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Cost \$ \$ \$ \$ \$
Difficulty

HOPPY ENOUGH PALE ALE

FERMENTABLES	TARGET STATISTICS ²		YOUR RESULTS
	<ul style="list-style-type: none"> 6 lb Golden Light <u>D</u>ried <u>M</u>alt <u>E</u>xtract (DME) 	Orig. Gravity:	1.048
HOP ADDITIONS <ul style="list-style-type: none"> <u>60 min</u>: 0.5 oz CTZ (17.2% AA¹) <u>15 min</u>: 1 oz Centennial (8.8% AA) <u>Flame Out</u>: 1 oz Amarillo (8.2% AA) 0.5 oz CTZ (17.2% AA) <u>Dry Hop</u>: 1 oz Centennial (8.8% AA) 1 oz Amarillo (8.2% AA) 1 oz CTZ (17.2% AA) 	Final Gravity:	1.011	
		Est. % ABV:	4.8%
	IBUs:	38	
YEAST <ul style="list-style-type: none"> WLP 001: California Ale Yeast <i>Ideal fermentation temperature: 68-70F</i> 	BJCP Style Guidelines: Am. Pale Ale ^(1c) <u>Original Gravity</u> : 1.045 – 1.068 SG <u>Final Gravity</u> : 1.010 – 1.015 SG <u>Bitterness</u> : 30 – 50 IBUs <u>ABV</u> : 4.5 – 6.2%		
ADDITIVES (Optional) <ul style="list-style-type: none"> <u>Clarifier</u>: 1 tsp Irish Moss <u>or</u> 1 tablet Whirlfloc <u>Yeast Nutrient</u>: 1/2 tsp White Labs (1/2 tsp/gal Biotin) 	<u>Overall Impression</u> : A pale, refreshing and hoppy ale, yet with sufficient supporting malt to make the beer balanced and drinkable. The clean hop presence can reflect classic or modern American or New World hop varieties with a wide range of characteristics. An average strength, hop-forward, pale, American craft beer.		



Notes:

¹**AA (Alpha Acid)**: This is the measure of hops' potential bitterness. Be aware when substituting hops with a higher AA% for your "60 min" hop addition, you will increase the bitterness of your beer. "Flame Out" and "Dry Hop" additions will add hoppy aroma, but will contribute little bitterness to your beer. Substituting different hops for these later additions will alter the flavor of your beer, but not the level of bitterness.

²**Target Statistics**: These targets were calculated using BeerSmith™ software and are based on the brewing method outlined on the back of this page.

QUICK BREWING INSTRUCTIONS

PREP	<p>Measure out all ingredients:</p> <ul style="list-style-type: none"> • 3 gallons of water in your boil kettle. • 3 gallons of sanitized, pre-chilled water in the fridge • All hop additions 	
BOIL	<ol style="list-style-type: none"> 1.) Bring your water to a stable, rolling boil and slowly add your 60 min hop addition (watch for boil-over) and start your timer for 60 min. While boiling, sanitize any equipment that will come into contact with your wort after the boil: <ol style="list-style-type: none"> a. Measure 5 gallons of water and pour 1 oz (two capfuls) of I-Star sanitizer into your fermentor (mark the 5 gal level on the outside of your carboy) and allow to sit for 1 min. b. Use auto-siphon to rack the sanitizer into a spare bucket or tub and use to sanitize rest of equipment: <ol style="list-style-type: none"> i. Funnel, airlock, stopper, and wine thief 2.) With 15 min left until the end of your boil, pause your timer and turn the flame off to halt the boil, then add your malt extract. Be sure to pour slowly and stir constantly to ensure all extract (DME) dissolves completely. Once fully dissolved, turn the heat back on. Watch for boil-overs again, as they become more likely the more extract you add. <ul style="list-style-type: none"> • Have countermeasures for boil-over ready: <ol style="list-style-type: none"> i. Be prepared to turn the heat down or off. ii. Have a spray bottle of water ready to help keep foam at bay. 3.) Once you're back up to a stable boil, restart your timer and start prepping your ice bath. 4.) At 0 min turn off the heat; add "flame out" hop addition. 	<p>60 MIN • 0.5 oz CTZ</p> <hr/> <p>45 MIN <i>Watching wort boil is dull work. Have a homebrew!</i></p> <hr/> <p>30 MIN</p> <hr/> <p>15 MIN • 6 lb Light DME • 1 oz Centennial • Additives</p> <hr/> <p>0 MIN (Flame Out) • 1 oz Amarillo • 0.5 oz CTZ</p>
COOLDOWN	<ol style="list-style-type: none"> 1.) Transfer the hot kettle from the burner to a sink or tub filled with cool water. 2.) Swirl the pot to better cool the wort inside. 3.) Using ice is more effective if you wait to add it until the wort has cooled significantly. As the water becomes hot, refill your tub with cool water until the wort gets down to around 150F. Getting from 150F to 90F with just cool water takes a while; this is where you want to add the ice. 4.) Once your wort has cooled to 90F or less, vigorously pour it into your sanitized fermentor. Top off your fermentor to 5 gal with the prepped 3 gallons cold water. If the water you add isn't completely cold, wait until your wort is cooled down to 80F or less before pouring it into your carboy. 5.) Shake the carboy for a few minutes to oxygenate and evenly mix the water with your wort. If you're planning to take a hydrometer reading, do so here before you pitch the yeast. 	<p><i>From here on, everything that comes into contact with the wort must be sanitized.</i></p>
PITCH	<ol style="list-style-type: none"> 1.) Sanitize the exterior of the yeast package and use sanitized scissors to open. 2.) Add your yeast to your fermentor. 3.) Fill your airlock to the recommended line with sanitizing solution and fix it in place with your rubber stopper. 4.) Store in a cool dark place for the duration of the fermentation. You should witness bubbling activity in your airlock within 24 hours. 	<p>PITCH • WLP 001 – California Ale Yeast</p> <p><i>Ferment at 68-70F</i></p>
DRY HOP	<ol style="list-style-type: none"> 1.) To add extra hop aroma to this recipe with a dry hop addition, wait until the fermentation is almost or entirely complete: <ol style="list-style-type: none"> a. Bubbling activity in the airlock should have slowed or stopped entirely. b. After 10 days it's safe to assume your fermentation has ceased. 2.) Remove airlock, add your dry hop addition to the fermentor (no need to sanitize the hops), and reinstall airlock. 3.) Wait 6 days before packaging. 	<p>DRY HOP • 1 oz Centennial • 1 oz Amarillo • 1 oz CTZ</p>

For more on siphoning and bottling as well as more in-depth brewing instructions, please see our "Beginner's Brewing Instructions."