Cooking food over flames and glowing coals isn't difficult, but not everyone who flips a burger is a true grillmaster. First, know what tools you need, understand how raw materials react to heat, and learn to pack intense, irresistible flavour into every meal

Grilling vs. barbecuing

Sure, we all use the words interchangeably in casual cottage-deck conversation, but "grilling" and "barbecuing" are really two different techniques.

Some foods, such as burgers, tender cuts of lamb and beef, chicken kebabs, shrimp, scallops, or salmon steaks, are best grilled, not barbecued. These foods dry out and toughen with long cooking. Grill them quickly over direct heat—giving the surface a flavourful sear before the insides get overcooked.

Barbecuing, on the other hand, is what you do to big hunks of meat, and especially cuts that have more connective tissue—the parts of the animal that get exercise. The low-heat, slow-cooking barbecue process is best for tough but flavourful cuts such as pork ribs, shoulder roasts, and beef brisket, making them crusty on the outside and completely tender on the inside.

Real honest-to-goodness barbecue, the kind perfected in the Deep South, requires years of experience to master and some fairly specialized equipment. But cottage cooks, using standard equipment, can still get a taste of it. True barbecuing is long, slow cooking in wood smoke over indirect heat at 180°F-240°F (80°C-115°C). It takes patience, but the results are incomparable, as the low temperatures and aromatic smoke both tenderize and flavour the meat.

How meat cooks

Choosing between high-temperature, quick grilling and low-slow barbecuing is easier if you know a little about the effect of heat on meat, specifically on two important proteins.

As the meat's internal temperature reaches 120°F-130°F (49°C-54°C), one protein, myosin, starts to change; the meat begins to firm up a bit, though it's still juicy. Natural enzymes become very active, breaking down big, boring molecules (proteins, glycogen, fats) into smaller, tastier, more aromatic, and more tender ones. At this temperature, your steak is rare.

When the internal temperature of the meat reaches 130°F-140°F (54°C-60°C), or medium rare, heat starts to impede enzyme action, and more muscle proteins start coagulating. Though the steak is getting chewier, for many of us it's a worthwhile trade-off for an extra-tasty, well-browned surface.

From this point on, surface browning (known as the Maillard reaction) continues. A second protein, collagen, in connective tissue surrounding the muscle fibres starts to shrink, wringing out moisture, while the muscle proteins get tough, dry, and compact. If you're grilling steak, please stop. As a tender cut approaches 160°F (71°C), it will first be well done, then shoe leather.

With some meats, such as ribs, you should keep going, because around 160°F (71°C) another process kicks in. Though collagen is still shrinking, it's also converting slowly to gelatin. In time, muscle fibres separate, so they feel tender (though in fact they're not), and now-melted gelatin bathes each fibre in rich, velvety liquid. Now you have pull-apart, juicy ribs (or shank, shoulder, brisket, osso bucco, pork hocks, or pot roast).

So why not cook a steak this way, until its collagen dissolves too? Problem is, it's a tender cut, and it has little connective tissue, so long, slow cooking will only make it chewy. Young animals also tend to have less of the tough connective tissue found in the older ones. On the other hand, slow cooking suits less-tender cuts and older animals by giving collagen lots of time to melt.

Direct and indirect heat

To get that delicious brown sear when you grill a tender cut, cook it over direct heat. On a gas grill, simply preheat the grill, and place the meat right over the lit burner. Same idea on a charcoal grill—light the coals and let them develop an even coat of grey ash, then slap a steak on the grate, directly over the coals.

When you are barbecuing large chunks of meat, without the benefit of a rotisserie, indirect heat helps ensure your dinner doesn't dry out or get burned to a crisp. Cooking with the indirect method simply means that rather than going directly over the heat source, food is off to one side where it roasts with the barbecue's lid closed. A foil drip pan catches the meat drippings for gravy lovers while preventing flare-ups caused by fat hitting burners or coals. If your grill lacks a working, built-in thermometer, place an oven thermometer inside to gauge your heat.

On a charcoal grill, just pile the coals to one side and place the meat on the cool side, with a drip pan underneath. Close the lid, and use the air vents to maintain your desired temperature. Add fresh, lit coals, preheated in a chimney starter, after about an hour of cooking. If you have a gas barbecue, light one burner, and place the meat on the cool side over a drip pan. This method doesn't really give the meat any grill marks or "char," so you may want to give your food a few minutes over direct heat first, and then switch to the indirect method for the remainder of the cooking time.

