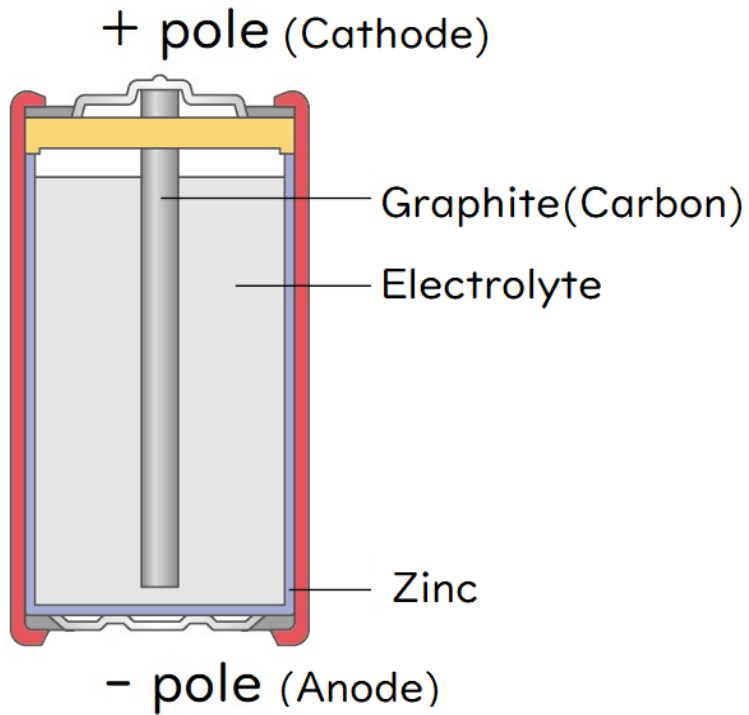


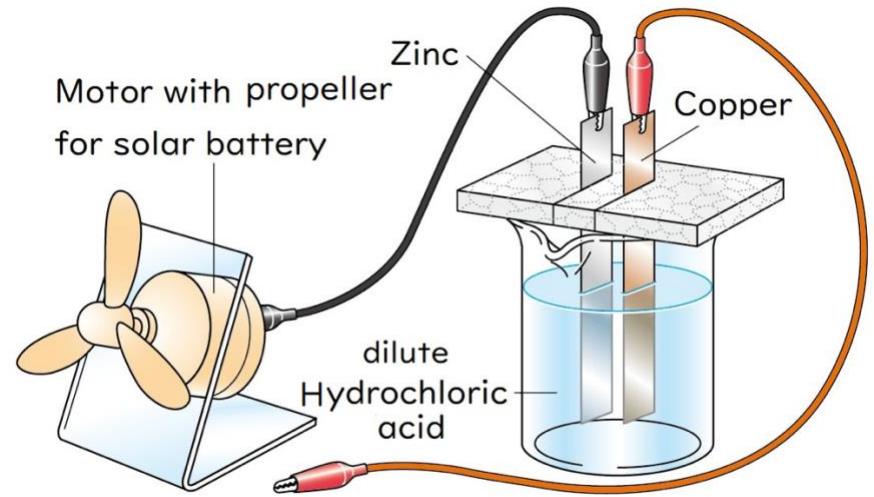
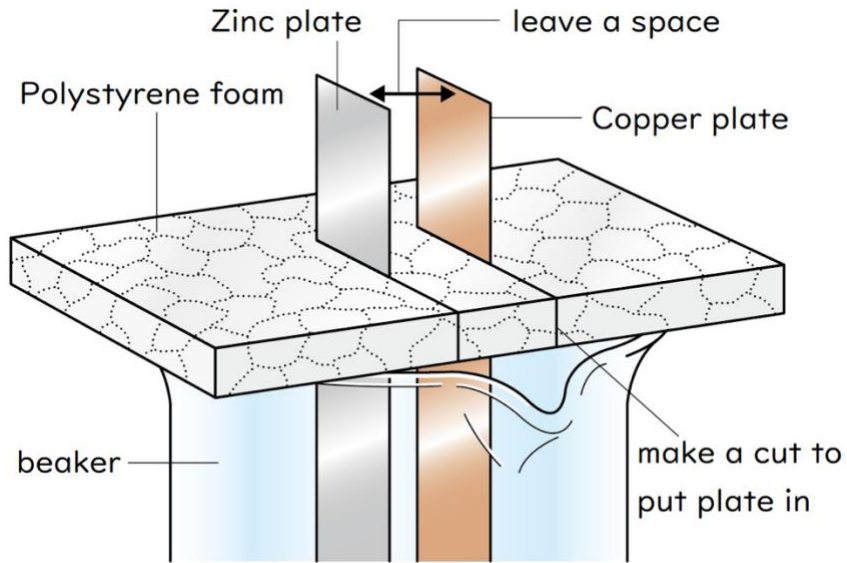
2-1 Chemical reaction and ion



Battery is...

