

DEDUCTIVE BEER TASTING METHOD

QUICK REFERENCE

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This Quick Reference is accompanied by the DBTM Tasting Grid, and is part of the larger book titled *The Deductive Beer Tasting Method Companion Guide*. More information and resources are available at www.richhiggins.com/dbtm.

Disclaimer

This Method is not affiliated or endorsed by the Cicerone® Certification Program.

Deductive Tasting Defined

Deductive tasting is a 2-part process: First, you'll use all your senses to gather as much information as you can about a beer. Second, from all this sensory data, you can make informed conclusions about how and where a beer was made. Proper tasting “gathers the dots,” and deduction “connects the dots.”

Goals:

- hone your palate and isolate flavors
- develop your descriptive vocabulary
- improve your ability to know what style a beer is, where and when it was brewed, and with which ingredients and processes
- be able to “travel back in time” to notice the brewer’s decisions that made the beer taste the way it does
- learn how to listen to everything a beer has to say!

A beer presents so much information and is so packed full of nuance that it can overwhelm the tasting experience, sending a blizzard of information that makes the beer just taste like “beer.” To hone your palate, it helps to categorize the information; for example, to separate taste from aroma, and appearance from mouthfeel.

Fully tasting and evaluating a beer requires so much more than just drinking it. In evaluating a beer and digging deeply into it to taste for ingredients, style assessment, and brewing procedures, Cicerones use as many senses as they can to gain valuable information from a beer’s *appearance*, *aroma*, *taste*, *mouthfeel*, and *aftertaste*. After the beer’s sensory data has been gathered, it can be used to draw conclusions about a beer’s style, region, ingredients, and freshness.

Deductive Beer Tasting Method: Evaluation Sections & “Order of Operations”

- | | | |
|---------------|---------------|------------------------|
| 1. Appearance | 4. Mouthfeel | 6. Initial Conclusions |
| 2. Aroma | 5. Aftertaste | 7. Final Conclusions |
| 3. Taste | | |

Deductive Beer Tasting Method

Tasting Grid

• Approx Beer Temp (feel glass ext.)	ice cold	cold	cool	cellar temp	room temp	FINAL CONCLUSIONS • Style & Sub-style • Region • Notable Ingredients • Freshness ACTUAL BEER • Name • Brewery • Brewery Location • Style & Sub-style • Notable Ingredients & Processes • Date or Freshness • Format (btl, can, draft, etc.) bottle/can-conditioned? Y / N • Vitals • ABV: % • IBU: • OG: • FG: • Other: • Tasting Date (Today's Date)
APPEARANCE						
• Beer Color	straw, gold, amber, red, brown, black, other (specify)					
• Clarity	brilliant	clear	slightly hazy	hazy	opaque	
• Sediment Poured	none	slight	medium	medium-high	high	
• Foam Color	white	cream	beige	tan	pink/other	
• Head Retention	not present	fleeting	persistent	lasting		
• Other Comments	nitrogenation, apparent viscosity, garnish, etc.					
AROMA						
• Off-Aromas (aka Off-Flavors)	clean, poss. off, faulted (flavor/intensity)					
• Aromatic Intensity	low	medium-low	medium	medium-high	high	
• Grains, Breads, Sugars						
• Nuts, Cacao, Coffee, Roast						
• Floral, Herbal, Tea, Pine						
• Fruit (& Fruit Condition)						
• Spice						
• Earth, Animal, Vegetal, Mineral						
• Sour, Solvent, Smoke						
• Wood, Wine, Liquor, Aging						
TASTE						
• Sweetness	low	medium-low	medium	medium-high	high	
• Bitterness	low	medium-low	medium	medium-high	high	
• Acidity	low	medium-low	medium	medium-high	high	
• Perceived Sweetness	low	medium-low	medium	medium-high	high	
• Perceived Bitterness	low	medium-low	medium	medium-high	high	
• Salt, Umami, Capsaicin						
• Attenuation	low	medium-low	medium	medium-high	high	
• Aroma Changes, Off-Flavors						
MOUTHFEEL						
• Carbonation/Nitrogenation	low	medium-low	medium	medium-high	high nitro	
• Body Fullness	light	medium-light	medium	medium-full	full	
• Body Character	normal	crisp	bready	silky	slick (off)	
• Astringency	not noticeable	slight	medium	medium-high	high	
• Alcohol Presence	not noticeable	slight	medium	medium-high	high	
AFTERTASTE						
• Lingering Characteristics						
• Finish Length	short		medium	long		
• Finish Quality	unpleasant	acceptable	good	very good	excellent	
INITIAL CONCLUSIONS						
• Balance (describe)	soft, sl. soft, balanced, sl. hard, hard:					
• Notable Ingredients & Processes						
• Ferm: Ale/Lager/Other & Temp.						
• Alcohol by Volume (ABV)	< 4.5%	4.5% - 5.5%	5.5% - 6.5%	6.5% - 7.5%	> 7.5%	
• Freshness	young	fresh	ready	mature	old	
• Style & Sub-style Possibilities						
• Vitals (optional for adv. tasting)	SRM:	IBU:	OG:	FG:	ABV:	

PRE-EVALUATION: SERVING TEMPERATURE

Approximate Beer Temperature (feel glass exterior)

A beer's temperature can affect many perceptions of aroma, taste, and mouthfeel, and can even affect its appearance by impacting visual clarity, release of CO₂, and head retention. For these reasons, it's important to note an estimate of a beer's temperature before beginning the tasting method.

It is recommended that you apply the Deductive Tasting Method to beer that is cold, cool, or cellar temperature.

The colder a beer is, the more difficult it is to discern aromas, tastes, and nuances. For example, very cold temperatures reduce volatility of odorants and can dull the mouthfeel of alcohol. Cold temperature also numbs your palate somewhat, further reducing your ability to pick up on a beer's attributes. For these reasons, it is not recommended to taste and evaluate beer when it is "ice cold."

Conversely, tasting beer that is at room temperature (or warmer) is not recommended, as it is likely not the way the beer is meant to be consumed. For instance, at room temperature, a beer might prematurely lose its carbonation or show unintended alcoholic warmth, which might not be representative of the carbonation or alcohol presence of that beer under typical drinking conditions.

Hold and feel the glass for a few seconds to discern an *approximate* temperature of the beer.

Possible estimates are:

• Approx Beer Temp (feel glass ext.)	ice cold	cold	cool	cellar temp	room temp
ice cold	<ul style="list-style-type: none"> ▸ <i>colder than 36° F</i> ▸ <i>colder than 2° C</i> 		<i>* not a recommended temperature for Deductive Tasting</i>		
cold	<ul style="list-style-type: none"> ▸ <i>37 - 45° F</i> ▸ <i>2 - 7° C</i> 				
cool	<ul style="list-style-type: none"> ▸ <i>45 - 55° F</i> ▸ <i>7 - 13° C</i> 				
cellar temperature	<ul style="list-style-type: none"> ▸ <i>55 - 65° F</i> ▸ <i>13 - 18° C</i> 				
room temperature	<ul style="list-style-type: none"> ▸ <i>warmer than 65° F</i> ▸ <i>warmer than 18° C</i> 		<i>* not a recommended temperature for Deductive Tasting</i>		

EVALUATION SECTION 1: APPEARANCE

Beer's appearance can give important markers and clues to its ingredients, brewing process, and aging process. It is an essential category of the deductive tasting method. Each Appearance Attribute is assessed on a scale. Every beer will have a position/value on each attribute's scale: somewhere from straw to black in the Color Scale, somewhere from white to tan or even pink in the Foam Color Scale, etc.

