



# Pool Bacteria

# STEM Sims

## Lesson 5: Testing Hardness

Calcium hardness is the total mineral content of the water. If there is too much hardness, the water will become saturated and the minerals will deposit on any surface inside the pool, like the ladders or lights. If there is too little hardness, the water will corrode any surface inside the pool that has calcium. Can you test the water hardness?

### Doing the Science

1. Start the Pool Bacteria Simulation by clicking on the “Sim” tab.
2. Click on the “Run” button
3. Click on the “Hardness” checkbox in the section labeled “Tests.”
4. Click on 0, 6, and 12 under “Time (hours)” to find the hardness level at that time period. Record the hardness level in Table 1 below.
5. Hover over the children to see their reactions to swimming in the pool. Record some of their comments in the table.
6. Click on the “Reset” button.
7. Repeat steps 2-6 with the number of swimmers designated in Table 1.

**Table 1.**

Number of Swimmers	0 Hours		6 Hours		12 Hours	
	Hardness	Comments	Hardness	Comments	Hardness	Comments
5						
6						
7						
8						
9						
10						
15						
20						

### Do You Understand?

1. Is there a relationship between the increase in the number of swimmers and the water hardness level?
  
2. Is the water hardness level increasing or decreasing? What does this mean?