FLUSH THIS!
The DIY Guide to Gaining the Upper Hand on Wonky Plumbing Devices
Plumbing apparatuses are time bombs waiting to frustrate. From faulty bathroom sink stoppers to leaky dishwashers, all water-using household devices are prone to dysfunction and breakage. Plumbing issues can also be insidious and compounding. A slow-draining toilet can eventually lead to a septic line that needs flushed. Small, individual plumbing problems can snowball into multiple serious damages across numerous devices, to the point where homeowners feel their houses have developed consciousness and turned on them.

The following guide provides clearly-detailed steps for re-asserting control over your home’s plumbing when it has begun to mimic “The Shining,” and includes sections on common issues related to toilets, drains, faucets, sinks, and kitchen appliances.
TOILETS

PARTIAL FLUSHING

Few things are worse than having your toilet return debris flush after flush when all you want to do is banish the bowl’s contents to the next dimension. The partial flush is a menace that affects almost every home toilet at some point, but it has a relatively easy and straightforward fix that anyone can apply. The steps are as follows.

1. Begin by plunging the toilet. If there is not enough water in the bowl to cover the plunger, add more.
2. Add a squirt of dish detergent to the bowl.
3. Thrust the plunger straight down until its rubber ring creates a seal around the toilet trap.
4. Repeat step 3, drawing the plunger back toward the tank on the upswing to jar stuck material loose.
5. If step 4 does not successfully unclog the toilet proceed to steps 6 and on, which detail how to use a closet auger or coat hanger to root out deep-seated clogs.
6. Place a bucket near the toilet and put rubber gloves on.
7. Obtain a closet auger (they can be found at any hardware store and are relatively cheap). A broken/extended coat hanger will also work in many instances.
8. Extend the auger handle or grip the non-pointy end of the coat hanger.
9. Insert the butt end of the auger or pointy end of the coat hanger into the toilet trap. Push the auger handle or feed the hanger into the trap until you feel resistance, which means that you have contacted the clogging substance(s).
10. Crank the auger handle to rotate its cable. As you crank, push the handle inward to hook the clog with the end of the handle or break it up. Alternatively, attempt to hook the embedded material with the end of the hanger and drag it upward.
11. If using a coat hanger, repeat step 10 while grabbing all uprooted material and placing
it in the bucket. If using an auger, extend the handle once again—this will remove the cable and whatever embedded material its tip has hooked. Place this material in the bucket as well.

12. Monitor the toilet to see if its water drains. If it does, the clog has successfully been removed and the excess material can be placed back in the toilet in intervals and flushed.

13. If the toilet is still clogged at this point, repeat the above steps until all jarred debris comes loose. If the endeavor proves fruitless after multiple attempts, throw in the towel and call a plumber.

CONSTANT RUNNING

Some toilets have the mistaken impression that flushing is more of a marathon than a sprint. All you want is a quick, forceful, anaerobic-type draining, but some toilets run incessantly after flushing, demonstrating impressive endurance but using excessive water and creating a noise disturbance in the process.

Following the directions below will return order when your toilet decides to lace up the running shoes and do the full 26.

- **First things first:** Turn the toilet water off. Once it is off, you can launch a deeper investigation into which portion of the toilet is causing the indefinite running. The various potential offenders are named below, with processes for correcting all possible maladjustments elucidated.
**CHAIN**

The chain inside of the tank may appear to be the toilet’s most inconsequential element, but it can be the crux of your issues (plumbing issues; fixing the toilet chain won’t solve your relationship troubles). The steps for uncovering and correcting chain-related problems are simple:

1. Examine the connection between the flusher and its affixed rubber flapper.
2. Tug repeatedly on the flusher while watching the chain between it and the flapper. If the chain continues to pull on the flapper when the flusher is at rest, then it is too short. If the flapper is consistently impeded from closing, then the chain is too long.
3. If the chain is too long, simply move the clip down.
4. If the chain is too short, replace it with a longer aluminum ball chain.

**FLAPPER**

Toilet flappers have a proclivity for becoming filthy, distorted, or completely broken (like governments). These issues impede proper water regulation. See below for how to determine if your flapper is causing your toilet’s constant running and (if so) how to repair it.

1. Flush the toilet to drain the tank. Unhook the flapper and pull it up to examine it more closely.
2. Flip the flapper and check the bottom for mineral deposits, distortion, discoloration, or cracks.
3. If there is buildup on the flapper, try scrubbing it off.
4. If the flapper has a structural issue (i.e. breakage or warping), you will need to purchase a new one.
5. After purchasing a new flapper, install it by disconnecting the old one from the chain and replacing it. Then cover the drain with the new flapper.
FLOAT POSITION

Another major cause of excessive toilet running is an overfull tank. The float balloon, whose primary claim to fame is looking like a gigantic eyedropper, plays a key role in water level maintenance. It regulates tank refill and is a visual indicator of whether the water level is where it should be.

When the tank is adequately (but not overly) full, the balloon will sit just below the top of the overflow pipe. If, after a flush, the water level in the tank rises above the overflow pipe, then the float needs to be adjusted.

There is only one real fix for this issue:

Bend the rod connecting the float and water pump to position the float lower. This will trigger a faster post-flush pump shutoff.

*If you are unable to bend the rod with your hands, you can attempt to do it with pliers or another tool, but calling a plumber is the safest course of action.

PHANTOM FLUSHING

When your toilet’s water refill valve randomly activates after a dormant period, it can give the impression that Casper has taken up residence in your home uninvited. But the auto-flush caused by this mechanism is not indicative of some spectral presence. Rather, it means that water is draining from the tank incrementally.

This is generally the result of a deteriorating or poorly connected flapper, which lowers the float to critical height and signals the water to turn on. The following steps will ensure that your toilet’s flapper is in working order and exorcise those flush demons you hear at midnight.

1. Check the sturdiness of the flapper by putting a few drops of food dye in the tank and letting them settle for 30 minutes. If the dye seeps into the bowl water, you can be certain that the flapper is at issue.

2. After applying step 1, lengthen the chain attached to the flapper by a link or two. The flapper cannot sit properly in the siphon hole if its chain is too short. Inadequate chain length can produce phantom flushing via this mechanism.

