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WE LOVE CHOCOLATE

Chocolate 101

STRUCTURE

COCOA BEANS
The cacao tree grows in tropical regions around the world and produces large fruits that look like fibrous pods. Each fruit contains about 40 white cocoa beans, which are dried, fermented, and then shipped to a processing plant where they are stripped of their hulls to form cocoa nibs (left).

CHOCOLATE LIQUOR
At the processing plant the nibs are roasted to dark brown seeds and ground into a liquid cocoa mass called chocolate liquor. Chocolate liquor is pure, unsweetened chocolate and is the base ingredient for all chocolate products.

COCOA BUTTER
About 55 percent of chocolate liquor is cocoa butter, a natural, highly unsaturated fat responsible for chocolate's unique texture. Cocoa butter has a very narrow melting range and stays firm up to 92 degrees. Since the temperature inside the human mouth is just a few degrees higher than the melting point of cocoa butter, chocolate melts very slowly. In fact, it seems to melt into—rather than just in—your mouth.

COCOA SOLIDS
Particles of ground cocoa solids are suspended in the cocoa butter and make up the other 45 percent of chocolate liquor. Cocoa solids carry hundreds of flavor compounds we recognize as chocolate. Most of the characteristic chocolate flavor compounds are produced during the fermentation and roasting steps.

BUYING

UNSWEETENED CHOCOLATE Also called baking chocolate, this is simply pure chocolate liquor that has been cooled and formed into bars. Among bar chocolates, unsweetened has the most intense chocolate flavor.

BITTERSWEET/SEMISWEET CHOCOLATE When sugar is added to chocolate liquor the product is now technically called "dark chocolate," assuming that it still contains at least 35 percent chocolate liquor (most chocolates contain far more). The terms "bittersweet" and "semisweet" are not regulated, although most manufacturers use the former to indicate a product with less sugar. When you see labels that read "70 percent cacao," this means the product contains 70 percent chocolate liquor by weight and the rest is mostly sugar, plus a little emulsifier and/or vanilla.

MILK CHOCOLATE Milk chocolate is similar to bittersweet or semisweet chocolate but with the addition of milk solids, which give this product its unique caramel and butterscotch flavors and soft texture. Most milk chocolate contain less chocolate liquor and more sugar than bittersweet or semisweet chocolates.

WHITE CHOCOLATE White chocolate is technically not chocolate since it contains no cocoa solids. Authentic white chocolate contains at least 20 percent cocoa butter (along with milk solids and sugar), which gives this product its meltingly smooth texture. Note that many brands rely on palm oil in place of some or all of the cocoa butter and can't be labeled "chocolate." If the product is called "white chips" or "white confection," it is made with little or no cocoa butter. That said, since both styles derive their flavor from milk and sugar, not the fat, we find this distinction makes little difference in recipes.

COCOA POWDER Cocoa powder is made by removing most of the cocoa butter from chocolate liquor. The resulting powder is roughly 80 percent cocoa solids and therefore has an intense chocolate flavor. To counter the harsh, acidic flavor of this concentrated form of chocolate, the powder is sometimes treated with an alkaline solution, or "Dutched." We find that Dutch-processed cocoa has a milder, more complex flavor than natural cocoa, which can be harsh and astringent. That said, you can use the two interchangeably in most recipes.

STORING

Never store chocolate in the refrigerator or freezer, as cocoa butter can easily pick up off-flavors from other foods. Wrap chocolate well in plastic wrap and store it in a cool, dark pantry. Milk and white chocolates should keep for six months; dark and unsweetened chocolates will keep for a year. If chocolate is exposed to rapid changes in humidity or temperature, sugar or fat may dissolve and migrate, causing a white film to develop on the surface of the chocolate. This cosmetic condition, known as bloom, does not harm the flavor of the chocolate.

USING

MELTING CHOCOLATE Since chocolate can scorch if overheated, you want to employ gentle heat. The traditional method calls for a double boiler. Place the chopped chocolate in a heatproof bowl set over a pot of barely simmering water. Make sure the water isn't touching the bowl, or the chocolate can overheat. The steam will gently heat the bowl and melt the chocolate. If the recipe also calls for melted butter, you can add the butter to the bowl with the chocolate at the outset.

You can speed up the process with a microwave, but you should use a reduced power setting to reduce the risk of scorching. Place the chopped chocolate in a microwave-safe bowl and microwave for 45 seconds at 50 percent power. Stir the chocolate to help it liquefy and continue to microwave in 15-second intervals as needed. If melting butter, don't add it until the chocolate is almost melted. (If added earlier, the butter will splatter.)

CHOCOLATE SUBSTITUTIONS In a pinch, you can replace some chocolate products with another one.

TO REPLACE	SUBSTITUTE
1 ounce unsweetened chocolate	3 tablespoons cocoa powder + 1 tablespoon butter or oil
1 ounce bittersweet or semisweet chocolate	⅔ ounce unsweetened chocolate + 2 teaspoons granulated sugar