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Fish can freely rise or dive in water. Do you know how they do it? With just a few common materials found at home, you can discover the answer. Through this classic science experiment, you will explore the density of materials and uncover the mystery of why fish float and sink.

## **Materials Needed**

A bottle of water 16 paperclips Scissors 5 straws



# **Step-by-step tutorial**

### Step 1

Prepare the Straws: Bend the straws and use scissors to cut off the bent part horizontally.





Insert Paperclips: Take a paperclip and insert the two ends into the openings of the straw.





Attach Another Paperclip: Then, slide another paperclip onto the tail of the paperclip that is already inserted in the straw.



![](_page_0_Picture_16.jpeg)

Test the Setup: Now, place the assembled paperclip in water and press down on it with your hand; it will not sink.

![](_page_0_Picture_18.jpeg)

#### Step 5

Observe the Effects: Place the paperclip into the water-filled bottle, ensuring not to overfill it. Leave a little air at the top. If you squeeze the middle of the bottle, the paperclip will sink. Why is that?

![](_page_0_Picture_21.jpeg)

## **The Science Behind It:**

When the straw is placed in water, it floats on the surface because it contains some air. When the bottle is squeezed, the change in air pressure inside the bottle compresses the air in the straw, causing the paperclip to drop. When the air pressure returns to normal, the paperclip rises again. This is very similar to how fish regulate their buoyancy with their swim bladders. Fish control their density by adjusting the amount of gas inside the swim bladder, which affects whether they float or sink.