



Week 1—Heat Transfer

“A skilled cook anticipates, and is not surprised at, the end result of their cooking procedure. Differences in how heat is applied to your dish will dictate that end result. Controlling heat and moisture is the key to a quality finished product that meets expectations.” -Chef Todd Mohr

Conductive Heat-

Transferring heat through direct contact

Convective Heat-

Transferring heat indirectly through liquid, fat or air

Dry Heat Cooking Methods

Roast and Bake—Convective Heat

Surrounding foods with hot, dry air
Roasting applies to meat and poultry
Baking applies to breads and pastries
Cooking uncovered is essential to dry heat

Barbeque—Conductive Heat

Dry heat created by wood or coals
Imparts distinct flavor due to smoking fats

Smoke-Roasting—Convective Heat

Imparts flavor of the type of wood used
Cooks at lower temperatures for longer time
Must be covered to retain moisture

Broil—Conductive Heat

Cook with conductive heat from above
Move product closer to heat source to increase temperature

Grill, griddle—Conductive Heat

Conductive heat transfers through bottom of cooking surface

Saute' - Conductive Heat

To cook quickly in a small amount of fat
Uses liquid fats (oils) to transfer heat to food
Always preheat the pan
Do not overcrowd pan
Meats often dusted with flour which prevents sticking, leaves roux for gravy

Pan Frying—Convective Heat

Uses liquid fats to transfer heat to food
Differs from sauté in the amount of fat used

Deep frying—Convective Heat

Cooking food submerged in hot fat

Pressure frying— Convective Heat

increases boiling temperature of the water in food

Effects of Heat on Food:

150-212f	66-100c	Gelatinization of Starches
		Starches absorb liquid and swell
160-185f	71-85c	Coagulation of Proteins
		Proteins stiffen and shrink
212f	100c	Evaporation of Moisture
		Liquid turns to gas
320-338f	160-170c	Caramelization of Sugars
		Sugars brown and become brittle

General Roasting and Baking Temperatures

170f	77c	Warming, holding food hot
200f	93c	Meringues, Egg Whites, Custards
250f	121c	Slow roasted beef, Smoked Meat
300f	149c	Fish, Cheesecake, Quiche
350f	177c	Roasting Meats, Casseroles
375f	190c	High Fat Breads, Whole Poultry
400f	204c	Low Fat Breads, Loin Cuts
450f	232c	Puff Pastry, Oven “Frying”