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What are you drinking? Tap water versus bottled water

Your local water task sheet

Image: Bernd Müller/Pixabay

- From your local water company's website, download the certificate of analysis of water distributed in your area.
- Define your water in terms of hardness (see the Water-hardness scale) and calculate, in mg/l, the amount of calcium carbonate, which is used as a reference compound for water hardness.
- Define the total dissolved solids value and comment on it.
- Perform a web search on the effects of the consumption of extremely hard or extremely soft waters on human health.
- Research why nitrogen-ion concentrations are measured and what they can tell us about bacterial contamination of water.
  Optional extension: write and balance the oxidation reactions of the nitrification process carried out by some species of microorganisms, where ammonium ions (NH^{4+}, nitrogen oxidation level −3) are oxidized to nitrites (NO^{2-}, nitrogen oxidation level +3) and then to nitrates (NO^{3-}, nitrogen oxidation level +5).
- Look up different waterborne diseases (e.g., cholera, methemoglobinemia, giardiasis) and list their causes and symptoms.
- Describe the hazards and side effects linked to arsenic, sodium, manganese, and iron in amounts that exceed the parametric values set by law.
- Make a short presentation, including all the tasks, and share it with the class.