

The background of the slide is a light gray color, overlaid with numerous overlapping circles of various sizes and colors. The colors include shades of blue, orange, pink, purple, green, and teal. The circles are scattered across the entire slide, creating a dynamic and abstract pattern.

● **DOUBLE-LAYERED LIQUID BALL**

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OVERVIEW

The Idea
Hypothesis
Materials
Procedure
Results and Discussion



THE IDEA



Here on the surface, oil rests above the water because it is less dense. Will the same thing happen in space?

How does two immiscible fluids interact with each other in space, specifically, oil and water?

HYPOTHESIS

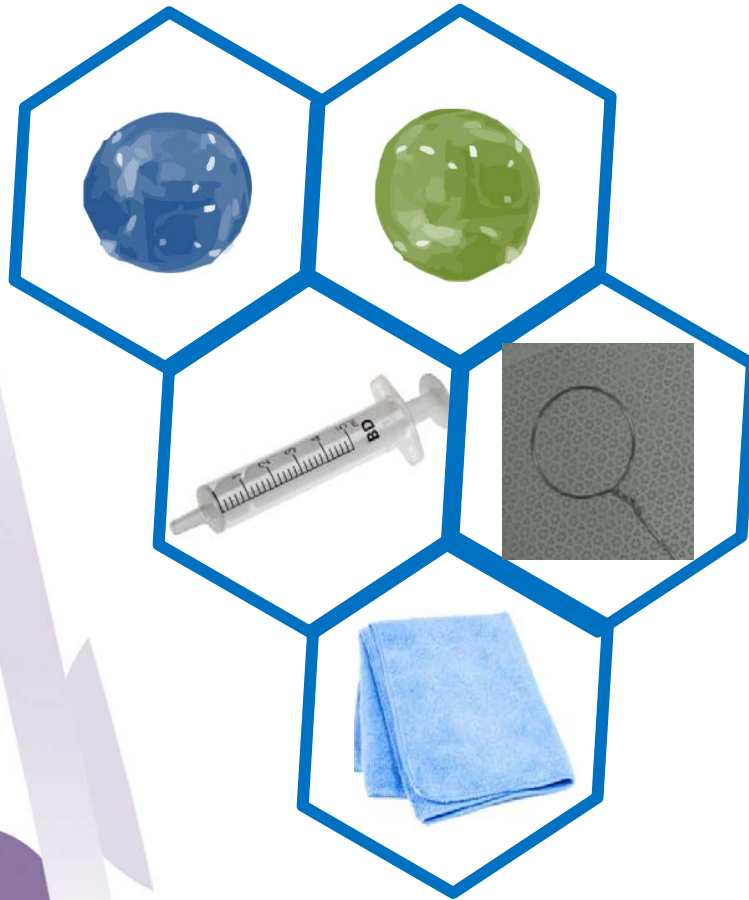
When oil is injected inside a ball of water in space, it will enclose the water.

If water is injected in oil instead, there would be no change.

On the surface, oil rests on top of the water because it is less dense. In theory, the water should be enclosed by the oil.



MATERIALS



Water

Oil

Plastic Syringe

Metal Ring

Cloth

PROCEDURE

1. Form a ball of water supported inside the metal ring
2. Inject oil inside the ball of water using the syringe and observe what happens.



PROCEDURE

3. Clean the setup using syringe and cloth
4. Redo experiment by forming the ball of oil first and observe what happens
5. Clean the setup using syringe and cloth



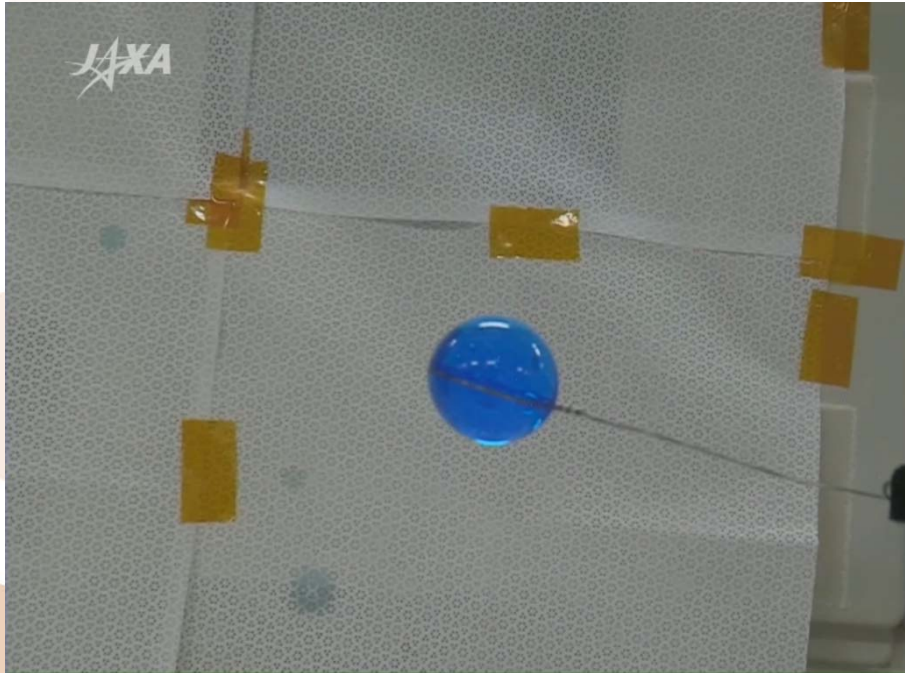
RESULTS



In this image, after injecting water in the oil, water (blue) remains inside the ball of silicon oil (colorless).

Images taken from “Double-Layered Liquid Ball” experiment on Asian Try Zero-G 2018 conducted by JAXA astronaut Norishige Kanai at the ISS Kibo Module

RESULTS



In this image, upon injecting oil in the water, although unclear on initial observations, the silicon oil (colorless) stays inside the ball of water (blue).

Images taken from “Double-Layered Liquid Ball” experiment on Asian Try Zero-G 2018 conducted by JAXA astronaut Norishige Kanai at ISS Kibo Module



RESULTS

Under microgravity conditions, other forces tend to dominate in space. In this experiment, density didn't play a role in the results. Instead, it was surface tension.

Both cases in this experiment show that the liquids have not changed their positions. The water cannot penetrate the oil in the interface and the same is true the other way around.



References

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THANK YOU!