For more precision, each descriptor can be *modified* with a "plus" (+), a "minus" (-), or with other modifiers that communicate that a beer is somewhere between values. For instance:

- A beer that appears to be somewhere between amber and brown in color could be described as "amber" "deep amber," or "dark amber."
- A beer whose head retention seems longer than fleeting, but not quite persistent, could be described as a "fleeting +" (if it's closer to fleeting) or "persistent -" (if it's closer to persistent).

1. Beer Color

For this attribute, assess only the color of the beer, not the color of the foam. (Foam color is assessed later.) *For best accuracy, hold the beer up to a light. Make sure to wipe any condensation from the outside of the glass.*

If haze is present, color can be difficult to determine. White yeast and certain cereal proteins may make a beer appear a shade lighter than it really is; beige yeast, other cereal proteins, and hop haze may make a beer appear a shade darker than it really is. Small portions and narrow glassware provide less beer to block light from passing through, so the beer appears lighter in color. Larger portions and wider glassware provide more beer to block light from passing through, so the beer will appear darker in color. Maintaining consistent lighting, glassware, and portion size are best practices for assessing beer color. However, experience is also a big help for accurate assessment despite variations in beer presentation.

The options are:

• Beer Color	straw, gold, amber, red, brown, black, other (specify)
straw	<i>▷ pale straw, straw, deep straw ▷ SRM equivalents: 2 - 3</i>
gold	<i>▷ pale gold, gold, deep gold ▷ SRM equivalents: 4 - 6</i>
amber	<i>▷ light amber, amber, dark amber ▷ SRM equivalents: 7 - 18</i>
red	<i>▷ a particularly reddish tint within the amber spectrum</i>

brown	<ul style="list-style-type: none"> ▸ <i>light brown, brown, dark brown</i> ▸ <i>SRM equivalents: 18 - 30</i>
black	<ul style="list-style-type: none"> ▸ <i>SRM equivalents: 30+</i>
other (specify)	<ul style="list-style-type: none"> ▸ <i>such as light pink or deep pink</i>

2. **Clarity**

The assessment of visual clarity. *Any haze or cloudiness should be consistent and even throughout the beer.* (Particles and inconsistent haze is considered sediment and is assessed in the following attribute category.) *For best accuracy, hold the beer up to a light. Make sure to wipe any condensation from the outside of the glass.*

The options are:

• Clarity	brilliant	clear	sl. hazy	hazy	opaque
brilliant	▸ <i>no haze whatsoever; can read a newspaper through the beer</i>				
clear	▸ <i>practically clear, but ever-so-slight haze present</i>				
slightly hazy	▸ <i>slight haze or cloudiness present</i>				
hazy	▸ <i>substantial haze or cloudiness present</i>				
opaque	▸ <i>murky, light struggles to pass through</i>				

3. **Sediment Poured**

Sediment appears as inconsistent haze or particles. As opposed to consistent haze, sediment will typically begin to stratify and re-sediment at the bottom of the glass within a minute. It can look like a thin haze, like runny mud, or like particles (like “snowflakes” in a snow globe).

Sediment is most often made of yeast cells, and is commonly present from improper pouring of bottle-conditioned beer. It is an important attribute to record during deductive tasting, because pouring bottle-conditioned sediment (lees) can add muddy, earthy, and bitter flavors, as well as lack of visual clarity, to a beer that perhaps should not have these aspects.

Other sources of sediment in beer can include vegetative matter from hops, fruits, and spices.

The options are:

• Sediment Poured	none	slight	medium	medium-high	high
none					
slight					
medium					
medium-high					
high					

4. Foam Color

Any foam color darker than white is generally an indicator that toasted and/or roasted malts were included in the beer recipe. (Pink foam indicates the presence of red or pink fruits and/or flowers in the beer’s recipe.)

A tan foam color generally indicates a high quantity of dark malts. A white, cream, or light beige foam color atop a brown or black beer can be an indication that the beer color was made dark by only a small portion of very dark grain or by the addition of dark sugar or natural colorings — both of which add more color to the beer than they do to the foam.

The options are:

• Foam Color	white	cream	beige	tan	pink/other
white					
cream					
beige					
tan					
pink/other					

5. Head Retention

Head Retention, also called “foam stand,” can also be part of the deductive data for determining beer’s grain bill and mashing processes, as well as carbonation/nitrogenation level.

Keep in mind that glassware traits can greatly affect head retention! A glass that is dirty with oils (from food, citrus garnish, lips, lipstick, etc.) or that still has a small amount of un-rinsed soap or detergent in it will adversely affect head retention. Conversely, a glass with scratches or etched nucleation sites in the bottom of it will promote continuous CO₂

release and the appearance of falsely long head retention (the head retention is not actually long, but rather the foam is constantly replenished with freshly released CO₂ bubbles). Avoid using glassware that is dirty, insufficiently rinsed, or etched.

Method: To assess head retention, hold the glass of beer and gently swirl it to rouse some of its CO₂ and create some head on the beer. Then assess the head retention. Novice tasters can wait for 15-30 seconds to watch the foam; experienced tasters will be able to estimate foam behavior and retention more quickly. *Be careful not to swirl too aggressively or over-rouse, which will knock out all the beer's CO₂ and alter the beer's aroma, taste, and mouthfeel.*

The options are:

• Head Retention	not present	fleeting	persistent	lasting
not present				
fleeting	<ul style="list-style-type: none"> ▸ <u>time</u>: foam is mostly absent 15 seconds after the beer is swirled to rouse foam ▸ <u>form</u>: foam does not maintain vertical height <u>nor</u> coverage of the beer's surface (recedes to the edge of the glassware or to a few small "islands" on the beer's surface) 			
persistent	<ul style="list-style-type: none"> ▸ <u>time</u>: foam is mostly present more than 15 seconds after the beer is swirled to rouse foam ▸ <u>form</u>: foam maintains some vertical height <u>and/or</u> maintains some coverage of the beer's surface 			
lasting	<ul style="list-style-type: none"> ▸ <u>time</u>: foam is present throughout the drinking of the beer ▸ <u>form</u>: foam maintains both some vertical height <u>and</u> some coverage of the beer's surface 			

6. **Other Comments**

Comments on any other *notable* visual aspects of the beer are noted here. Not every beer will require more comments on its appearance; feel free to leave this category blank if the beer's appearance is already summed up in the previous 5 categories.

Typical comments for this category include comments on nitrogenation, foam character, apparent carbonation, apparent viscosity, and garnishes. Does the beer look nitrogenated? Does it look highly carbonated? Is the foam character particularly rocky or creamy? When swirled in the glass, does the beer look particularly thin and watery, or particularly full-bodied and viscous? Is it served garnished with a lemon wedge, a hop, or with a raspberry dropped into it?

• Other Comments	nitrogenation, apparent viscosity, garnish, etc.
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EVALUATION SECTION 2: AROMA

The aromas possible in beer are almost limitless. Aromas come from ingredients, fermentation, and aging, and their interplay is incredibly complex. Detecting aromas and categorizing them is incredibly important in deductive beer tasting and evaluation.

