Balancing chemical equations

Student instructions and worksheet

Chemical processes in water treatment

1. Cut up equation cards (keeping each colour set separate).
   - Q1 (Set A - Orange), Q2 (Set B - Green), Q3 (Set C - Blue)
2. Work through each question on the worksheet as a group. One at a time.
3. Balance and write the relevant equations.
4. Test your understanding by answering the questions in depth.

Questions

1. Write the relevant chemical equations of the dissolution of calcium hydroxide (lime). Then, identify the reasons why calcium hydroxide was added to the water after screening.

2. In all surface waters, carbon dioxide dissolves into water forming the carbon dioxide/carbonic acid buffer system.

   Write the relevant chemical equations and explain how the water is naturally buffered. How does calcium hydroxide from above manipulate this buffer? When could an unwanted by-product be produced?

3. Balance and write the chemical equations to identify the difference between chlorination using chlorine gas compared to sodium hypochlorite. Hint: HOCl (hypochlorous acid) is the disinfectant. List some pros and cons of each chlorination technique.