



Cooking Food

Keywords and definitions:

Aerate: to incorporate air into a mixture – also aeration.

Conductor: a material or device that conducts or transmits heat or electricity

Foam: When bubbles form on the surface of a liquid as a result of a chemical reaction. Or the creation of a foam substance by whisking eggs and sugar together.

Methods of Cooking: The ways in which different foods can be cooked e.g. baking, steaming etc.

Micro-organisms: a microscopic organism, especially a bacterium, virus, or fungus

Palatable: (describing food or drink) has a pleasant taste, is pleasant to eat

Raising Agents: a substance added to a food product that makes it rise when cooked

Raw: food that has not been cooked

Shelf life: the length of time that a food / drink may be stored without becoming unfit for use, consumption or sale.

Unleavened: refers to bread, cakes and biscuits that are made without a raising agent.

Why do we cook food?:

- Make it safe to eat – cooking destroys micro-organisms, reducing the chances of food poisoning
- To change it from raw to cooked – many foods cannot be eaten in their raw form
- To make it more palatable, improving texture, developing flavours and improving colour
- To extend the shelf life of a product
- To make it easier for us to digest
- To give variety to the diet – e.g. eggs can be cooked many different ways for different tastes and textures

Heat Transfer:

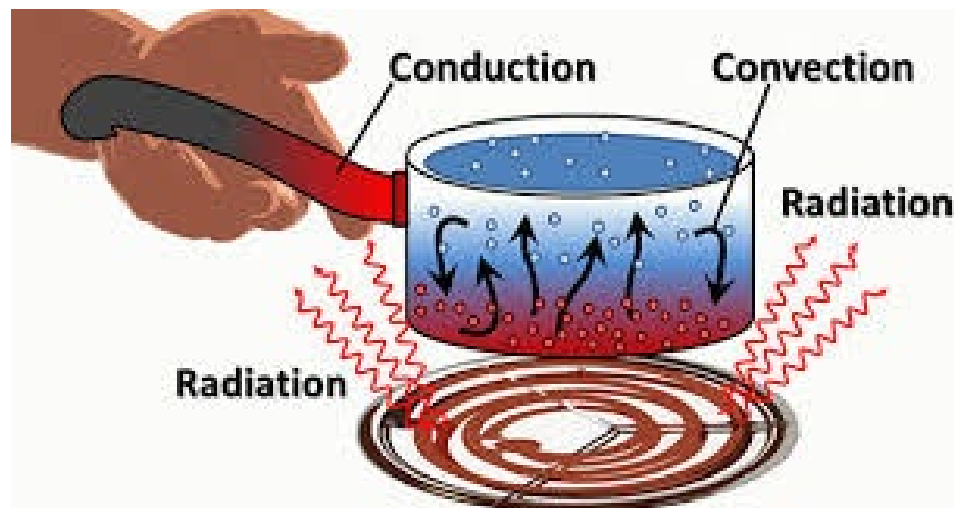
Heat transfer is the way heat is transferred into foods in order to cook them. Many methods of cooking combine two methods of heat transfer, e.g. roasting vegetables uses both conduction and convection.

Conduction: The transfer of heat by direct contact from a hot surface. This is a relatively slow method of heat transfer because there must be physical contact. Surfaces must be a good conductor of heat, which is why saucepans are made of metal, but the handles are plastic.

Convection: The transfer of heat through movement in a gas or liquid. Warm air or liquid current rise up (e.g. in a saucepan or oven) pushing the cooler air / liquid down, which is in turn heated. This creates a cycle of currents which can heat the food.

Radiation (Microwave): A microwave converts electricity to radio wave (called microwaves) which penetrate the food.

Radiation (Infra-red radiant heat): The heat is transferred using electromagnetic radiation: waves of heat or light strike the food. There is no physical contact between the heat source and the food being cooked.



Raising Agents:

Raising agents are added to most baked products during the making process using gas, air or steam which, when heated, expands causing the food to swell and rise up. Raising agents produce a risen, light and airy texture in the food.

Mechanical Raising Agents Create air through an action	Chemical Raising Agents Create Carbon Dioxide
Sieving will trap air. Used in pastry, cakes or batters	Self raising flour is plain flour with baking powder added in the correct quantity needed to suit most cakes
Whisking eggs. Eggs and caster sugar, when whisked will trap a large volume of air creating a foam.	Baking Powder – is a commercially made mixture of bicarbonate of soda and cream of tartar. Baking powder works the same as Bicarbonate of soda, but adding cream of tartar helps stop the soapy flavour
Rubbing fat into flour will incorporate a little air	
Creaming fat and sugar together traps minute bubbles. The fat becomes paler in colour and the mixture looks creamy	Bicarbonate of soda + moisture + heat will create bubbles of carbon dioxide to raise the food. It can leave behind a “soapy” flavour
Lamination air is trapped each time flaky and rough puff pastry dough is rolled and folded to create layers	
Physical Raising Agents	Biological Raising Agents
Steam is created in products such as Yorkshire puddings and choux pastry which contain large quantities of water. Ovens are set to high temperatures to turn water to steam and forces it through the mixture, pushing or raising it upwards	Yeast is a living organism grown commercially for bread making and alcohol production. Yeast + moisture + oxygen + food + time will produce masses of carbon dioxide gas bubbles

Accurate heat control:

Oven: always use the oven temperature stated in the recipe. If the food browns too quickly, turn the oven down by 10° or move food to a lower shelf.

Hob: Water boils at 100°C. If boiling water is left on a high heat, it will evaporate, causing the contents of the pan to burn. Take care when using oil/fat as it can spontaneously ignite at temperatures between 180°C and 250°C.

Grill: the heating element should be glowing red before placing food under the grill. Food must be checked regularly and turned over to prevent burning.