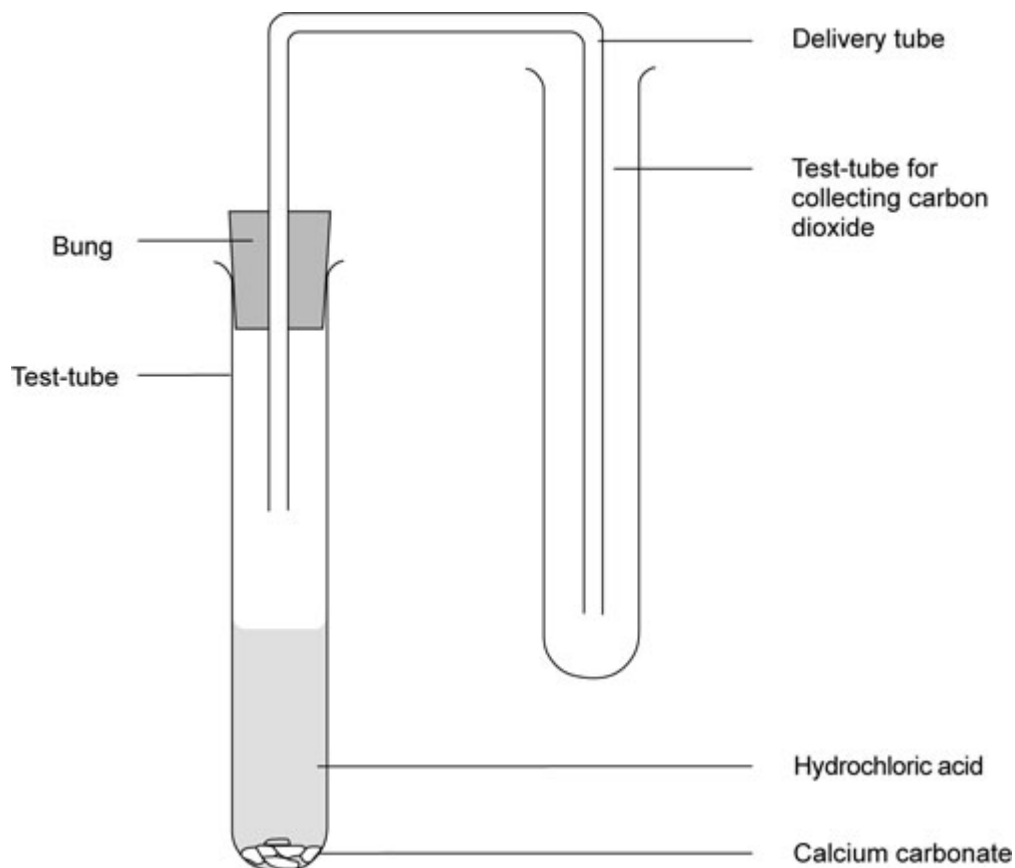


Student worksheet: Particles in motion?

Introduction

These two activities suggest that particles in a gas are in motion.



What to do

1. Set up the apparatus as shown in the diagram.
2. Put a spatula measure of calcium carbonate into the first test-tube.
3. Add 10 cm³ of hydrochloric acid and quickly replace the bung and delivery tube. Ensure the delivery tube reaches almost to the bottom of the second test-tube.
4. Allow the gas to pass into the second test-tube for about one minute, then remove the delivery tube and cork the test-tube.
5. Hold the test-tube upside down over a similar test-tube containing air.
6. Remove the cork and place the tubes mouth to mouth.
7. After 5 min, cork both tubes and test the contents for carbon dioxide (swirl a little limewater round in the test-tube). Write down what happens in both tubes.
8. Repeat this experiment but this time at step 5 hold the test-tube of air upside down over a test-tube of carbon dioxide.

Safety

Wear eye protection.

Questions

1. Which of the four test-tubes contained carbon dioxide at the end of the experiment?
2. Is air or carbon dioxide more dense?
3. Does this experiment support the idea that the particles of a gas are in motion? Give your reasons.

Credits

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