

Question #347

Shown in the photograph below is a one-gallon glass jug with a cork in the mouth. The cork has a hole, through which an air-tight plastic tube has been positioned, with the other end of the tube connected to an air pump like those used for inflating a bicycle tire.



Suppose that we begin to pump air into the bottle, causing the pressure in the bottle to rise. Eventually the air pressure in the bottle will be so large that the pressure will blow the cork off the bottle.

Before this experiment is done, we put a small amount of water in the bottom of the bottle and gently shook the bottle until the air in the bottle became nearly saturated with water vapor.

The question is: What will happen to the temperature of the air in the bottle when the cork is blown off?

- (a) The temperature of the air will become higher.
- (b) The temperature of the air will become lower.
- (c) the temperature of the air will remain the same.

The second question is: How would we know whether the air in the bottle changes temperature?

Click here for [Answer #347](#) after May 18, 2009.

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For questions and comments regarding the *Question of the Week* contact

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