3. After shortening the chain, repeat the dye test. If the bowl water turns that color again, the flapper is damaged and needs to be replaced.
REDUCED BOWL WATER

An overflowing toilet might as well be a tsunami, given the amount of terror it incites. But an overly-low bowl water level is also problematic (for obvious reasons).

Low bowl water can stem from multiple sources. One is a partial pipe clog that siphons water slowly from the bowl. Insufficient tank water is another. A vent pipe blockage can likewise yield low bowl water. These three issues have fairly simple DIY fixes, but, if a leaking hairline crack is the cause of your toilet’s bowl water insufficiency, you will need a new toilet altogether.

The following steps detail how to determine what is causing the reduction in your toilet bowl’s water level and correct it where possible.

1. Take off the tank cover, wait for the fill valve to shut off then check the water level. It should sit just below the overflow tube’s opening. If it is much lower than that, it is likely that the tank lacks sufficient water to refill the bowl. You can correct this by adjusting the float.

2. Shorten the float arm by screwing the end ball clockwise. This will lengthen the valve’s close time and allow more water into the bowl. If your float is cup-style, shorten its adjustment strap to produce the same result.

3. If you believe the cause of your toilet’s low water level lies in its internal piping, test the piping by emptying a 5-gallon bucket of water into the bowl while the bowl water is stationary. If it produces a back-up, the internal piping—or colon—is probably clogged, and it’s time to strap on rubber gloves.

4. After putting gloves on, reach into the colon and fish around for debris. If you are unable to locate any, try using a plunger or closet auger. If this endeavor proves fruitless, proceed to check the plumbing vents.

5. Flush a second toilet, or drain the bathtub, while listening to the problem toilet. If it produces gurgling sounds, the plumbing vents are most likely blocked, and the pipe vacuum is probably sucking air through the toilet and emptying the bowl in the process. You can clear the vents by scaling the rooftop and spraying them with a garden hose from above, but exercise caution (and maybe wear football cleats for traction).

6. If none of the above steps return water to your toilet’s bowl, check for leakage around its base. This is indicative of cracking, which signifies the need to replace the toilet.
DRAINS

DRAIN ODOR

A lot of things are filtered through drains—foul, undesirable things. Without proper maintenance, these waste products can accumulate to the point of giving off a stench so overpowering as to convince you that a colony of gremlins who never bathe has taken up residence in your plumbing.

If you have severe drain odor, it is highly unlikely that the source is subterranean monsters (unless you know something I don’t). The stench likely stems from some sort of fermented user debris (hair, food, cosmetic sludge, etc.), depending on which particular drain is affected. The following guide provides multiple methods for abolishing odor across various drain types. Its successful application will ensure that your drain ceases to smell like Master Splinter’s living room.

SINK DRAINS – All manner of food stuff can get lodged in kitchen sink drains. At times, it can evade draining indefinitely and continue rotting until the entire kitchen is permeated by an odor reminiscent of a thoroughly-destroyed port-a-potty. Bathroom sinks are subject to the same threat, although their odors tend to stem from cosmetics, hygiene products, or little pieces of human hair, skin, etc. In either case, the problem is easily-corrected.

1. Pour 1 cup (8 oz.) of white vinegar into the drain.
2. Leave it for 30 minutes.
3. Rinse the drain with hot water.

BATHTUB/SHOWER DRAINS – Bath and shower drains surpass even sink drains in potential for crippling odor. They are subjected to all of the punishment that bathroom sinks endure and more, given the greater amount of dirt, debris, and general filth that they are forced to filter.

If the summation of these wash byproducts could be reduced to an essence and bottled, it would make a suitable substitute for the salts cornermen use to wake KO’d boxers. But, like sink drain stench,
tub and shower drain odor can be eliminated in a few short steps (once again including white vinegar), given below.

1. Unscrew the drain cover.
2. Dump one cup (8 oz.) of baking soda down the drain and let it sit for one minute.
3. Pour two cups of white vinegar into the drain. This will create a fizz that climbs progressively. Keep it from escaping by plugging the drain with a dry wash cloth. Also, take caution to not breathe the fumes given off by the solution.
4. After successfully tempering the fizz leakage with the wash cloth, leave the cloth over the drain for 30 minutes while the solution sizzles.
5. Boil two cups of water to have on standby.
6. Carefully remove the rag covering the drain and dump the boiling water down the hatch.
7. Repeat steps 1-6 as necessary.

*Alternatively, you can attempt to remove the odor by pouring one cup of uncut bleach down the drain.

**FLOOR DRAINS** – These are generally relegated to cellars and other areas with industrial-type flooring. They appear durable and fit to handle anything but are deceptively frail and prone to backing-up. If you, under the impression that your basement floor drain is indestructible, have been dumping yard leaves, lawn clippings, or industrial waste down its hatch, prepare for drain apocalypse.

When the drain inevitably backs up, it will surge with ooze that can be as viscous as gelatin dessert and as smelly as decades of foot odor. The following instructions will guide you through the cleanup process when your downstairs smells like a mortuary and you are forced to atone for your floor drain oopsie.

1. Liquid drain cleaner is ineffectual for the sort of long, horizontal piping found beneath basement drains. If your piping is not made of cast iron or steel, you can try an acid-based cleaner. If it is, doing so is a major no-no, and you should proceed to step 2.
2. The issue is likely a blocked vent or branch line. Try to un-stuff the piping with a closet auger using the same instructions given under “partial flushing” (minus the plunging and soap directions).
3. If neither drain cleaner nor a closet auger clears the blockage, calling a plumber is the best course of action.
BATH/SHOWER DRAIN BLOCKAGE
The primordial soup that develops on the tub or shower floor when the drain is clogged is a singular kind of disgusting. Attempting to wash yourself under these circumstances leaves you wondering if you are really cleaner for having tried. The process of unclogging the drain is quite simple, however. The instructions for doing so are located below, along with directions for the preliminary removal of each type of drain stopper.

*The steps for clearing drop and push stopper drains are the same once the stoppers themselves are removed. They are given beneath this addendum, with instructions for removing each type of stopper given further below.

