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|  | EXPERIMENT #2 Water Samples and Ion Chromatography  Materials needed:  Jars w/ lids (sterilized)  Membrane Filters (0.2 um)  Syringes(sterilized)  50 ml centrifuge tubes (sterilized)  tape  permenant pen  ion chromatography machine  Filters to remove salt  In experiment #2 ion chromatography is used. Ion chromatography (IC) is a technique used to measure trace concentrations of a variety of different anions, or negatively charged ions such as fluoride, chloride, nitrate, sulfate, and phosphate. Ion chromatography is a modern method that enables the chemist to determine not only how much of a given ion is present but also to determine specifically which ions are present in solution. It works by first separating the ions from each other and then using a conductivity detector to measure the concentrations of the individual ions.  All chromatographic methods of separation rely on several fundamental principles:  1)There is a mobile phase that carries the mixture of compounds through the separation column.  2)There is a stationary phase in the column onto which different compounds adsorb (stick) for different periods of time. Some compounds are �stickier� than others, requiring more time to wash them off or elute them from the column.  3)There is a force that pushes the components of the mixture through the column. This force can be gravity, capillary action, a high pressure pump, or gas pressure.  In practice, ion chromatography is carried out by injecting an aqueous solution containing a mixture of ions is onto a chromatography column, a tube 4-8 inches long and approximately 1/2 inch in diameter than contains an ion-exchange resin(the stationary phase) that binds specifically to either cations or anions. The ions are washed through the column with an eluant (the mobile phase) using a high pressure pump (the force).  For a given experimental �run,� either cations or anions can be measured, but not both simultaneously (Kegley and Andrews).  **Procedure:**  1-Go to Fitzgerald Marine Reserve using directions above  2-Take water samples of same six test sites used in experiment #1  3-Take samples by placing sterilized jar into the water making sure your hand is not touching the water that goes into the jar  4-Rinish jar once with water from site including the lid and then fill the jar with the site�s water and close the jar  5-Repeat for six test sites  6-Take samples home  7-Keep refrigerated if do not filter right away (must filter within to days)  8-Filter using Membrance Filters ~fliter each test site with separate syringe and filter  9-Put filtered water in refrigerator up to 30 days  10-Take filtered water samples to Cal State Hayward  11-Go to North Science Building, room N453  12-Filter each ocean sample to remove the salt  13-File vile with each sample 3/4 full using gloves  14- Make a schedule on the computer of your samples  15-Close the viles and place in order of schedule on the computer into case  16-Have Dr. Andrews assistant make calibration standards  17-Run the tests at the lab and print data  or  17-Run the program from your home or school using the program Timbuktu  18-This prcedure is in the lab notebook  [Experiment 1](http://docs.google.com/exp.html)  [Experiment 3](http://docs.google.com/exp3.html) |

*This Web Site is Best viewed with 256 or more colors.*

*For More Information about Creekwatch, please contact Eric Thiel at* [*ethiel@pleasanton.k12.ca.us*](mailto:ethiel@pleasanton.k12.ca.us)