

Take Home Lab: Dyeing Eggs

Problem to Solve: Which egg dye is most effective?

Introduction: Discuss the chemical components of an eggshell and the vinegar, and devise a chemical equation for possible reactions between them.

Materials

2 hardboiled eggs	
food coloring, in your choice of color (commercial egg dye may be used, but you must use the vinegar as in the procedure)	
large measuring cup (2 cup capacity)	1 small plastic bag
measuring spoons	water
2 deep bowls, 3 cup capacity or larger	vinegar

Safety

Be careful not to get food coloring on your clothes or hands, or the countertop. Dispose of the dye by pouring it carefully down the drain. Carefully clean up stains with a dilute solution of chlorine bleach and a rag. Dispose of the eggshells (except the one you turn in) by composting them. Dispose of the eggs by eating them.

Procedure

1. Prepare dye as follows: in large measuring cup, place 2 cups water, and 5 teaspoons food color. Pour half of this mixture into each bowl. To one of the bowls, add 2 tablespoons of vinegar.
2. Place one egg in each container. Let them sit for 10-15 minutes.
3. Remove each egg and wash them in running water.
4. Clean up the kitchen. Do all dishes, dry, and put away. Clean the countertops. Clean the sink. Take out the garbage. Prepare dinner. Scrub and wax the floor. Clean the garage.

Data and Observations

Show the eggs to other family members. Ask them to help you devise an hypothesis regarding the effects of vinegar on dyeing eggs.

- description of eggs - note any differences.
- is the effect of vinegar in the dye directly or inversely proportional?
- other factors which may affect the dyeing process
- develop an explanation (theory) for the cause of the effects you have observed and discuss it with other family members. Include a balanced chemical equation.
- devise and carry out an investigation into these other factors. Enlist other family members to help you.

Write a short discussion in your lab book describing what you found. Include the information in the Data and Observations section, including the factor you believe is responsible for the behavior. Have other family members with whom you discussed this problem read your essay and write a short comment at the end.

Conclusion: What factor caused the dye to work better on one egg? Why?

Submit your lab book and 1 whole eggshell, removed from the egg, in a sealed plastic bag for credit.