



# **Opposition: Sinking paper clips**

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## Problem #21:

.In a well-known physics demonstration, small metal objects(e.g. paper clips, pins, or needles) stay afloat on water. If a small amount of soap is then added to water, some of the floating objects instanteoneously sink. Investigate the critical conditions for sinking.

Task partially fulfilled.

# Theory



1. Good explanation of hydrogen bonds
2. Theoretical model



1. No quantitative analysis
2. Not mentioning any equation
3. No explanation of the effect of soap on the surface tension

# Experiment



1. Changed different parameters



1. Not pointing out concentration of the soap solution
2. Not taking into account the reaction of soap and salts dissolved in the water
3. Lack of video and image material describing the effect
4. Not measuring temperature

# Conclusion:

The theory was incomplete, the experiment is average,

**Thank you for your Attention!**