NEID looks at the sun, counts the number of photons received per wavelength band over the range of wavelength 5160-5190 angstroms.

* Statement of the project goal (0 points, but required so the rest makes sense)
  + Fitting spectral lines NEID data
  + We will write a program that can take in the dataset, find all the dips, then decide which ones are significant. The test can be to check how many of the lines from literature it found.
* Description of the inputs. Be sure to specify what parameters (e.g., dataset size, resolution of grid, number of samples, etc.) will be used to explore how performance scales (1 point)
  + L1 raw spectral data of the Sun, which has ~40k fits files.
* Description of the outputs (1 point)
  + The lines that the code finds. The code should find which absorption lines are strong in the code. Specifically, ‘strength’ is defined (simply) as the delta, the change from where the spectrum shape drops. It will show the strongest N such lines.
* Detailed plan for how the code will be tested (1 point)
  + We will compare the lines found to the lines on a literature catalog of absorption lines in the wavelength range. The number of lines it finds that are in the catalog versus the number of lines in the catalog that it doesn’t find versus the number of lines it finds that are not in the catalog will all be measures of how well the code is working.
* Discussion of the relevant range of problem sizes (1 point)
  + Not all the spectra are good-looking
    - There are some fits files where it just seems like background noise, almost as if the detector had a covering over it.
  + Any potential emission lines inside the absorption dips
  + The algorithm may find “false dips”
* Complete list of what computer architectures, programming languages, and libraries you will use, as well as an justification of your choices (1 point)
  + Python-we both know python best. Lots of libraries in python, it’s relatively fast
  + astropy to read and handle fits files
  + numpy to do math