**How can we remove pollutants from water by electrochemistry**

For instruction to use a DC power supply, please refer to <https://www.youtube.com/watch?v=QZoya9y7H6A>

There are many other helpful videos online as well.

***Experiment #1. Tap water electrolysis***

***Procedure***: Fill the beaker with 25 mL tap water. Apply 4 V between the anode (mesh) and cathode (plate).

***Observation***:

Bubbles evolved from anode and cathode.

***Lecture note***:

1. Concept of standard reduction potential
2. Concept of water conductivity

***Experiment #2. Saltwater electrolysis***

***Procedure***: Fill the beaker with 25 mL tap water amended with ¼ tsp of table salt. Apply 4 V between the anode (mesh) and cathode (plate).

***Observation***:

1. Increase of current;
2. Bubble evolved from anode and cathode;
3. Bleach smell.

***Lecture***:

1. Concept of the standard reduction potential of chloride oxidation
2. Concept of water conductivity

***Experiment #3***.

***Procedure***: Fill the beaker with 25 mL tap water, then add ¼ tsp of table salt and one drop of food dye (any color). Apply 4 V between the anode (mesh) and cathode (cathode).

***Observation***:

Gradual discoloration of dye-spiked water.

***Lecture***:

1. Concept of the oxidation reaction
2. Concept of organic pollutant removal and disinfection.