

Tests for gases

Big Manny: Aight, boom.

There are four tests for gases you might be asked to do as a practical in your science lessons.

Let's find out how to do these tests and identify the gases.

You can't tell these gases apart by sight.

So we use simple chemical tests, just like scientists do when checking for gases made in reactions or released into the air.

Now, the four main tests you need to know about are: oxygen, hydrogen, carbon dioxide, and chlorine.

Make sure you keep track of the results with a table like this.

We can track the gas in the first column, the type of tests we're conducting in the second column, and in the third column, we're going to have the results of the test.

And of course, you've got to make sure you're wearing the eye protection before starting.

Let's begin with a test for oxygen gas.

So, right here in this conical flask we've got a gas.

So to identify it, first thing we're going to do is get a splint and then we're going to light it like that.

Okay, lovely.

So the next thing we're going to do is actually extinguish the fire.

And now the splint is just glowing.

And we're going to put it inside the conical flask and see what happens.

So look at that.

The flame has come back.

So that shows us that oxygen gas is present in the conical flask because oxygen supports combustion.

Now when you're finished, all you got to do is just dip it into some water and get rid of the flame.

Next up, we're testing for hydrogen gas.

So first thing we need is a splint.

Now we're going to light it, just like that, right at the end.

And then once we've got the flame going, we're going to go to the conical flask and remove our bung.

And then we're going to pass the flame over the top of the flask.

So, we can hear that we're just a little squeaky pop.

That's because the hydrogen created a little mini explosion.

Hydrogen gas is flammable.

It reacts with oxygen in the air, and it formed water.

And that's why we've got a little explosion there as well.

And now it's time for carbon dioxide gas.

So right here, in this test tube, we've got some lime water.

And in this conical flask we've got some hydrochloric acid.

And what we're going to do is add some calcium carbonate to the hydrochloric acid.

And it's going to produce some carbon dioxide gas.

So let's add that in like that.

And then put the bung on top.

Now all the carbon dioxide gas is travelling through this delivery tube and it's going into the lime water in this test tube.

Do you see those bubbles being produced there?

So that's carbon dioxide gas.

So, right now, we can see that the lime water has turned cloudy.

The lime water has reacted with the carbon dioxide to form calcium carbonate.

Right, so now, we're going to test for some chlorine gas.

So first thing I need, is just a pair of tweezers.

And I'm just going to use them to pick up some litmus paper.

And then now we're going to dip the litmus paper into a little bit of water just so we can make it damp.

Now in this conical flask we've got some chlorine gas.

So what we're going to do is remove the bung from the conical flask.

And then we're going to put the litmus paper into the conical flask like that.

And we can see, yeah, that the paper is actually turning white.

So what happened, yeah.

The chlorine gas, it acted like a bleach.

And it removed all of the colour from the paper.

So that's why it's turned white.

Right, so now we're just going to pop it into this little bowl here, like that.

And then that's how you test for chlorine gas.

And here is a completed table.

Each test is based on a unique chemical reaction or property that the gas holds.

Four gases and four simple tests.

Don't forget what to look out for.