• Unclogging a drop or push stopper drain is easy once the stopper itself is removed. In most instances, all that is required to pry jarred material loose is a screwdriver, coat hanger, or stiff wire. The obstruction is usually caused by a wadded mass made mostly of hair located several inches beneath the crossbar. Simply use one of the tools to slowly scrape out the mass, then cast it aside and turn on the faucet to test the drain flow. If it is adequate, your work is done. If not, you may need to fish deeper in the drain hole to locate a second obstruction.

DROP STOPPER (REMOVAL) - A drop stopper has a protruding knob like a chess piece. To access the drain beneath, lift the stopper by the knob and loosen the shaft screw, then slide the stopper off the drain opening.

PUSH STOPPER (REMOVAL) - To remove a push stopper, press the button to open a space between the cap and the shaft. Proceed by holding the shaft tightly with your fingers while unscrewing the cap, then remove the stopper altogether to reach the drain.

FLIP-SWITCH STOPPER (REMOVAL AND DRAIN CLEANING) - To unclog a flip-switch stopper drain, begin by taking the screen off and cleaning the posterior crossbars. Continue by unscrewing the overflow plate, then pull out the linkage and clean it (along with the stopper). Proceed by rinsing the drainpipes thoroughly—thereby unclogging them—and readjusting the linkage before reinstalling all of the components.
SHOWER DRAIN LEAKAGE

Does your ceiling cry rusty tears that look like they could give you tetanus? If you answered yes, your house may lie on an Indian burial ground, and you should probably board your doors and run away. Kidding aside, you do have a serious issue to deal with, but it is likely limited to a shower drain leakage.

Beneath your shower pan lays a drain body which connects to a strainer body that generally takes the form of a metal grate. Shower water, after entering the drain, should seamlessly exit through the attached plumbing, but the gasket housed between the strainer and drain bodies can become worn and cracked with time. You can replace the dysfunctional gasket without launching a significant reconstruction project, thereby quelling your ceiling’s dirty tears and avoiding further structural damage.

1. With a screwdriver, remove the screws that attach the metal grate to the drain strainer.
2. Remove the grate from the drain strainer.
3. Grab the center of the drain strainer with a pair of tongue and groove pliers. The pliers should press against both sides of the opening. Rotate the pliers counterclockwise to loosen the strainer body, then remove it and put it aside.
4. Scrape or pull any old plumber’s putty from the now-removed strainer body.
5. Softly press the drain body to the side of the opening, thereby revealing its rim (the drain body is connected directly to the drain pipe). The rim should have a gasket that is flat and black. Pluck it from the opening and discard it.
6. With your hand, rock the drain body inside of the opening to remove any debris stuck on the rim. If necessary, use a rag to wipe the rim completely clean.
7. Remove any residual plumbing on the opening’s threads with a wire brush.
8. Scoot the replacement gasket into the opening. Center it on the rim of the drain body.
9. Use plumber’s putty to coat the outside of the strainer body. The majority of the putty should be placed on the underside of the strainer’s rim. Before installation, ensure that the outermost portion of the strainer body has been covered liberally in putty.
10. Place the strainer body in the opening and rotate it clockwise to tighten it. When it is completely secured, the putty should seep outward from the edges of the strainer body.
11. Remove all excess putty and leave the drain to settle overnight. It should then be ready for use.
CLOGGED SINK DRAIN

Sinks are meant to be apparatuses for washing. Be they dishes or hands, objects placed in a sink should emerge clean. But when a sink’s drain clogs, its filtration capacity is severely limited, making it difficult to successfully wash anything. Sink drain blockage often yields an enduring accumulation of filth that can develop into a self-sustaining, highly advanced germ colony, with sophisticated systems of commerce, science, education, and so forth.

The presence of such an entrenched and evolved collection of muck makes cleaning anything an impossibility (not to mention a violation of sovereignty). Multiple means of clearing sink drains exist, however, and they are given below. You are free to attempt them if your conscience can handle the burden of destroying germ-Atlantis.

• Chemical cleaners are a viable option for clearing a sink drain. You should attempt to resolve the issue with a plunger or drain snake first, however.

PLUNGER

1. If plunging a bathroom sink, cover the overflow drain. If plunging a kitchen sink, cover the second drain. This will allow you to apply more pressure to the clog.

2. Plunge vigorously until the blockage is corrected.
DRAIN SNAKE

1. Feed the snake down the drain until you locate the clog.
2. Pull the snake up and remove/discard the jarred material.

*After using either tool, you should run hot water down the drain to flush out any residue.

Replace Leaky Plastic Drain Pipes

PVC drain pipes like to let water trickle out from beneath your sink in a canine-esque effort to assert their territorial rights. As with a dog, you can re-assert dominion over your drain pipes by simply replacing them, but, before doing so, you need to investigate the underside of your sink to discover the source of the problem, since piping issues can arise anywhere in the drainage network.

The tailpipe flows from the sink drain into the P-trap, which (inexplicably) looks like the letter “J”. The P-trap then feeds into another pipe, which discharges into the house waste line. You should be able to see which element is at issue, but, if not, the least-time consuming solution is to take each of them with you to the hardware store and purchase equivalent replacements.

Installation of replacement parts is simple and requires only tools that you likely already own

1. Place a bucket beneath the leak. Put on vinyl or nitrile gloves to guard against contaminated water.
2. Spread all replacement pipes out on the floor next to the sink to gauge how they fit together.
3. Working down from the top, remove the tailpipe nut, located under the sink basket, by rotating it counterclockwise with channel-lock pliers.
4. Remove the nut that attaches the P-trap to the tailpipe. Squeeze the nut with channel-lock pliers and rotate counterclockwise to loosen it.
5. On the opposite end of the P-trap, repeat the same nut removal steps. Dump the contents of the trap into the bucket.
6. Loosen the nut holding the pipe that feeds into the waste lines (in the wall or floor), then remove it.
7. Insert the new tailpipe's gasket on top of the pipe itself then install the new nut on the pipe. Tighten it by hand and then with channel-lock pliers.
8. After threading the nut and gasket onto the tailpipe, insert the end of the pipe into the new P-trap. While holding the P-trap in place, tighten the nut by hand. Ensure that the gasket is between the nut and facing the threads of the P-trap.
9. Connect the final pipe the same way you connected the P-trap and tailpipe. Make sure you have installed the gasket before installing the nut. Hand-tighten the nut, then follow with the channel-lock pliers.
10. Run the water and monitor for leaks.
FAUCETS

OUTDOOR FAUCET REPAIR
An outdoor faucet can function as many things—an outlet for a home car wash sprayer, a garden hose lifeline, or a drinking fountain for thirsty children without fear of giardia. But with utilitarian versatility comes wear, and outdoor faucets are infamous for leaking and squealing after extended heavy use. Luckily, neither the leaks nor the squeals require much plumbing acumen to fix (see below).

