



PC-102 Personal Chef Culinary Theory Study Guide

This exam is concerned with and focused on food; particularly heating and handling.

Two basic types of heat transfer are conduction and convection. You are familiar with convection ovens, which transfer heat by mechanical or natural heat circulation. Conduction heating is different, and is characterized by molecular agitation.

Some of the methods you need to be concerned with are moist heat (steaming, simmering, poaching, some barbecuing, etc.), which should be used with tougher cuts of meat like brisket and shank and dry heat (without fat) such as baking, grilling and broiling. Broiling is considered a high heat method, as are searing and sautéing. Regarding broiling chicken specifically, make sure you start with the skin side away from the heat source to assure a crispy skin when finished. Use your probe thermometer to test for doneness. And remember, skin color may reflect the chicken's diet but it is not a flavor indicator.

When deciding the best cooking method for vegetables you should take into account that broiling is one of the most destructive ways (many valuable nutrients are lost) with steaming being one of the best. If you are interested in good coloring on vegetables consider stir-frying, which permits the caramelization or browning of the sugars. The shape and size that you cut vegetables will also affect their flavor and cooking time.

Knowing the way that heating affects protein will help you to decide which method of cooking to use. When heated protein becomes firmer and shrinks. High heat especially tends to dry out meat, which is why you need to be especially careful cooking food in a microwave. Meat is predominantly water and the microwave drives this off, toughening the meat. The connective tissue within protein can also help to determine cooking method. The two types to be concerned with are collagen and elastin. Collagen appears pearly white and is broken down by cooking, while elastin is yellow and requires grinding to be broken down. Collagen may also be broken down by the application of things such as lemon juice and other acids. Seafood contains little connective tissue, so it responds to many different cooking methods. One other factor in choosing fish and cooking methods is fat content, which in oily fish can be very high.

Buying the groceries for your clients where you normally shop (and know and trust the store) is the best way to ensure quality product. Within those stores it is important to get to know the various department managers, such as the heads of seafood, meat and produce. Absent someone like this to guide you there are some rules of thumb to help you. For instance, when choosing beef you should take into account both grade and cut, or where on the animal the meat comes from. The cut is listed on the package and grade (or quality) is determined by the age of the animal and the amount of marbling, which is a reflection of the animal's diet. No matter the diet, veal has little if any marbling. Further aging of the cut meat can add both expense and quality, with dry aging being the best method. This marbling, or fat amount, is also the main factor to consider when purchasing ground meat.

Many consumers today are concerned with the origins and health impacts of their food, with concepts such as free-range chickens being important.

One other concept to be aware of is the impact of acids on food. Acids such as vinegar, lemon juice and tomato products are used in marinades because they help to soften fiber. Acids (and alkalis) will not, however, affect color in the citrus fruits, tomatoes and other fruits and vegetables considered carotenoids.

Properly store your food so that you use the oldest (First In) first. Two concerns about storage are cross contamination (that chicken juice on your hands) and the temperature danger zone, which is between 41° and 140°. You can help keep food out of the danger zone in several aspects of your cooking service. Cooked foods should be chilled below 41° as rapidly as possible using a system such as an ice bath. Your clients should be taught to thaw any frozen food in the refrigerator so that it does not reach 41°.

Be aware of the important factors in selecting a Chef's knife and know how to use starch as a thickener.