The Aroma Category begins with a judgement of whether a beer exhibits off-aromas, which is like a check-point for proceeding with the tasting. If a beer is unpleasant and faulted with objectionable aromas, then then deductive tasting need not proceed and the beer can be discarded. After Off-Aromas comes Intensity, which is a scale on which each beer can be placed. Then follows the Aroma Groups, beginning with Grains, Breads, Sugars Aroma Group and ending with Wood, Wine, Liquor, Aging Aroma Group.

The Aroma Groups are listed to provide a check-list and a structure for organizing a beer's possible aromas. There are many Aroma Groups to assess, however, *not all beers have aromas in each of the Aroma Groups*. The Groups are listed basically in order of most common to least common — virtually every beer will have aromas of grain-bread-sugars and floral-herbal-tea; though far fewer beers will have aromas of wood-wine-liquor-aging. The more aroma groups that are represented in a beer's bouquet, the more *complex* a beer's aroma is. Complexity is *not an indicator of quality*, though. A perfect pilsner will always exhibit less aromatic complexity than a perfect Belgian tripel.

When listing aromas, experienced tasters will include amplitudes, such as int. (intense), mod. (moderate), and sl. (slight). These will help you to prioritize the data during your conclusions, as well as to communicate more accurately about beer.

Finally, almost any ingredient is fair game in beer, so almost any aroma may be from the genuine article. For instance, a beer's coffee aroma may be from roasted malt or from actual coffee, a beer's grapefruit aroma may come from American hops or from actual grapefruit, and a beer's earthy, mushroomy aromas may be produced by earthy yeast and bacteria strains or (less commonly) from the addition of actual mushrooms.

1. Off-Aromas (aka Off-Flavors)

Off-flavors is the common term for a broad category of unintended compounds in beer. Because we notice the majority of them with our sense of smell, they're technically "off-aromas." Most of these compounds contribute flawed or objectionable aromas to beer, and a few of these compounds can also impart a sour taste or a slick mouthfeel. In the deductive tasting method, they are assessed at the outset of the Aroma Section, as well as at the end of the Taste Section, and slickness is assessed in the Mouthfeel Section.

Until someone becomes an experienced beer taster and has studied off-flavors and beer style guidelines, determining whether a beer is "clean," "possibly off," or "faulted" will be difficult. Understanding which aromas are flaws or faults is complex and is tied to the study of beer styles, brewing processes, and handling and storage of beer.

Some things to keep in mind about detecting off-aromas and putting them in context:

- Sensitivity to each off-aroma varies among different tasters.
- Off-aromas range in character and are not always unpleasant.
- Certain off-aromas are acceptable at low levels in some beer styles.
- A certain off-aroma may be characteristic of a certain beer style, the same off-aroma maybe a fault in other beer styles.

The options are:

• Off-Aromas (aka Off-Flavors)	clean, poss. off, faulted (flavor/intensity)
clean	▸ <i>no presence of any aromas that are considered objectionable in any beer style</i>
possibly off	▸ <i>certain aroma(s) present that may be considered objectionable or “off” in certain beer styles</i> ▸ <i>off-aroma(s) present in very low quantities that do not impede enjoyment of the beer</i>
faulted	▸ <i>one or several off-aromas at such high intensity as to be unpleasant</i>

When a possible off-flavor or fault is present, it should be described with:

- a. intensity (ex.: “slight,” “moderately intense,” or “intense”)
- b. the vernacular descriptor (ex.: “buttery”)
- c. if possible, the specific compound (ex.: “diacetyl”)

Aromas that commonly are considered off-aromas in many beer styles include:

- buttery
- cooked vegetables
- sulfur/rotten eggs
- green apple/raw pumpkin
- skunk
- vinegar
- nail polish remover
- newspaper
- yogurt
- barnyard/manure
- metal
- antiseptic
- stinky cheese/stinky socks

2. Aromatic Intensity

Beer’s aromatic intensity is akin to a television’s sound volume. How “loud” is the beer’s aroma? Does it jump out of the glass to be noticed a few inches away, and does it continue to provide aroma over time? Or is the aroma only noticeable if smelled with your nose in the glass, and does it diminish quickly after the beer is poured? Is there tons of aroma or hardly any aroma at all?

Aromatic intensity is tied to ingredient quantity (malt, aroma hop additions, additions of fruits, spices, etc.) and to fermentation factors, such as yeast and bacteria type, fermentation temperature, and aerobic or oak aging. Generally, the greater the weight/

mass of ingredients and the more complex the fermentation, the more aromatic intensity a beer will have.

Each value can be modified with a “plus” (+) or a “minus” (-) for more precision. For example, an advanced taster might notice that a beer’s aromatic intensity is more than medium, but not quite medium-high, and thus might state that its aromatic intensity is “medium +” (if it’s closer to medium) or “medium-high -” (if it’s closer to medium-high).

The options are:

• Aromatic Intensity	low	medium-low	medium	medium-high	high
	low				
		medium-low			
			medium		
				medium-high	
					high

3. Grains, Breads, Sugars

Since every loaf of bread is baked from grains, and every beer is brewed from grains, every beer will have some sort of grain and bread aromas. When assessing a beer’s aroma, imagine a bakery case and look for the bread and pastry aromas in the beer. Aromas of cooked starches and sugars are also common, including toast, caramel, and molasses.

Possibilities include:

• Grains, Breads, Sugars

- hay, flour, dough, water cracker, malt, biscuit, etc.
- white bread, baguette, bread crust, toast, Graham cracker, brown bread, etc.
- caramel, brown sugar, burnt sugar, etc.
- honey, molasses, golden syrup, maple syrup, etc.

Noting amplitudes, such as int. (intense), mod. (moderate), and sl. (slight), adds precision to your descriptions and helps determine which aromas are most pronounced.

4. Nuts, Cacao, Coffee, Roast

Amber and dark beers typically will have aromas of toasted and roasted foods. Smell for aromas of nuts, cacao and chocolate products, and coffee and roasted aromas. There’s often cross-over of these aromas — chocolate-covered espresso beans is a common aroma in porters and stouts. Often, roasted malts are the source of these aromas, but cacao and coffee are common additions to beers, as well. Smoke is an occasional aroma in beer, but is better noted later in the Sour, Solvent, Smoke Aroma Group.

Possibilities include:

- | | |
|---|--|
| <ul style="list-style-type: none">• Nuts, Cacao, Coffee, Roast | |
|---|--|
- toasted nuts, toasted almond, marcona almond, almond extract, peanut butter, hazelnut, noyaux, coconut, kola/cola, etc.
 - cacao nib, sweet chocolate, dark chocolate, black coffee, espresso, etc.
 - roasted, burnt, etc.

Noting amplitudes, such as int. (intense), mod. (moderate), and sl. (slight), adds precision to your descriptions and helps determine which aromas are most pronounced.

5. Floral, Herbal, Tea, Pine

Most beer styles have some aromas in the Floral, Herbal, Tea Group. These aromas primarily come from hops. They occasionally come from fermentation and sometimes from the addition of the genuine article.

Possibilities include:

- | | |
|--|--|
| <ul style="list-style-type: none">• Floral, Herbal, Tea, Pine | |
|--|--|
- rose, geranium, orange blossom, jasmine, hibiscus, chamomile, etc.
 - thyme, rosemary, bay laurel, dried green herbs, tomato leaf, geranium leaf, etc.
 - grass, lawn clippings, bramble, woody aromas, etc. from hops
 - pine needles, resin, cannabis, scallion, chive, etc.
 - black tea, green tea, Earl Grey tea (combo of black tea and bergamot citrus essence), etc.

