

# Experiment 4: The Power of Soda

There are numerous rumors about soda being so bad for a person that it will dissolve a nail, tooth, penny or piece of meat within days. The basis of these rumors stems from the fact that most sodas contain phosphoric acid, which is also used in jellies, pickling solutions and in rustproofing metals. A science fair project about discovering if soda will dissolve a nail in four days must be well researched, methodical and objective.

## Research

Begin by researching the subject to discover where the rumor originated. In the case of soda dissolving objects, it originated in 1950 when a researcher claimed that a tooth left in a container of Coke will soften and dissolve within two days because of the high phosphoric acid content in Coke. The tooth later became a penny, piece of meat or nail and the length of time varies depending on the source.

## Hypothesis

Form a hypothesis, which is an educated guess, about the truth or fallacy of the rumor. The rumor is that soda will dissolve a nail in four days. A hypothesis may agree or disagree with the rumor; however, it should be supported by facts. An example of a hypothesis that agrees with the rumor follows as, based on the pH level of phosphoric acid used in sodas, I hypothesize that soda will dissolve a nail in four days.

## Materials

Gather all of the needed materials for the science fair project. Pick a variety of sodas including both dark and light colored ones, such as Coke, Mountain Dew, Diet Coke and Sprite. Different types of materials make up nails including brass and iron; therefore, choose one type to use throughout the entire project. Collect containers to hold the soda and nails. Ensure that the containers are the exact same in materials, such as all glass or all plastic.

## Procedures

Place a nail in the bottom of each container and pour enough soda in to cover the nail completely. Pour a different type of soda into each container and label which type it is. Leave the nails in the containers of soda for four days, recording changes in the nails every day. If a camera is available, take pictures of the nails before placing them in soda and after four days in the soda to document changes. Discuss the results in comparison to the rumor, hypotheses and procedure.

**This experiment is found at** <https://sciencing.com/science-dissolving-nail-four-days-8743894.html>