For moist, aromatic cooking, place water, wine, or broth in the drip pan along with some herb sprigs, replenishing the liquid every half hour or so.

Fighting flare-ups

Intermittent gouts of sputtering flame are a fact of the cottage cook's life, produced when melted fat hits the guts of your grill and goes supernova. Small flare-ups are fun, but too many can cremate your dinner.

◆ Clean the inside of your barbecue periodically. If you still use lava rocks, turn them over to burn off any grease buildup. Flare-ups alone are one thing, but flare-ups combined with a greasy grill chamber can cause an inferno of nuclear proportions.

◆ Never cover the entire grill with food, especially burgers or chicken pieces. Always leave some free space so you can shuffle the food around any threatening flare-ups, like a boxer in a ring of fire, particularly if your barbecue has a notorious hot spot.

◆ Practise temperature control. On a gas grill, cooking with a closed lid rapidly cranks up the heat, while opening the lid reduces heat and the fury of flames. On a charcoal grill, opening the lid has the

PREVIOUS: DEREK SHAPTON

PRECISION GRILLING: HOW TO USE AN INSTANT-READ THERMOMETER

Nothing will cause you more grief than overcooking the prime rib or undercooking the roast chicken. An instant-read thermometer is a necessity when barbecuing large cuts, because when a recipe tells you to "cook for 15 minutes per pound," that's only a very rough guideline. During the last half hour of cooking, insert the thermometer into the meat at the midpoint of the thickest part, or the thigh for poultry. Remove dinner from the grill when the thermometer reads about 5°F (3°C) below the recommended internal serving temperature. The temperature will increase a few degrees during the 10–15 minutes resting time before you start carving.

To test steaks and burgers, insert the thermometer from the side, not the top—that way you'll be sure you're reading the temperature of the centre of the steak or patty.

From time to time, test your thermometer's accuracy, especially if it seems to be misleading you. Bring a pot of water to a rolling boil and take its temperature. The thermometer should read close to 212°F (100°C). If you live at a high elevation, the boiling point will be slightly lower; in lofty Banff, Alta., for example, it's about 204°F (96°C). If your thermometer reads cold temperatures too (many meat thermometers don't), mix water and ice in a glass. The temperature should read 32°F (0°C).

Many old-style thermometers with a dial can be recalibrated. Loosen the tiny nut on the back of the dial. With the thermometer in boiling (or freezing) water, give the dial a slight turn so it reads correctly. Tighten the nut and retest the thermometer, just to be sure.

	Recommended Internal Temperature
BEEF AND LAMB	
rare	120°F–130°F (49°C–55°C)
medium rare	130°F–140°F (55°C–60°C)
medium	140°F–150°F (60°C–66°C)
medium well	150°F–160°F (66°C–71°C)
PORK	
medium	160°F–170°F (71°C–77°C)
medium well	170°F–180°F (77°C–82°C)
CHICKEN AND TURKEY	180°F (82°C)
GROUND MEAT	160°F (71°C)

WHAT SALT CAN DO

Even if you use no other seasoning, all steaks should be salted before they go on the grill. Salt brings out and intensifies the flavour, aids in browning, and helps seal in juices. Adding salt at the table is no substitute.

There's an old "rule" floating around about never salting steaks, that it draws out juices and dries the meat. This is just flat-out wrong.

Long periods in salty marinades (be suspicious of store-bought concoctions) will indeed ruin meat, depending on how long it takes a bath. A long brining period draws out juices and even disintegrates the outer layer of muscle. Highly acidic marinades are similar: If left too long they can actually "cook" the meat's surface. That's what ceviche is—raw fish marinated in lime juice—but it's intentional and delicious. When over-marinated meat is grilled, the result is usually dry, tough, and unpleasant.

If you mix a marinade that's lightly salted and not too acidic, you can get away with a long soak. Just remember to wipe the meat dry and season with salt before cooking.

It is easy to over-season with iodized table salt because it is so fine. Some sea and kosher salts have larger crystals, making them easy to sprinkle by hand; because you can see how much you're adding, you tend to use less.

◇◇◇◇

opposite effect, feeding oxygen to the coals and the fire. To damp down a charcoal-grill fat fire, close the lid but keep the upper vents open.

◆ Squirting water or beer on a fat flare-up is just a waste of water or beer. Not only does it produce unwanted steam but, instead of burning off, that extinguished grease will only collect and reignite into an even worse fire.