LEAKING FAUCET – Outdoor faucet leaks are generally caused by either a loose packing nut or a defective packing washer. You should check the nut (and repair it if necessary) before examining the washer.

1. Examine the nut. If it appears to have slack, try tightening it with pliers or a wrench.
2. Test the faucet. If it is leaking despite a tight nut, proceed to the following section on washer replacement.

If the nut is not the issue, shut off the water to the faucet from inside the house, remove the faucet handle, and unscrew the nut. Then proceed with washer replacement by applying the following directions.

1. After removing the handle and unscrewing the nut, the packing washer should be easy to remove. Pull it off and take it with you to the hardware store to find an equivalent replacement.
2. After purchasing a new washer, install it by applying the steps for its removal in reverse.
3. Some old faucets may have valve packing (a bundle of string) instead of a washer. If yours meets this description, be sure to get new, graphite-coated packing from the store.
4. Unwind the old packing (counterclockwise) and wrap the new packing onto the faucet (clockwise).
5. Re-test the faucet and make adjustments as necessary.

SQUEALING FAUCET – Most outdoor faucets eventually develop a squeal, audible when you turn the
handle. This usually means that the stem threads are rubbing against the threads in the housing. To correct the squeal, begin by closing the shutoff valve for the faucet if there is one. If not, shut off the main house valve and proceed to:

1. Add a dollop of plumber’s grease to the area where the threads meet.
2. Twist the handle and listen for squealing. If it persists, apply more grease.

**KITCHEN FAUCET REPLACEMENT**

Your neighbors will think less of you for having an ugly stock faucet in your kitchen. They just will. You won’t fare any better with them if you have a faucet that was once fancy but is now battered. Moreover, a worn faucet is often laden with issues like a weak spray or persistent leak.

Whether your faucet is a poor performer or simply an eyesore, you will want to replace it at some point. Doing so is simple; just follow the outline below. You don’t want an under-performing faucet, nor do you want to be denigrated by your pretentious neighbors.

1. Shut off the sink’s hot and cold water valves, located in the cabinet underneath.
2. Open the faucet to relieve pressure.
3. With an adjustable wrench and pair of channel-lock pliers, disconnect both water lines from the faucet. If your supply lines and gaskets are worn, you may want to replace them with flexible supply lines.
4. With a basin or socket wrench, remove the nut holding the faucet tailpiece assembly together.
5. Disconnect the line linking the hose to the faucet (if applicable; your sink may not have one).
6. Remove the old faucet and clean the sink’s surface.
7. Measure the distance (from one center to another) of the outer sink holes to ensure that your new faucet will fit. Be sure to follow any particular directions that come with the new faucet.
8. Seal your new faucet. If you are using a gasket, place it on the lip of the plate and feed the hoses through. If you are using plumber’s putty, spread it around the base of the faucet and set
the faucet in place.

9. With a basin or socket wrench, thread on the flange and nut beneath the sink.

10. If you have a pull-out faucet, add a weight to curtail pull-out spray.

11. Attach supply lines to both the faucet and the shut-off valves (hot water is on the left).

12. Turn on the water to test the new faucet. If there are any leaks, tighten supply line connections and re-test.

---

**LEAKY TUB FAUCET**

Not only do dripping tub faucets contribute to increased water bills, the constant echoes that they produce in their fiberglass or porcelain surroundings are akin to someone poking you in the brain repeatedly with a cotton swab. They are mind-piercingly obnoxious. Fixing a leaky tub faucet is mindlessly simple, however.

1. Shut off the water supply. Some homes allow you to do so beneath the bathroom sink. If yours does not, you will need to shut off its main water supply.

2. With the water off, turn the faucet handles as though you were trying to draw a bath. This will siphon all excess water from the piping before you start.

3. Before you proceed, the faucet handles will need to be removed. Begin by prying off the handle inserts (plastic coverings) with a pocket knife or similar gadget.

4. Removing the inserts will reveal screws in the handles. Remove them with a screwdriver.

5. Disconnect the handles from the stems. If they are stuck together due to corrosion, try using a handle puller (a tool created for this very task). If the handle puller does not do the trick, you may need to call a plumber.

6. Once the handles are disconnected, the next step is to replace the washer. Begin by removing the seat washer screws from the stems and taking the old washers off (it may require a little bit of force to remove them).

7. Replace the old washers and seat washer screws (you will probably want to take them with you to the hardware store to find equivalent replacements).

8. Apply liquid thread sealant to the stem threads and place them back in the faucet openings.
9. Screw the faucet handles back in place and reattach the handle inserts.

10. Turn the water back on and test the faucet. The leak should be gone. If not, you may consider hiring a plumber to do some investigative work.

---

**BATHROOM SINK FAUCET DRIP**

Much like a leaky tub faucet, a dripping bathroom sink faucet can both run up your water bill and decrease your sanity. Its staccato leakage slowly drains resources and pecks away at your brain like a jackhammer. While it is tempting to leave such a faucet be, it is highly impractical to do so, unless you are fine with always wearing earplugs and pretending like your utilities dues are less than your bills suggest.

- The directions for fixing a dripping bathroom faucet differ slightly according to faucet type. Particularized directions for each style of faucet are given below.

**COMPRESSION FAUCET** - A compression faucet has individual hot and cold screw handles.

1. Begin by removing both handles. To do so, you will want to remove the decorative caps (they read “hot” and “cold”) first. Then you will be able to unscrew and remove the handles.

