|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name: | **[insert name]** | Period: | **[insert Period]** | Date: | **[insert date]** |

Sugar Breakdown

# Background

To provide proof of the sugars present in the milk samples, a test is performed. In the test, scientists compared three milk samples: rice, cow, and soy. Using glucose test strips and an enzyme, scientists were able to determine which sample was which.

You will look at their experimental results to see if you can determine which milk is which. Use the following table to help you form your conclusions.

|  |  |  |
| --- | --- | --- |
| **Table 1** | | |
| **Milk Type** | **Carbohydrate in the Milk** | **Monosaccharide Components** |
| Rice | N/A | Glucose |
| Cow | Lactose | Glucose & Galactose |
| Soy | Sucrose | Glucose & Fructose |

# 

# Experimental Setup

Scientists tested the three milks of unknown type. The scientists each sample of milk for the presence of glucose using a glucose test strip. Similar to a pH strip, this glucose test strip changes color to indicate the amount of glucose present.

## Experiment 1

Below are the results from the first test of the milks for the presence of the sugar glucose.

|  |  |
| --- | --- |
| **Table 2** | |
| **Milk Sample** | **Amount of Glucose (mg/dL)** |
| A | 250 |
| B | 0 |
| C | 0 |

## Experiment 2

After analyzing the initial amount of glucose, scientists added the enzyme **lactase** to all of the samples and again measured for the presence of glucose.

|  |  |
| --- | --- |
| **Table 3** | |
| **Milk Sample** | **Amount of Glucose (mg/dL)** |
| A | 250 |
| B | 0 |
| C | 100 |

## Experiment 3

In a separate test, the scientists added the enzyme **sucrase** to all of the samples and measured for the presence of glucose.

|  |  |
| --- | --- |
| **Table 3** | |
| **Milk Sample** | **Amount of Glucose (mg/dL)** |
| A | 250 |
| B | 100 |
| C | 0 |

### *Drawing Conclusions*

Label below which milk you think was in each sample (rice, cow, or soy).

|  |  |
| --- | --- |
| **Sample** | **Milk Type** |
| Sample A |  |
| Sample B |  |
| Sample C |  |

## Gathering Information

Watch the Amoeba Sister’s video “[Enzymes](https://www.youtube.com/watch?v=qgVFkRn8f10)” until 2:58 and answer the questions below.

|  |  |
| --- | --- |
| **Question/Prompt** | **Your Response** |
| 1. What is the function of an enzyme? |  |
| 1. Now knowing about the naming of enzymes (-ase) and sugars (-ose), which sugar did the lactase break down? Which sugar did the sucrase break down? |  |
| 1. Do you think Maria’s symptoms match those of lactose intolerance that were discussed in the video? |  |

### Re-evaluating

Re-evaluate the your conclusions above and make your final conclusions below as to which milk you think was in each sample.

|  |  |
| --- | --- |
| **Sample** | **Milk Type** |
| Sample A |  |
| Sample B |  |
| Sample C |  |