Noting amplitudes, such as int. (intense), mod. (moderate), and sl. (slight), adds precision to your descriptions and helps determine which aromas are most pronounced.

6. Fruit (& Fruit Condition)

There are several sources of fruity aromas in beer, most often hops, fermentation by-products, and the addition of actual fruits. Some toasted and dark malts can add subtle fruit aromas as well.

When determining which fruity aromas are present in a beer, it is helpful to think through the “Six Aromatic Fruit Families,” listed below. Bubblegum is an additional aroma that is common in many beer styles. It is a combination of compounds that is primarily fruity-smelling, and so even though it’s not an actual fruit in nature, as an aroma descriptor it belongs in this Fruit Group.

Fruit Condition is an opportunity to describe whether a certain aroma recalls a fruit that is underripe, ripe, overripe fruit; or perhaps is fresh, dried, cooked or candied. For example, underripe green bananas, fresh plums, and grapes smell different from overripe brown bananas, prunes, and raisins; and fresh pears smell different from

canned pears (which have been heated/pasteurized in the can) and different from pears in a crystalline, candied state.

• Fruit (& Fruit Condition)	
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List: The Six Aromatic Fruit Families:

1. *Pome Fruit*: apple, pear, quince, etc.
2. *Citrus Fruit*: lemon, lime, orange, grapefruit, etc.
3. *Tropical Fruit*: banana, guava, mango, pineapple, melon, lychee, etc.
4. *Stone Fruit*: apricot, peach, cherry, plum, etc.
5. *Berries*: raspberry, blackberry, currant, cranberry, etc.
6. *Melon*: cantaloupe, honeydew, muskmelon, cucumber, etc.

Noting amplitudes, such as int. (intense), mod. (moderate), and sl. (slight), adds precision to your descriptions and helps determine which aromas are most pronounced.

7. Spice

Spice aromas are typically produced in some beers by phenolic yeast strains; that is, yeasts that produce phenols during fermentation. Phenols often smell spicy, and oftentimes are the same compounds found in culinary spices that make them smell the way they do. Additionally, adding actual spices to beer is common, making for another source of spice aroma in beer.

Possibilities include:

• Spice	
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- peppercorn: white pepper, black pepper, green peppercorn, etc.
- baking spice: clove, nutmeg, allspice, cinnamon, star anise, fennel seed, etc.
- vanilla
- roots, rhizomes, and stalks: ginger, licorice, lemongrass, etc.

Noting amplitudes, such as int. (intense), mod. (moderate), and sl. (slight), adds precision to your descriptions and helps determine which aromas are most pronounced.

8. Earth, Animal, Vegetal, Mineral

This is a large category of aromas that add complexity to beer, and are common in small quantities in many European-style ales. Overall, they're "savory" and "earthy," as compared to the "sweet," "fresh" aromas of the Fruit and Spice Groups, above.

Earth, animal, and vegetal aromas in beer are most often fermentation by-products, typically from expressive, "rustic," or "farmhouse" yeast strains, as well as *Brettanomyces* yeast species and many strains of bacteria. An exception is the aroma of cat urine (from the compound *p*-menthane-8-thiol-3-one), which is found in many American, New Zealand, and Australian hop varieties (also present in sauvignon blanc wine grapes and expressive in many New Zealand sauvignon blanc wines).

“Earth” refers to aromas of decomposing plant matter and fungi, like a walk through a forest after a rain. Think of brown, mushroomy, moist aromas.

“Animal” refers to the aromas of animals, pets, livestock, barnyards, and cheeses. Generally objectionable in high quantities, in small doses they add pleasant rustic complexity to a variety of beers.

“Vegetal” in this sense refers to the savory, earthy aromas of certain *green* plants. (Despite the term “vegetal,” we also commonly encounter these aromas in savory fruits). These aromas are produced by some Belgian yeast strains, particularly saison strains, which sometimes produce beers with subtle, savory aromas of tomato leaf, olive (actually a savory fruit), capers (actually savory cured flower buds), green beans/haricots, celery, mustard greens, and green bell pepper/green chile. By contrast, the vegetal aromas of canned sweet corn/maize, cooked cabbage, cooked tomato juice, and oniony aromas are in the sulfide family; they’re usually considered off-flavors in beer and should be included in the Off-Flavors Group, above. (It’s acceptable for beers brewed from a large amount of German pilsner malt to show low- to medium-low-intensity cooked corn aroma from dimethyl sulfide.)

Pyrazines, the notable aroma of green bell peppers, also occur naturally in coffee beans, and are common in beers with coffee in them.

“Mineral” refers to various mineral aromas, which tend to come from brewing water that is high in certain minerals.

Noting amplitudes, such as int. (intense), mod. (moderate), and sl. (slight), adds precision to your descriptions and helps determine which aromas are most pronounced.

Possibilities include:

- | | |
|--|--|
| <ul style="list-style-type: none">• Earth, Animal, Vegetal, Mineral | |
|--|--|
- dry leaves, wet leaves, forest floor, “sous bois,” raw mushroom, cooked mushroom, etc.
 - goaty, chèvre, wet wool, lanolin, sweat, horse manure, “horse blanket,” etc.
 - cat pee (“ribes” or “blackcurrant” in wine-speak)
 - green vegetal: tomato leaf, olive, caper, celery, mustard greens, green bean/haricots, green bell pepper, pyrazines, etc.
 - minerally, salty, plaster, chalk, wet stone, iron, etc.

9. Sour, Solvent, Smoke

Aromas in the Sour, Solvent, Smoke Group most often come from fermentation. Sour aromas come frequently from bacteria and wild yeast fermentations, and beers with elevated levels of acidity can show various aromas related to lactic acid, acetic acid, and fermented foods.

Beers that are high in alcohol (ethanol) and/or high in fusel alcohols will have aromas of alcohol and solvents.

Brettanomyces yeast strains often produce phenols that smell like smoke and antiseptics. An additional source of smoke flavor in beer is the use of malts smoked over fire.

Possibilities include:

• Sour, Solvent, Smoke	
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- sourdough, sauerkraut, yogurty, kimchi, etc.
- vinegar, Balsamic vinegar, nail polish remover, acetone (“volatile acidity” in wine-speak), etc.
- alcohol, solvent, magic marker, paint thinner, sharp, pungent, etc.
- iodine, Band-Aid, sea spray, etc.
- smoke, bacon, etc.

Noting amplitudes, such as int. (intense), mod. (moderate), and sl. (slight), adds precision to your descriptions and helps determine which aromas are most pronounced.

10. Wood, Wine, Liquor, Aging

Some beers are aged in contact with wood, and this is done to impart aromas of wood and/or, in the case of previously used barrels, aromas of wines and distillates.

Also, various ethereal aromas develop from the careful aging of beer (“tertiary aromas” in wine-speak). While the vast majority of beers are meant to be drunk fresh and do not benefit from extended aging, many specialty beers can age and mature very gracefully for several years.

