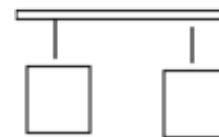
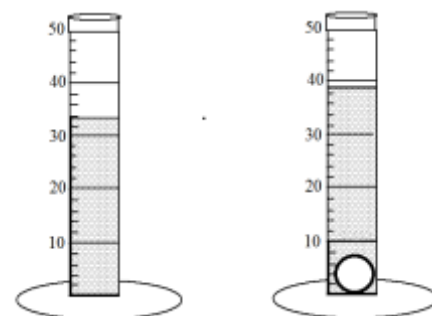
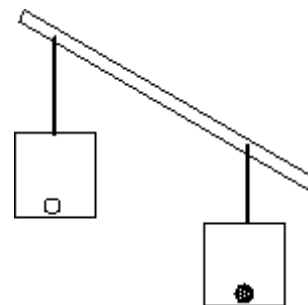


**(Edited version for public review)****1.4 Act 2****Comparing of Objects****balance****Situation 1:**

- a. Draw how the balance would appear if there were one glass marble in the left cup and 6 glass marbles in the right cup.
- b. Suggest a few ways to get the balance leveled in this situation.

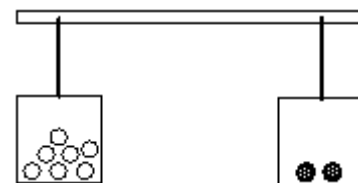
**Situation 2:**

- a. When you place 1 glass marble in the left cup and 1 steel marble in the right cup, you notice that the balance appears as in the picture. Suggest how you might change this situation so it could have a level balance.
- b. Suppose you put the glass marble into a graduated cylinder of water and the water level rose as shown in the picture. What will happen if you instead placed the steel marble into the original graduated cylinder? Explain your reasoning.
- c. What is the volume of the glass marble? What about the steel marble?

**before****after****Situation 3:**

You adjust the amount of marbles in each cup from situation 2 until balance is achieved as shown in the picture. What would the balance look like for each of the following?

- a. 5 glass marbles in the right and 1 steel marble on the left.
- b. 11 glass marbles in the right and 3 steel marbles on the left.



- c. You place 4 steel marbles in the left cup. How many glass marbles should you place in the right cup in order for the system to balance?

**Situation 4:**

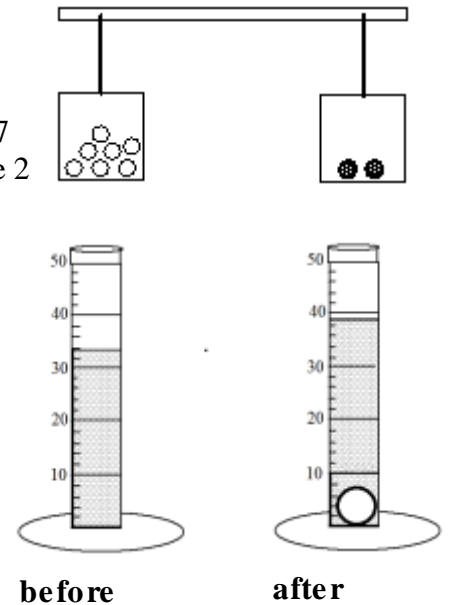
Recall the conditions from situation 2 and 3 as shown again at right.

A group of students is trying to predict what will happen if they place the 7 glass marbles into the “before” graduated cylinder compared to placing the 2 steel marbles into the “before” graduated cylinder.

**Casi Predicts:** “Both the 7 glass marbles and the 2 steel marbles will raise the water by the same amount because they have the same mass as shown by the balance.”

**Jaen Says:** “This isn’t true, the 7 glass marbles will raise the water level more than the 2 steel marbles.”

**Bas Insists:** “I am sure the water level in the graduated cylinder with the 2 steel marbles will rise to the 46 mL mark.”



With whom do you ...

(Additional materials available in members’ resources)

5. Mickey, a student, made the following statement: “**Large objects always have more mass than small objects.**” Do you ..

(Additional materials available in members’ resources)

6. Minnie, another student, made this statement: “**Objects made of steel or concrete always ...**”

(Additional materials available in members’ resources)