2. Once the handles are off, the next step is to remove the nut (using a wrench).

3. Once the nut is off, the stem will be visible. It sits on the O-ring, which, in turn, sits on the seat washer. A worn seat washer is generally the cause of a leaking bathroom faucet.

4. Pull the stem out to expose the O-ring and seat washer. If the handles themselves are leaky, remove the O-ring and take it to the hardware store to find a replacement. If the faucet is the site of the leak, proceed to remove the seat washer and apply the following instructions.

5. Take the seat washer with you to the hardware store to find an equivalent replacement. Once you have the replacement, coat it in plumber’s grease and install it.
6. Finish by reassembling the handle apparatus. The leak should now be gone.

**BALL FAUCET** – A ball faucet has a single handle that rests on a dome-shaped body. When in disrepair, several of its parts need to be fixed at once, and some of them require special tools. Your best bet is to simply buy a replacement kit (usually around $20 retail), which comes with all necessary parts and tools. Once you have obtained the kit, apply the following instructions.

1. Unscrew and remove the handle.
2. With pliers, remove the collar and cap.
3. With the appropriate tool (found in your kit), loosen the faucet cam and then remove it along with the washer and ball.
4. Take out the springs and inlet seals. You will have to actually reach into the mechanism to do so, and you will probably need needle-nose pliers.
5. Cut off the old O-rings and then coat the replacements in plumber’s grease and install them.
6. Inside your kit should be valve seats, cam washers, and new springs. Install them in the reverse order of their removal.
7. Reassemble the handle and test the faucet. It should no longer leak.

**DISK FAUCET** – Disk faucets are characterized by a single lever that sits atop a wide cylindrical body.

1. Unscrew and take off the handle.
2. Remove the cap that sits beneath the handle.
3. Unscrew and take off the disk cylinder. This will reveal multiple neoprene seals.
4. Pull out the seals and clean the cylinders (white vinegar is a good option). Let them soak for several hours to cut through all buildup, then decide whether they are still usable.
5. If the seals appear worn, take them to the hardware store to find equivalent replacements.
6. Reassemble the handle apparatus and run the water. The leak should be gone.

**CARTRIDGE FAUCET** – Cartridge faucets are easier to identify by how they work than how they look. A cartridge faucet has a consistent, buttery motion, whereas a compression faucet requires you to tighten down on the washer to curb the water flow.

1. If there is a decorative cap, pry it off. Then unscrew and remove the handle.
2. Remove the retaining clip if there is one (the retaining clip holds the cartridge in place).
3. Pull on the cartridge until it stands upright.
4. Take off the faucet spout. Then find the O-rings.
5. Cut the old O-rings off.
6. Coat the new O-rings in plumber’s grease and install them.
7. Reassemble the apparatus and test the faucet. The leak should be fixed.
MISC. FAUCET ISSUES

Weak streams, irregular spray patterns, and stray torrents of water are not limited to enlarged prostates. They are signs of a dirty faucet aerator, which is the screen (and its surrounding assembly) through which water passes. All of these issues pose difficulties for those who want to wash a pan, fill a glass, or simply wash their hands. Luckily, cleaning a faucet aerator is one of the very simplest DIY plumbing endeavors.

1. Close the drain to ensure that no parts find their way into it.

2. Unscrew the tip of the spout with your fingers. If it won’t budge, try using pliers instead.

3. Remove the aerator. You will notice that it has a variety of interlocked parts that unfold like a Russian doll. Separate them and lay them out individually, noting the order in which they are assembled.

4. Rinse the individual pieces with water and scrub off all debris.

5. Soak any pieces coated with hard-to-remove debris in white vinegar, and then scrub them with a toothbrush.

6. Replace any cracked or broken components. Also replace the washer if it has calcified.

7. After the aerator pieces are clean, reassemble them in the order opposite of their removal and hand tighten them.

8. Test the faucet. It should run seamlessly.
SINKS

REPLACE PEDESTAL SINK
Pedestal sinks are just neat. They are like a home portal to ancient Greece. But they are also prone to various damages that hinder your ability to play Alexander the Great. Replacing a pedestal sink seems daunting initially, given all of the plumbing components involved, but it is deceptively simple. The guide below describes how to swap a tainted, broken, or otherwise deficient pedestal sink for an aesthetic replacement that will make you want to don the toga and olive wreath again.

1. REMOVE OLD SINK
1. Before launching the removal of the old sink, use the shut-off valves on the hot and cold water supply pipes to turn off the water.
2. Open the faucets and let them run dry.
3. Detach the supply tubes from the faucet.
4. Unscrew the plastic nut that connects the trap and waste pipe.
5. After disconnecting all of the plumbing, remove any screws attaching the sink to the wall and pry the sink loose.
6. Undo the screws that hold the pedestal to the floor and remove it.

2. READY AREA AND INSTALL PEDESTAL
1. Remove the old lavatory stops.
2. With an adjustable wrench, remove the old water line supply stops.
3. Take the old escutcheon covers off. These are the decorative metal coverings that surround both the wall hole and faucet stem.
4. Place Teflon tape on the stub outs.
5. Slide the new escutcheon covers over the placed (but not fastened) water supply.
6. Thread on new supply stops and tighten everything.
7. Make sure that the inlet valve is upright.
8. Take off the old collar nut then place the replacement P-trap escutcheon cover over the drain hole.
9. Set the basin on the pedestal then place the
whole unit in its preferred final location. Ensure that the basin is level.

10. Make sure that the basin is centered to the wall drain hole then mark where the sink will meet the wall with a pencil.

11. With a pencil, mark future anchor hole locations in both the wall and floor, then clear the sink from the area.

12. Insert lag screws into the wood backing behind the sink (you may need to search for “wood backing installation” online if you do not already have a wood backing in your desired installation site).

13. Drill two quarter-inch holes where you made marks earlier for the hanger bolts, then thread the hanger bolts in. Leave approx. 1 ¼ inches of each bolt exposed between the cap nuts and wall.

14. At this point, it is time to mount the pedestal to the floor. The technique for doing so differs with floor type. If you have a concrete floor, you will need a hammer drill and concrete bit. Then you will insert a lag screw and use a ratchet to make it snug. If you have a tile floor, you will apply the same steps but with a tile bit, and you will drill the holes into the grout lines.

