

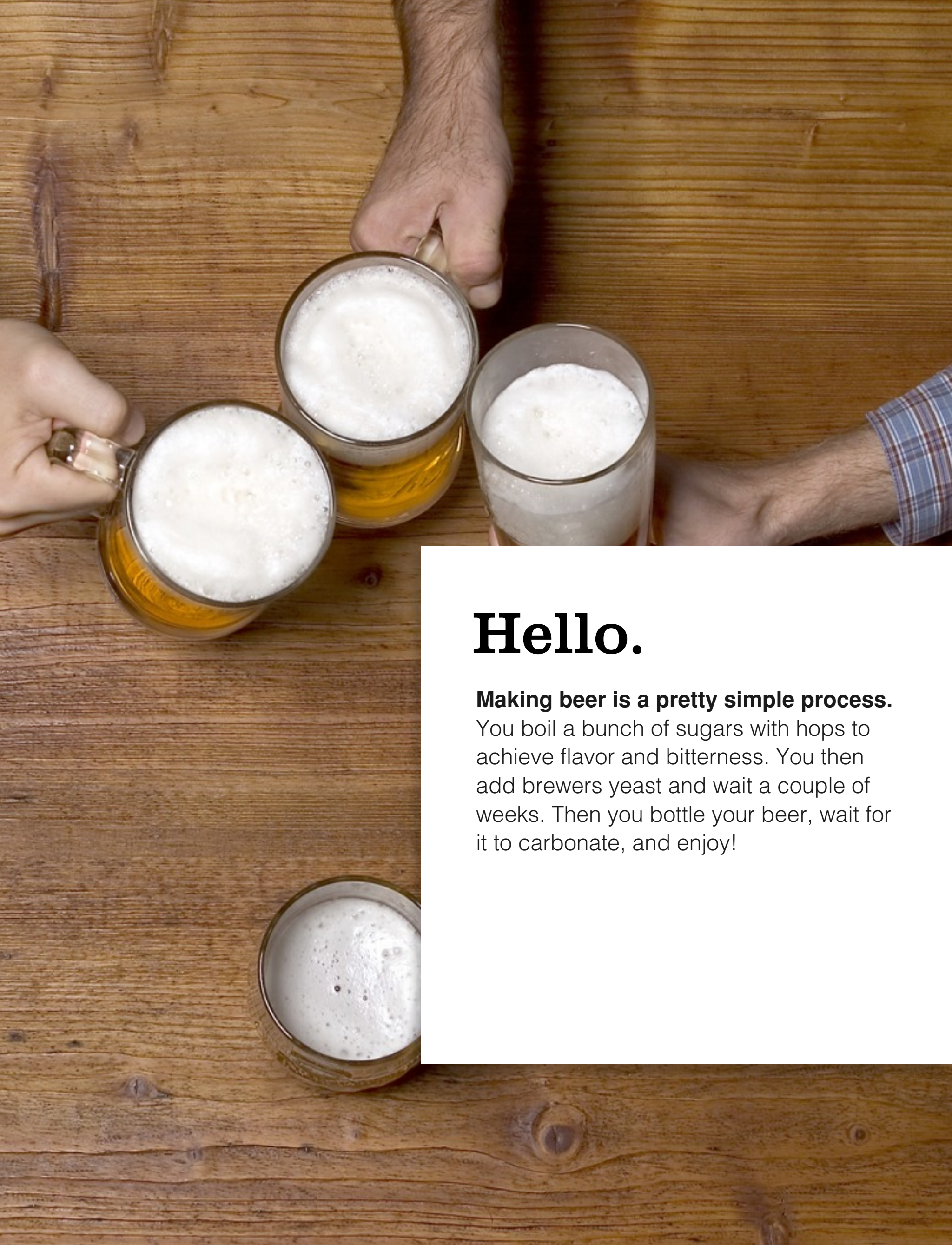


# NEW TO BREWING GUIDE

**Six Steps and Six Weeks to  
Homebrewing Greatness**







# Hello.

**Making beer is a pretty simple process.**

You boil a bunch of sugars with hops to achieve flavor and bitterness. You then add brewers yeast and wait a couple of weeks. Then you bottle your beer, wait for it to carbonate, and enjoy!





**So you want to make your own beer? You've come to the right place, but let me warn you—it can be an addicting hobby! There is no greater satisfaction than cracking a cold one that you made with your friends.**

**When your Kit Arrives:** Check the ingredients against your recipe sheet to make sure you have everything listed. Place the yeast in the refrigerator, and hops in the freezer.