Possibilities include:

• Wood, Wine, Liquor, Aging	
------------------------------------	--

- “oak,” “oaky” — vanilla, caramel, coconut, clove, dill, etc.
- white wines, red wines, port, other wines
- bourbon, Scotch whisky, rum, other spirits
- leather, tobacco, cigar box, etc.
- honey, wax, sherry, almond extract, noyaux, maderization, etc.
- soy sauce, meaty, musty, etc. — anything other than very low quantities of these is considered an off-flavor

Noting amplitudes, such as int. (intense), mod. (moderate), and sl. (slight), adds precision to your descriptions and helps determine which aromas are most pronounced.

EVALUATION SECTION 3: TASTE

There are 3 primary tastes in beer — sweetness, bitterness, and sourness. (Beer can also have saltiness and umami, but that is fairly rare.) To evaluate these tastes accurately, it is essential to be able to separate them from aromas. This is counterintuitive. Know that in evaluating beer taste, taste is different from flavor! Put simply, tastes are detected by taste buds, which are located primarily on your tongue; aromas are detected by olfactory neurons in your nose and above your soft palate. The combination of tastes and aromas is what we call flavor.

Beer is complex and it marries tastes like sweetness, bitterness, and acidity with a myriad of aromas to create diverse flavors. Sweetness can balance bitterness and acidity — there's a reason we like bittersweet and sweet-and-sour foods. While there's already interplay just among beer's *tastes*, even more confusion and sleight-of-hand is introduced when aromas get in the mix. For example, aromas of ripe fruits, baking spices, and caramel can cover up tastes of bitterness and sourness. Roasty aromas can amplify bitterness and acidity. Sweetness can increase the impression of ripeness of fruit aromas.

Flavor is interpreted by our brains in a process called *cross-sensory suggestion*. This term reinforces the fact that flavor is merely a suggestion that our brains cobble together from a variety of sensory information; flavor is the result of cognition on the part of the taster, rather than being one of beer's physiochemical traits that's able to be sensed. Flavor is an invention of our brains when we combine aroma and taste, and our sense of smell can cause us to perceive tastes inaccurately. For this reason, it's essential during deductive tasting to separate aromas from tastes, as well as to notice the effects of perception. In the Taste Section, we assess sweetness, bitterness, and acidity, as well as *perceived sweetness* and *perceived bitterness*. These steps follow the order of how it is most easily done while sipping beer.

Step 1: The first step is to take a sip of beer — *without breathing* — letting it coat your tongue, swallowing it, and noticing the level of actual sweetness, actual bitterness, and actual acidity, all before exhaling out through your nose. Once you exhale through your nose, your brain will be flooded with aromatic data, and it will begin to create impressions of flavors and skew the data. Repeat the first step as needed until you've assessed the beer's levels of actual sweetness, actual bitterness, and acidity. Experienced tasters can assess all 3 — sweetness, bitterness, and acidity — with just one sip.

Step 2: Then you can move on to Step 2, which is to taste and swallow the beer again, but this time, feel free to breathe and exhale. This will allow your brain to combine actual tastes with aromas to create flavor. When you think about a beer's sweetness and bitterness while experiencing its aromas, you are using perception and cognition, and you can assess the levels of perceived bitterness and perceived sweetness. Basically, how sweet and how bitter does the beer seem while you're inhaling and exhaling its aromas? This is the standard way

people drink and enjoy beer, obviously. But know that the sweetness and bitterness that tasters most commonly notice in beer are *perceived* sweetness and *perceived* bitterness, not its *actual* sweetness and *actual* bitterness. Experienced tasters can assess these 2 perceptions with just one sip.

Finally, any value can be modified with a “plus” (+) or a “minus” (-) for more precision. For example, an advanced taster might notice that a beer’s perceived bitterness is more than medium, but not quite medium-high, and thus might state that its perceived bitterness is “medium +” (if it’s closer to medium) or “medium-high -” (if it’s closer to medium-high).

1. Sweetness

This is the assessment of *Actual Sweetness*, not *Perceived Sweetness*. It is the measurement of the beer’s sweetness isolated from context of the whole beer. Assessment is best done without exhaling through the nose. Follow Step 1 in the intro, above.

The options are:

• Sweetness	low	medium-low	medium	medium-high	high
low	<ul style="list-style-type: none"> ▸ <i>sweetness is nonexistent to barely noticeable</i> ▸ <i>equates to an FG of less than 1.75° P (1.007)</i> 				
medium-low	<ul style="list-style-type: none"> ▸ <i>sweetness is only noticeable if you really look for it</i> ▸ <i>equates to an FG of 1.75 - 2.5° P (1.007 - 1.010)</i> 				
medium	<ul style="list-style-type: none"> ▸ <i>sweetness is present but not assertive</i> ▸ <i>equates to an FG of 2.5 - 3.25° P (1.010 - 1.013)</i> 				
medium-high	<ul style="list-style-type: none"> ▸ <i>sweetness is moderate to moderately-high</i> ▸ <i>equates to an FG of 3.25 - 4.0° P (1.013 - 1.016)</i> 				
high	<ul style="list-style-type: none"> ▸ <i>sweetness is a pronounced aspect of the beer</i> ▸ <i>equates to an FG of more than 4.0° P (1.016)</i> 				

2. Bitterness

This is the assessment of *Actual Bitterness*, not *Perceived Bitterness*. It is the measurement of the beer’s bitterness isolated from context of the whole beer. Assessment is best done without exhaling through the nose. Follow Step 1 in the intro, above.

The options are:

• Bitterness	low	medium-low	medium	medium-high	high
low	<ul style="list-style-type: none"> ▸ <i>bitterness is nonexistent to barely noticeable</i> ▸ <i>equates to less than 15 IBUs</i> 				
medium-low	<ul style="list-style-type: none"> ▸ <i>bitterness is present but not assertive</i> ▸ <i>equates to 15 - 25 IBUs</i> 				
medium	<ul style="list-style-type: none"> ▸ <i>bitterness is assertive</i> ▸ <i>equates to 25 - 35 IBUs</i> 				
medium-high	<ul style="list-style-type: none"> ▸ <i>bitterness is very assertive (and potentially would be unpleasant without sweetness to balance it)</i> ▸ <i>equates to 35 - 60 IBUs</i> 				
high	<ul style="list-style-type: none"> ▸ <i>bitterness is extremely assertive (and likely would be unpleasant without sweetness to balance it)</i> ▸ <i>equates to more than 60 IBUs</i> 				

3. **Acidity**

This is the assessment of *Actual Acidity*, not *Perceived Acidity*. It is the measurement of the beer's sourness isolated from context of the whole beer. Assessment is best done without exhaling through the nose. Follow Step 1 in the intro, above. Note that all beer is acidic. Standard "non-sour" beers are about 4.0-4.5 pH.

The options are:

• Acidity	low	medium-low	medium	medium-high	high
low	<i>acidity is standard for "non-sour" beer (4.0-4.5 pH)</i>				
medium-low	<ul style="list-style-type: none"> ▸ <i>the beer tastes just slightly tart, often from lower pH ingredients such as wheat and dark malts, rather than from a sour fermentation</i> ▸ <i>not quite sour enough to be described as a "sour" beer</i> ▸ <i>ex.: many weissbiers, witbiers</i> ▸ <i>ex.: some porters and stouts with a high proportion of dark malts</i> 				
medium	<ul style="list-style-type: none"> ▸ <i>the beer is slightly sour (sometimes described as "tart")</i> ▸ <i>ex.: slightly sour goeses and Berliner weisses</i> 				
medium-high	<ul style="list-style-type: none"> ▸ <i>the beer is quite sour</i> ▸ <i>ex.: aggressively sour goeses and Berliner weisses</i> ▸ <i>ex.: many Belgian sour beers and wild ales</i> 				
high	<ul style="list-style-type: none"> ▸ <i>the beer is extremely sour</i> ▸ <i>ex.: some Belgian sour beers and wild ales</i> 				

4. Perceived Sweetness

This is the assessment of *Perceived Sweetness, not Actual Sweetness*. It is the overall impression of the beer's sweetness within the context of the whole beer. Assessment must be done while breathing to allow for interplay of the sweetness with aromas, bitterness, and acidity. Follow Step 2 in the intro, above.

