



Curiosity Guide #602

Bubble Science

Accompanies Curious Crew, Season 6, Episode 2 (#602)

Bubble Bath

Investigation #7

Description

This investigation gives "bubble bath" a new meaning!

Materials

- Two-liter bottle
- 2 buckets
- Ice
- Hot water
- Bubble solution
- Small cups

Procedure

- 1) Pour some bubble solution into the small cups.
- 2) Remove the cap from the bottle and set aside.
- 3) Fill one bucket with two inches of hot water.
- 4) Fill the second bucket with two inches of ice water.
- 5) Turn the bottle over and submerge the neck of the bottle into the bubble solution to create a film over the opening.
- 6) Turn the bottle right side up.
- 7) What will happen if you place the bottom of the bottle in the cold bath?
- 8) How about the hot bath?
- 9) What do you notice?

My Results

Explanation

The adhesive properties of the bubble solution create a film over the top of the bottle. Because the film is elastic, the bubble stretches. In the hot bath, the bubble quickly gets pushed out, but in the cold bath, the bubble creeps down inside the bottle.

This set-up can be used like a Bubble Meter that detects the speed of the air particles inside the bottle compared the particle energy outside the bottle. When the air inside the bottle is heated up, the air particles move more quickly and hit the film with greater frequency and force than do the room temperature particles outside the bottle. In this case, the bubble goes out. When the bottle is in the cold bath, the inner particles move slower than the particles at room temperature, so the soap bubble gets pushed in.

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