Fencing the Dog Yard – TI-Nspire Investigation

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Materials:
- TI-Nspire™ (non-CAS)
- dogyard.tns
- FencingDogYard.pdf
- TI-Nspire™ Software *(for editing)*
- Several "chains" of paperclips with 20 clips to a chain

Level: Algebra 1

Classroom setup:
- Designed as a Lab-style activity with students working in groups.
- Some familiarity with calculator is assumed.
- Students must read carefully as pages in .tns file await student responses.

This activity is comprised of two components.

1. **Manipulative Lab Component:** Students use paper clips to simulate the fencing needed to create a rectangular dog pen. Data is gathered, based upon certain assumptions, and observations are made.

2. **TI-Nspire Investigation of Data:** Students then use the TI-Nspire to further enhance their findings from the paper-clip investigation. This phase of the activity will add further dimension (literally) to the students' findings. Observations are made along the way, model equations are developed (quadratic regression) and the maximum area is determined.

In conclusion,
a) students discuss under what conditions the "maximum" area will be the best choice for building the dog yard.

b) students compare their initial findings to those determined by the calculator.

Note: Should students COMPLETELY mess up their .tns file, simply reload the file and let them start again. For some students, it is easier to start over than to find their mistakes.

Be sure to keep a "CLEAN" copy of the .tns file so that you are always ready to "start" the activity.