Sci 8 **Gummy Bear and Osmosis Lab**  Name:

(Skills: Predicting, Identifying variables, Explaining) Partner:

**Question:** **How does tonicity affect a Gummy Bear?**

**Hypothesis A:** If a Gummy Bear is placed in a solution containing only water then water will flow \_\_\_\_\_\_\_\_\_\_ the gummy bear because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

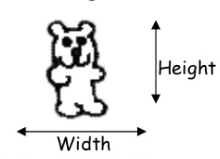
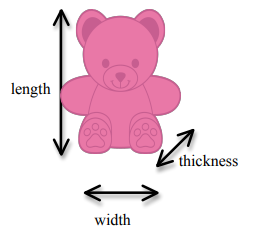
**Hypothesis B**: If a Gummy Bear is placed in a solution containing salt water then water will flow \_\_\_\_\_\_\_\_\_\_ the gummy bear because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Independent Variable (what will be manipulated): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dependent Variable (what is being measured): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Control Variables (what stays the same): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Materials:** gummy bears, tap water, salt water, plastic cups, ruler, scale, tape

**Procedure:** DAY 1

1. Obtain 2 Gummy Bears of the same colour.
2. Measure length**,** width, and depth of each. Record your measurements in **“Day 1 Observations”** Data Table
3. **Measure mass** of each gummy bear and record in same table.
4. Obtain two 100ml beakers. Label both beakers with your group name and block number. Label one beaker “distilled water”, and the other “salt water”.
5. Add 80ml distilled water to the distilled water beaker. Add 80ml salt water to the other beaker.
6. Place ONE Gummy Bear in EACH beaker. Set aside.

DAY 2

1. Observe each gummy bear in the beakers. Record your observations.
2. Carefully pour off the water and slip gummy bear onto paper towel. Record measurements in data table.
3. Calculate percent change in volume and mass of each gummy.
4. Clean up and put everything away.

**Observations**

|  |
| --- |
| Qualitative Tap Water Gummy Observations: |

**Measurements**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Length | Width | Height | Volume (mm3) =  Length x Width x Height |
| Day 1  Tap Water Gummy |  |  |  |  |
| Day 1  Salt Water Gummy |  |  |  |  |

**Day 2 Observations:**

|  |  |  |
| --- | --- | --- |
|  | Observations (size, colour, texture) | Volume = Length x Width x Height (mm3) |
| Tap Water |  |  |
| Salt Water |  |  |

**Calculate Percent change in volume**:

|  |  |
| --- | --- |
| % change in Volume =  (Day 2 volume – Day 1 volume) X 100 =  Day 1 volume | |
| Tap Water | Show your work: |
| Salt Water | Show your work: |

**Analysis:**

1. Why was it necessary to record measurements of your Gummy Bears before beginning the experiment?
2. Use CER to explain what happened to the Water Gummy.

CLAIM : In the tap water gummy, water moved \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The EVIDENCE is: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The REASONING is: (use concepts like concentration and osmosis) \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Using terms like ***tonicity*** and ***concentration***, explain why your Salt Gummy was smaller than the Water Gummy.
2. **Predict** what would happen if the Salt Gummy bear from day 2 was placed in fresh water overnight. **Explain** your reasoning.
3. **Predict** what would happen to the Water Gummy from day 2 if you placed it in salt water. **Explain** your reasoning.
4. EVALLUATE: What would improve the accuracy of this experiment?
5. Do you think sugar from the Gummy moved out of the bear? Why? Is there any evidence? How could you test this?