

Can Fish Drown?

Student Worksheet

Name _____

Overview: After today, those of you that own a fish will run home to change its water. Why? You'll soon find out!

What to Learn: You should understand that tiny air bubbles are present in water, and realize more air can be dissolved in cold water than hot water.

Materials

- test tube
- single-hole stopper for test tube
- right-angle glass tube
- test tube clamp
- test tube rack
- lighter (with adult help)
- alcohol burner or votive candle
- regular tap water

Lab Time

1. Insert the right-angle glass tube halfway into a single-hole stopper. Twist gently, and do not shove, to move the tube through the hole of the stopper.
2. Fill test tube completely with tap water. Insert stopper with glass tube. The water should come up the glass tube.
3. Clamp the test tube in a test tube clamp and insert it into a test tube holder so it is completely horizontal. Make sure no pockets of air are inside the test tube.
4. Light the alcohol burner.
5. Holding test tube by hand or keeping it in the rack, gently use the burner to heat the water. Do NOT allow the water to boil!
6. Observe.
7. When you are finished, extinguish flame and wait until glassware is cool. If the test tube has turned colors, wipe it off before storage.

Can Fish Drown? Data Table

Item/Object	Observations
Test tube with water	
90 ° glass tubing	

Exercises Answer the questions below:

1. Why does the water go up the glass tube as you heat the test tube?
2. Why does a cup of water left out all night taste so flat in the morning?
3. Can more air dissolve in cold water or hot water? How do you know?
4. Why is it so important to change your fish's water regularly?

Exercises

1. Why does the water go up the glass tube as you heat the test tube? (Air escaping from the water starts to fill up the test tube, so it pushes the water up.)
2. Why does a cup of water left out all night taste so flat in the morning? (The air bubbles have escaped, making it taste dull.)
3. Can more air dissolve in cold water or hot water? How do you know? (Cold water, because when the water is heated, the air can't fit as well so it escapes.)
4. Why is it so important to change your fish's water regularly? (Fish rely on the trapped air in the water for their respiratory systems. Water that hasn't been moved or changed doesn't have a lot of air inside, so it makes it hard for them to breathe.)

Closure: Before moving on, ask your students if they have any recommendations or unanswered questions that they can work out on their own. Brainstorming extension ideas is a great way to add more science studies to your class time.