

Question #56

A balloon connected tightly to a flask is in equilibrium with weights on a pan balance, as shown in the photograph below.



The flask is partially filled with vinegar, an acid, and the balloon contains a few teaspoons of baking powder (that cannot be seen in the picture).

The balloon is then raised so that it is above the neck of the flask, allowing the baking powder to fall into and mix with the vinegar. When the vinegar and the baking powder mix, a chemical reaction occurs, producing carbon dioxide that inflates the balloon to a diameter of nearly seven inches. Initially, after the vinegar and the baking powder are mixed but before the balloon enlarges, the system remains in equilibrium. The question this week involves what happens to the balance condition after the reaction is complete and the balloon is inflated.

After the balloon is inflated,

- (a) the balloon side goes down.
- (b) the weight side goes down.
- (c) the balance remains in equilibrium.

Click here for [Answer #56](#) after March 19, 2001.

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