**TASK: Mission to Titan**

**INTRODUCTION:** Each team will receive a plastic ramp, a set of five balls (golf ball, weighted golf ball, whiffle ball, rallyball and a ball bearing. The *materials manager* will keep the package **sealed** while allowing each team member to handle the package of balls in order to predict which ball will: (Instructor will demonstrate)
1. Fall the fastest when dropped from a table top (suggest pushing them simultaneously off the corrugated ramp);
2. Roll the furthest after rolling down and off the inclined plane of the ramp.

**PREDICTING (7- 1 0 minutes)**

To begin the activity each team member will make a prediction about the order of descent expected of the five balls; The recorder will place predictions on data sheets provided. (If the group has consensus on the order of the falling and rolling trials, the recorder will note this). The group checker leads the group in preparing for the next task which is a set of three trials that can be designed and improved upon as the group determines.

**EXPERIMENTING (15-20 minutes)**

When ready each team of students will determine where they will go to conduct their trials (if available, they may choose two different surfaces). The recorder will work with the checker to record data on the order in which the balls actually fell and distance rolled using the data sheets provided. When the Team is satisfied that the results are reliable they will reconvene in the classroom to determine which of the balls would be best to begin “engineering” a way to deliver sensors to the surface of the moon *Titan*. They can consult the Source Information Sheet to use scientific language and some key definitions.

 ***Engineering Is Elementary***

**IMAGINE (15-25 minutes)**

The next part of the activity will be imagining. The groups will then create a graphic or visual to describe how their chosen sphere might address the problems and solutions to robotically exploring the surface of Titan (have fun; use your imagination; They will identify a Team Name and a Team Slogan to share when they present their conclusions and recommendations to the class.