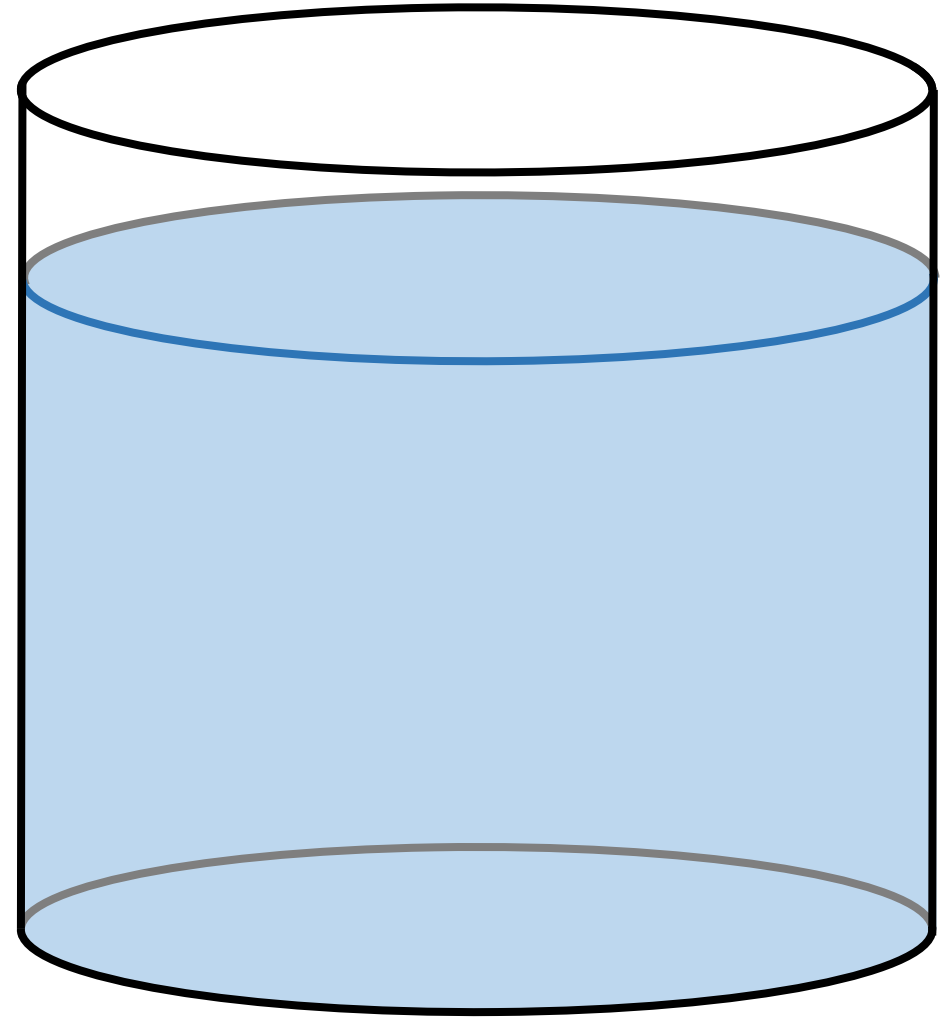


Electrolytic Dissociation

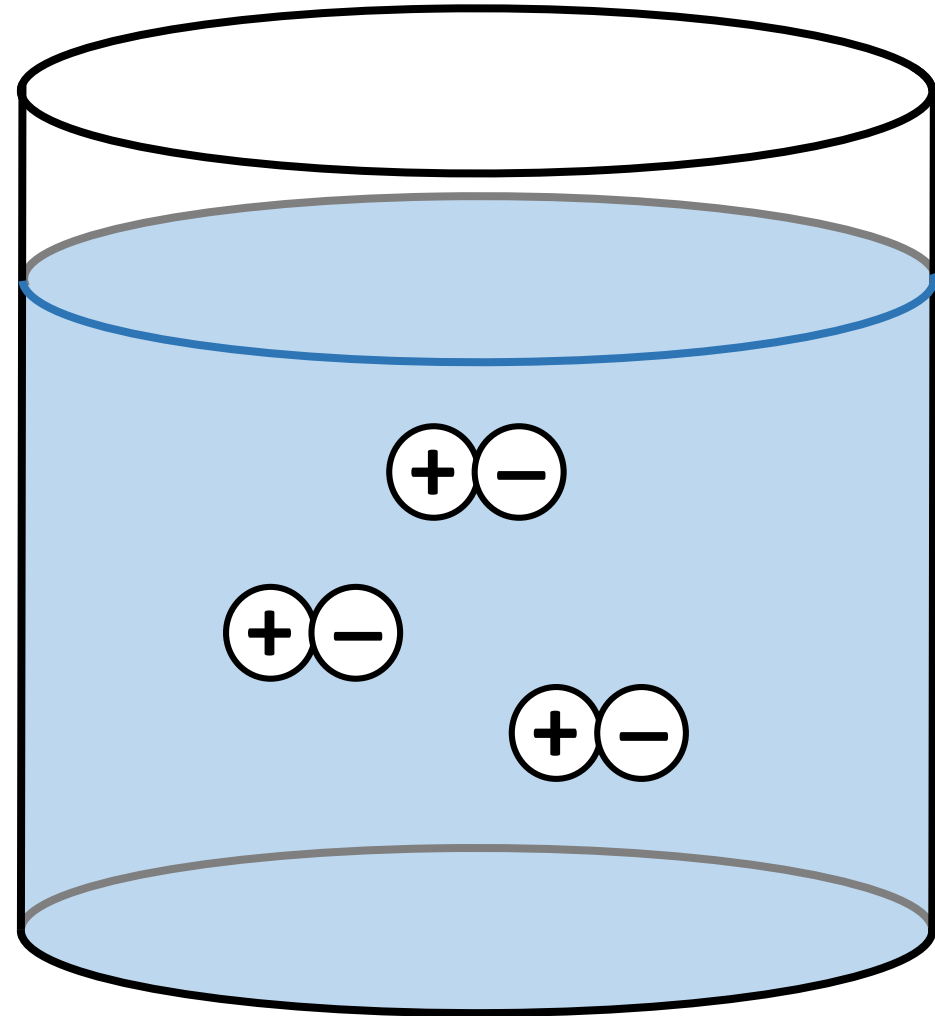
+

-

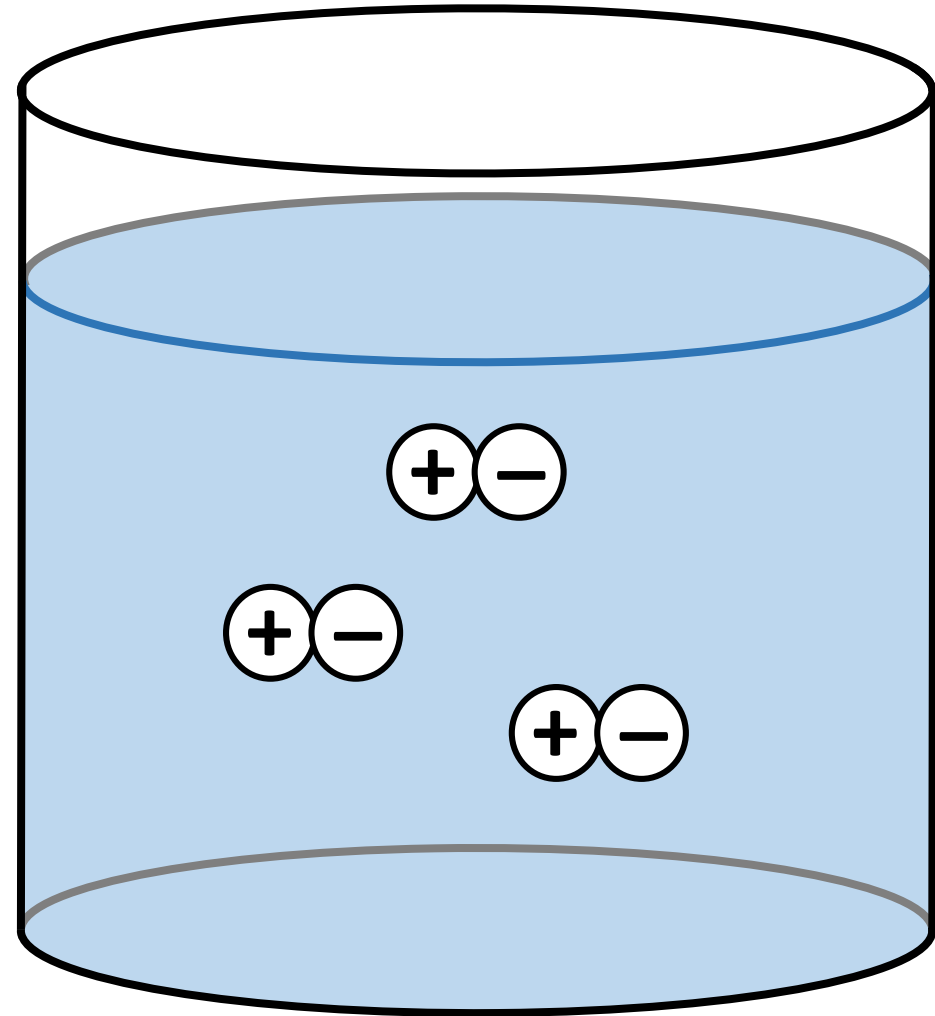
When certain molecules are dissolved in water, they split up into ions.