The options are:

• Perceived Sweetness	low	medium-low	medium	medium-high	high
low					
medium-low					
medium					
medium-high					
high					

5. Perceived Bitterness

This is the assessment of *Perceived Bitterness, not Actual Bitterness*. It is the overall impression of the beer's bitterness within the context of the whole beer. Assessment must be done while breathing to allow for interplay of the bitterness with aromas, sweetness, and acidity. Follow Step 2 in the intro, above.

The options are:

• Perceived Bitterness	low	medium-low	medium	medium-high	high
low					
medium-low					
medium					
medium-high					
high					

6. ***Salt, Umami, Capsaicin***

These tastes and sensations are not common in beer. When one or more are present, their level should be noted here in the deductive tasting method.

The options include:

• Salt, Umami, Capsaicin	
Salt	▸ <i>present in beers from brewing water that is high in sodium or from the addition of salt (as in the gose beer style) or a salted food (such as umeboshi plums or salted caramel).</i>
Umami	▸ <i>occasionally present in beers that have been aged with yeast, and these yeasty lees release amino acids into the beers over time. Another source is from the addition of umami-rich foods, such as seaweed or mushrooms, to a beer.</i>
Capsaicin	▸ <i>the compound in chile peppers that imparts a hot, burning sensation. This can be present in beers that have had chile peppers added to them.</i>

Noting amplitudes, such as int. (intense), mod. (moderate), and sl. (slight), adds precision to your descriptions and helps determine which tastes are most pronounced.

7. ***Attenuation***

Attenuation is the percentage of fermentable sugar in the wort that has indeed fermented. It is the difference between the wort's original gravity (sugar content) prior to fermentation and the beer's final gravity (residual sugar content) after fermentation. Because not all of wort sugars are fermentable by brewers yeast, attenuation usually ranges roughly 70-85% (a few outlier beer styles typically fall outside of that range).

Assessing attenuation is not only the noting of residual sugar (sensed as sweetness, assessed earlier). Highly alcoholic, full-bodied beers may be well-attenuated and still taste quite sweet. Rather, attenuation is the impression of the residual sugar against the body and alcohol of the beer. (With experience, tasters can taste a beer and “go back in time” to estimate the wort's original gravity by sensing the beer's body, carbohydrates, and alcohol level.)

The options are:

• Attenuation	low	medium-low	medium	medium-high	high
low	<ul style="list-style-type: none"> ▸ <i>the beer's sweetness overwhelms its balance, alcohol, drinkability; fermentation seems "unfinished"</i> ▸ <i>not thirst-quenching</i> 				
medium-low	<ul style="list-style-type: none"> ▸ <i>the beer is slightly sweet for how much body, alcohol, and balance it has</i> ▸ <i>not thirst-quenching</i> 				
medium	<ul style="list-style-type: none"> ▸ <i>enjoyable</i> ▸ <i>the beer's sweetness (or lack thereof) is at an enjoyable level for the amount of body, alcohol, and balance</i> ▸ <i>thirst-quenching in low-ABV beers</i> 				
medium-high	<ul style="list-style-type: none"> ▸ <i>enjoyable</i> ▸ <i>the beer seems less sweet than might be expected for the amount of body, alcohol, and balance</i> ▸ <i>thirst-quenching in low- to medium-high-ABV beers</i> 				
high	<ul style="list-style-type: none"> ▸ <i>enjoyable to austere</i> ▸ <i>the beer seems less sweet than expected for the amount of body, alcohol, and balance</i> ▸ <i>thirst-quenching to overly dry in low- to medium-high-ABV beers</i> 				

8. Aroma Changes, Off-Flavors

Because tastes affect how aromas are perceived, and vice versa, it is important to review the flavors and aromas that are noticeable in the beer now that you have tasted it. Compare against the aromas you initially noted in the Aroma Category prior to tasting the beer.

Possibilities include:

• Aroma Changes, Off-Flavors

- any new aromas noticeable
- any change in aromas (for example: riper fruit? less-ripe fruit?)
- any off-aromas/off-flavors present or heightened

EVALUATION SECTION 4: MOUTHFEEL

Factors such as the texture, weight, and carbonation of a beer make up the beer’s “mouthfeel.” These are a beer’s tactile elements, and we rely on our sense of touch to assess them.

Elements of mouthfeel are essential to the enjoyment of beer and greatly influence how its flavors are noticed. Just as painters rely on a canvas to apply their colorful brushstrokes, mouthfeel is the canvas upon which a beer’s tastes and aromas are delivered. Assessing the elements of mouthfeel gives essential clues to how the beer was brewed, as well as information about quantities of carbonation, astringency, and viscosity that can variously amplify or mute beer’s aromas and tastes.

Finally, any value can be modified with a “plus” (+) or a “minus” (-) for more precision. For example, an advanced taster might notice that a beer’s body fullness is more than medium, but not quite medium-full, and thus might state that its body fullness is “medium +” (if it’s closer to medium) or “medium-full -” (if it’s closer to medium-full).

1. Carbonation/Nitrogenation

First, circle either “Carbonation” or “Nitrogenation” to indicate which is present. (Technically, nitrogenated beers are also carbonated at a low level, but the nitrogen is what is most readily perceived in nitrogenated beers.)

Using tactile sensation, assess the quantity of carbon dioxide or nitrogen in the beer.

Nitrogenated beers:

If the beer is nitrogenated, circle “nitro” in the far right box. This is usually sufficient and no quantity like low or medium should be necessary, as most nitrogenated beers are highly nitrogenated. In the rare case that nitrogenation is present but at a low amount, then circle the appropriate quantity.

The options are:

• Carbonation/Nitrogenation	low	medium-low	medium	medium-high	high	nitro
low	<i>approximately like a cask-conditioned ale</i>					
medium-low	<i>approximately like a draft British bitter</i>					
medium	<i>approximately like a pilsner or American pale ale</i>					
medium-high	<i>approximately like a bottled weissbier or bottled witbier</i>					
high	<i>approximately like a bottled saison or bottled Belgian golden strong ale</i>					
nitro	<i>a nitrogenated beer - circle if nitrogenated</i>					

2. ***Body Fullness***

Using tactile sensation, assess how “full” the beer body feels.

The options are:

• Body Fullness	light	medium-light	medium	medium-full	full
light	<i>approximately like an American light lager</i>				
medium-light	<i>approximately like a German pilsner or saison</i>				
medium	<i>approximately like an American pale ale or American IPA</i>				
medium-full	<i>approximately like an oatmeal stout or weizenbock</i>				
full	<i>approximately like a barleywine or imperial stout</i>				

3. ***Body Character***

Determining the character of a beer’s body is somewhat subjective; however, it can be useful in determining certain brewing ingredients and beer styles. *The body character options are not a range of increasing values nor a judgement of overall quality.* Assessing the body character is an opportunity to note more data that can lead to deductions about ingredients, brewing technique, and beer styles.