3. PLACE HARDWARE ON SINK IN PREPARATION FOR INSTALLATION

   1. Install both the handles and spout.
   2. Place plumber’s putty around the seal to ensure that it’s tight.
   3. Insert valve bodies in mounting holes. After placing the valve bodies, slide the nuts/washers onto their bases and tighten them.
   4. Put the ring seal over the spout body then insert the spout itself in the sink.

   5. Place the metal washer and nut on the spout shank and fasten the nut.

4. MOUNT SUPPLY LINES

   1. After mounting hardware on the topside of the sink, mount both supply lines beneath.
   2. Fasten the supply tee to the spout’s bottom then tighten it, ideally with slip joint pliers.
   3. Attach the flexible supply lines to the valve bodies and supply tee.
   4. After connecting the flexible supply lines to the valve bodies, tighten them with a wrench.

5. CONNECT THE FLANGE AND DRAIN BODY

   1. Smear a generous application of plumber’s putty around the base of the flange then insert the flange in the sink.
   2. Place the O-ring and nut over the flange and tighten the nut.
   3. Tightly attach the drain body to the flange.
   4. Wrap Teflon tape around the tailpiece threads to prevent leakage.
   5. Screw the tailpiece to the drain body. Attach the connecting rod to the drain body then connect the stopper rod from the back of the faucet.

6. INSTALL THE P-TRAP

   1. Place the lavatory on the pedestal with the hanger bolts extending through the lavatory holes.
   2. Install the cap nuts and washers.
   3. After mounting the sink, attach the hot and cold water connections and tighten them.
4. Attach the end of the P-trap to the tailpiece of the drain assembly. Complete the P-trap connection by screwing it into place.

5. Turn on the water and water heater. Open the faucet and watch for leaks.

UNDER-SINK REPAIR

It is tempting to write off sub-sink issues entirely. The underside of a sink is a dark, cramped, scary space that contorts entrants in bizarre ways—not unlike a haunted funhouse or house of mirrors. As such, it is not only difficult to correct an under-sink issue, it is hard to uncover its source, both because of the cramped darkness and the apparent lingering threat of killer clowns.

The following guide will help you navigate sub-sink issue diagnosis and repair and save you the pain of rooting around aimlessly and contorted in the menacing dark.

DIAGNOSIS – It generally isn’t apparent that there is something wrong beneath your sink until water has pooled on your floor. The exception is a water hose leak, which is (usually) instantly visible. There are several helpful diagnostic indicators, however, for less-visible issues. These are detailed below, along with restorative directions.

REPAIR WATER-SUPPLY LEAK – Supply drips generally stem from shut-off valves with ill-attached compression fittings. These can be tightened by doing the following.

1. Hold the valve with one wrench while turning the compression nut with another.
2. If the connections are found in a tight space behind the sink, they should be secured with adjustable or locking pliers instead of a wrench.

REPAIR DRAINPIPE LEAK – P-trap leaks can be caused by a variety of things. Loose connections, drainpipe blockages, and corrosion (in metal pipes) can all result in a leaky P-trap. You can ferret out
the source of the leak and repair it by applying the steps below.

1. Tighten all compression nuts. If the trap continues leaking, remove it and thoroughly clean it.
2. In the process of cleaning the trap, attempt to unclog the drain line with an auger (if you believe there may be a blockage).
3. If you have a metal P-trap, attempt to tighten the compression nuts with pliers. If they are difficult to turn, they are likely corroded and you will probably need to replace the trap itself.

**MISCELLANEOUS LEAK REPAIR**

If you still can’t discern the leak source after applying the directions above, the sink drain is likely the culprit, but it could also be the faucet. Following the directions below will help you figure out which mechanism is the site of the leak and repair it.

1. If you suspect the drain as the source of the leak, unscrew it and pack it with plumber’s putty. If this doesn’t rectify the issue, proceed to check the faucet.
2. Faucet repair consists of the removal and replacement of gaskets and washers. This should stem any faucet-related leak.
BROKEN/FAULTY POP-UP STOPPER

What happens when the sink stopper stops stopping? Anarchy. The basin water refuses to pool for you, and the entire enterprise of face-washing (or shaving) is jeopardized. Luckily, reasserting iron-fisted, dictatorial control over your sink through (pop-up) stopper repair is a simple endeavor. Following the steps given below will return you to full plumbing despotism.

1. DISASSEMBLY AND CLEANUP
   1. Clear the underside of your sink to free working space.
   2. Ensure that the pivot rod is connected to the clevis (the U-shaped portion of the fastener).
   3. Loosen the nut holding the pivot rod in position.
   4. Take the pivot rod off the drainpipe.
   5. Mark where the clevis connects to the stopper rod.
   6. Loosen the clevis screw.
   7. Let the pivot rod and clevis soak in vinegar or another mild cleaning solution.
   8. Remove the stopper from the drain and check the rubber seal on the underside of the stopper head. If it has hardened or cracked, then the stop should be replaced entirely. If not, it can be reused.
   9. Soak the stopper as you did the pivot rod and clevis. Then scrub it thoroughly with a toothbrush. Scrub the pivot rod and clevis as well then rinse all three pieces.

2. REASSEMBLY AND ADJUSTMENT
   1. Place the stopper in the drain.
   2. Place the clevis over the stopper rod, then insert the pivot rod into the drainpipe.
   3. Tighten the retaining nut until the pivot rod remains in place (but no more).
   4. Tighten the clevis screw where you made your mark before.
   5. To make sure that all moving parts are correctly reattached, test the stopper rod.
   6. All three of the parts that you cleaned earlier (clevis, pivot rod, stopper) should move when you pull on the stopper rod.
   7. Tighten the retaining nut enough to keep the stopper rod from sliding down.
   8. Loosen the clevis screw until you can pull the stopper rod up. Slide the stopper rod and clevis as far up as you can.
   9. Tighten the clevis screw.
   10. The stopper should be able to hold water at this point. If not, tweak the retaining nut and clevis until they create a seal.
LEAKY SINK SPRAYER

The sink sprayer is the closest thing to a Super Soaker in the realm of plumbing. Each plate or utensil with caked-on grime represents an opportunity for fun, as you assume the role of domestic Rambo, blasting dried condiments from dirty culinary implements.

