



# Pool Bacteria

## STEM Sims

### Lesson 7: Testing Dissolved Solid

Total dissolved solids (TDS) is the total of all of the dissolved things in water including hardness, alkalinity, cyanuric acid, chlorides, and other chemicals found in the pool. If the TDS levels are above 1500 ppm, the water turns rusty and cloudy. Can you test the amount of dissolved solids that are in the pool water?

### Doing the Science

1. Start the Pool Bacteria Simulation by clicking on the “Sim” tab.
2. Click on the “Chlorine” and “Dissolved Solid” checkboxes on the section labeled “Tests” and adjust the “Number of Swimmers” to 5.
3. Click on the “Run” button.
4. Click on 0, 6, and 12 under “Time (hours)” to find the chlorine level and dissolved solid level at that time period. Record them in Table 1 below.
5. Click on the “Reset” button.
6. Click on the “Chlorine”, “Dissolved Solid”, and “Cyanuric Acid” checkbox on the section labeled “Tests” and repeat steps 3-5.
7. Repeat steps 2-7 with the number of swimmers designated in Table 1.

**Table 1.**

Number of Swimmers	0 Hours		6 Hours		12 Hours	
	Chlorine	D.S.	Chlorine	D.S.	Chlorine	D.S.
5						
5 with Cyanuric acid						
10						
10 with Cyanuric acid						
15						
15 with Cyanuric acid						
20						
20 with Cyanuric acid						

### Do You Understand?

1. Is there a relationship between the dissolved solid level and the number of swimmers? Explain.
  
2. Is there a relationship between the dissolved solid level and the chlorine level? Explain.