NAME _____ DATE _____

STUDENT GUIDE

# BLOOD SUGAR ACTIVITY

**Materials:**

- Small cup labeled blood (water)
- Small cup labeled glucose (vinegar)
- Small cup labeled insulin (baking soda)
- 2 droppers
- 8 Hydrion Test Strips 0-13pH (2 inches)

**Methods:**

The water in the cup represents blood. Blood consists of red blood cells, white blood cells, platelets and plasma. Plasma is a liquid that allows molecules to travel around the body. When you eat food like fruit, vegetables, grains and dairy, you take in glucose. Glucose dissolves in the plasma and travels to all of your body cells where it is used for energy.

1. Dip one test strip into the blood (water) and let dry for 20 seconds. Record the color. This color will be considered normal. Find the number that matches to the color and record it on the data table.
2. Add 10 drops of glucose (vinegar) to the blood sample (water). Slowly swirl the blood. This is modeling eating a piece of fruit.
3. Dip one test strip into the blood (water) and let dry for 20 seconds. Record the color and number. This would be considered high blood sugar.
4. When your pancreas detects sugar in the blood, it releases insulin to help move the sugar into cells where it is turned into energy. Add 10 drops of insulin (baking soda) to the blood sample. Insert a test strip into the blood sample and let dry 20 seconds. Record the color and number. Keep adding drops of insulin until you get back to normal color.

***Challenge:*** Choose one of the foods below and add the amount of glucose noted into the blood. Predict how much insulin it will take to bring it back to normal. Then test it!

1. Candy bar = 15 drops glucose
2. Raisins = 10 drops glucose
3. Yogurt = 13 drops glucose
4. Toaster pastry = 20 drops glucose

**Low Blood Sugar**

**Normal Range**

**High Blood Sugar**

**Data:**

Record your observation from each test in the table. Describe the color and value.

| | Test | Color | Low/Normal/High |
|---|---|---|---|
| | Normal | | |
| | 10 drops glucose | | |
| | 10 drops insulin | | |
| **Challenge** | _____ drops glucose | | |
| | _____ drops insulin | | |

***Challenge:*** Choose one of the foods below and add the amount of glucose noted into the blood. Predict how much insulin it will take to bring it back to normal.
Then test it!

1. Candy bar = 15 drops glucose
2. Raisins = 10 drops glucose
3. Yogurt = 13 drops glucose
4. Toaster pastry = 20 drops glucose

**Analysis:**

1. What is the function (job) of insulin?

2. If someone has type 1 diabetes, they don't make insulin and have to have shots of insulin throughout the day. What information do you think they need in order to know how much insulin to take?

3. What happens if you add too much insulin?