**Can students distinguish**

**between bottled water and tap water?**

**Purpose**

* Determineif students can distinguish between bottled water and tap water.

Materials

* 3 small drinking cups per student
* 1 index card per student
* Enough tap water for two cups per student
* Enough bottled water for one cup per student
* Six-sided die
* Graphing calculator

\*\*Before class begins, prepare numbered stations with cups of water labeled A, B, and C.

**Data Collection Procedures**

1. Get an index card with a station number on it.
2. Go to the corresponding station.
3. Pick up three cups (labeled A, B, and C) and take them back to your seat.
4. Drink all of the water in cup A.
5. Drink all of the water in cup B.
6. Drink all of the water in cup C.
7. Write down the letter of the cup that you think held the bottled water on your index card. Do not discuss your results with any of your classmates yet!

**Questions**

1. Combine class data on the following table.

**Data Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Station Number** | **Bottled Water Cup Letter** | **Initials** | **Truth** | **Correct or Incorrect** |
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1. After the teacher reveals the truth about the cup of bottled water, how many students in the class identified the bottled water correctly? Calculate the percentage.
2. If all of the students simply guessed which cup contained the bottled water, what percentage of the class would you expect to guess correctly?
3. How does this expected percentage compare to the percentage of correct identifications in question 2?
4. Let’s assume that you and your classmates were guessing at which cup held the bottled water. Roll your die once for each student in your class. If you roll a **1** or a **2**, then it represents a correct guess. If you roll a **3**, **4**, **5**, or **6**, then it represents an incorrect guess.
5. Record the results on the table. (These results simulate the number of correct identifications made by the class.)

**Simulation Data Table**

|  |  |  |
| --- | --- | --- |
| **Classmate Initials** | **Number Rolled with Die** | **Correct or Incorrect** |
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1. Using the simulation data table, how many students in the class identified the bottled water correctly? Calculate the percentage.
2. Based on the class’s simulation data, how does this percentage compare to the expected percentage in question 3?
3. In one sentence, answer the following question using the above data analysis to support your response. Can students distinguish between bottled water and tap water?