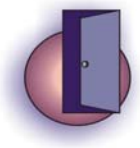
For Students

Can Lake Water Be Made Safe?



Scenario

Lake Tahito is very picturesque. Its shoreline is made up of mangrove trees and sandy coves, dotted with the huts of fisherman. The lake is the lifeblood of the area and supplies water for drinking, irrigation and washing.

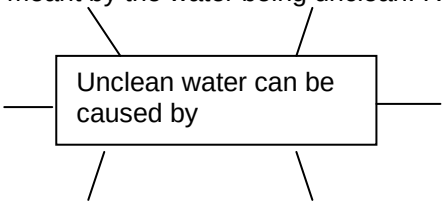
Sadly, a number of the inhabitants of this area have recently been affected by diarrhoea. One of the victims tested positive for cholera, and there were a few cases of dysentery. It became obvious that the water supply was unclean. The community decided to take action to treat the water and to put sanitary measures in place. The village council invited a sanitary inspector to the village to offer advice. She suggested adding chlorine to all water taken from the lake. But what did she mean ? What is chlorine ? How is it possible to obtain it ? And how well will it work ?

The village council decided to enlist the help of the school students studying chemistry

Please help!!

Your Tasks

1. Discuss what is meant by the water being unclean. Record your answers in the form of a chart.



2. Examine a sample of lake water. Record all observations you make. Is the water clean ? How can you make it clean ?
3. Now look at a sample under the microscope. Describe what you see?
4. Find out whether you can see bacteria (or viruses). Explain how you decide ?
5. Prepare chlorine in solution by the electrolysis of sodium chloride solution.
6. Record how you knew you had definitely made chlorine in solution by carrying out tests.
7. Carry out tests with the chlorine solution to show what happens to:
   (a) coloured paper (litmus or pH paper);
   (b) coloured (dirty) cloth;
   (c) coloured flowers;
   (d) micro-organisms.
8. Explain what had happened chemically making use of ionic half equations.
9. Compare the action of your chlorine solution with that of ‘bleach’.
10. Decide whether chlorine solution can make water safe.
11. Discuss how to make the lake water safe.

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