How to use a rotisserie

Spit-roasting is by far the best way to cook large cuts. With the meat going round and round on the rotisserie, birds and roasts are self-basting: Their flavourful juices stay in the meat, rendering even easily overdone chicken or turkey breasts supple and succulent. The spit's rotation ensures even cooking and crispy skin—think pork crackling.

The only limitation to spit-roasting on gas barbecues is that your grill must have either multiple tube burners, arranged front to back, or a dedicated rotisserie burner mounted at the rear of the cooking chamber, directing heat from the side rather than from below. Size is also a constraint. Is the cooking chamber on your grill large enough for that 18 lb turkey? If you need to buy a rotisserie rig, do your best to get one specifically made for your brand of grill; universal models are often poorly built and don't fit well.

Spit-roasting requires very little of the cook. Once the food is spinning on the grill, you are free to relax, basting as required (or not). When cooking is complete, don't immediately remove the meat. Instead, shut off the gas (or close the bottom vents on a charcoal grill) and let the meat rest while rotating on the rotisserie; the tumbling juices will stay inside your dinner. When it's time to carve, use your needle-nose pliers to loosen the hot spit forks.

Spearing food on a spit

The trick to putting meat on the spit is balance—you want the food to be centred so it turns evenly. Birds should be loosely trussed (so wings and legs don't flop), roasts tied into a compact shape.

Slip one set of forks on the spit, slide the spit through the meat, then slide on the other fork set, pressing them into the meat to hold it firmly in place. Tighten the thumbscrews with needle-nose pliers and get your grill ready.

Spit-roasting on a gas grill

Preheat either the rotisserie burner or the front and rear burners to high. Place a drip pan on top of the cooking grate, directly under the spit. (If your payload is really large, you may have to remove the cooking grates entirely and set the drip pan below it.) Mount the spitted meat on the rotisserie and give the motor a test spin; if the balance is off, use the counterweight sometimes supplied with the rig, or attach a pair of Vise-Grips to the spit rod (outside of the cooking chamber) to even the load.

Spit-roasting on a charcoal grill

Bank the coals in two parallel rows with the drip pan in between. Balance the spit rod as above, and add fresh, live coals every hour or so to maintain the heat.



EDWARD POND

GRILL GEAR

In truth, the only indispensable tool is the barbecue itself; even then, you can always grill on the smouldering remains of a lightning-struck maple. But the right gear makes prepping, grilling, and eating easier and a whole lot more fun.

Tongs

Never flip your dinner on the grill by jabbing it with a fork. And those giant mahogany-handled tongs that came with the barbecue are useless, right? The very best tool for meat manipulation is a set of restaurant-style stainless-steel tongs with clamshell-shaped grippers. Spring-loaded and long enough to keep your knuckles from burning, these classic tongs are strong enough to heft a huge sirloin, yet so precise they can pluck an angel from the head of a pin.

Basting brushes

Even though silicone brushes have only been common for a few years, many grillers have switched to them for their durability, heat resistance, and bright colours. They're a lot easier to wash (dishwasher safe) and dry quickly. Traditionalists, though, prefer animal bristle, which sops up thin glazes and is better for poking into nooks and crannies. But all barbecue artists agree that brushes need long handles to keep fingers from getting toasted.

Kitchen shears

It's hard to remove a chicken's backbone with a knife: The bird is slippery, and there's nothing solid to push against. Kitchen shears work better for that task as well as many others, including cutting twine, opening milk bags, and snipping chives.

A good pair of shears has sharp blades, comfortable, non-slip handles, and a wobble-free pivot. When you hold an open pair by the bottom handle and let the top one fall, it should close about halfway. When the blades are closed, they should bow slightly, touching neatly at their tips, with a thin gap between them in the middle.

Rib racks

Delicious smoke and spice flavours can penetrate slabs of ribs because they have a lot of surface area. That also means the ribs will hog all the space on the barbecue grate. To fit more in, flip 'em up on their edges into the space-saving embrace of a metal rib rack. It's a simple contraption, a lot like the rack in your basement storing all your old heavy-metal albums from the '80s. Rib racks are ideal for cooking in the true low-and-slow fashion (see "How to Barbecue Ribs," p. 61) with indirect heat; if you're using one of the cheater methods and precooking the meat, finish ribs flat on the grate over direct heat.

Finger bowls

A proper chicken or ribs dinner is all about grease and glory—a bone-sucking bonanza best eaten with the hands. So, why not reward your paws for their hard work with a cleansing finger bowl? (That's a little bowl of hot water with a lemon slice, for those of you who have never been to Swiss Chalet.) So retro. So practical. So nice not to have greasy fingerprints all over the wineglasses.

