier Two*.

Tier One

Go to the following website and follow the directions.

http://janus.astro.umd.edu/astro/scinote/

Move on to *Tier Two* when you feel comfortable writing numbers in scientific and standard notation.

Tier Two

Find two facts each containing a number that is less than .001 or greater than 1000 when written in standard notation. If possible, find one fact with a very small number and one with a very large number.

Browse the following websites for facts:

http://solarsystem.nasa.gov/planets/index.cfm

http://www.buzzle.com/articles/fun-science-facts.html

http://www.sciencekids.co.nz/sciencefacts.html

You may also search for a specific fact. Here are some ideas:

- The distance in km from any planet to its moon
- The half-life of certain radioactive elements
- The size of bacteria and viruses
- The size of an atom, nucleus, or cell
- The mass of an electron

When you find your facts, follow the instructions on the next page to complete the project.

INSTRUCTIONS

1. Copy and paste your facts into a text-editor such as MS Word®. Copy and paste the website links where you found your facts. You may also use presentation software to arrange your information more creatively.
2. Beneath each fact, write your number as it appears in your fact.
3. Tell whether your number is in standard notation, scientific notation, or neither (see example below). Explain how you know.
4. Rewrite the number.
    a. If the number is in standard notation, convert it to scientific notation.
    b. If the number is in scientific notation, write it in standard notation.
    c. If it is in neither standard nor scientific notation, write it twice, once in standard notation and once in scientific notation.
5. Tell whether it is very large or very small.
6. Find a picture that relates to each fact and copy it into the document. Copy and paste the website links where you found your photos.

EXAMPLE

1. "After being first introduced in 2002, the popular Roomba robotic vacuum cleaner has sold over 2.5 million units, proving that there is a strong demand for this type of domestic robotic technology." (http://www.sciencekids.co.nz/sciencefacts/technology/historyofrobotics.html)
2. 2.5 million
3. It is not in standard or scientific notation form. It has a number between 1 and 10 but does not contain the power of 10.
4. Standard form: 2,500,000 Scientific notation: 2.5×10^6
5. Very large
6. (http://www.sciencekids.co.nz/sciencefacts/technology/historyofrobotics.html)