Aurora Power!

Scientists use decimal numbers a lot when measuring objects or processes! This activity uses data from the National Oceanic and Atmospheric Administration (NOAA) POES satellite to compare the Northern Lights displays in terms of how many watts of energy they produce.

Note: A kilowatt is one thousand watts, but a gigawatt is one billion watts! A kilowatt of electricity can run a small house, but a gigawatt can run a small city.

Auroras are very common to see in northern regions of Canada and Alaska. They light up the skies in swirling color.

Scientists make measurements that are usually expressed in decimal form.

- Applied decimal arithmetic: addition, subtraction and division

Here's how to do it!

How much more powerful was an aurora with 987.45 gigawatts, than an aurora with 324.98 gigawatts?

987.45 gigawatts
- 324.98 gigawatts

662.47 gigawatts

Now you try!

Aurora Power

Date	Power
4-11-01	528.1
4-18-01	828.3
11-24-01	497.7
2-18-00	17.6
8-27-01	96.5
11-6-01	484.7
5-23-02	387.3
2-5-02	244.8
9-4-02	580.2

This table lists some major storms detected by the NOAA POES satellite, and the total power that they produced in gigawatts (Gw). Use this table to answer the questions below.

1) What was the difference in power between the strongest and weakest aurora detected?
2) If 48 storms like the one on February 18, 2000 were combined, how much different would they be than the power from the strongest storm in the table?
3) What is the sum of the power for all nine storms?
4) How many times more powerful was the April 18, 2001 storm than the storm detected on August 27, 2001?

Aurora: http://image.gsfc.nasa.gov/poetry/educator/Qaurora.html