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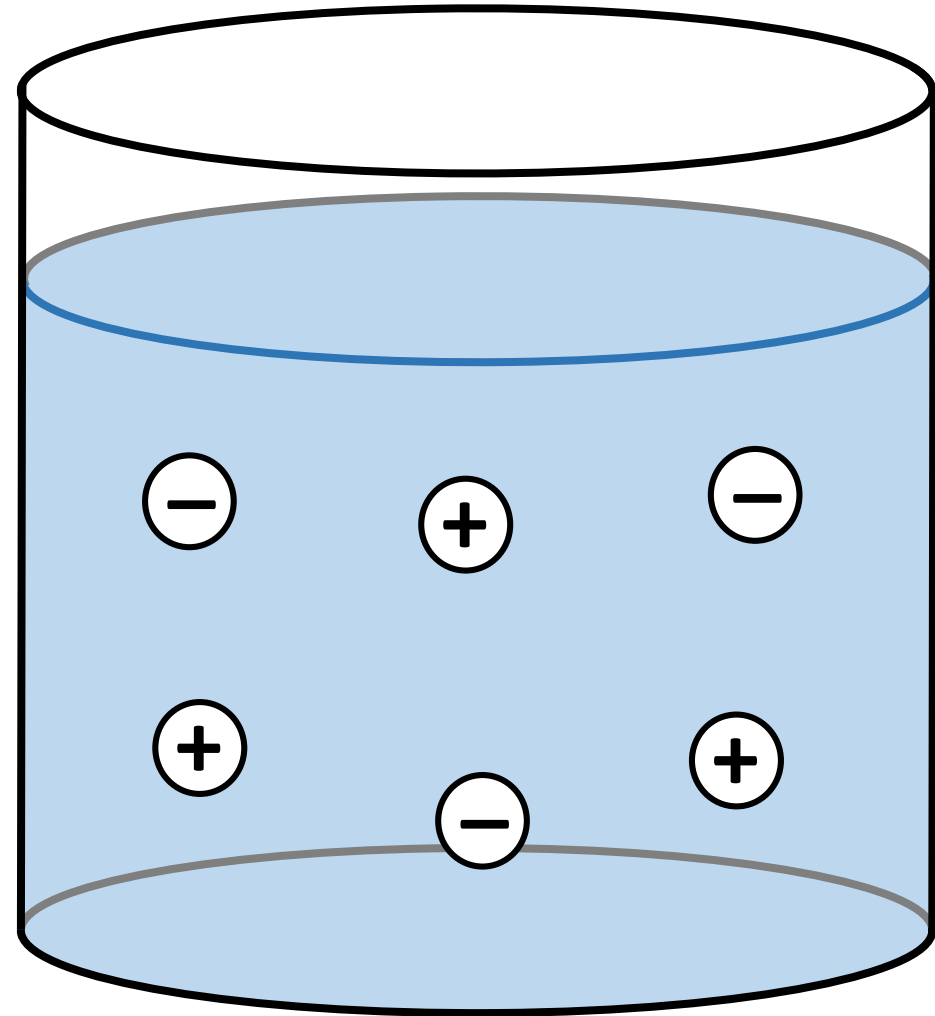


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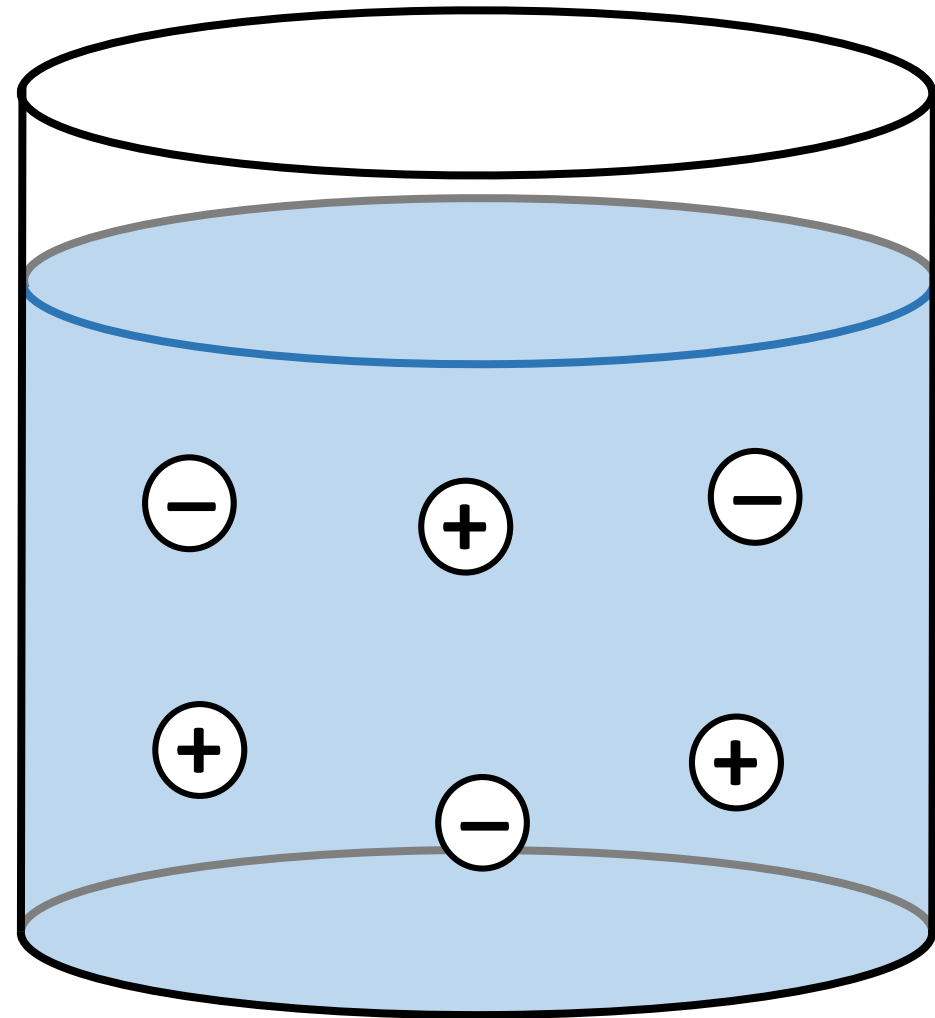


When certain molecules are **dissolved** in water, they split up into **ions**.

This is called **dissociation**.

