

# Pool School

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Midwest Covers

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# Pool Equipment

## Pump

Always be sure it has water in it before you start it.

Clean the strainer basket overtime you clean the skimmer basket.

For above ground pools, use a toilet tank cone to stop the flow of water to clean the strainer basket.

Check it for leaks because water can ruin the bearings.

## Sand Filters

Always turn off the pump before moving the handle.

Back wash when the pressure increases 7-8 pounds over start-up pressure. Back wash for 2-3 minutes or until water is clear.

Use a sand filter cleaner at the beginning of the year and every 6 weeks thereafter, and at the end of the season. Pour 4 ounces in the skimmer while backwashing. Sand should last 5-10 years if cleaned.

After backwashing, set the handle to RINSE to pack the sand down and make sure no dirt goes back in the pool. (Usually 20-30 seconds)

Use the WASTE position when you want to vacuum the pool when it is really dirty and don't want the dirt in the filter. (Like opening the pool in the spring.)

Routinely open the air bleeder to remove any air that might get into the system. (Once a week)

## Chlorinators

There are two kinds: *In-line* goes right in line with the return to the pool. *Free Standing* has it's own little base and small lines to carry water into it and back to the pool.

Don't handle the chlorine tablets.

When you open the lid, be very careful, chlorine gas is released and is very dangerous and deadly. Be sure your in a well ventilated area!

Use 1" tablets if your pool is taking lots of chlorine (hot weather!) and 3" tablets if usage is less. (Cooler weather).

When shutting down your pool for the winter, be sure to remove any tablets left in the chlorinator. They will soften and clog the small holes in the bottom of the chlorinator and you will have to clean them next spring. (Messy!)

## Skimmers

Check them daily. Leaves and large debris will stop flow through the filter and make your water cloudy. In the spring or fall when leaves are falling, you may have to check it every hour.

Never put chlorine tablets in the skimmer. It breaks down the plastic and you will have to buy new baskets.

## Inlets

This is where the water goes back into the pool. You can usually adjust them to direct the water in the direction you want.

Usually no adjustment is necessary.

If you see bubbles coming out, that means you have a leak somewhere that is letting air into the system, and it needs to be repaired.

# POOL CHEMISTRY

## SEQUENCE FOR ADJUSTING CHEMISTRY

1. Free Chlorine 1-3 ppm
2. Alkalinity 80-120 ppm
3. Ph 7.2 - 7.8
4. Cyanuric Acid 50 - 100 ppm
5. Total Hardness 250 - 500
6. Combined Chlorine
7. Cloudy Water

## Chlorine

**Free chlorine** should be maintained at 1-3 ppm.  
(Drinking water is about .5ppm)

**Combined chlorine** is chlorine that has combined with organic molecules in the water. It is “tied-up” and kills germs very slowly.

**Total Chlorine** is free chlorine + combined chlorine.

### TYPES OF CHLORINE

	Calcium Hypochlorite	Lithium Hypochlorite	Dichlor	Trichlor
% Available Chlorine	65% - 70%	35%	56% or 62%	90%
ph Effect	Raises ph 11.8	Raises ph 10.7	Neutral ph 6.9	Lowers ph 2.0
Lost to Sunlight	Yes	Yes	No	No
Physical Appearance	Granular & Tablets	Powder	Granular	Granular & Tablets

## How to Get Chlorine into the Pool

Chlorinators are the easiest and simplest.

Broadcast on the water.

A floater in the pool.

Never put in the skimmer basket, it will ruin the plastic.

## Alkalinity

Maintain at 80 - 120

High alkalinity can cause water to be cloudy.

Reduce with muratic acid, one quart of acid to one gallon of water, and pour in a column, slowly, in the deep end of the pool. Repeat daily, until reading is reduced.

Low alkalinity causes scaling and corosion.

Raise alkalinity by adding sodium bicarbonate, (baking soda).

## Ph

1 2 3 4 5 6 7 8 9 10 11 12 13 14  
ACID NEUTRAL BASE

Ideal is 7.2 - 7.8, your eyes are about 7.4.

ph really affects chlorine effectiveness.

