

Name \_\_\_\_\_  
AP Physics  
Period \_\_\_\_\_

Date \_\_\_\_\_  
Lab Activity #7 (15 pts)  
Mrs. Nadworny

Partners:

Due Date \_\_\_\_\_

## Center of Mass

### Research Problem

In performing various activities, you should better understand the term “center of mass” and be able to determine this location for various objects and systems.

### Station 1: Back to the Wall

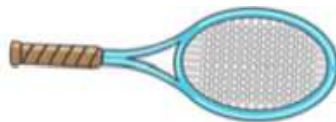
Stand with your back AND heels touching the nearest wall. **Without** bending your knees or removing your heels from the wall, try to lean over and touch your toes. Attempt to explain what happened using the concept of “center of mass.” Include an appropriate sketch showing your center of mass and a “point of support.” (22)



### Station 2: Tennis Anyone?

(3)

At this station you will find a meter stick, a tennis racket, and a golf club. Locate the center of mass of each object and indicate it on the diagrams below.



Briefly explain how you found the center of mass.

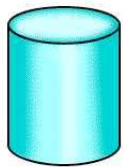
### Station 3: Balancing Act

(4)

At this station you will find a few objects. Try to balance each of them on your finger or the edge of a cup. When you have done this, sketch each object and indicate its center of mass.

### Questions

1. What would be more stable (harder to knock over), a cone or a cylinder? Why? (2)



---

---

---

---

2. When applying a force to make an object move, why is it most effective to have that applied force “aimed” directly at the object’s center of mass (as opposed to at a distance from the center of mass)? (2)

---

---

---

**Conclusions:** Note some of the main concepts you learned in this activity. (2)

---

---

---

---

---

### Bonus

#1 \_\_\_\_\_ +2  
(initials)

#2 \_\_\_\_\_ +3 +2 +1  
(initials) (place)