

Quiz B: RI.7.4

Read the passage. Then answer the questions.

“Sugar, Sugar”

- 1 Every few years, a new “natural sugar substitute” appears on grocery shelves. Unlike artificial sweeteners—which are not sugars at all, and do not have the right sweetness to fool most palates—these “natural” sugar substitutes, such as agave, honey, or molasses, still contain sugar. Where do they come from, and what are the health risks? Let’s talk about the sweet stuff.

Main Cane

- 2 In baking, when a recipe calls for sugar, it usually refers to white processed cane sugar. We get 80% of the United States’ supply of this crystalline deliciousness from the cane plant, which is technically a grass that grows in tropical climates. Each cane plant contains cane juice. If you got your own stalk of sugar cane, you could chew on it a bit to extract the sugar-water, but it would be like sucking juice through dried corn husks. To get those tiny white crystals, the fibrous grass has a long way to go.
- 3 In factories, this juice is squished out of the stalks into a big vat of sweet juice that also contains soil, unlucky bugs, plant parts, and lots of other things we don’t want in our sugar. Then, the juice is evaporated and the icky bits cleaned out through filtering. This creates a very thick brown syrup, which is then boiled until the sugar starts to form into crystals. If you’ve ever had a crystal-growing kit, believe it or not, this is the same process rock crystals undergo when they form. The liquids are spun off and the sugar is dried into tiny brown crystals. To make it white, the crystals are bleached.
- 4 So, back to our list of alternative “natural” sugars—one of the items on this list is a byproduct of white sugar: molasses. When the crystals were spun to separate the liquids, those liquids are collected in a brown sludgy paste called molasses. It’s not as sweet as sugar, but it does have an earthy and sweet flavor used to make gingerbread and brown cakes. One question is, can we really call molasses a “sugar substitute” if it’s made from the same stuff?

What’s in a Sugar?

- 5 Let’s dig a little deeper into what makes up sugar. Your tongue knows two specific flavors as “sugar”: glucose and fructose. Each of these molecules is familiar to us because we eat them in many fruits, vegetables, breads and grains, and any other product that contains carbohydrates. A sucrose molecule is made up of half glucose and half fructose. This is the ratio that is in pure white crystalline sugar. Glucose and fructose are extremely rare in nature: think of the very sweetest fruit you can imagine, and it’s not nearly as sweet as a teaspoon of sugar. In fact, to make one pound of white sugar, it takes 7–10 pounds of cane. If we did not process cane so neatly, we would have to chew through a lot of fiber to get that same sugar rush.

