LESSON 118

LAB

How Backward Reversible Reactions

Name _____

Date _____ Period _____

Purpose

To explore reversible processes.

Part 1: Reversible Processes

Explain what is happening in each case in the forward and reverse directions for these reversible processes.

1. Phase change of water: $H_2O(l) \rightleftharpoons H_2O(g)$

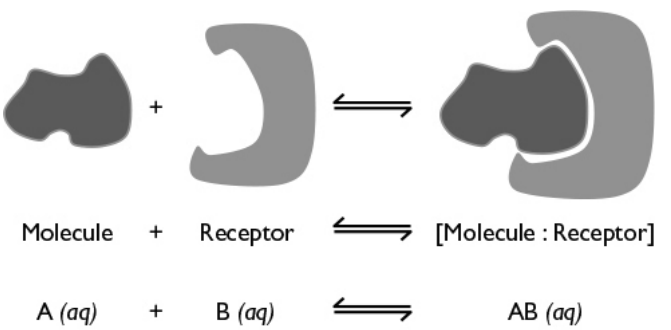
2. Dissolving a salt: $NaCl(s) \rightleftharpoons Na^+(aq) + Cl^-(aq)$

3. Indicator in solution: $HIn(aq) \rightleftharpoons H^+(aq) + In^-(aq)$

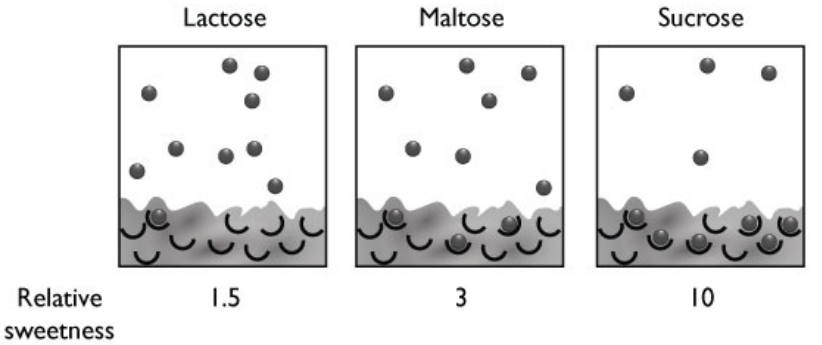
Part 2: Binding of Molecules to Receptors

When you taste sweetness, it is because certain molecules interact with receptors in the taste buds on the tip of your tongue. Use the information below to examine this process.

1. The three chemical equations below are three different ways of representing the interaction of sucrose molecules with taste receptors. What do these three chemical equations show? Why do you think a double arrow is used?



The figure shows molecules in three sweet substances interacting with taste buds in a tiny volume of saliva. The circles represent the molecules. The taste bud receptors are represented in the dark area at the base.The white space represents the saliva.



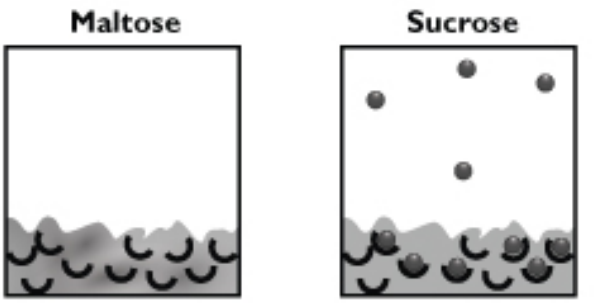
2. How many total molecules are represented in each of the three squares?

3. How do the three images differ from one another?

4. Based on the figures, why is sucrose sweeter than lactose?

5. How could you make a drink with maltose taste as sweet as a drink with sucrose?

6. Suppose you have a maltose solution with the same sweetness as the sucrose solution shown. Estimate the number of maltose molecules that would be in solution and attached to the receptor. Draw a model in the box provided.



7. Packets of sugar (sucrose) have more molecules compared with packets of artificial sweetener. What does this indicate about the relative sweetness of the two? Explain your thinking.

8. **Making Sense** Cvnj_gl uf_rgr kc_lq rf_r_npmacqq gq pctcpqg`jc,