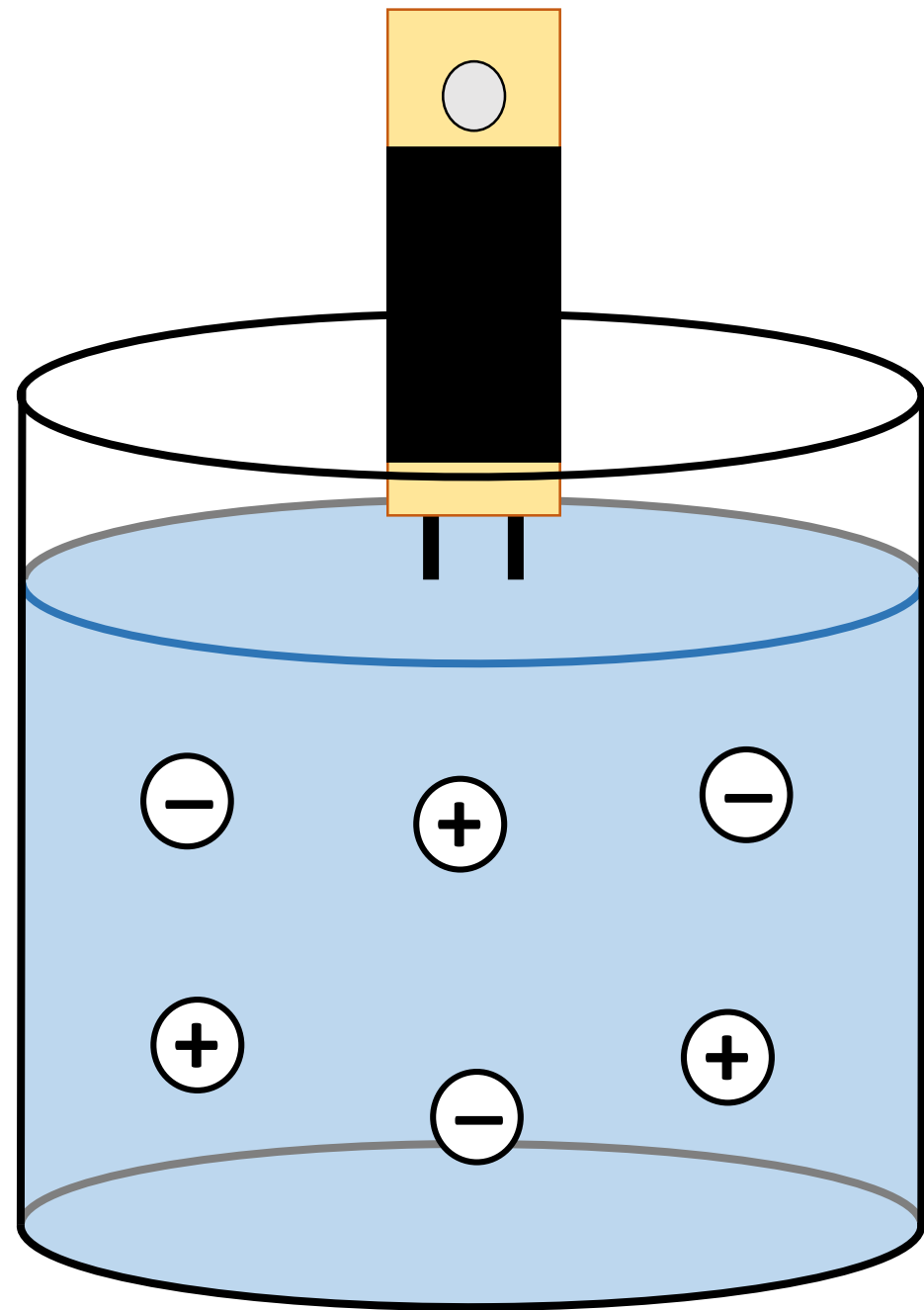


The ions can move around in the water, and they carry an electric charge.



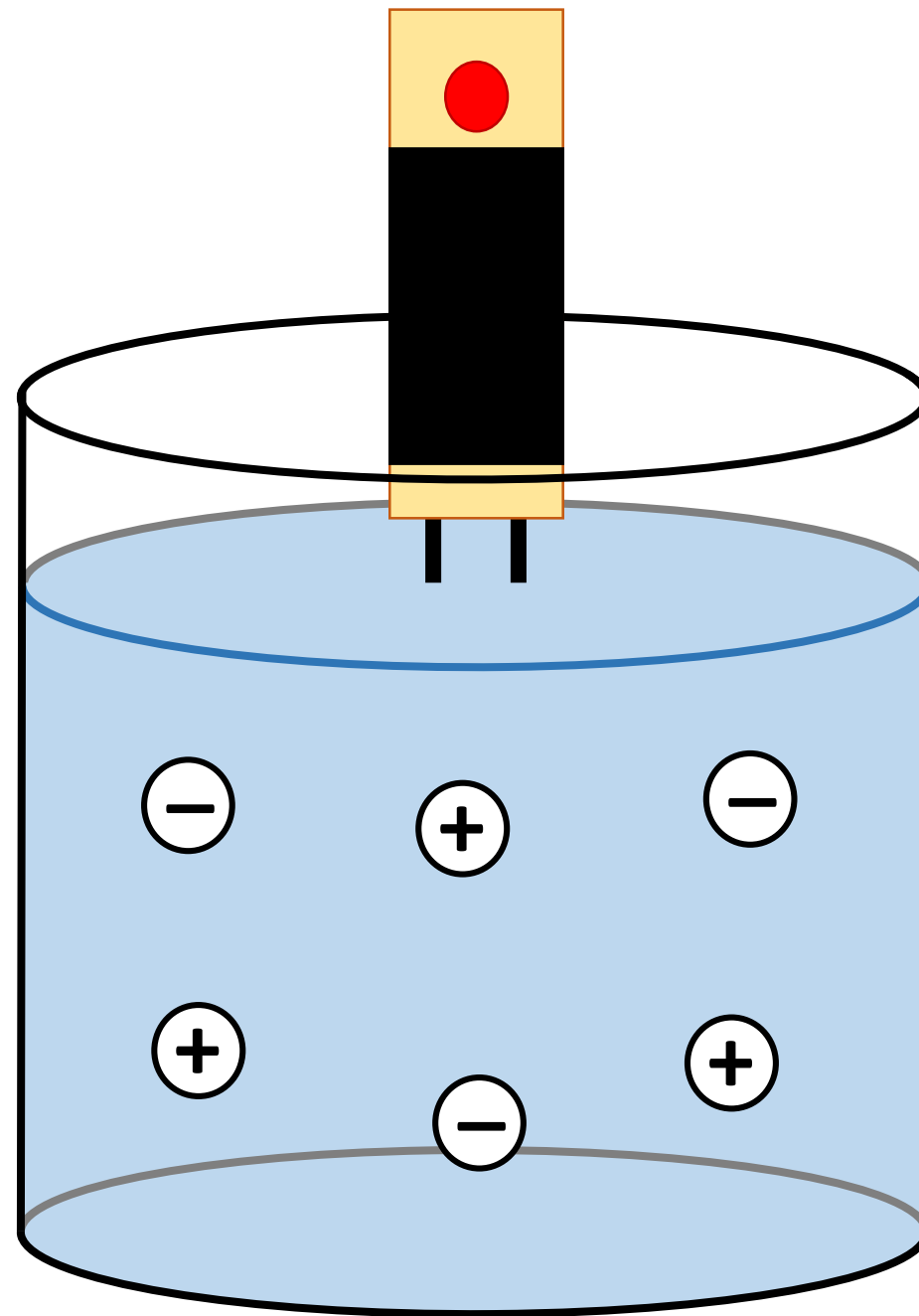
The ions can move around in the water, and they carry an electric charge.

Because of this the resulting solution can now conduct electricity.

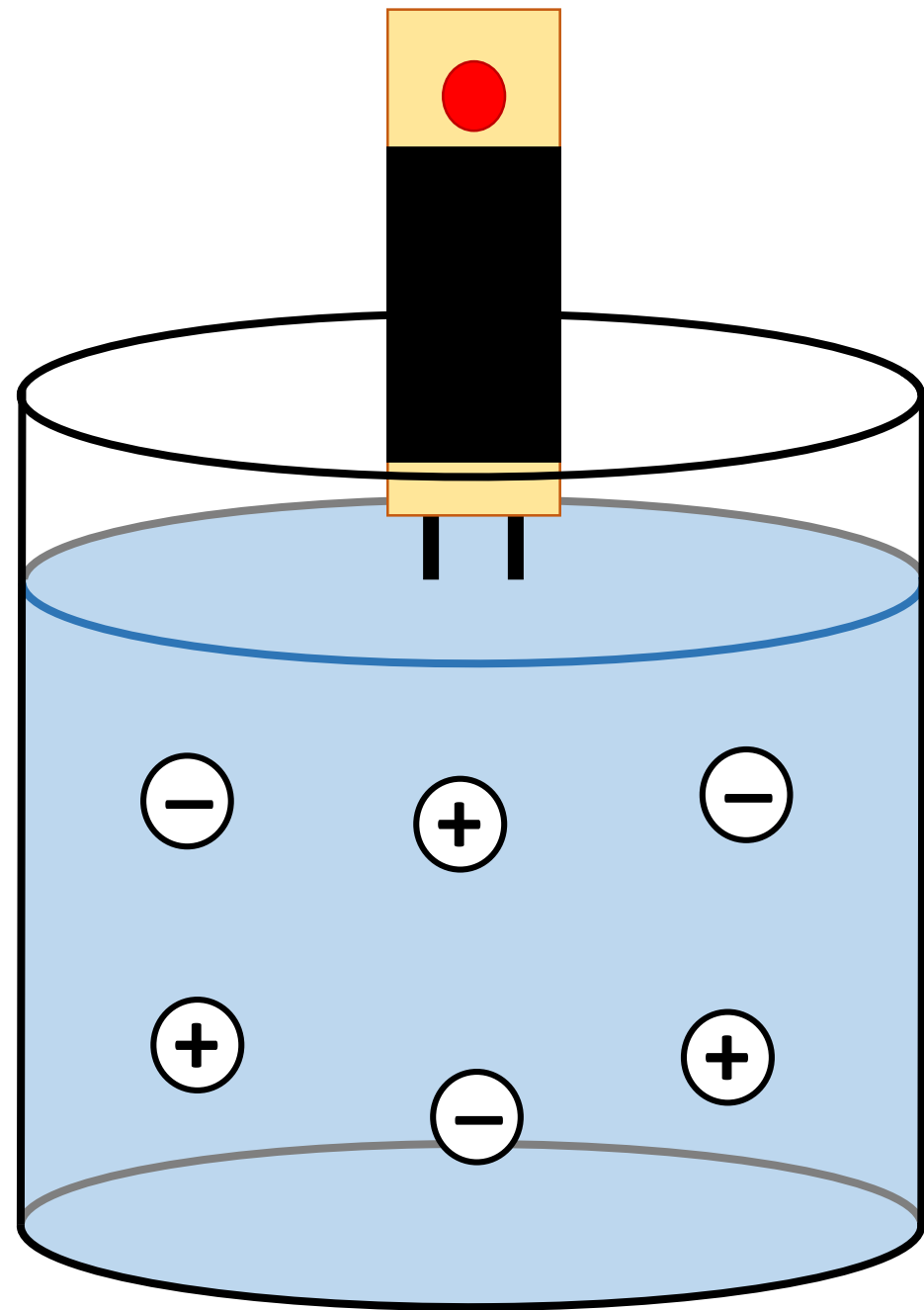


The ions can move around in the water, and they carry an electric charge.