**On Brew Day:** Early on brew day, remove the yeast from the fridge and allow it to come to room temperature. Activate your yeast package. If using Wyeast's "smack pack" follow their directions. Clean your brewing equipment so that it is clean to your eye, and dust-free, then sanitize all equipment that will be used during brewing with a no wash sanitizer. If not using no wash sanitizer please follow manufacturer's instructions.



# Needed Equipment + Supplies

## All Grain

- ☐ Stock pot or boiling kettle that will hold at least 7 gallons
- ☐ Burner or a stove top that can boil 6.5 gallons of wort
- ☐ Mashtun with false bottom or manifold; or a large pot if doing Brew in a Bag (BIAB) and the bag
- ☐ A pot or cooler to serve as your hot liquor tank (HLT). This will hold hot water to sparge with (if not doing BIAB)
- ☐ Mash Paddle or long strong spoon for mixing the grain and water
- ☐ Thermometer
- ☐ Timer
- ☐ Tubing for draining the mash if not mashing in your brew pot.
- ☐ Sanitizer
- ☐ Fermenter, lid and cap
- ☐ Hydrometer and test jar
- ☐ Wine thief or equivalent
- ☐ Funnel (if using a carboy)
- ☐ Ice or wort chiller (for chilling the wort)

## Extract

- ☐ Stock Pot
- ☐ Thermometer
- ☐ Long Handled Spoon
- ☐ Timer
- ☐ Sanitizer
- ☐ Fermenter/ Lid / Cap
- ☐ Hydrometer and Test Jar
- ☐ Wine Thief or Equivalent
- ☐ Funnel (if using a carboy)
- ☐ Ice or Wort Chiller (for chilling the wort)



# The Basics.

## Six Steps to Greatness

- 1.) Mash
- 2.) Boil
- 3.) Cool
- 4.) Ferment
- 5.) Package
- 6.) Drink

**Making beer is a pretty simple process.** In short, you boil a bunch of sugars with hops to achieve flavor and bitterness. You then add brewers yeast and wait a couple of weeks. Then you bottle your beer, wait for it to carbonate and enjoy!

So lets get a little more detail on the brewing process. It consists of six steps and takes about six weeks.

## MASHING + FERMENTABLES

In the brewing world, those sugars previously mentioned are called “fermentables” and they are generally derived from malted barley. The malted barley goes through a process called “mashing.” Mashing is executed in all grain brewing when brewers add crushed, malted barley with hot water.

The hot water releases natural enzymes in the malted barley which breaks down starches into malt sugars. As a beginner, you can skip the mashing process by purchasing malt extract. With extract, the mashing process has been done for you.

Extract comes in a dry (powder) and liquid (syrup) forms which can be added to water. The combined liquid is henceforth called “wort”.

**All Grain Only**

# All Grain Brewers: Read Below.

## Mashing Overview (All Grain Only)

The malt contains enzymes that when activated will convert the starches in the grain into fermentable sugars. There are several enzymes and they are most active at different temperatures and favor different pHs. For brewing purposes, we will target an optimum temperature for our mash to activate the enzymes that will give us the results we want. Generally, a temperature between 147 to 160 degrees will work to convert the starches to fermentable sugars in our wort.

Holding the mash at the low end of the range (147-152 degrees) will favor producing a lighter bodied drier beer, while mashing at 154-160 will tend to create a beer with more body and dextrins and a fuller finish. For most of our recipes, we will target a middle-of-the-road mash temperature of 152 degrees, but your recipe may specify a different temperature that is style dependent. A variation of only a couple of degrees is fine, so shoot for holding the mash at 151-154 with the goal at 152 degrees. A general guideline is to use 1.25 - 2 quarts of water in the mash per pound of grain.

Room temperature grains will drop the water temperature, so a good rule of thumb is to use water that is about 11 degrees warmer than your desired mash temperature. This can vary with weather conditions, the actual temperature of the grain, and so on, so your system may vary from this. If your equipment is cold, it may drop temperature quickly so preheating the mashtun / vessel is a great idea.