Unfortunately, sprayer leaks threaten to ruin playtime by sending your liquid ammunition spiraling sideways in an unchanneled torrent. These leaks aren’t always easy to find, but following the steps below will enable you to do so and apply the requisite repairs.

1. Shut off the water supply valve beneath the sink. Then turn on the faucet to enable line-draining and remove the water supply.

2. If the spray nozzle is the source of the leak, you may be able to fix it by replacing the nozzle gasket. Open the nozzle to locate it.

3. Remove the gasket if it is in disrepair. Take it with you to a hardware store to find an equivalent replacement. Thread the replacement gasket on, turn on the water supply, and attempt to use the sprayer to see if the leak is gone.

4. If the leak is located beneath the sink, namely, where the hose attaches to the faucet, all you need to do is fortify the seal. To do so, remove the supply line and clean both ends of the connection. Wrap plumber’s tape around the threads, then place the piece in its original place.

5. If the problem persists, the next step is to replace either the sprayer or the entire assembly. If the whole assembly appears to be in need of replacement, remove the supply line. Then pull the sprayer to remove it from the hose.

6. Once the old sprayer is removed, its replacement can easily be installed by threading the new line above the sink and wrapping its end to create a seal between the retaining nut and hose threads.

7. Turn the sprayer on and inspect for leaks.
CERAMIC SINK CHIP REPAIR

It’s never entirely clear how ceramic sinks become chipped. At first glance, they appear to be about as susceptible to chipping as a Kevlar vest, but they chip nonetheless, leaving a basin profile line reminiscent of a gold prospector’s smile.

That single gap in the sleek white wall is an eyesore begging to be repaired. Thankfully, sink chip repair is a simple endeavor. Its steps, detailed below, will allow you to don your cosmetic dentist cap and repair that unsightly chink in your sink’s smile line.

1. Buy an epoxy repair kit for porcelain. Its shade should be lighter than that of your sink.

2. Following the kit’s instructions, mix all of its components.

3. With a cotton ball and rubbing alcohol, clean all dust and dirt on your sink (including in any chips). With a non-abrasive cloth, wipe the chips dry.

4. Dip into the mixed repair solution with a matchstick, toothpick, brush, or other small instrument and then carefully apply the solution to the chips.

5. Let the epoxy dry for at least an hour then add a second application to all treated areas.

6. Continue performing the above steps until all chips are repaired.
KITCHEN

GARBAGE DISPOSAL REPLACEMENT

A broken garbage disposal is a death knell for subconscious trash-chucking. Disposing fruit rinds, egg shells, and potato peels by hand is an ordeal after years of throwing them into the Sarlac Pit and letting it handle the rest. Moreover, it often does not become apparent that your garbage disposal has broken until a mass of fermented food has built up inside it and permeated your kitchen with its stench.

A broken garbage disposal merits immediate replacement or else you’ll be saddled with cumbersome trash disposal and assaulted by a militant odor. The steps below detail how to install a replacement garbage disposal when yours self-destructs and leaves your kitchen in disarray.

1. Turn off the garbage disposal’s power supply.
2. Turn off the hot and cold water shut-off valves located beneath the sink.
3. Sever the drain trap from the disposal’s discharge tube.
4. Disconnect the drain’s slip fittings.
5. If there is an attached dishwasher inlet hose, disconnect it.
6. Apply clockwise rotations to unscrew the garbage disposal beneath the sink.
7. Flip the garbage disposal and unscrew the electric cover plate.
8. Disconnect the electrical cable connector.
9. Pull out the wire nuts.
10. Disconnect the wire from the ground screw (the screw should be green).
11. If you plan to install a new mounting assembly, remove the existing one.
12. If you plan to have the dishwasher drain through the disposal, remove the plastic drain plug.
13. Install the new disposal in the reverse order of its removal and test it.
GARBAGE DISPOSAL CLEANING/ FRESHENING

Garbage disposal stench is not always indicative of breakage. It can be a sign of failure to perform routine maintenance cleanings. Extended periods of reflexively throwing trash down the disposal can lead to the belief that it is a sentient and autonomous entity that happily embraces your waste. But it is not Oscar the Grouch. It requires periodic re-freshening if it is to continue receiving your garbage without blowback.

1. BAKING SODA AND VINEGAR
   1. Pour ½ cup of baking soda down the kitchen sink drain.
   2. Slowly pour ½ cup white vinegar on top of the baking soda.
   3. Use a stopper to block the drain. If you have a double sink, plug both drains.
   4. While the mixture fizzes in the drain, boil a medium size kettle or pot of water.
   5. Once the water has come to a boil, pour it down the drain.

2. WATER AND BLEACH
   1. Mix 1 gallon of water with 1 tablespoon of bleach.
   2. Pour the mixture down the drain and let it settle for a few minutes.
   3. Flush the drain extensively with water.

   *Use hot water when flushing the drain, as cold water will cause grease to harden. Using more bleach than the prescribed amount will also solidify the grease.*

3. ICE AND CITRUS RINDS
   1. Combine a fistful of ice cubes and the rinds from any citrus fruit.
   2. Dump the mixture down the disposal and grind.
DISHWASHER LEAK

Dishwasher leaks are no joke. They present an array of destructive potential issues, including flooding and sub-floor mold/mildew. Still, there is no need to overreact when you see water escaping from your machine. Your initial impulse upon seeing a pool gather on your kitchen floor may be to slip into paranoia and start constructing an ark. But the correct course of action is to simply remain calm and confront the problem directly. Dishwasher leaks aren’t terribly difficult to find or repair. Just follow the directions below to stem the flood immediately instead of collecting all animals two-by-two and preparing for mass destruction.

*Each potential leak source is given its own sub-heading below, with pertinent diagnostic and repair directions with it. There is also a forward with preparatory directions that are applicable in all instances.

