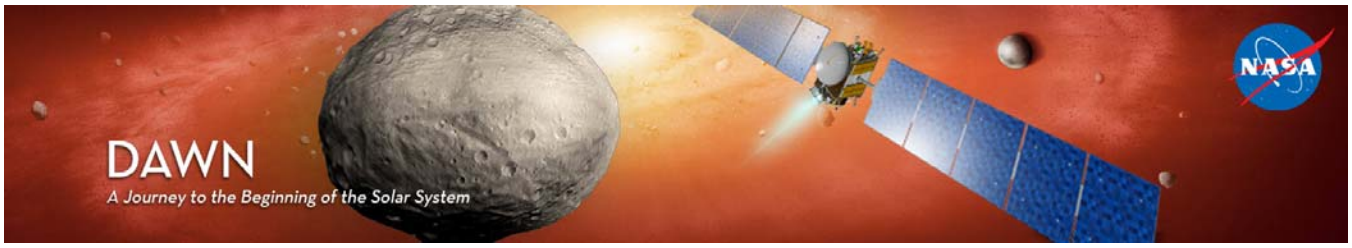

Interactions of Energy and Matter: Dawn Instrumentation

GRaND

STUDENT REPORT SHEET—GRaND

OBSERVED INTERACTIONS OF ENERGY AND MATTER
GRaND POWERPOINT PRESENTATION

Directions: Answer the following questions based on the *GRaND PowerPoint Presentation*. Words that are bold and italicized can be found in the *Dawn Dictionary* on the Dawn Mission website at http://dawn.jpl.nasa.gov/dictionary/index.asp.

Slide 3: The *Electromagnetic Spectrum*
What region of electromagnetic radiation (EMR) from Ceres and Vesta will the GRaND measure?

What frequency and wavelength regions of EMR are classified as ***gamma rays***?

How does the ***energy*** of gamma rays compare with the energy of the rest of the EMR waves?

Directions: Based on information on the following slides, use a graphic organizer, labeled diagrams, or an outline to describe interactions between matter and energy. Identify the type of energy and matter described in each slide. Answer the questions using your own words.

Slide 5: GRaND SPLAT!
Describe the interactions of ***matter*** and energy illustrated in the *GRaND Splat!* slide.

Slide 6: Cut Away View of the Dawn's GRaND (Gamma Ray Spectrometer)
What interactions of matter and energy are described in this explanation of GRaND's ***gamma ray spectrometers***?

Slide 7: Cut Away View of the Dawn's GRaND (Neutron Detector)
What interactions of matter and energy are described in this explanation of GRaND's ***neutron detectors***?

Slide 9: Output of Dawn Spacecraft's GRaND
What energy and matter interactions are involved in the scientific measurements made by GRaND?