

STEM *Sims*™

# Pool Bacteria

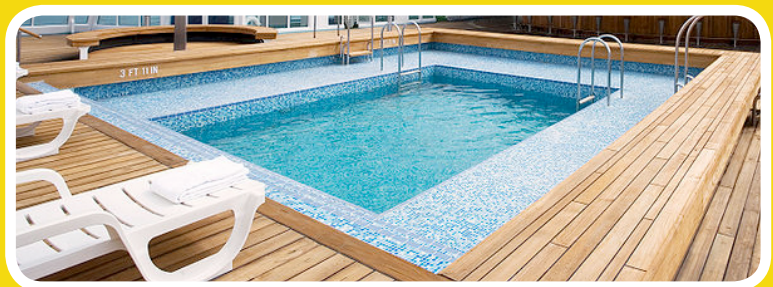


# Pool Bacteria

**Do you need an idea for a scientific study?  
Try out one of our ideas or make one of your own.**

**Start learning right now about how municipal swimming pools are maintained. Take the following brief quiz to see how much you already know about keeping the water quality in a local swimming pool safe for all swimmers. See the bottom of page 4 to check your answers.**

1. What does a strong smell of chlorine at the surface of a pool indicate?
  - a. a pool with a pH around 7.6
  - b. a pool with low free chlorine levels
  - c. a freshly cleaned pool
  - d. a pool with hard water
2. Which of the following has the largest impact on the effectiveness of chlorine to kill bacteria?
  - a. small temperature changes
  - b. the addition of small amounts of water
  - c. pH
  - d. small changes in atmospheric pressure
3. Chlorine stabilizing chemicals are added to swimming pools to reduce the effects of:
  - a. rainwater.
  - b. sunlight.
  - c. concrete surface leeching.
  - d. dissolved metals in the pool water.
4. Which form of chlorine provides 100% chlorine?
  - a. solid tablets
  - b. liquid chlorine
  - c. chlorine gas
  - d. all three forms, solid, liquid, and gas are 100% chlorine
5. In what country were the first formal swimming pools constructed?
  - a. Italy
  - b. Greece
  - c. Russia
  - d. Egypt



## What's Wrong with this Picture?

Can you spot the seven violations of swimming pool health standards in the image below? Check your answers on the bottom of page 4.



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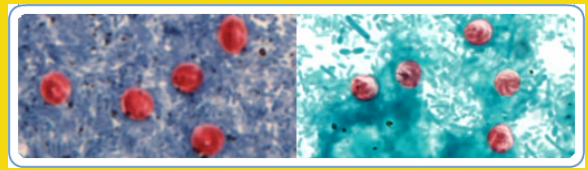
## There is a “Poo” in Pool

One in eight public swimming pools has violations of health and safety codes. That information was from a report by the Centers for Disease Control and Prevention (CDC). Who were the worst and most frequent offenders? Answer: pools at day care centers and other children’s facilities. The report’s findings also showed that when a public health worker inspected a public swimming pool, 12% of their inspections resulted in an immediate shutdown of the pool. Most pool closures were due to improper disinfectant or pH levels in the pool’s water. Child-care center pools had the highest rate of violations, with over 17% of inspections resulting in pool closures. Hotels didn’t do much better, with over 15% of their pool inspections leading to pool shutdowns.



Photo Courtesy of Pete Markham

One misconception about swimming pools is that chlorine kills all germs immediately. Not true! In fact, some pathogens can live for hours or even days in a properly chlorinated swimming pool. Crypto, short for *Cryptosporidium*, is a leading cause of water-borne illness. Crypto infections lead to gastrointestinal illnesses, like diarrhea.



Crypto can stay alive in a well-chlorinated pool for several days. The number of Crypto-caused illnesses now top 800,000 cases each year in the U.S.

So how can you keep safe while swimming in a public pool? First, avoid swallowing the pool water. Next, make sure that you do not enter a pool if you have any open wounds on your body. Use swimming goggles, nose and ear plugs to keep pathogens from entering your body. Never enter a pool where infants have been in the water if they did not wear the proper swimming diapers. In fact, avoid the kiddie pool altogether unless you are a kiddy yourself.

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Answers: Page 2 Answers: 1) b. 2) c. 3) b. 4) c. 5) a. Page 3 What's Wrong with this Picture? Answers: 1) infant swimming with no proper diaper, 2) parent changing infant diaper on pool deck, 3) person eating a sandwich on pool deck, 4) pool was last tested 7 days ago, 5) dog in pool, 6) dead frogs on pool surface, 7) pool shower being out of service

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