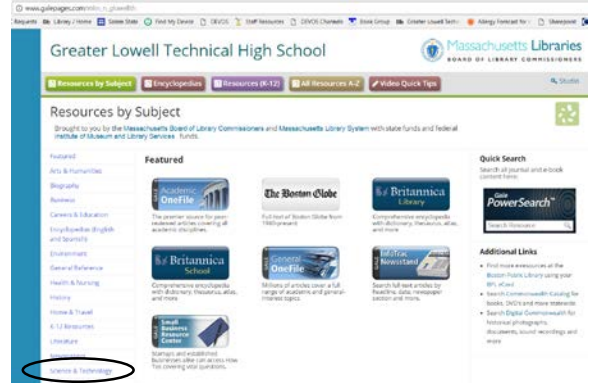
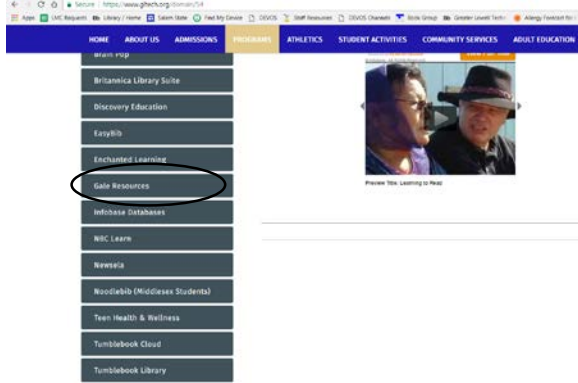


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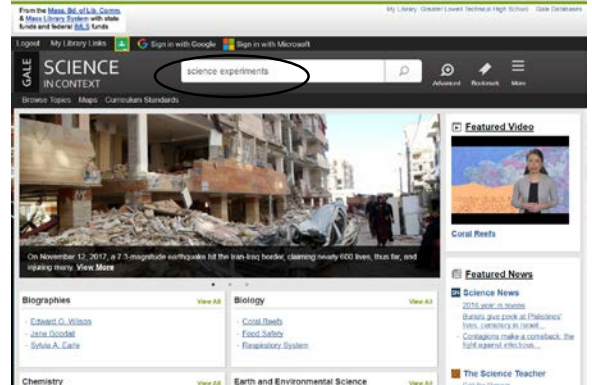
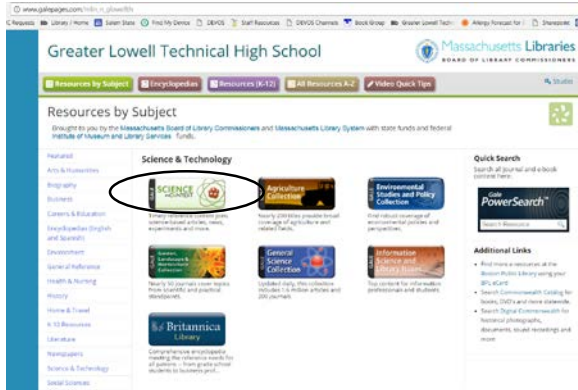
Gale Databases through GL Tech