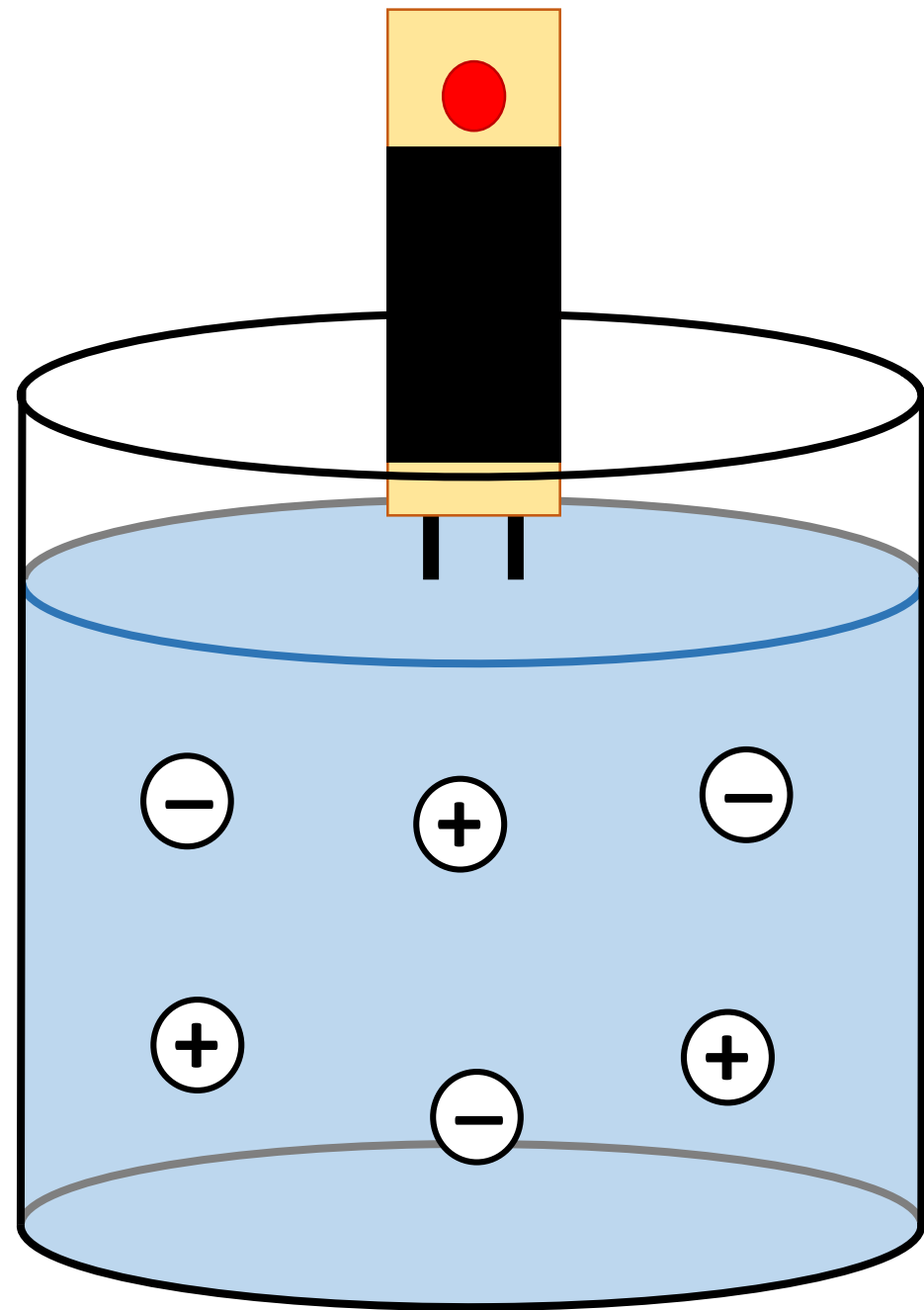
Because of this the resulting solution can now conduct electricity.



A substance that dissociates into ions when dissolved in water is called an electrolyte.

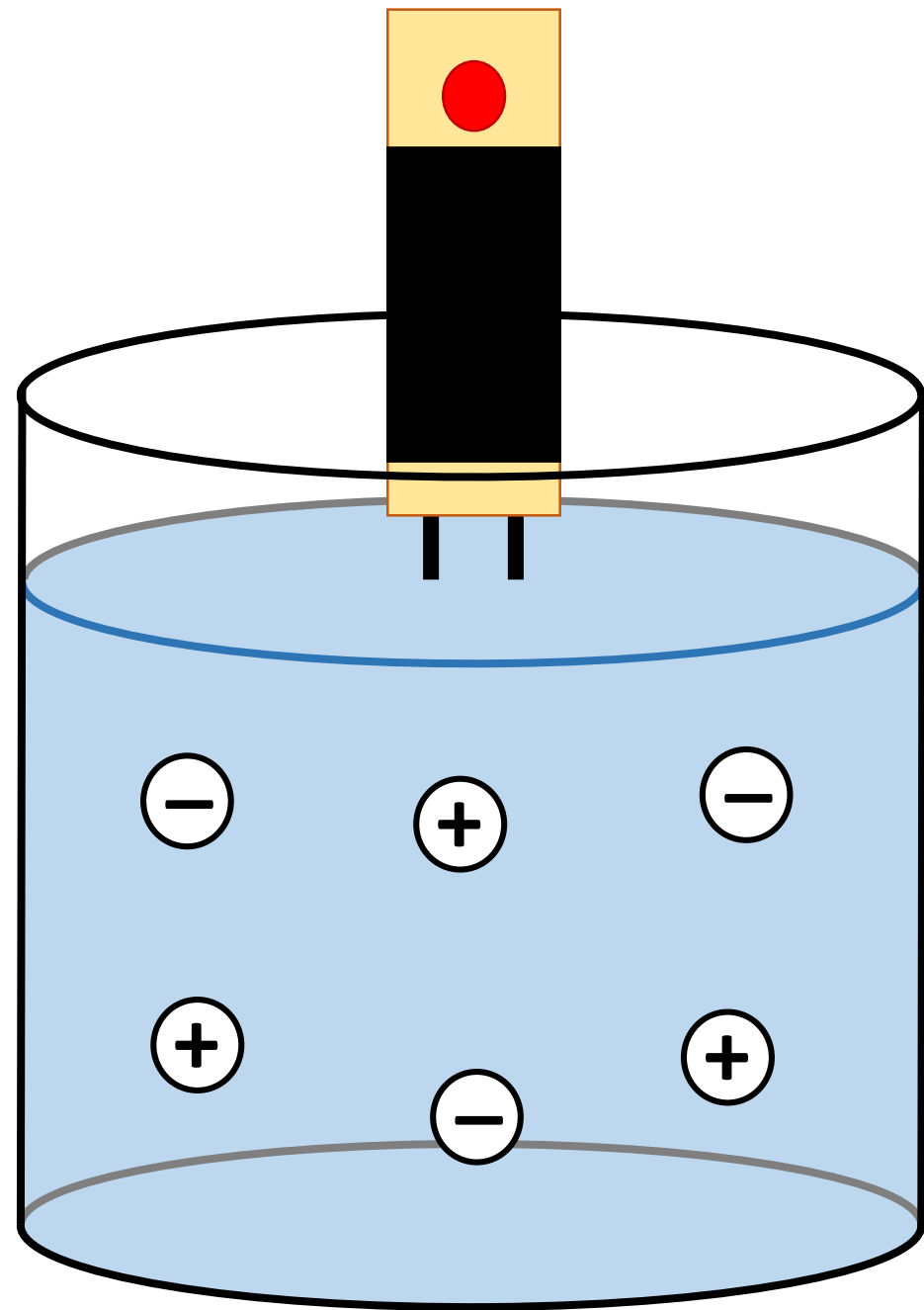


A solution that conducts electricity due to the presence of ions is called an **electrolytic solution**.



There are three types of electrolytic solutions.