**Extract Only**

# Extract Brewing? Start Here.

## Extract Preboil Notes

In a 3+ gallon stock pot, begin heating 2.5 gallons of water and bring to 150 - 170° Fahrenheit. While the water is heating, place the crushed grains in the enclosed grain bag and tie the end closed. Make sure to have the grains loose in the bag, don't pack them. Check the temperature of your water with the thermometer, and make sure the water is between 150 - 170° Fahrenheit. Add your bag of grain, stirring well to thoroughly wet them all the way through. Steep for 20 minutes, with a goal of holding the grains and liquid at 150 - 160° Fahrenheit, or as long as your recipe specifies if different. Remove bag, drain over the brew pot (remember it will be hot, so you may want to use a strainer) and discard the grains. You can pour water over your grains to rinse them if you would like, if you have room in your pot. Head-space is important, as the wort will foam, and boil overs are no fun.

**Skip Ahead to the Boil Chapter**



Have some surplus hot water ready in a second pot, bring your mashing water to 170 degrees, and place it in your mash-tun. When the temperature drops to 165, stir in the grain. Stir thoroughly to break up any doughballs and to make sure the grain is thoroughly wetted. Then stir again, and check the temperature of the mash in several places to ensure it is consistent throughout. If the temperature varies by more than a degree, stir again. You want the temperature to be as stable as possible. If your temperature is way too high, you can add an ice cube or two to bring it down but do it slowly as it is easy to overcool. If the temperature is too cool, some of the hot water you have ready can be added, but go slowly as it needs a bit of time to equalize. Add some if needed, stir well, and check the temperature in several places.

If you are close, in the 150-155 degree range and the prescribed temperature is 152, that is generally 'good enough' and doesn't need adjusting. If it is too warm, simply stirring will help cool the mash

a little. Cover, and set your timer for 60 minutes. In the meantime, start heating your sparge water. The amount needed will vary slightly depending on recipe. In general, the amount of water you use will be as much as needed to reach the boil volume of 6.5 gallons. If you started with 9 gallons of water in the beginning, you should have about 5 gallons of water here. If you plan on having 1/2 gallon of water here for each pound of grain in the mash, that's a good estimate.

You may have more sparge water than you actually need. Having a little extra is a great idea, as the volume here isn't critical. Bring this to 170 degrees. After 60 minutes, uncover the mash and separate the grain from the wort. First start by vorlaufing (recirculating), if using a traditional mash-tun. Crack open the valve/ spigot on your mash-tun, and drain some of the wort into a pitcher and pour this gently back into the mash-tun. This recirculation will catch pieces of grain and husks that made it past your false bottom. You may need to do this

two times, or about two quarts worth. Once the runnings are clearer, Move onto the sparge. There are several methods you can implement for sparging.

# Sparging Techniques

## All Grain Only

**Sparging means simply to 'rinse' the grains to get as much of the sugars out of them as possible, and into your wort.** There are two techniques that are generally used for the sparging process. The decision to choose one over the other is personal preference and often equipment related.

### Batch Sparging

In batch sparging, the entire volume of wort in the mashtun is drained off (now called 'first runnings'). Then the full volume of sparge water is added to the mashtun. To determine the amount of sparge water needed, the first runnings are measured. If there are 2.5 gallons of wort in your boil kettle after draining the first runnings, you will need an additional 4 gallons of hot water so that you have 6.5 gallons of wort in the kettle. Therefore, you would add 4 gallons of sparge water to your mash tun. When you add this 'batch' of sparge water, stir very thoroughly. Your goal is to dissolve any remaining sugars clinging to the grain into your water. When it is thoroughly mixed, vorlauf (recirculate) again as you did when draining the mash with a pitcher to ensure the wort is clear without large pieces of grain, and then drain fully into your boil kettle. You can start the heat under the first runnings, to help end the enzymatic activity in the wort as well to help reach a boil faster.

### Fly/Continuous Sparging

Continuous sparging is a second technique to rinse the sugars from the grains. After the mashing period, the wort is vorlaufed (recirculated) as above, and then the sparge water is gently added to keep the grain covered by at least an inch above the grainbed while draining the wort from the mashtun at approximately the same rate. The goal is to gradually replace the wort with the water, stopping the sparge when the gravity is 1.010 or when enough wort has been collected, whichever comes first. This usually requires more attention by the brewer, and sometimes a pump is employed to trickle the water into the mashtun at a set rate. When the boil kettle has 6.5 gallons of wort, the sparge is ended.

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The heat can be turned on the boil kettle during the sparge, so that the wort reaches a boil faster.

