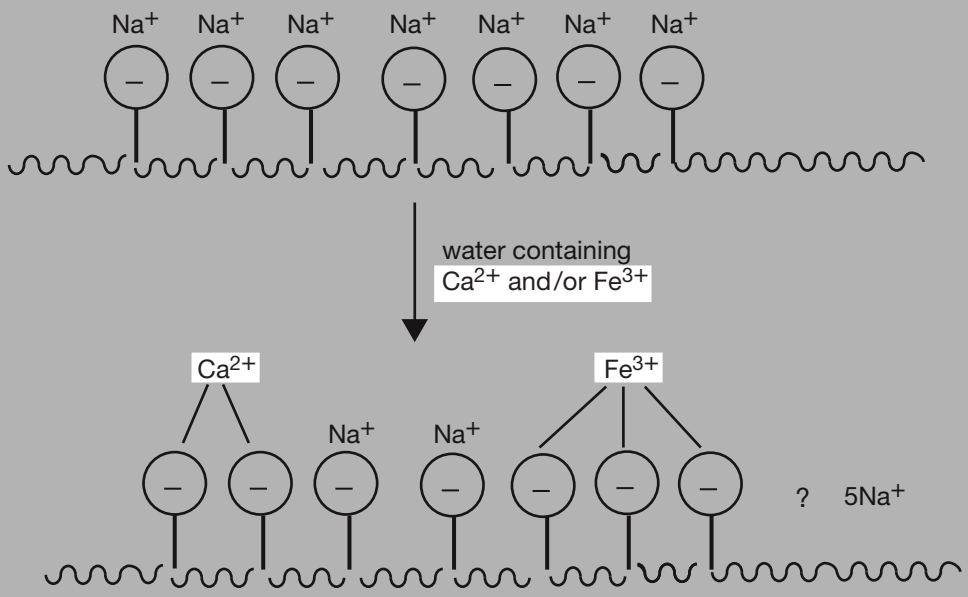

6. Find the mass of the batch precipitate.

   a) Measure the mass of a dry piece of filter paper and record this value in your *Active Chemistry* log.

   Filter according to your teacher's directions. Dry the precipitate on the filter paper as directed by your teacher.

   b) Calculate the mass of your $CaCO_{3(s)}$ precipitate. Record this value in the table in your *Active Chemistry* log.

7. Test the filtrate qualitatively for water hardness by adding some soap to it and observing whether the solution is cloudy.

   a) Record your results in the table in your *Active Chemistry* log.

Part B: Ion-Exchange Resins

1. Choose either the batch or flow technique that you used in *Activity 5*.
2. Create a table in your *Active Chemistry* log to collect all of the necessary data. In addition to the data collected for the particular method in *Activity 5*, you will want to include the amount of resin used and have a column for the analysis of the filtered water.
3. Load the mixing flask or filtration column with the recorded amount of acidic anion ***ion-exchange resin***. An acidic ion-exchange resin is a polymeric material that has negative sites on its surface. These negative sites attract and absorb positive ions such as Ca^{2+} and Mg^{2+}, removing them from water. As the water sample comes into contact with the resin beads, the Ca^{2+} and Mg^{2+} ions are attracted to the negative sites, replacing the Na^+ ions originally on each bead.
4. Process a sample of untreated water with the ion-exchange resin.
5. Analyze your filtered solution for total water hardness. For a quantitative analysis, follow the experimental design in *Activity 3* for the analysis of total water hardness (*Investigate*, *Part A*). For a qualitative analysis, add some soap to a portion of your water sample before and after the treatment with ion-exchange resin. Shake the solution to see if it becomes cloudy.

   a) Record the results in the table in your *Active Chemistry* log.

Dispose of the materials as directed by your teacher.

Clean up your workstation.

Wash your hands and arms thoroughly after the activity.