

Science You Can Use

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Dear Science: A toilet in my house doesn't shut off. And one of my sinks drains slowly. Should I try to fix them myself or call a plumber? -- Buck R.

Dear Buck: The short answer to your question has two parts. One, when in doubt, call a plumber. Two, always doubt.

Whether you can fix the problem yourself depends on what is causing the problem.

Drains. Drains fail to do their job because there is a clog between the drain and your or sewage treatment system. That problem could be inches to miles long. Before you call a plumber, however, check to see whether two or more drains in your house are evacuating slowly. If they are, there are two possibilities. Each is clogged near its fixture for separate reasons, or there may be a clog that two or more of the fixtures share.

If two or more drains in your house are evacuating slowly, call a plumber.

If only one of your sinks is draining slowly, it's likely that the clog is localized to that fixture. You may be able to fix this kind of problem yourself. There are several good videos on the Internet that can show you what's be involved.

Learning the hard way. A few weeks ago, my bathtub began draining slowly. I watched what Internet videos on the problem I could find. My bathtub drain plug, at least on the surface, looked like several I saw in the videos. I unscrewed the knurled chrome cap on the drain plug. But what I saw after that didn't look like anything in the videos. The drain plug appeared to be held in place by a brass fastener whose top had a square recess. I had never seen this kind of part in a drain plug, but it looked much like the top of a replaceable valve seat of the kind I had seen in some hose bibs. I made a quick trip to my local hardware store to buy a "hose-bib valve-seat wrench. I also bought a tool made specifically for extracting gunk from drains: a thin, flexible strip of plastic with hooks on either edge. The valve-seat wrench, fortunately, was an exact fit for the drain plug fastener. The gunk-grabber retrieved a ball of hair and soap scum the size of my fist from the drain. I let water run through the drain for a couple of minutes after the extraction, and I have had no problems since (if you don't count my wife's reaction when I proudly showed her the gunk).

Run-on toilets. Toilets can run-on indefinitely for several reasons. (1) The flapper valve between the toilet tank and the toilet bowl has deteriorated and won't seal properly. Replacement flappers are inexpensive, replacing them is easy, and they last on average 3-5 years. (2) The tank-filler valve assembly has failed. This assembly lives in the toilet tank. In modern toilets, the assembly looks like a vertical square plastic rod roughly a foot long, along which a cylindrical plastic float rides up and down as the water in the tank rises and falls. They last 5-10 years on average. (3) A gasket between the toilet tank and bowl has failed.

I recommend that you call a plumber if replacing the flapper valve doesn't solve your run-on problem. Why?

To replace a toilet fill-valve assembly or replace a gasket between a toilet tank and bowl, you must first turn the water supply to the toilet tank off. In most toilet installations, there is a small ("cutoff") valve in line between the toilet tank and a water supply line (coming out of a wall in your bathroom). Most people who are *not* in the plumbing business think that a water cutoff valve for a toilet is designed to turn the toilet's water supply on and off. A real plumber knows that after one of these wonders has been in place for a few years, the only thing you can do is replace it, because it (a) is made in a country with which the US has fragile diplomatic relations, or (b) requires nuts and compression fittings that were last manufactured in 1856, or (c) is connected to a flexible metal supply line that will spring a leak if you even think about it, or (d) is so encrusted with minerals that the valve won't budge. In any case, you have to connect the new fill valve assembly to the supply line, a disturbance that aging fittings and lines rarely forgive.

Learning the hard way. Undaunted by those prospects, about a year ago I attempted to replace the fill valve in my toilet. Three hours, a flooded bathroom floor, skinned knuckles, and my entire Saxon vocabulary later, I called a plumber. He fixed the lot in 15 minutes.

As the father of a friend of mine said, "There are two kinds of people who do plumbing, son. Idiots and plumbers."

Jack Horner is a systems engineer, but he is not a plumber.