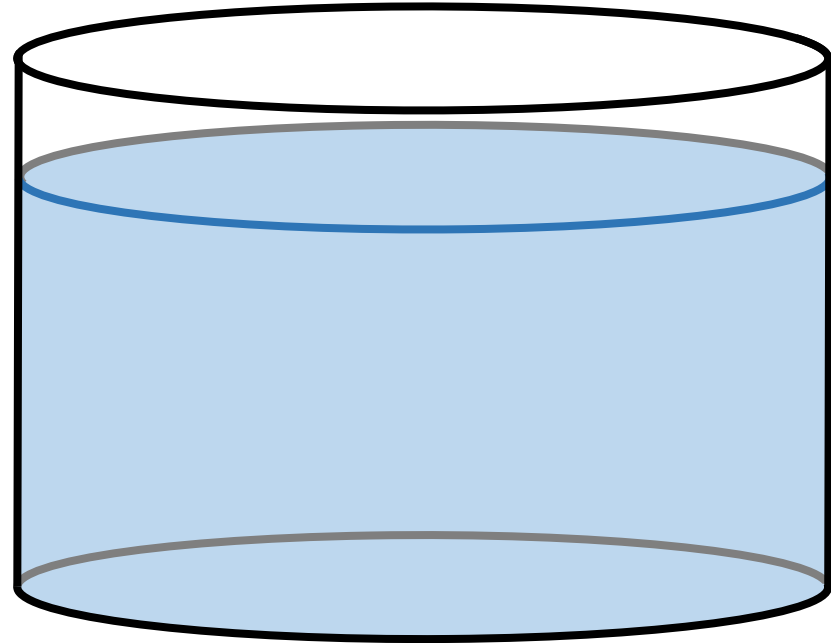
- Acids
- Bases
- Salts



Acids

An acid is a substance that releases hydrogen ions, H^+ , in solution.

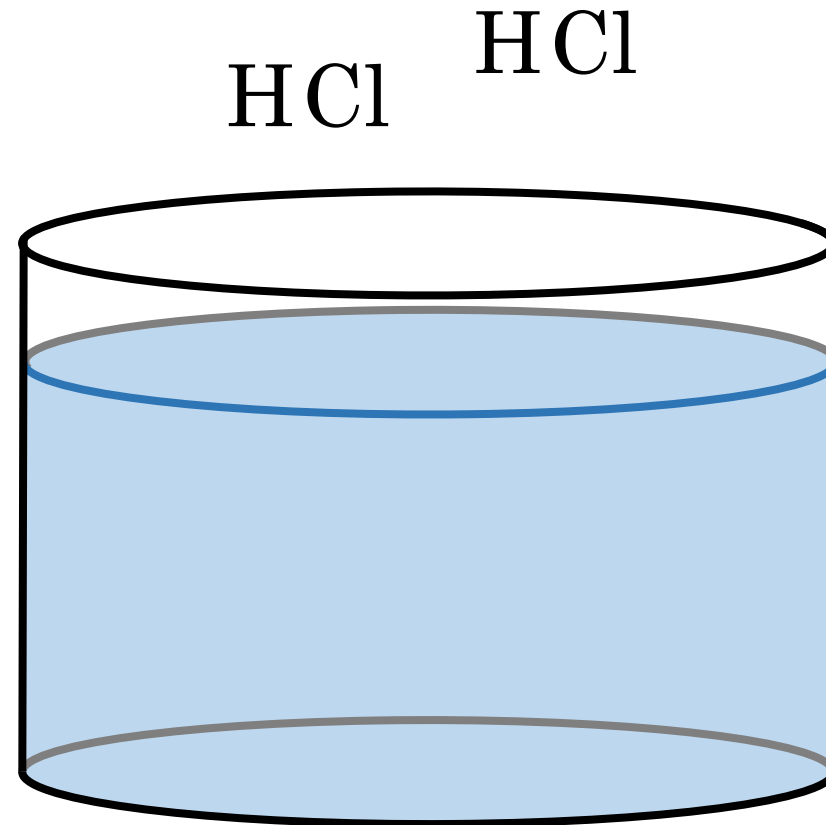
Example: Hydrogen chloride



Acids

An acid is a substance that releases hydrogen ions, H^+ , in solution.

Example: Hydrogen chloride



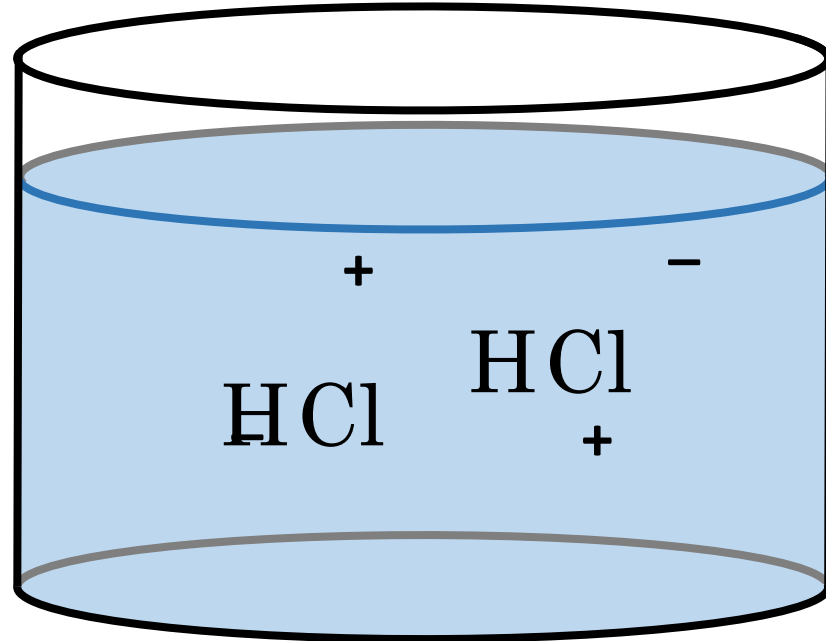
Acids

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Example: Hydrogen chloride

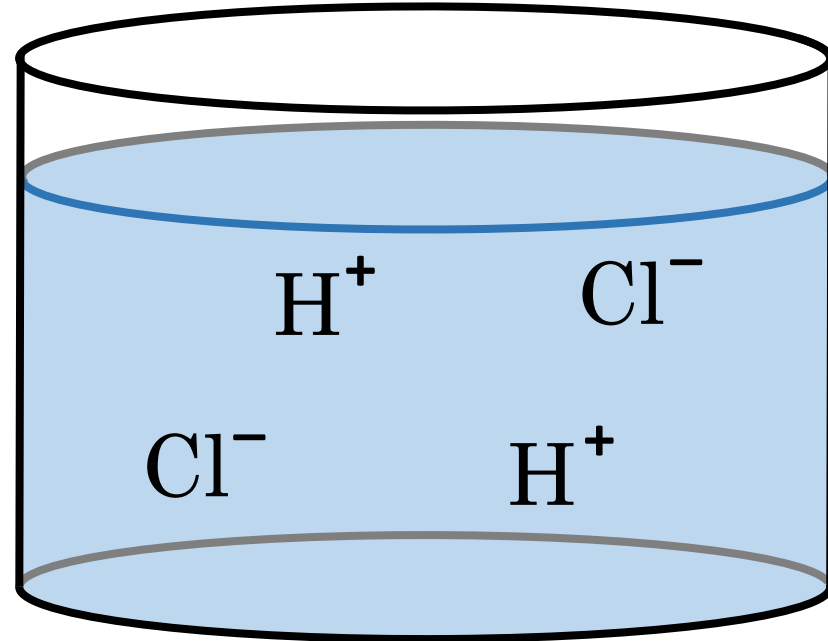


Acids are **electrolytic**; they will conduct electricity when dissolved in water.



Acids

Reaction with litmus paper:



Acids

Reaction with litmus paper:

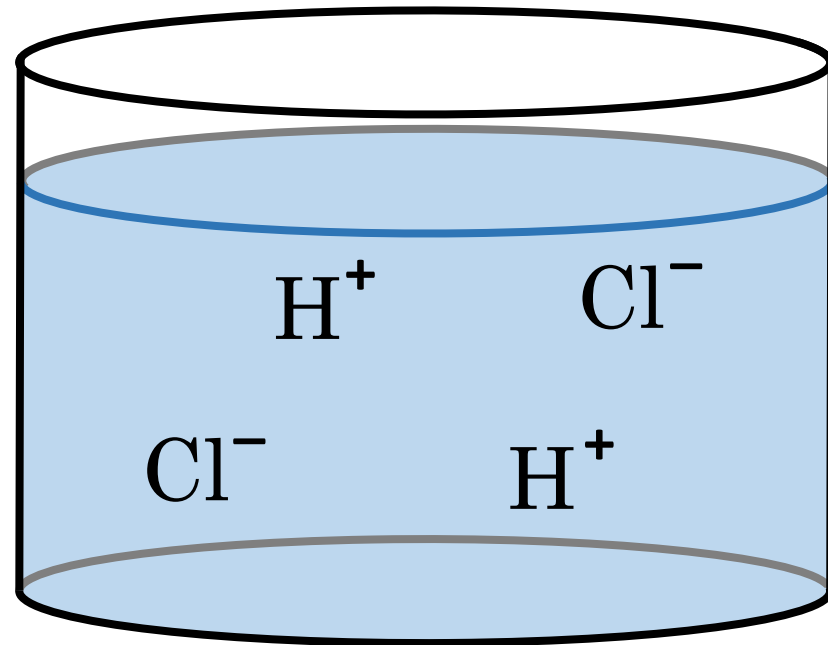
- Red litmus stays red



- Blue litmus turns red



pH of an acid is less than 7



Acids

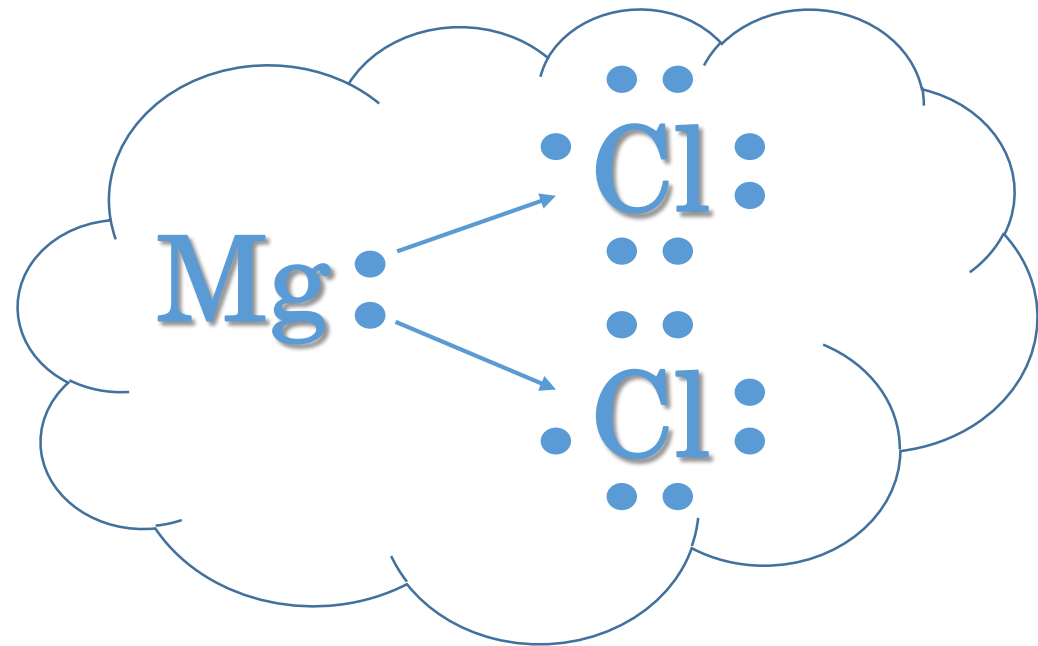
Acids taste sour (*if it doesn't kill you*)



Acids

Acids can be neutralized by a base

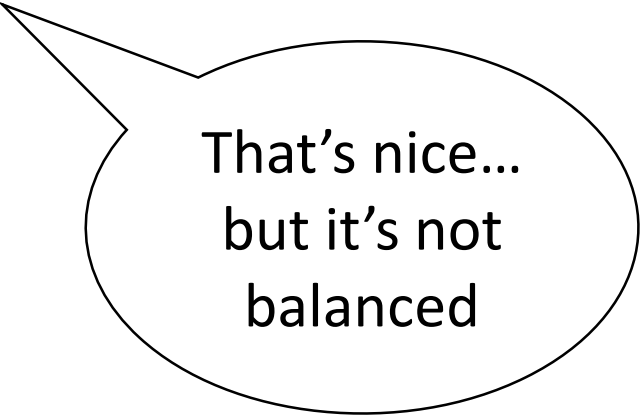
Acids react with metals; the reaction releases hydrogen gas, H₂



Acids

Acids can be neutralized by a base

Acids react with metals; the reaction releases hydrogen gas, H₂



That's nice...
but it's not
balanced

Acids

Molecular formulas

The molecular formula of an acid will appear in one of the following two ways:

Start with **H...**



End with **...COOH**

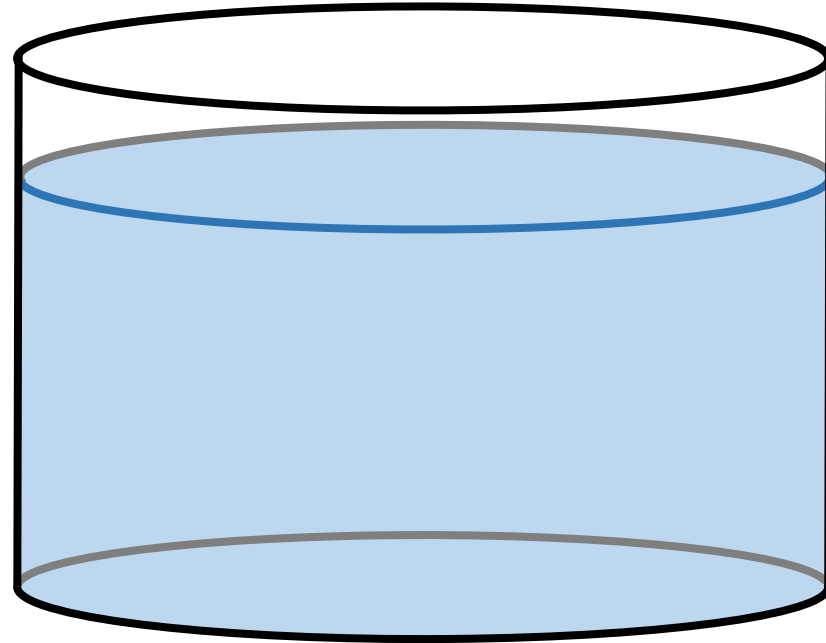


Starts with H, but not an acid: H_2O

Base

A base is a substance that releases hydroxide ions, OH^- , in solution.

Example: Sodium hydroxide



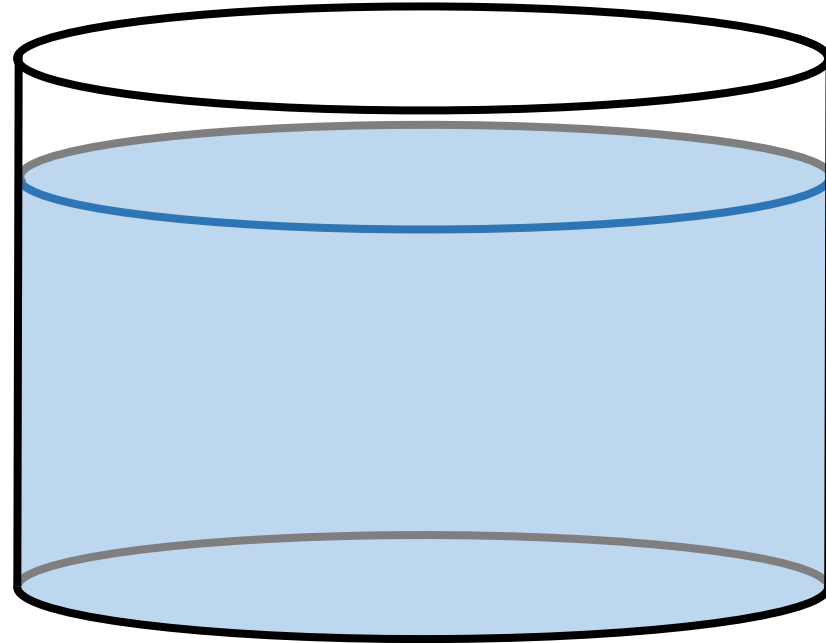
Base

An base is a substance that releases hydroxide ions, OH^- , in solution.

