**Center of Mass Mobile Project**

Planet Holloway Physics

**Objective**:

Design and build three or more layer mobile using physics principles to design and construct a perfectly balanced piece of art.

**Limitations**:

Students may only use the following materials:

Wooden dowels (sticks)

6 different masses (2 per level)

thread or fishing line

tape - connections only

glue – connections only

fishing swivels (optional)

**Procedure**:

The project may be no larger than 24” wide, but can be much smaller if desired.

1. Cut dowels into three separate sizes at least 2 inches difference between each dowel and the shortest being no less than 4 inches long.

2. Find 6 or more different objects that can hang from the dowels using thread (I recommend a variety or bolts, nuts and/or washers)

3. Bring in your cut dowels and “hang objects” so you can obtain their individual masses using a balance.

4. Create a three tiered mobile with at least two objects on each tier by calculating where each object should be placed.

Note: the connecting string between tiers cannot be placed in the middle of the dowel but must be a minimum of ½ an inch from the center.

5. Show all calculations on paper. Clearly label which calculation belongs to which section of the mobile.

6. Mark the mobile with a dark marker where each object should be located. You will have to shift your hanging threads slightly during construction, but you should be within an 1/8 of an inch if your calculations were correct.

**Data**:

Record the masses and sizes of all components of you mobile

**Calculations:**

Show calculations you made to determine where to hang each piece of your mobile. These calculations will be turned in along with your mobile.