Use Soda Ash/Sodium Carbonate to raise ph.

Use Muratic Acid or Sodium Bisulfate to lower ph.

# Shocking the Pool

## Why You Shock

When combined chlorines rise, you get chloramines. Chloramines are what give you that “chlorine smell”, irritated eyes and skin irritation.

Shocking adds more chlorine to oxidize, (burn up), the wastes that make the water cloudy, and to “free up” the combined chlorines.

## When to Shock

When the water gets cloudy or hazy.

You have a large bather load.

After a rain or wind storm, because they carry organic matter into the pool.

## How to Shock

Broadcast on top of the water. If any granules settle to the bottom of the pool, use your pool brush to push them around and dissolve.

Pre-dissolve in a bucket of water and pour slowly around the edge of the pool.

You can add slowly to the skimmer, **IF YOU DON'T HAVE AN IN LINE CHLORINATOR**. If you add it to the skimmer with an in line chlorinator, it can explode, like a bomb and catch on fire!

# What to Use to Shock

## Calcium Hypochlorite

Comes in granules.

Dissolves slowly, especially cold water.

Provides 65% available chlorine.

Must be done when no bathers are in the pool.

Don't let granules settle to the bottom of the pool because it will bleach out your liner.

Will raise the ph of your pool.

Test chlorine level after shocking to make sure it is not too high for bathers.

Store in the original container, never mix with other chemicals, do not touch with your bare hands, and keep it off your clothes.

## Lithium Hypochlorite

Costs more than calcium hypochlorite.

Dissolves easily in cold water.

Provides 35% available chlorine.

Safer for vinyl pools. (Won't bleach liner)

Won't raise you ph as much as calcium hypochlorite.

Is safer to store and use than calcium hypochlorite.



## Potassium Monopersulfate

A non-chlorine shock.

Uses oxygen to “burn up” wastes rather than chlorine.

Works well with chlorine, bromine and other alternative sanitizers.

Will not produce chloramines or chloramine odors.

Will not damage or fade vinyl liners.

Bathers can re-enter the water 15 minutes after broadcast on top of the water.

Use one pound per 10,000 gallons.

# Other Pool Chemicals

## Cynauric Acid

Sun breaks down chlorine, it acts like “sunglasses” for chlorine.

If it gets too high, it interferes with the chlorine.

The only way to get rid of it is to drain part of the water and replace it.

## Clarifier

Used when the water is hazy or cloudy and the alkalinity and pH are OK.

Usually after shocking the pool for algae, the particles are so small the filter can't catch them. Clarifier causes them to clump together so you can vacuum them off the bottom in about 24 hours.

## Algaecide

Used with chlorine to control algae growth.

Lots of different kinds, pink, green, black, mustard.  
(You don't want it!)

## Enzymes

Breaks down suntan oils, body oils, cosmetics, other organics.

Prevents scum build-up on pool walls and filters.

Helps eliminate chloramines and other irritating chemicals.

# Testing Water

## Liquid Test Kits

Work well.

Be sure to get fresh reagents every year.

Take your sample about 18 inches below the surface of the water and away from inlets.

Rinse test tube with pool water after each test.

Don't touch with your hands.

## Test Strips

Very simple.

Open the bottle with dry hands, and close immediately after getting out a strip.

Dip deep, (18 inches).

Follow the directions to the letter.

Dip, swirl, hold level, time, whatever they say.

## Keep a Pool Log

Lets you know your pool history and helps you troubleshoot.

It's a legal thing, if someone catches something and they think they got it at your pool.

# All the Stuff I Forgot to Say

## Brushing the Pool

Use your pool brush to brush down the sides of the pool once a week.

This will prevent algae from getting a place to grow.

(Kind of like the old gunfighter with his back to the wall!)

Dirt can also cling to the sides.

## Solar Covers

Solar covers use bubbles to make them float, not insulate the water.

Buy one with a protective cover, (sometimes white in color). This will protect it from the ultraviolet rays from the sun, which cause it to “rot”.

