



GRACE Education Curriculum Satellites	
Teachers	Grades 6-8
Language Arts, Fine Arts & Math	

Modeling GRACE

Background Information: A blueprint is a photographic reproduction, such as of architectural plans or technical drawings, rendered as white lines on a blue background or blue lines on a white background. Blueprints provide a detailed plan of action.

- Objectives:** By the end of the lesson the students will:
- Create a life-size outline of the GRACE satellite and its components
 - Communicate the role these components have in the overall GRACE Mission.

Standards: Math: measurement; geometry; problem solving; connections; representation; communication
Science: unifying concepts & processes

Vocabulary: blueprint satellite components

Materials: Copies of GRACE blueprint or technical drawing from web site
Rope, string, stakes, or chalk
Meter sticks and rulers with centimeter markings
Component Cards for GRACE, OBDH, RFEA, Tank-X, GYRO, PCDU, GPS Nav Antenna, ACC SU, ACC ICU, SCA-Y, SCA+Y, MTE, Tank+X, MTM, MTQ, Sampler, USO-1, IPU, k-Band Horn, KBR Assembly

Directions to the Teacher:

1. Create component cards including each GRACE component's name, function, and dimension. Have the students visit <http://www.csr.utexas.edu/grace/> to get the necessary information about their component. Students should find the description of the part, its purpose, and its location.
2. Secure either a parking lot or field to complete the activity.
3. The GRACE group is responsible for copying the GRACE blueprint or technical drawing. They should also know the overall dimensions of the satellite.
4. The GRACE group should go to the parking lot or field and draw an outline of the GRACE satellite using rope, string, stakes, chalk, etc. This group will also oversee the placement of the component parts.
5. As each component part is placed on the GRACE satellite, the group should give a report about its purpose and use.

Extensions:

The students give explanations for their components as jingles, poems, songs, or visuals.

Research the component part and how it is used in other scientific projects.

Find the company that manufactures the part for the satellite. What other items do they manufacture?

Build a satellite from the web site:

http://www.thetech.org/exhibits_events/online/satellite/

References / Resources:

To learn more about the mission visit: <http://www.csr.utexas.edu/grace/>

http://www.thetech.org/exhibits_events/online/satellite/

Component Cards

GRACE	OBDH	RFEA
Tank-X	GYRO	PCDU
GPS Nav Antenna	ACC SU	ACC ICU
SCA-Y	SCA+Y	MTE
Tank+X	MTM	MTQ
Sampler	USO-1	IPU
K-Band	Horn	KBR Assembly
