

Title - IS THE GLASS REALLY FULL?

By - Judy Schneider

Primary Subject - Science

Secondary Subjects - Science

Grade Level - 5 - 8 (adaptable)

SCIENCE PROJECT OF THE WEEK

IS THE GLASS REALLY FULL?

PROBLEM: How many pennies can be added to a glass that is already full?

RESEARCH: Look up surface tension in a science textbook. Write two or three paragraphs about surface tension.

HYPOTHESIS: Based on your research, do you think the glass will hold more pennies than you thought?

MATERIALS:

1 clear glass

water

40 to 50 pennies

PROCEDURE:

1. Fill a glass right to the top with water, until it will hold no more.
2. Start gently dropping coins into the water. **HINT:** It is best to hold the coins on edge and carefully slip them into the water.
3. keep adding coins until the water overflows.
4. Repeat the procedure two more times.
5. **Enrichment:** Add a drop of dish soap to the water. Repeat steps 1 through 4.

DATA: Make a chart to record the number of pennies you were able to add to the glass.

CONCLUSION: This is not optional. You must explain what you learned by doing this activity. Remember that you must answer the question you asked in your original problem statement.

NOTE: BE SURE TO HAVE YOUR PARENT OR GUARDIAN SIGNS YOUR WORK. PARENTS: YOUR SIGNATURE SHOWS YOUR STUDENT HAS DONE THE WORK.

TEACHER SECTION:

POSSIBLE HYPOTHESIS: Students should guess how many pennies could be added to the glass.

POSSIBLE CONCLUSION: Water molecules have a strong attraction for one another. Inside the glass, the molecules that are surrounded by other molecules are attracted in all directions. But the molecules at the surface have no water above them, so they are strongly attracted downwards by the molecules below them. These attractive forces are strong enough to keep the water from spilling over the top of the glass, even when the level rises quite a bit above the rim of the glass. Eventually the volume of water above the rim of the glass becomes too great for the surface tension to hold, and the water will spill.

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