### **No Sparge (BIAB)**

For those who are using the BIAB/no sparge technique, the bag holding the grain is lifted out of your kettle. If more volume is needed in the kettle to reach the desired 6.5 gallons, hot water can be poured from the pot you were heating over the grain bag until you reach your boil volume. If when you remove the grainbag from the boil kettle, the volume is already 6.5 gallons, the grain bag can be drained and discarded.



# The Boil.

Once the brewer's wort is in their kettle they bring it to a boil. If this is your first time you will need to be careful because when wort first comes to boil foam will form quickly and can cause a mess. This foam is called the "hot break." You can adjust the heat down at that time, but it should be returned to a high temperature once the hot break dissolves, the risk of boil overs lowers and the wort can be held at a rolling boil. Stirring and spraying a squirt bottle can help tame an aggressive hot break.

Once the wort is boiling, set your timer for 60 minutes and add bittering hops in your recipe. These are the first hops listed, with a "60 minutes" designation on your recipe. Get the rest of the ingredients your recipe calls for to be added. If you have an addition at 15 minutes add them when the timer shows 15 minutes left. Other hops may be added at 5 or even 0 minutes (when you turn the heat off), according to your recipe.

As the timer hits 0, turn off the heat and add 0 minute hops or other ingredients in your recipe.

**Note: If you used Extract, add the rest of extract now, and stir well to dissolve.**

After the completion of your 60 minute boil the total volume of your wort will be 10-20% less than your original volume. It's now time to cool your beer.

**Extract Only**

## Extract Boiling Notes

Bring the resulting liquid (now called wort) to a boil. Once it reaches a boil, turn off the heat and add the first extract on your recipe list. Stir well, to make sure it doesn't burn or scorch on the bottom, and then return to the heat. Bring to a boil. Keep the lid off of the pot during the boil, allowing steam to escape. You want a nice rolling boil, where the bubbles break on the surface of the wort.



# Cooling.



***Remember: Anything that touches the wort after the boil should be sanitized.***

After completing the boil the brewers chill the wort to their optimal fermentation temperature. The rapid temperature change results in two positive outcomes for the eventual beer. The first is that there is limited time and exposure to wild bacteria (naturally occurring in the air) which can take hold of your wort at temperatures below 140F. (This would cause undesirable results). The second is the creation of a “cold break” which is the coagulation of the proteins in the wort. Without getting too scientific, a good cold break can prevent your beer from being hazy in the future. This rapid cooling achieved through a wort chiller. If you don’t have a wort chiller, there are some other options.

You can use a wort chiller, or place your kettle in an ice bath in the sink. While the wort is chilling, ready your already sanitized hydrometer and tube, thermometer, fermenter, lid, airlock, and the carboy cap if using a carboy, and funnel or strainer if using either. Anything that touches the wort after the boil should be sanitized. Place the sanitized items on a clean counter or paper towels. The wort will chill faster if gently stirred with a sanitized spoon.

If using an ice bath, it helps also if the water is agitated a bit to avoid ‘hot spots’. You may need to replenish the ice as it melts. When your wort is under 70 degrees, pour into your fermenter (using a funnel if you have a carboy), or use your sanitized auto-siphon and sanitized tubing.

Stir well, or agitate the wort to provide aeration. Take a sample out of the fermenter using a wine thief or your racking cane or siphon, and place in your hydrometer test tube.

## Aeration, Pitching Yeast, and Gravity Readings

Float the hydrometer in the wort, spinning gently to release any trapped air bubbles from the sides and bottom of the hydrometer. When measuring make sure to keep it from touching the sides or bottom of your hydrometer test tube. This reading is your “Original Gravity”- the OG for short.

Using sanitized scissors to open a corner of your yeast package, or open the vial (depending on the brand of yeast you are using), and add to your wort. No need to stir- the yeast will get to work on their own. Cover with the sanitized lid and bung, and fill the airlock up to the line with sanitizer solution. Place the airlock in the hole, and keep in a dark place, ideally at 65-68 degrees. For most fermentations the fermenting beer will be in that range. It may need to be moved to a cooler place when actively fermenting as fermentation itself produces heat.