Example: Sodium hydroxide

$\text{NaOH} \rightarrow$

NaOH NaOH



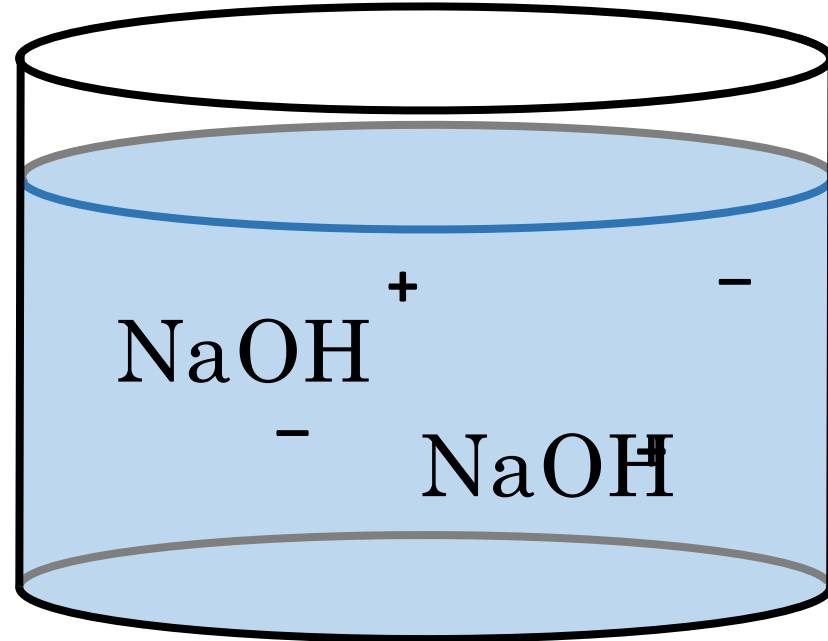
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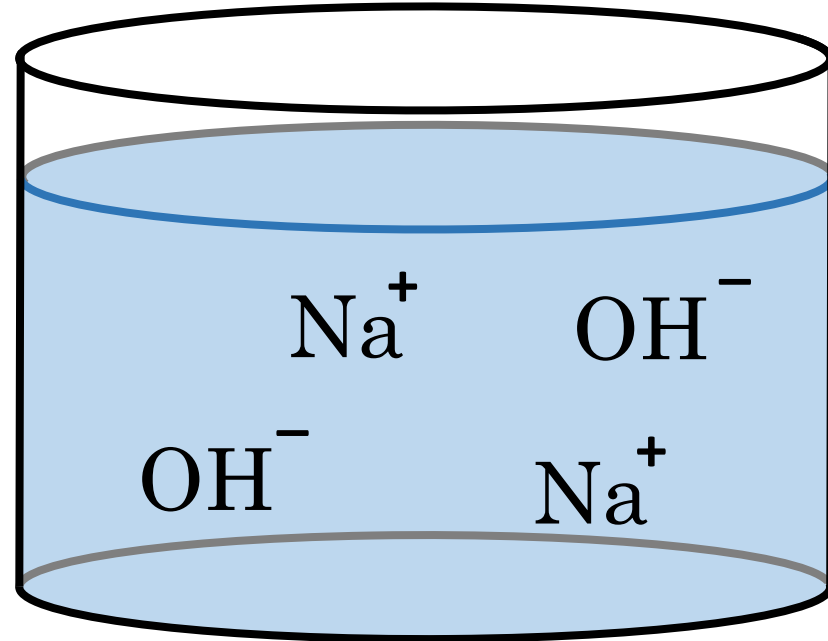
Bases are **electrolytic**; they will conduct electricity when dissolved in water.



Base

S

Reaction with litmus paper:



Base

S

Reaction with litmus paper:

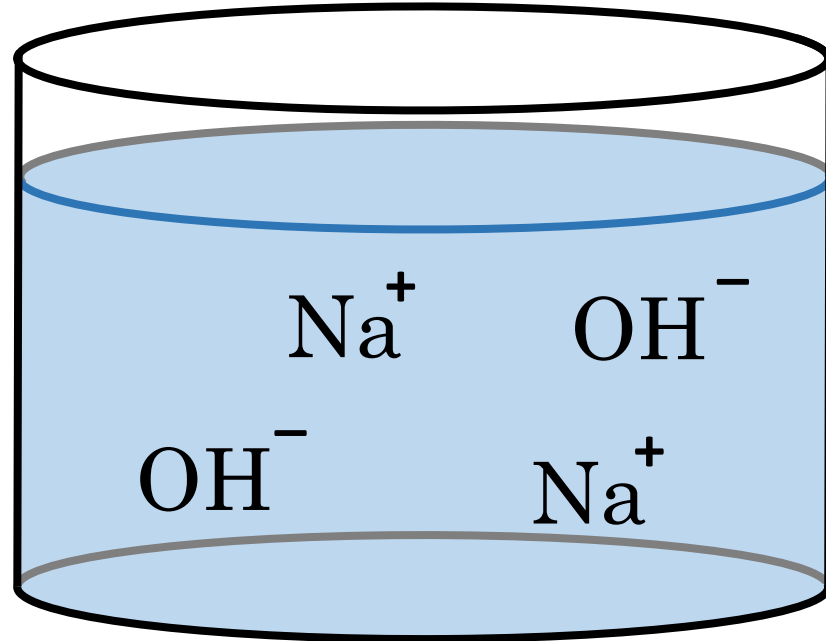
- Red litmus turns blue



- Blue litmus stays blue



pH of a base is greater than 7



Base

S

Bases taste bitter



Base

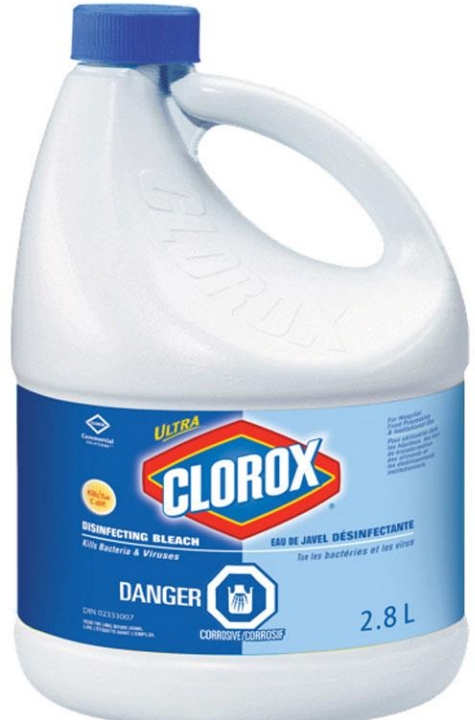
S

Bases feel



Base S

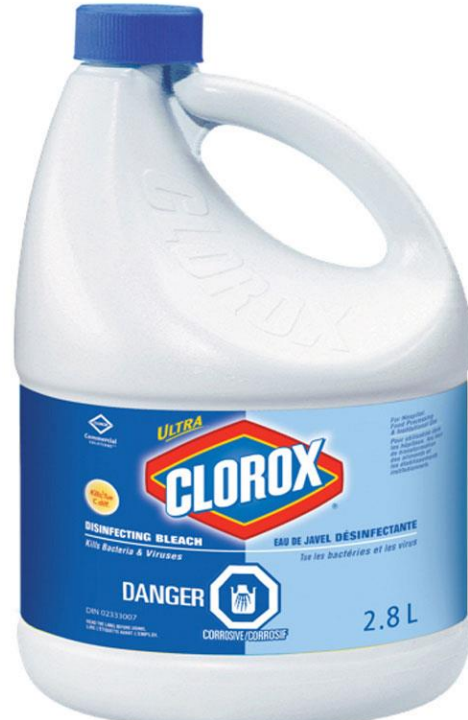
Bases feel soapy / slippery



Bases

Bases feel soapy / slippery

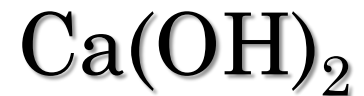
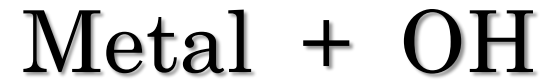
Bases can be neutralized by an acid



Base S

Bases are also known as alkaline solutions

The molecular formula of a base:



Exception (*doesn't start with a metal*):

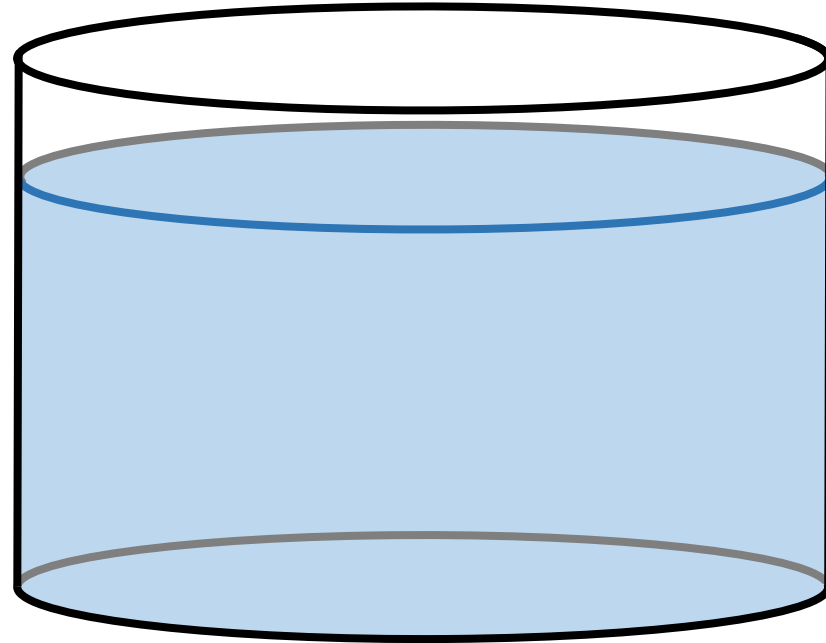


Salts

A salt is a substance that that is made up of metallic and non-metallic ions.