Using tactile sensation, assess whether the character of the beer’s mouthfeel feels normal, or if it is particularly crisp, bready, or silky. Slickness is usually unappealing and is evidence of an off-flavor compound like diacetyl.

The options are:

• Body Character	normal	crisp	bready	silky	slick (off)
normal					
crisp	<ul style="list-style-type: none">▸ <i>the mouthfeel is particularly low-viscosity and does not linger with sugar, dextrins, or proteins</i>▸ <i>the beer is particularly refreshing, well-attenuated, and possibly bitter/tart/sour</i>				
bready	<ul style="list-style-type: none">▸ <i>the mouthfeel is particularly bread- or dough-like</i>▸ <i>e.g., wheat beer</i>▸ <i>possibly indicative of wheat, dextrins, decoction, high-carbonate water, high-chloride water</i>				
silky	<ul style="list-style-type: none">▸ <i>the mouthfeel is particularly silky, smooth, velvety, or “fluffy”</i>▸ <i>e.g., oatmeal stout</i>▸ <i>possibly indicative of oats, residual sugar, dextrins, alcohol, high-carbonate water, high-chloride water</i>				
slick (off)	<ul style="list-style-type: none">▸ <i>possibly indicative of diacetyl off-flavor</i>				

4. ***Astringency***

Using tactile sensation, assess if the beer feels drying, tannic, or sandpaper-y at all, particularly immediately after swallowing. These sensations come from the presence of polyphenols from rye, other malts, or peppercorn additions, or from tannins from fruit and/or oak, or possibly as a brewhouse fault from high pH mashing or sparging.

The options are:

• Astringency	not noticeable	slight	medium	medium-high	high
not noticeable					
slight					
medium					
medium-high					
high					

5. ***Alcohol Presence***

This category assesses the impact of alcohol on a beer's mouthfeel; *it is not the same as the overall alcohol content of a beer*. Assessing the alcoholic presence can help you deduce various things about a beer's grist bill, fermentation and maturation.

Two beers with the same ABV can have very different alcohol presence. For instance, one beer with 8% ABV may have medium-low alcohol presence (indications possibly of cool fermentation temperature, low-fusel yeast strain, and/or extended aging), while a different beer with 8% ABV may have a high alcohol presence, such as a "hot" or harshly alcoholic mouthfeel.

Alcohol has a tactile sensation that can be gently warming, or in high quantities can be harsh, solventy, oily, or numbing. It is best assessed after swallowing a sip of beer by inhaling quickly and feeling for alcoholic warmth, or cooling evaporation, in the throat and wind pipe. (Both warmth and/or cooling are typically indications of alcohol presence.)

The options are:

• Alcohol Presence	not noticeable	slight	medium	medium-high	high
not noticeable					
slight					
medium					
medium-high					
high					

EVALUATION SECTION 5: AFTERTASTE

A beer's aftertaste is a combination of its tastes, aromas, and mouthfeel elements that linger after a sip of the beer is swallowed. Particularly intense, concentrated beers will have an aftertaste that lasts longer — and is more complex, with more elements present — than the aftertaste of a less intense beer.

1. Lingering Characteristics

What are the primary characteristics that comprise a beer's aftertaste? Possible traits include bitterness, sweetness, specific aromas, alcoholic warmth, etc. If you had 4-6 words to describe the beer, what would you say?

• Lingering Characteristics	
	<ul style="list-style-type: none">▸ ex.: European herbal hop bitterness, gentle clean maltiness▸ ex.: caramel and burnt sugar malt flavors, warming alcohols, gentle bitterness▸ ex.: harmonious interplay of biscuity malts and gentle pear and orange aromas▸ ex.: lingering vinegar sourness, caramel, nutty sherry notes, complex fruity-earthly aromas

2. Finish Length

A beer's finish is the aromatic, taste, and mouthfeel impressions of the beer after it has been swallowed. Assessing the length of a beer's finish is somewhat subjective. Basically, if the beer's aftertaste has faded within 15 seconds of a sip, it has a short finish. If the aftertaste persists up to 30 seconds after a sip, it has a medium finish. And if the aftertaste persists more than 30 seconds after a sip, it has a long finish.

Finish length can be an indicator of the quantity of a beer's ingredients, fermentation temperature, maturation, and age/condition.

The options are:

• Finish Length	short	medium	long
short	▸ <i>less than 15 seconds</i>		
medium	▸ <i>15-30 seconds</i>		
long	▸ <i>longer than 30 seconds</i>		

3. ***Finish Quality***

The quality of a beer’s finish should be judged based on the harmoniousness and overall enjoyability a beer’s aftertaste. There is a subjective element to this, especially when you take into account the differences among various beer styles, as well as how much you enjoy different beer styles.

Try to leave your own opinions out of it and aim to assess the quality of the aftertaste — does it showcase its ingredients and brewing techniques, does it amplify enjoyable aspects of the beer, or does it linger with harshness and imbalance? This is a key to a beer’s overall quality and harmoniousness.

A high-quality finish captures multiple harmonious elements of the beer and includes some of a beer’s aromas. For example, a typical beer’s aftertaste will include hop bitterness, possibly some sweetness, and aromas. If, after swallowing, the aromas fade quickly (i.e.: within 15 seconds), and the sweetness soon after that, but the bitterness lingers for a full minute, that would not be considered harmonious; it might be just an “acceptable” finish quality.

Don’t play favorites! Just because a beer has your favorite hop in it or has an exceptionally long finish does not justify an excellent finish quality. A perfect, fresh Kölsch will never have an exceptionally long finish, nor will a doppelbock showcase your favorite hop aroma. Beers should not be penalized because of subjective preference.

The options are:

• Finish Quality	unpleasant	acceptable	good	very good	excellent
unpleasant	▷ <i>only harsh, unpleasant characteristics of the beer linger</i>				
acceptable	▷ <i>lingering characteristics are unbalanced</i>				
good	▷ <i>aromas, tastes, and mouthfeel linger in reasonable harmony</i>				
very good	▷ <i>aromas, tastes, and mouthfeel linger harmoniously</i>				
excellent	▷ <i>rich, complex reflection of the beer’s aromas, tastes, and mouthfeel elements, and even undergoes pleasant evolution as it lingers</i>				

EVALUATION SECTION 6: INITIAL CONCLUSIONS

This is where you use the sensory data you collected about the beer to deduce and conclude important information about the beer. You've collected the dots. Now it's time to connect the dots.

1. Balance (specify and describe)

Balance expresses whether the beer “leans soft,” “leans hard,” or is balanced between soft and hard. Softness in beer is accomplished by sweetness, caramels, and dextrins (and occasionally alcohol). Hardness in beer is accomplished by bitterness, acidity, and carbonation (and occasionally astringency).

Softness

sweetness
caramels
dextrins
alcohol

Hardness

bitterness
acidity
carbonation
astringency

Balance, or lack thereof, is not a statement of quality! Some beer styles strive for balance while others eschew balance in favor of malty softness, hoppy bitterness, or bold acidity. The scale balances in the middle when a beer's softnesses and hardnesses support each other, or when its softnesses cancel out its hardnesses (and vice versa). Lack of balance is usually intentional and allows a certain aspect in a beer to be promoted, e.g., allowing a beer to have a personality dominated by bitterness or to be driven by sweetness.

