**Appendix 1: Instructor Lab Preparation Sheet**

**Materials Needed:**

1. Propel electrolyte water beverages, clear of the following flavors: watermelon, peach, cherry, orange, grape, lemon
2. Disposable nose clips
3. Cups of plain water
4. Wilton Neon Gel Food color: purple and orange
5. Wilton icing color: yellow, green, brown, red
6. Clear 3 oz. plastic cups
7. Blindfolds
8. Toothpicks
9. Laminated pictures: orange, stick of cinnamon, lime, apple, pineapple
10. Essential oils or fragrance oils: lemon, orange, cinnamon, pineapple, peppermint, apple, strawberry
11. Coffee grounds
12. Mentos fruit candies: strawberry, orange, lemon
13. Small unlabeled vials for scented oils

**Lab Set Up:**

**Experiment A1: Flavor in the absence of olfaction: 6 clear drinks of different flavors tasted with nose clip.**

1. Dispense the Propel clear flavored water into numbered clear plastic 3 oz cups in the order shown below. Provide a disposable nose clip for each group.
2. Provide a cup of plain water to clear the palate.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1. cherry | 1. orange | 1. grape | 1. lemon | 1. watermelon | 1. peach |

**Experiment A2: Flavor with olfaction: 6 clear drinks of different flavors tasted without nose clip.**

1. Dispense the Propel clear flavored water into numbered clear plastic 3 oz cups in the order shown below.
2. Provide a cup of plain water to clear the palate.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1. watermelon | 1. lemon | 1. peach | 1. orange | 1. cherry | 1. grape |

**Experiment B: Flavor with no color (visual) stimulus, with congruent and incongruent color matching.**

1.Dispense the Propel clear flavored water into numbered plastic 3 oz cups according to the first column in the table below.

2. Using a toothpick, add a small amount of food colorings (listed above) to the flavored water to achieve the color listed in the last column in the table below. Stir a small amount with the toothpick and then add more if necessary to achieve desired color.

3. Provide a cup of plain water to clear the palate.

|  |  |  |
| --- | --- | --- |
| Cup # | Flavor of Water | Color after adding food color |
| 1 | lemon | clear |
| 2 | cherry | red |
| 3 | lemon | brown |
| 4 | orange | clear |
| 5 | grape | purple |
| 6 | lemon | yellow |
| 7 | grape | clear |
| 8 | cherry | clear |
| 9 | orange | orange |
| 10 | lemon | green |

**Experiment C1: Scent with no visual cues (blindfolded)**

1. Place a small amount of each oil (enough to clearly convey the odor when sniffed) into an unlabeled vial and then label the vial on the bottom (so students can’t see the numbers) with the corresponding number from the list shown below.

2. Provide a small cup with coffee grounds to clear olfaction between scents.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1. lemon | 1. cinnamon | 1. orange | 1. pineapple | 1. peppermint | 1. apple |

**Experiment C2: Scent with congruent picture, scent with incongruent picture**

1. Print and laminate color images of the following: lime, cinnamon, orange, apple and pineapple. (Laminating the pictures allows for them to be re-used).
2. Instruct the test subject to smell the following odors when paired with the corresponding picture:
   1. Vial #3 with lime picture
   2. Vial #2 with cinnamon picture
   3. Vial #1 with lime picture
   4. Vial #3 with orange picture
   5. Vial #6 with apple picture
   6. Vial #6 with pineapple picture
   7. Vial #4 with pineapple picture

**Experiment D: Create your own hypothesis:**

1. Prepare one bag containing the following for each lab group: Three *each* of the three flavors of Mentos candies: 3 orange candies, 3 strawberry candies, 3 lemon candies in a zip-lock bag. Keep the bags in a location in the front of the room that the students cannot see. If the subject sees the candy flavors prior to completing the experiment it will significantly enhance their ability to identify the flavors.

2. Prepare three small unlabeled vials: one with orange scented oil, one with strawberry scented oil, one with lemon scented oil. Mark the bottom of the vial with the first letter of the scent so that the students will know which vial to pair with the appropriate candy flavor. Each group should receive one set of 3 vials. The group should also be provided with a blindfold for the test subject.

3. Once the group has established their hypothesis and identified the test subject (who should be blindfolded), one group member should come to the front and receive their bag of candies. At that time you can quietly explain to the student that they will pair the flavor with the scent on the bottom of the vial when they complete the portion of the experiment which pairs the candy flavor with the corresponding scent.

4. The test subject will sample each of the candies utilizing the following procedure:

Part 1: subject will identify flavor by tasting while blindfolded, without smelling the corresponding scent

Part 2: subject will identify flavor by tasting while blindfolded, while smelling the corresponding scent

Part 3: subject will identify flavor by tasting while seeing candy color prior to tasting (without scent)