

Sci Fair

confirm timelines

Feb 7 forms

• Fill 02A (required Feb 7) ✓

02B (if applicable)

02C (if applicable)

basic info ✓
registration ✓
read rules and
regulations ✓
read FAQ

Mar 21 complete project (online)

gather materials

test experiment / research

Apr 10

complete tri-fold (-) fill logbook

① brainstorm

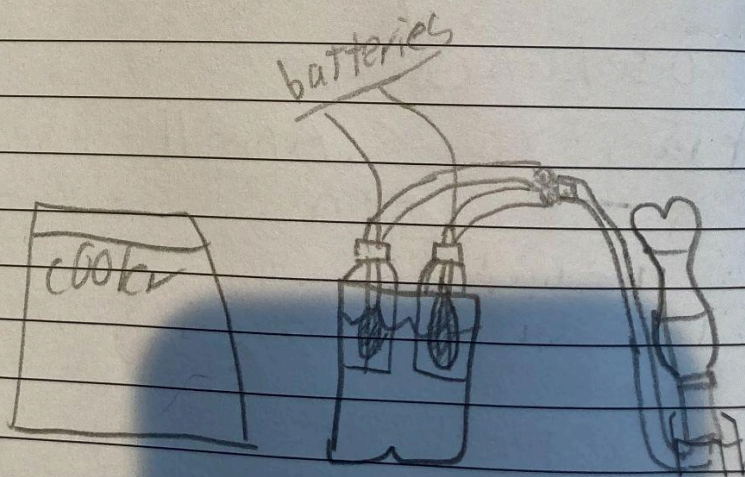
② actually do it

③ setup @ oval

⚠ Sci Fair: Apr 11

water 101

cooler ✓
ice ✓
baking soda ✓
bottles ✓
hot glue ✓
medical tubing
2cm diameter metal pipe
metal whisk x2
steel wool x2
9-volt batteries x?
alligator clip wires x?
3D printed stand



experiments

Feb 23 19:32

I set up the system with a shallow dish of soapy water instead of the launch bottle. my indication of success will be if enough brown gas has been produced to create explosive bubbles, which I will test by setting fire to them.

UPDATE:

@ 19:44: no change. I am beginning to think that the five 9V batteries I chose do not have the necessary amperage for producing reasonable amounts of gas. I may have to upgrade to a 12V 10Ah lamp battery or two wired in parallel.

Experiment no. 2, Mar. 7 19:08

I decided to get the lantern battery. I am now using the lantern battery in place of my 5 9V batteries. Despite the large increase in amperage, nothing seems to have changed.

19:27

still nothing. This experiment did not produce any meaningful amount of gas.

Test 3 Mar. 11, 18:02

I have decided to upgrade to both batteries. They are wired both negatives to one electrode, and both positives to the other. This should be providing 22 amps at 6 volts. There is substantially more foam.

18:23

There are still no bubbles in the dish. I will now leave it for about 1 hour.

19:31

No noticeable change. This test has failed to produce meaningful amounts of brown gas again. I have lost my faith in this setup. I believe it will be wise to down significantly.

TEST 4 Mar 13 17:34

I have decided to remove every thing beyond the electrodes, and ignite the hydrogen bubbles directly upon production. It was a success! I removed the plastic bottle over one whisk, freeing the (hydrogen) bubbles to roam around the basin. I have also poked a hole in the other bottle to try to promote gas mixing. This didn't do much.

18:15

I left it for 30 minutes and now the basin is filled with bubbles. I ignited them and, while they made no noise, they did still flash up. There was also a separate group of larger bubbles close to the main area of electrolysis, which did pop loudly when ignited. I think

Sketch of the final setup