Furthermore, balanced beer is a balance of soft and hard, regardless of how intense the tastes and flavors are. A balanced American blonde ale may have low malty sweetness and low bitterness/sourness, and a balanced English barley wine may have considerable malty sweetness and considerable bitterness.

When noting balance in the deductive tasting method, it is helpful to describe the balance or lack thereof with a descriptor or quality about the dominant element or about the elements in balance. (In the following examples, the operative elements are underlined only for clarity and emphasis.)

- ex.: “the beer’s balance leans soft, driven by caramel malt sweetness and warm alcohol”
- ex.: “the beer’s balance leans slightly soft with slight biscuity maltiness”
- ex.: “the beer is balanced between bready maltiness and hop bitterness”
- ex.: “the beer’s balance leans slightly hard with herbal hop bitterness”
- ex.: “the beer’s balance leans slightly hard with a sourdough tartness”
- ex.: “the beer’s balance leans hard, dominated by bold hop bitterness”

The options are:

• Balance (circle and describe)	soft, sl. soft, balanced, sl. hard, hard:
the balance leans soft (<i>specify and describe</i>)	
the balance leans slightly soft (<i>specify and describe</i>)	
the beer is balanced (<i>specify and describe</i>)	
the balance leans slightly hard (<i>specify and describe</i>)	
the balance leans hard (<i>specify and describe</i>)	

2. Notable Ingredients & Processes

What ingredients or processes are prominent in the beer? Try to name at least 1-2 ingredients or processes. The list does not need to be long, but if any ingredients or processes are particularly notable, they should be mentioned.

• Notable Ingredients & Processes	
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Notable ingredients might include specifics regarding:

- malts (German pilsner, Maris Otter, crystal 20, etc.)
- grains (wheat, corn/maize, rye, etc.)
- hops (European hops, dry hopping, Saaz, Nelson Sauvin, etc.)
- yeast (Bavarian weissbier yeast, *Brettanomyces bruxellensis*, etc.)
- fruits, spices, other additions
- water chemistry (gypsum, carbonates, etc.)

Notable processes might include chaptalization, decoction, dry hopping, barrel aging, etc.

3. Fermentation: Ale/Lager/Other & Temperature

Use your data to deduce whether the beer was fermented by a strain of ale yeast, lager yeast, or some other yeast and/or bacteria. If possible, deduce whether fermentation occurred at cool, typical, or warm temperatures for that organism.

Novice tasters will not have the experience to draw conclusions regarding the particulars of fermentation, whereas experienced tasters should be able to deduce details about the fermentation in varying degrees of detail. As always, practice (tasting, listening, guessing, and learning) and experience will improve your abilities.

• Ferm: Ale/Lager/Other & Temp.	
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Some examples include:

- ex.: expressive ale yeast, warm fermentation temperature
- ex.: neutral ale yeast, typical fermentation temperature
- ex.: Belgian saison ale yeast, warm fermentation temperature
- ex.: lager yeast, cool fermentation temp
- ex.: hybrid style — possibly lager at warm temp or ale at cool temp
- ex.: mixed culture, presence of lactic-acid bacteria
- ex.: mixed culture, presence of lactic-acid bacteria, acetic acid bacteria, and *Brettanomyces*
- ex.: *Brettanomyces bruxellensis lambicus* at cool temp
- ex.: *Brett anomalus/drie/trois* at typical temperatures

4. ***Alcohol by Volume***

The options are:

• Alcohol by Volume	< 4.5%	4.5% - 5.5%	5.5% - 6.5%	6.5% - 7.5%	> 7.5%
< 4.5%					
4.5% - 5.5%					
5.5% - 6.5%					
6.5% - 7.5%					
> 7.5%					

An estimate of precise ABV is not necessary but is optional in the Vitals Category at the end of this Initial Conclusions Section.

5. ***Freshness***

The options are:

• Freshness	young	fresh	ready	mature	old
young		<i>▸ objectionable, immature, not ready to drink, often with aromas of yeast, sulfur, hard-boiled eggs, struck match, green apple, and butter, and lacking in visual clarity as well</i>			
fresh		<i>▸ ready to drink and still shows signs of brewery freshness and vitality; can be aged further without decline in quality</i>			
ready		<i>▸ enjoyable beer in its prime; can be aged further without decline in quality</i>			
mature		<i>▸ beer that is enjoyable as is, but which should be consumed now and which will decline in quality if aged any further (Drink now; will be worse tomorrow.)</i>			
old		<i>▸ objectionable; beer that has suffered from age and is no longer as enjoyable as it was previously</i>			

Estimates or comments on specific year or “vintage” are optional.

6. ***Style & Sub-Style Possibilities***

Avoid making false assumptions and don't pigeon-hole yourself! Think outside the box and *come up with 3 styles/sub-styles the beer might be*. You might be surprised at how a beer's sensory data looks in the light of a few different styles, and one beer style might capture all the data more accurately than your original style assumption.

• Style & Sub-style	
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7. ***Vitals (optional for advanced tasting)***

A beer's vital quantities are its levels of color, bitterness, sweetness/gravity, and alcohol by volume. Estimating the following quantities is an important skill to develop, but this step is only necessary when evaluating at an advanced level.

• Vitals (optional for adv. tasting)	SRM:	IBU:	OG:	FG:	ABV:
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- SRM (color value within Standard Reference Method)
- IBU (international bitterness units)
- OG (original gravity)
- FG (final gravity)
- ABV (alcohol by volume)

EVALUATION SECTION 7: FINAL CONCLUSIONS

With all the data collected and your initial conclusions made, it's time to finalize your conclusions!

1. Style & Sub-style

List the beer's style and, if relevant, its sub-style.

2. Region

Determine a region where you think the beer was brewed. For example, if you have determined that the beer is a Belgian-style abbey dubbel, can you determine where you think the beer was brewed? Was it brewed in Belgium, or perhaps in the US? Does that German pilsner have the dryness of the northern German interpretation, the malty roundness of a Bavarian version, or the prominent dry hop aromas that could be from an American brewery?

Take into consideration:

- flavors and ingredients
- beer style and sub-style
- attitude, character, and balance

Not all beers express specific regionality, and correctly determining where a beer was brewed is not always possible. However, when specific regional markers are present, it is worth knowing how to notice and interpret them.

A note about *terroir*:

In beer, regionality can include *terroir*, but *terroir* is not required for regionality. *Terroir* is the concept of a food's or beverage's traits reflecting the unique geology, weather and conditions of its place of production, and is a common aspect of fine wines and cheeses. Some beers can express *terroir*; for example, a beer may typify a specific combination of local water chemistry, local hop aromas, and local wild yeasts. However, keep in mind that water chemistry can be altered, hops can be shipped long distances from where they were cultivated, and microflora can be cultured in a commercial laboratory. Sometimes, regional beer character includes controllable traits, such as amount of bitterness, residual sweetness, or alcohol. For all these reasons, regionality and *terroir* are independent concepts in beer. *Terroir* can be difficult to pin down when tasting beer, and it is not necessary for high quality or regionality in beer.

3. Notable Ingredients

List any notable ingredients in beer.

4. Freshness

List beer's degree of freshness.