# Fermentation.

**It is this stage of the journey many new brewers start to worry and second guess themselves. To avoid these tribulations, assure yourself that everything is fine and you didn't ruin your homebrew.**

Signs of activity should start within 24 - 48 hours, and continue for several days and should be complete after 10- 14 days provided fermentation has stopped. The foamy head (called krausen) that occurred during active fermentation will fall back into the beer and settle on the bottom. There should be a "krausen ring" around the fermenter where

the krausen reached during that time. Allow the beer to sit and clear a few more days right where it is. You can take a reading with your hydrometer set up, using a sanitized wine thief

or your racking cane. This reading is to be your "Final Gravity", also known as FG. In at least two days, check it again. If it is the same, the beer can be bottled. If you are making a hoppy beer that calls for dryhops, this is the stage

in which they will be added. While we're sure you are eager to try your new beer there are advantages to waiting a total of about 21 days to bottling your beer. The beer will be clearer, so there will be less sediment in the bottles, and the beer will be conditioning as it sits so the flavor will be improved.





# Bottling.

You can move the fermenter to the place where you are bottling early in the day. Clean and sanitize 53 beer bottles. Place 2 cups of water in a saucepan, and bring to a boil. Add your priming sugar, and stir well and boil for a minute. Let cool. While the sugar solution is cooling, clean and sanitize your bottling bucket, the siphoning equipment, the bottling wand, and the bottle caps.

Pour the sugar solution into your bottling bucket, and then rack (siphon) the beer from the fermenter to the bottling bucket being very careful to not splash or aerate your beer. Put the tip of the siphon tubing at the very bottom of the bottling bucket, angled around the side if possible, so that the beer fills the bucket from the bottom and gently swirls to mix. Avoid as much sediment from the bottom of the fermenter as you can.

Once the beer is transferred to the bottling bucket, gently lift the bucket to counter height (to make it easier to work!) and attach your bottling wand into the spigot. Open the spigot, and lock into place. Fill the bottles from the bottom by placing the bottom of the bottle against the bottling wand tip and fill to the top. When you remove the bottling wand, this will leave the perfect amount of headspace. Fill all the bottles this way, and then cap them with your sanitized caps, by using the capper (**NOTE: If using oxygen absorbing caps, do not sanitize them, as moisture activates their absorbing properties**). Store the bottles at 68-74 degrees for best results for at least a week or two to give them a chance to fully carbonate, and chill before drinking. If they are not fully carbed in two weeks, give them a bit longer and they should carb up just fine.



# Drinking.

Three weeks has passed and you throw your homebrew in the fridge, or maybe you just pop one open and drink it warm. Either way homebrewed-beer often benefits from some cold conditioning time in the refrigerator. The longer the beer is in the fridge, the clearer the beer will become as the yeast drops to the bottom. I recommend at least 48-hours in the fridge before popping your first handcrafted beverage. I know, I know, you already waited six weeks, what is another two days? I also suggest pouring gently into a clear glass as well (You want to be able to see and appreciate all your hard work!).

So what are you waiting for? Head on over and pick up your starter and ingredient kit and get brewing!

Cheers!





# Other Helpful Tips

**Use plain water to measure the amount your fermenter will hold** in advance, and make marks on the outside of your fermenter at 5.25 gallons so that on brewday you know where the volume should be. This is especially helpful if using a carboy.

**Bottling is most easily done over a place that can take a few drips-** the door of the dishwasher, or over a hard surface floor as there will be a few drips.

**In a pinch, a sanitized turkey baster (a new one!) can be used as a wine thief.** Just be careful to squeeze the bulb first, before placing in the beer so you don't blow bubbles in the beer.

**Oxygen is needed at the beginning of fermentation for the yeast, but once fermentation is complete oxygen contact will quickly ruin a beer.** At that point, it's important to only siphon the beer to move it in order to avoid splashing when moving the fermenter, and to keep the lid and airlock in place. Make sure the airlock is always filled to the line with vodka or sanitizing solution. Avoid the temptation to open your fermenter. Doing so increases oxygen exposure producing off flavors and increases your chances of infection.

**A stick-on thermometer, called a “fermometer” is very helpful to tell the temperature of the beer at a glance.** It sticks on the outside of the fermenter so temperature monitoring is easy.

**Water is the key to brewing good beer.** If you don't know your water profile, or how to correct your water profile for brewing we highly recommend using filtered, bottled, or reverse osmosis treated water. You can also boil your water, but allow it to come back to room temperature before use to ensure proper temperatures during the brewing process.

**Sometimes, in the case of higher OG recipes (higher alcohol beers), better results occur when two packages of yeast are used.**

**Chlorinated water should be avoided.** If your water has chlorine, the water should be allowed to sit overnight to off-gas. If your water supplier uses chloramine, which is more stable and won't dissipate, we encourage the use of 1/4 of a Campden tablet per 5 gallons of brewing water to neutralize the chlorine/chloramine.