<https://www.gltech.org/library>

Click on the circled text

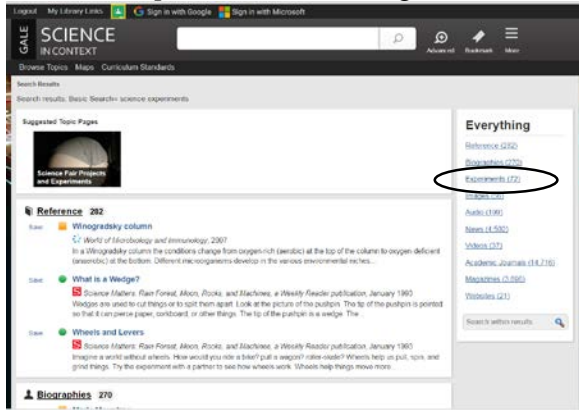


Type Science Experiments in the search bar

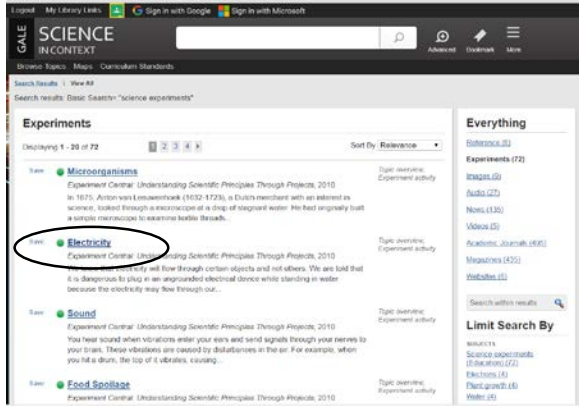


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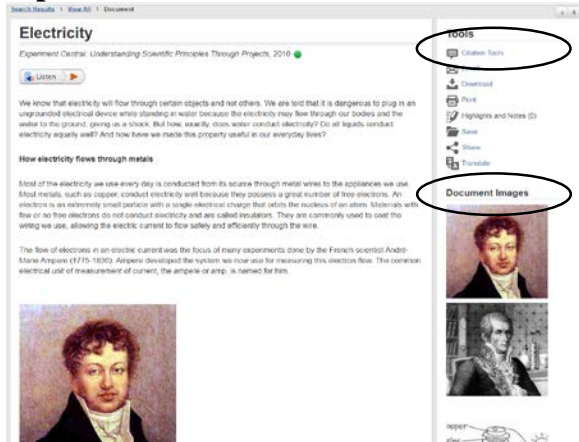
Click on *Experiments* on the right.



Choose the topic you are interested in researching.



The article about the topic will give you general and historical information, source citation information, images, and experiments.



A source of electricity that uses a liquid electrolyte

EXPERIMENT 1

Electrolytes: Do some solutions conduct electricity better than others?

Purpose/Hypothesis

Using a voltmeter, we can determine how well different substances act as electrolytes by measuring their resistance when they are dissolved in water. The lower the resistance, the more conductive the electrolyte. In this experiment, you will predict whether certain substances are electrolytes. Before you begin, make an educated guess about the outcome of the experiment based on your knowledge of electricity and conductivity. This educated guess, or prediction, is your hypothesis. A hypothesis should explain these things:

- the topic of the experiment
- the variable you will change
- the variable you will measure
- what you expect to happen

A hypothesis should be brief, specific, and measurable. It must be something you can test through observation. Your experiment will prove or disprove whether your hypothesis is correct. Here is one possible hypothesis for this experiment: "Acids and other substances that contribute hydrogen ions make better electrolytes than organic compounds such as sugars and starches."

In this case, the variable you will change is the material you use as an electrolyte, and the variable you will measure is the resistance of the solution. You expect acids, such as vinegar and lemon juice, will have lower resistance than sugars and starches and are therefore better electrolytes.

What Are the Variables?

Variables are anything that might affect the results of an experiment. Here are the main variables in this experiment:

Look at the *Related Subjects* on the right for more information.

Words To Know in each experiment will help you develop a list of keywords to search for when looking for information.

Today's common household batteries, called dry cell batteries, use the same principle. One metal serves as a positive electrode, another metal serves as a negative electrode, and a dry electrolyte "jelly" allows ionic conduction between the two. The batteries found in most cars are wet cell batteries, which use a liquid electrolyte to allow conduction.

In the second experiment, you will construct a single battery cell using two different metals and a beaker as an electrolyte. Can you create a cell that will produce the voltage of that single cell? You will calculate how many cells would be necessary in series to equal the voltage of a single D-cell battery. Finally, you will test your estimate and hypothesis by constructing a multi-cell battery or "cell" and comparing its voltage to that of a D-cell battery.

The third project requires use of electricity's applications: electroplating. Electroplating is a commonly used process of modern "quality" low-cost auto engine parts. Jewelry and silverware are electroplated to make them look more expensive than they are. They are protected from rusting and keep them shiny.

Words to Know

A measurement of current. The common unit of measure is the ampere or amp.

Related Subjects

- Electricity
- Electrolytes
- Science Experiments (24,444)