The Alcoholic Egg

Grade Level: Five

Strand: Matter and Materials

Topic: Properties of Liquids and Solids

Expectations

Science
5s49 Grade 5 PLNR02 Science and Technology Matter and Materials
Relating Science and Technology to the World Outside the School
Describe physical changes and chemical reactions that can take place in household products and explain how these reactions affect the use of the products (e.g., the role of baking soda in cooking; the role of heat in cooking an egg)

Health
5p16 Grade 5 PLNR02 Health & Physical Education Healthy Living
Substance Use / Abuse
Describe the short- and long-term effects of alcohol use and abuse

5p17 Grade 5 PLNR02 Health & Physical Education Healthy Living
Substance Use / Abuse
Apply decision-making skills to make healthy choices about alcohol use, and recognize factors (e.g., the media, family members, friends, laws) that can influence the decision to drink alcohol;

*This activity is an excellent opportunity to integrate science across the curriculum with the substance abuse strand of health and physical education.

Required Materials

- Uncooked eggs (2)
- Frying pans (2)
- Rubbing alcohol
- Water

Description of Procedure

- Take two frying pans and place them side by side on a table
- Fill one frying pan with water and fill the other with alcohol (approximately 1cm deep in each frying pan)
• Crack an egg into each of the frying pans
• Observe how the egg cracked into the alcohol changes in appearance over a period of time (after 5, 10, 30 minutes, 24 hours)
• Observe the egg that was cracked into the water and any changes in its appearance

Scientific Explanation

When you cook an egg using heat, the egg changes appearance because the proteins within the egg undergo a chemical reaction. Besides heat, there are other ways to change the proteins within an egg. This process is called denaturing. When alcohol comes in contact with the proteins, it mimics the effect of cooking the egg, producing a similar chemical reaction.

Discussion Questions

What is required in order to cook something?
The definition of cooking is to transform by heating and therefore heat is required to cook.

If alcohol is able to mimic the effect of cooking an egg, what effect do you think it has on your body?
Exposure to too much alcohol can cause damage to cells in the body.

What effect do you think drinking alcohol would have on an unborn baby?
Alcohol can affect the growth and development of a baby.

Would it be safe to eat this egg? Why or why not?
No. The rubbing alcohol causes bacteria to forms on the egg, which makes it unsafe to eat.

Definitions

Cooking: to transform by heating
Chemical reaction: two or more molecules interacting and something happens
Denaturing: the process of changing proteins and causing them to rebuild in a different way.
Can be caused by heat, alcohol, etc…

References

http://www.metacafe.com/watch/807713/cooking_egg_with_alcohol/
Video of Experiment
http://www.cienciadivertida.com/ingles/experimentos.htm
Instructions on how to do this experiment
Effects of Alcohol on the body
Fetal Alcohol Spectrum Disorder
Definition of chemical reaction (for kids)

**Presenters:** Kristel Gobby & Michael Schaus (Section 2)

**Pictures**

Alcoholic Egg: 5 minutes after cracked in the bowl

![Image of Alcoholic Egg 5 minutes after cracked in the bowl](image)

30 minutes after cracked in the bowl

![Image of Alcoholic Egg 30 minutes after cracked in the bowl](image)

12 hours after cracked in the bowl

![Image of Alcoholic Egg 12 hours after cracked in the bowl](image)