GCSE FOOD AND NUTRITION: RAW MATERIALS TO EDIBLE PRODUCTS

You must be able to know and understand the principles of food production: primary and secondary stages of processing and production and how processing affects the sensory and nutritional properties of ingredients. **You must** be able to explain primary processing related to the rearing, fishing, growing, harvesting and cleaning of the raw food material. **You must** be able to explain secondary processing relating to how the raw primary ingredients are processed to produce a food product and demonstrate understanding. It can also be a complex of vitamins through a heating and drying process e.g. the effect of heating and drying on the sensory characteristics of milk.

Key terms: Foods can be divided into two main groups - **primary** and **secondary**.

Primary foods are raw foods, which have received little or no processing.

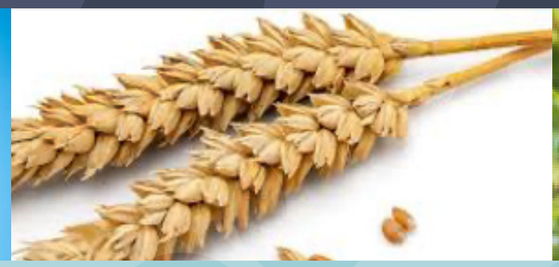
Secondary foods have received more complex processing which makes them into **composites** or **products**. For example, a primary food could be fresh fruit and vegetables or pasteurised milk (primary processing), while secondary foods could be prepared pasta sauce, a sliced loaf or canned soup (secondary processing). **Components** are individual ingredients, which make up a product. **Composites** are foods which have been made out of several components (e.g. filo pastry) and are then further processed to make up the final product.

What is primary processing? When raw food is changed or converted into foods that can be eaten immediately or into ingredients that can be used to make other food products. Examples include washing vegetables, squeezing fruit to make fruit juice, heat treatments for pasteurisation so that milk is pasteurised, and wheat milled into flour.

What is secondary processing? This is converting primary processed foods into other food products e.g. flour into biscuits/pastry/cakes or milk made into cheese/cream.

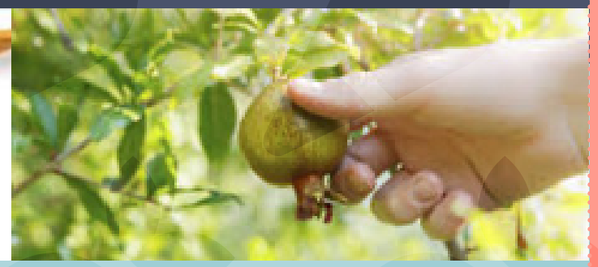
Milk

- cows are reared by farmers
- they are milked twice a day
- raw milk is heat treated e.g. pasteurised (primary) to make it safe to drink and filled into bottles or cartons
- milk can be secondary processed to make cheese or butter for example.



Wheat:

- wheat is grown and harvested by farmers
- grains are extracted from wheat and is milled into flour (primary)
- flour can be secondary processed to make bread and pasta.



Fruit juice:

- farmers grow fruit such as apples and oranges (primary)
- fruit is harvested and washed
- fruit is squeezed to get juice
- juice is sold in cartons.

Why is food processed?

Food is processed to make it safe to eat, to create new products, to vary the diet, to increase shelf life and to enable us to have food all year round. Food processing can be a very simple process such as preparing, freezing or dehydrating food to preserve nutrients. It can also be very complex, such as the method of pasteurising to make food safe to eat or in making a ready meal. Throughout the process, health and safety and quality control must be maintained to prevent food spoilage, cross-contamination and avoid food wastage. Food manufacturers will have procedures in place and systems and controls to ensure high standards of food hygiene and safety. HACCP (hazard, analysis, critical, control point) is a system set up to make sure that only quality products are made. It is used for identifying possible hazards involved in food production and preventative measures are taken to ensure consumer safety.

Nutritional loss in processing food can occur and nearly every food preparation process reduces the amount of nutrients in food. Namely, processing methods that expose foods to high levels of heat, light, and/or oxygen cause the greatest nutrient loss in vulnerable nutrients e.g. the micronutrients, water soluble vitamins and minerals. Fortification is carried out by a manufacturer to replace nutrients lost during processing. Some foods are fortified by law, some foods are fortified voluntarily by manufacturers and fortification is strictly controlled by law. In the UK, all flour (except wholemeal and malted brown) must have vitamins and minerals added to it by law. Four nutrients must be added: Calcium – to prevent cases of rickets, Iron - to prevent iron deficiency anaemia, B vitamins and Nicotinic acid – allow release of energy from carbohydrates.