- 2 types of metal for Cathode and Anode
- Electrolyte between Cathode and Anode

【 Experiment ③ 】



Results

Metals	dilute Hydrochloric acid	Sodium chloride solution	Sugar water
Cu and Zn	spins / doesn't spin	spins / doesn't spin	spins / doesn't spin
	What happens? Bubbles on both pole	What happens? Bubbles on both pole	What happens? No change
Cu and Cu	spins / doesn't spin	spins / doesn't spin	spins / doesn't spin
	What happens? No change	What happens? No change	What happens? No change
Cu and Mg	spins / doesn't spin	spins / doesn't spin	spins / doesn't spin
	What happens? Bubbles on both pole	What happens? Bubbles on both pole	What happens? No change
Zn and Zn	spins / doesn't spin	spins / doesn't spin	spins / doesn't spin
	What happens? Bubbles on both pole	What happens? No change	What happens? No change

Discussions

1. What solution should we use?

Electrolyte

2. What combination of metals should we use ?

Different types of metal → Cu and Mg are the best!!

3. Why did the gas appear while making electric energy?

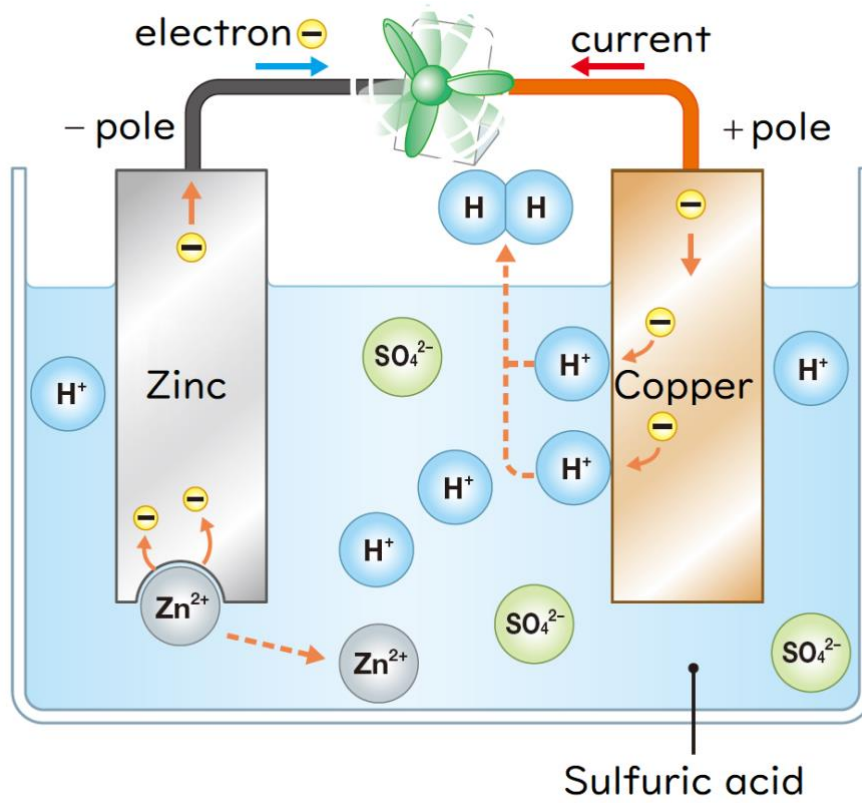
On Cu ... H₂ gas appear when electricity happens

On Zn and Mg ... H₂ gas appear when metal dissolves

Chemical battery

Machine that changes chemical energy into electric energy by chemical reaction.

① Voltaic pile

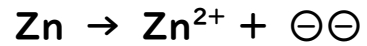


Batteries and ions

In Voltaic pile...

First, a Zinc atom loses two electrons and becomes a Zinc ion

⇒ Zinc plate dissolves away.



Second, electrons move to Copper plate through wires. This movement is “ current ”.

Third, Hydrogen ions (H^+) in the solution gains electrons from the Copper plate.



Finally, two Hydrogen atoms become one H_2 molecule.

+ (Cathode) ... gets electrons from wire.

- (Anode) ... gives electrons to wire.

② Daniell cell