1. PREPARATIONS

1. Begin by shutting off the dishwasher’s power. If it has a power cord that feeds into an outlet, unplug it. If not, turn off its circuit breaker.
2. You will want to remove the dishwasher altogether. Its service panel is found beneath the door and is secured to the frame with screws. The dishwasher is also connected to the counter top with screws. Unscrew the unit in all of these locations to enable it to be pried loose.
3. Turn off the water supply found behind the service panel and detach the drain hose from the sink.

2. GASKETS/SEALS

Damage done to a door gasket can cause a leak, as can erosion in the detergent dispenser seal (found in the discharge housing gasket). If the door gasket is the problem, it should be immediately apparent. It can be removed and replaced without tools. If the dispenser gasket is the problem, proceed as follows.

1. Remove the screws that surround the front panel of the dishwasher door.
2. The discharge housing is found under the pump cover located in the bottom of the dishwasher. To reach the gasket, detach the bottom spray arm and remove the neighboring screws. You can then remove and replace it.

3. HOSES

1. Tighten the clamp screws on the drain hose, as this alone often solves dishwasher leaks. The drain hose is the piece that connects the pump beneath the dishwasher to the sink drain or garbage disposal.
2. If tightening the clamp screws did not fix the leak, replace the thread seal tape and tighten the nuts on the supply line connectors. The supply line connects the water supply valve below the sink to the inlet valve beneath the dishwasher.
3. If the hoses are still leaking, they likely need to be replaced.

4. INLET VALVE/PUMP

The inlet valve sits above the supply line and connects to the bottom of the dishwasher. Leaks can stem from either a worn pump seal, or a cracked pump body. If the seal is at issue:
1. Remove the pump body from the dishwasher bottom.

2. Replace the pump seal and reattach the body.

If the body is cracked, the entire component will need to be replaced.

5. SPRAY ARMS/FLOAT SWITCH

A damaged spray arm creates a directionless water flow that can cause a leak. This occurrence is compounded by a broken float switch. A functional float switch signals the inlet valve to shut off water flow when the washtub becomes overloaded. A broken float switch fails to do so, leaving water to accumulate until it overflows and saturates your floor. Both components can be replaced by applying the following directions.

1. With a screwdriver, remove the damaged spray arm and/or float switch.

2. Take damaged component(s) to the hardware store to find equivalent replacement(s).

3. Attach new part(s).

KITCHEN SINK SUPPLY LINE REPLACEMENT

Supply lines are the arteries of your kitchen sink. Just like your own arteries, you do not want them hampered by buildup. But where (human) arterial plaque is best dealt with through diet and exercise, mineral deposit buildup in sink supply lines is most sensibly handled by replacing the lines altogether.

Thus ends the admittedly lame analogy; you (unfortunately) cannot toss your shoddy arteries and buy new ones. This is absolutely the correct approach to take in responding to your dysfunctional kitchen sink supply lines, however. Simply follow the steps below to successfully supplant your sink’s potatoto-chip encrusted arteries with vibrant new ones.

1. Shut the water supply off beneath the sink.

2. Turn the faucet on to relieve residual water pressure.

3. Disconnect the hex nut found at the bottom of the right-hand supply line. Place a drip container beneath the water valve.

4. Disconnect the hex nut found at the top of the right-hand supply line to detach it from the end fitting of the faucet supply pipe.

5. Add Teflon tape to the faucet supply pipe’s threaded end fitting. Be sure to wrap the tape around the threads until they are completely covered.

6. Twist the new supply line’s top hex nut onto the faucet supply pipe’s end fitting and tighten it.

7. Screw the new supply line’s bottom hex nut onto the water valve connection.

8. Repeat the above steps for the left supply line.

9. Turn the water valves beneath the sink on to restore the water supply.
ICE MAKER INSTALLATION

Whether it produces rotten ice that gives you bitter beer face, or fails to produce anything at all, a faulty ice maker begs to be replaced. Installing a new ice maker is a bit of a project, but doable.

1. Begin by running the water line. To do so, drill holes behind the refrigerator and beneath the sink. Descend into your crawlspace and feed the line down, then feed it up through the refrigerator hole.

2. With the water line running to the refrigerator, you are poised to tap into the cold water line beneath the sink. To do so, shut your house water supply off at the main and drain the lines by switching on a faucet.

3. Now that you have shut the water supply off, you are ready to install the new valve for the icemaker’s water line. Various types of valve can be used interchangeably, but a needle valve is ideal. To install a needle valve, situate the two clamps around the copper piping and tighten the screws on both sides. Next, clamp down on the T-handle until it punctures the copper line.

4. The first component of the ice maker kit that you will install is the solenoid valve. Mount it to the holes located in the fridge cabinet frame with a drill and two half-inch hex-head machine screws.

5. Find the two-pin solenoid connector under the refrigerator and insert the connector as far over the solenoid valve terminals as possible.

6. With the given compression fitting, attach the water supply line to the top of the solenoid valve and tighten it.

7. With the plastic tubing in the kit, fasten the plastic fitting to the water outlet found on the bottom of the solenoid valve. To secure the water line, run it to the back of the freezer by using the provided adhesive clips. With the water line in place, poke a hole in the paper cover found on the back of the refrigerator.

8. Installing the factory fill tube is next on the agenda. With a flathead screwdriver, take the plugs out of the holes. Ready a pair of needle-nose pliers to grab the wiring harness found behind the hole in the back of the freezer. Slide it out several inches. Do the same with the water inlet and mounting hole plugs on the side of the freezer wall. Then shift to the back and install the fill tube. To do so, place the given metal insert in the end of the water supply line. Then slide the provided water valve clamp over the fill tube, insert the water supply line, and secure everything with a drill and hex-head bit. Slide the angled part of the fill tube into the inlet hole in the back of the freezer and fasten it.

9. The ice maker itself can now be installed. To funnel power to the ice maker, plug the wiring harness on the side of the ice maker into the wiring harness found on the back of the freezer wall. Insert the extension tube into the hole on the back of the freezer wall. Then screw the given screws into the mounting holes found on the side of the freezer wall.

10. Hang the ice maker over the mounted screws on the freezer wall. Make sure that the extension tube is lined up into the reservoir. Secure the unit by tightening the mounting screws then place the ice bucket below the kit. With the ice maker fully installed, plug the refrigerator back in and turn the water back on at the main. Test the ice maker to ensure functionality.