

Chapter 3: conductivity and conductometry

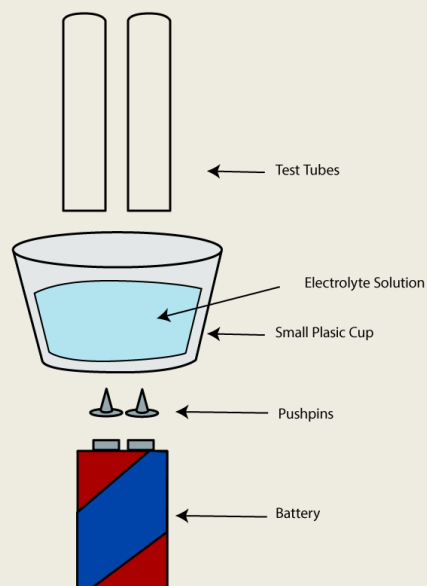
ACTIVITY 1 : Choosing the best electrolyte: water electrolysis experiment

Problem

During the electrolysis of water, which electrolyte conducts electricity the best?

DOCUMENT 1: Materials

- Distilled water
- Tap water
- 2 silver-colored thumb tacks
- 9V battery
- Small, clear plastic container (a plastic to-go sauce container from a restaurant would work great)
- 2 test tubes
- Stopwatch
- Baking soda
- Table salt
- Lemon
- Dishwashing detergent



Source: <https://www.education.com/science-fair/article/water-electrolysis/>

DOCUMENT 2: Procedure

- Insert the thumb tacks into the bottom of the plastic container so that the points push up into the container. Space them so that they're the same distance apart as the two terminals of the 9V battery. Be careful not to prick yourself!
- Place the plastic container with the thumb tacks over the terminals of the battery. If the cup is too large to balance on the battery, find something to stack it on: between two books, a stack of post-its, etc.
- Slowly fill the container with distilled water. If the tacks move, go ahead and use this opportunity to fix them before you proceed.
- Add a pinch of baking soda.
- Hold two test tubes above each push pin to collect the gas being formed. Record your observations.
- Discard the solution, and repeat the procedure with a different combination:
 - Distilled water and lemon juice
 - Distilled water and table salt
 - Distilled water and dish detergent
 - Distilled water (no additive)
 - Tap water

Source: <https://www.education.com/science-fair/article/water-electrolysis/>

■ **Acquiring vocabulary:**

English	French
baking soda	
dish detergent	
table salt	
tap water	

■ **Understanding the process (skip ahead to chapter 4 and chapter 5 on electrolysis!)**

Carry out the experiment.
 Present your results orally and try to answer the problem: during the electrolysis of water, which electrolyte conducts electricity the best? Make sure to explain why.

Activity summary

What you must remember:

- Conductivité^[L]_[SEP]
- Conductivité ionique molaire

Skills linked to the curriculum:

Compétences	Capacités à maîtriser
- APP	Connaitre la notion de conductivité
- REA	Exploiter et interpréter les mesures expérimentales
- COM	Formuler et argumenter des réponses structurées Formuler et présenter une conclusion