Wipes

Since wiping a saucy smile with a sleeve is uncouth, even at the cottage, what's the best napkin for a barbecue feast? Skip the formal linen and the fly-away paper, admit that you're a messy eater, and wipe with what you really need: a rag. No, we're not suggesting old undies or greasy T-shirts: Go to your hardware store or big-box building centre and pick up a pack of shop (or painter's) rags from the paint section. The fabric is new, they're cheap and absorbent, and when you're done, they can be washed and reused, or turned into (surprise!) rags.

Instant-read thermometers

Until you're comfortable with The Great Canadian Poke Check (p. 30), an accurate instant-read thermometer is the best way to keep dinner moist, tender, and safe. Not sure how to use one? See "Precision Grilling: How to use an Instant-Read Thermometer" (p. 113).

Foodservice foil

In the barbecue's fiery furnace, household foil is a lightweight: tearing when shifted on the grill or burning through when used as a drip pan or wood-chip packet. "Barbecue" foil is thicker and wider, but the real heavy-duty sheet is foodservice foil, found in restaurant supply outlets or the stores that require membership cards. Along with the usual grill tasks, it can even be formed into a temporary hibachi lid.

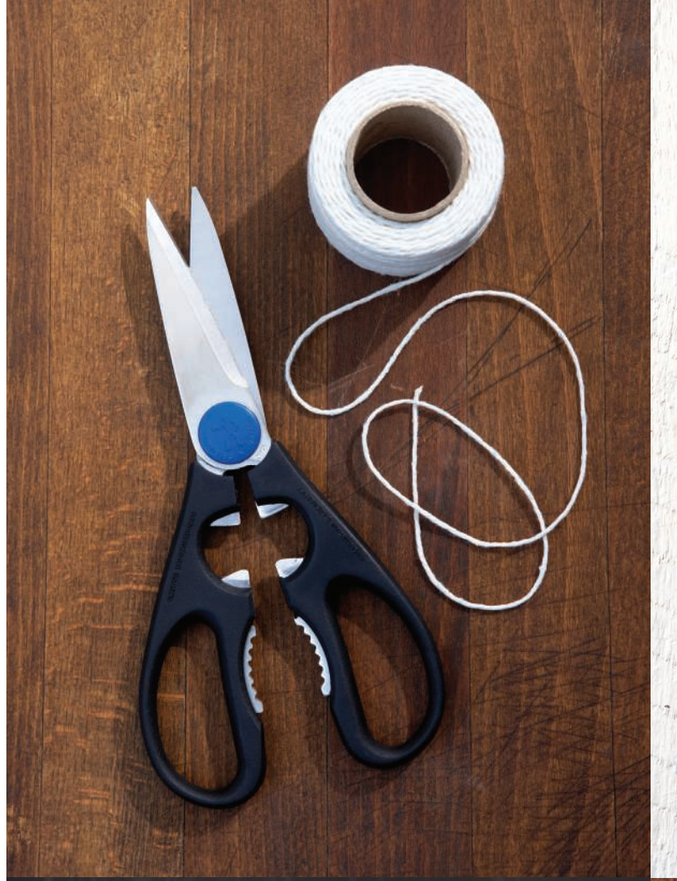
Bamboo skewers

Bamboo skewers come in a variety of lengths and can be snipped to size. They're cheap too, but, being wood (grass, actually), they catch fire with regularity, so always immerse them in water for at least 20 minutes before spearing your meat. Even after soaking, the exposed end can burst into flames. The solution is a heat shield: Fold a long sheet of aluminum foil until it's just a bit wider than the bare section of the sticks, and then place it on the grill, scrunching the ends into the grate so it doesn't waft away on the rising hot air. Position the handle end over the heat shield, which also protects your knuckles when you turn the skewers.

Flippers, eh

Halfway through grilling, you realize you can't flip a burger with a fork. The best flippers have a durable one-piece blade, with no soldered or riveted joints, and an unvarnished wood handle. Wood absorbs grease without getting slippery, stays cool (unlike steel), and won't melt (unlike plastic), even if you leave it too close to the heat.

If you're showing off among foodie friends, you'll call it a "turner," not the more colloquial, and apparently Canadian, "flipper." Just don't call it a "spatula"—that's what pastry chefs use to scrape cake batter out of bowls.









EDWARD POND