Example: Sodium chloride

$\text{NaCl} \rightarrow$



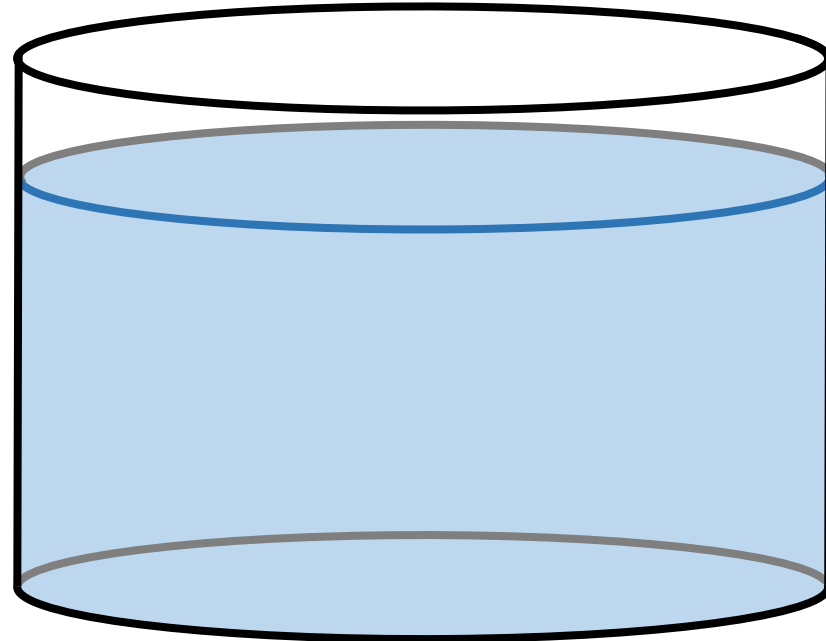
Salts

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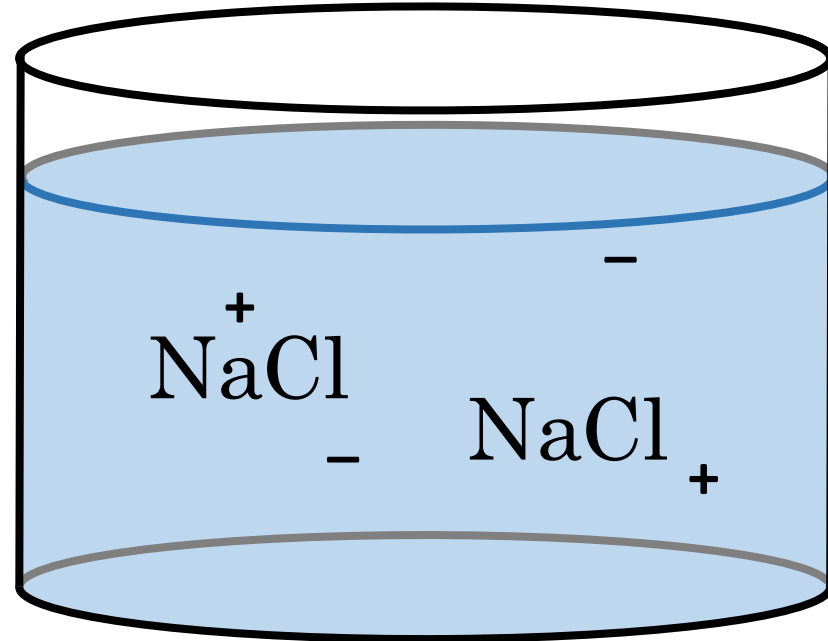
NaCl NaCl



Salts

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Example: Sodium chloride



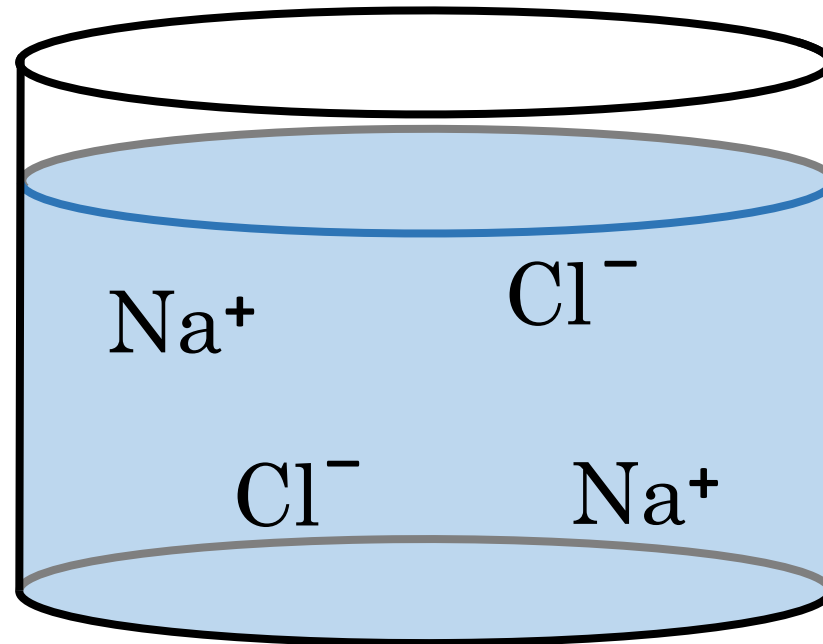
Salts

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Example: Sodium chloride

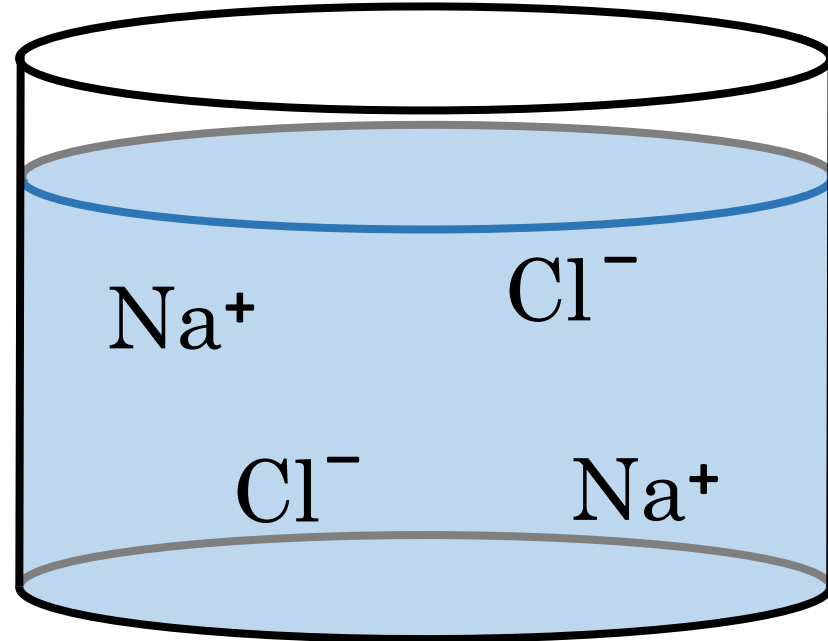


Salts are **electrolytic**;
they will conduct electricity
when dissolved in water.



Salts

Reaction with litmus paper:



Salts

Reaction with litmus paper:

- Red litmus stays red

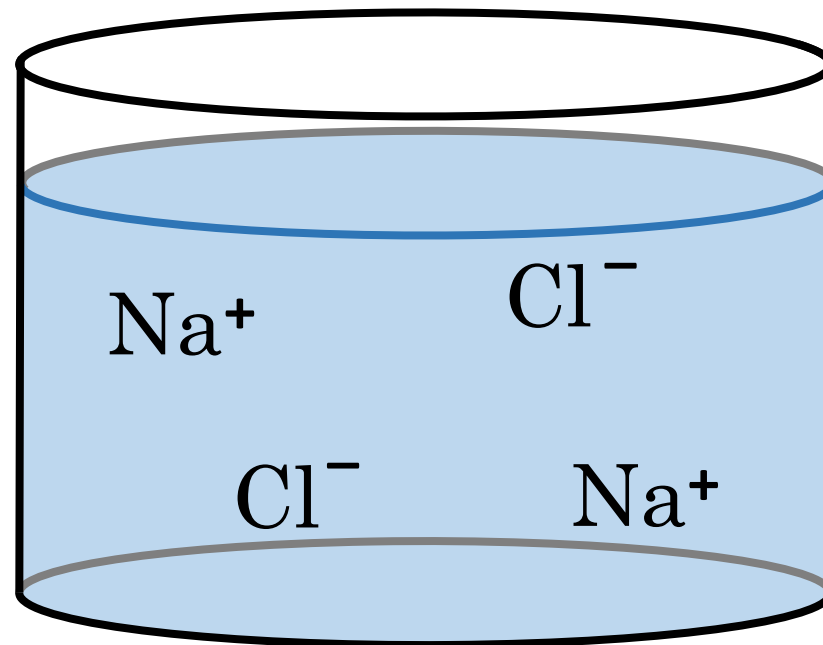


- Blue litmus stays blue



pH of a salt is 7 (neutral)

(note: there are exceptions)



Salts

Salts (and water) are formed when acids react with bases.
(neutralization reaction)

Salts

The molecular formula of a salt:

Metal + Non-metal(s)



Exception (*doesn't start with a metal*):

Can also start with $\text{NH}_4 \dots$

Hey, Litmus Paper, why so blue?



Basic Humor