Solar covers work by keeping the water from evaporating from the surface of the pool. Evaporation causes 70% of the heat loss on a pool.

They can help keep the pool cleaner, but only if you remove the cover carefully and hose it off.

## Winter Covers

Keep leaves and other debris out of the pool during the winter.

Open mesh ones let water through and keep leaves out. Just make sure water doesn't get too high in the pool.

Solid ones keep everything out, but you have to pump water off the top as it accumulates throughout the winter.

If you have a deck, wood or cement, you have more options.

# Other Resources

## Web Sites

[www.poolspa.com](http://www.poolspa.com)

Has a water analysis portion.  
How to select a pool.

[www.ftech.net](http://www.ftech.net)

Has a great problem solving guide, glossary and more.

[www.idealistributors.com](http://www.idealistributors.com)

My favorite.

Has a good water analysis section with choices for types of chemicals you can use to cure the problem.

## Software

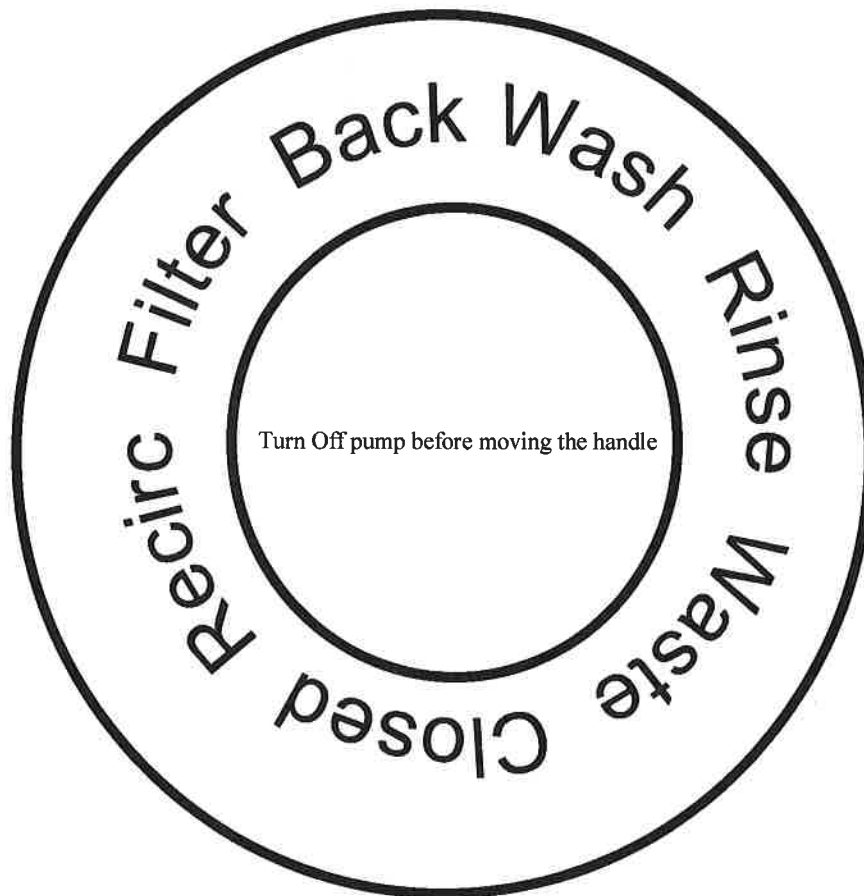
[The Pool Professor](#)

Good for one residential pool.

Cost is 15.95, runs on PC.

Enter test results and it tells you what to do.

# The Filter Valve



**FILTER** filters the pool water.

**BACK WASH** cleans the sand by reversing the flow and lifting and washing the sand. (2-3 minutes)

**RINSE** rinses and packs down the sand after back washing (20-30 seconds)

**WASTE** used when vacuuming the pool and you don't want the dirt in your filter. (spring time clean-up)

**CLOSED** stops all water flow everywhere.

**RECIRC.** Circulates the water around the sand filter.