Teeth Eggsperiment!

Background
Eggs are similar to our teeth as they protect the egg from breaking just like our enamel protects our teeth from decaying. It is important that we keep our teeth clean and healthy because once the enamel is gone it cannot be replaced, and our teeth can then become damaged.

Pre-lab Questions
1. What color should healthy teeth be?
2. What can you do to keep your teeth healthy?

Problem
How will the different drinks stain the egg shells over time?

Materials (per group)
- 12 eggs
- 12 clear cups
- Milk
- Dark soda
- Red Gatorade
- Coffee
- Grape Juice
- Water
- Timer
- Toothbrush
- Toothpaste
- Crayons
- Measuring cup
- 6 spoons
- 12 Paper plates
- Napkins

Safety
- Always wear safety goggles when handling chemicals in the lab.
- Wash your hands thoroughly before leaving the lab.
- Do not consume lab solutions, even if they’re otherwise edible products.
- Food in the lab should be considered a chemical not for consumption.

Procedure
Day 1:
1. In your group, using a measuring cup, measure 6 oz. or ¾ cup of each drink and place it in the clear cups.
2. Repeat step 1 so that there are two cups of each drink. One cup of each drink is for the overnight observation.
3. You may choose to label each cup, but this is optional since the drinks are different colors and it can be easy to tell which drink is in the cup based on its color.
4. Before placing the eggs in the cups, record your observations of the eggs on your recording sheet of the “initial” for each drink.
5. Place one egg in each of the cups (a total of 12 cups).
6. The eggs used for the overnight observation will be put to the side; there should be a total of 6 cups, one of each type of drink.
7. The eggs in the remaining 6 cups will be left submerged in the drink for 30 minutes (start a timer).
8. After the 30 minutes is up, use the spoon to carefully remove the egg from each of the cups and place it on a paper plate.
9. Record your observations on your recording sheet under the “after” for each drink.
Sketch and color an egg as it appears. You should sketch and color a total of 6 eggs.

10. Use the tooth brush and a small amount of toothpaste to brush each of the 6 eggs that have been placed on the plates. Brush for about 1 minute and gently clean off the eggs with napkins.

11. Place the eggs back on the plate and record your observations on the “after brushing” for each drink, sketch and color the egg as you see it.

12. After you have written down your last observations, place all the materials on a designated table so that your teacher may dispose of it later.

Day 2:
1. The 6 cups will be placed back in your groups and you will follow steps 8-12.

Data
Record your observations in the data tables below.

Analysis
1. What drink stained the most? After brushing the eggs, was there a stain that could not be removed?

2. Is there a drink that did not stain at all?

3. From which eggs were you able to remove the stain the most, after the 30 minutes or overnight?

4. After observing this lab, which drink will you prefer in the future to keep your teeth clean and healthy?
Observations of the egg after 30 minutes:

<table>
<thead>
<tr>
<th>Drink Type</th>
<th>Initial</th>
<th>After (sketch and color egg)</th>
<th>After Brushing (sketch and color egg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soda</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red Gatorade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coffee</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grape Juice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Observations of the egg after 1 day:

<table>
<thead>
<tr>
<th>Drink Type</th>
<th>Initial</th>
<th>After (sketch and color egg)</th>
<th>After Brushing (sketch and color egg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soda</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red Gatorade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coffee</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grape Juice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>