



# **HOSPITALITY STUDIES**

**GRADE 10**

**CEREALS**

**NOTES**

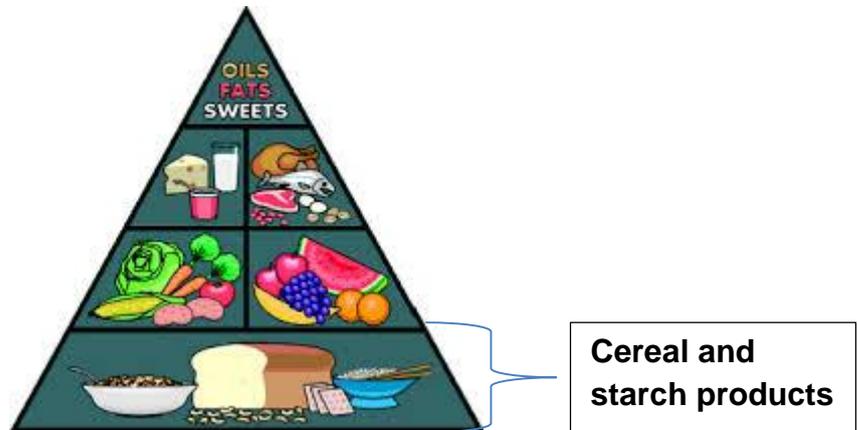
**TERM 2 WEEK 5**

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## TERMINOLOGY

<b>1. Cereals</b>	Cultivated grasses with edible seeds.
<b>2. Gelatinisation</b>	Occurs when moist heat is applied to starch the starch granules swell, soften and increase in viscosity.
<b>3. Translucent</b>	Means that the mixture allows some light to pass through.
<b>4. Muesli</b>	A breakfast cereal made from rolled or clusters of oats and other cereals mixed with dried fruit, seeds or/and nuts. Honey or molasses may also be added.
<b>5. Roux</b>	A mixture of melted margarine and flour used for thickening.
<b>6. Dextrinisation</b>	Browning of starch when dry heat is applied. When dry heat is applied to starch, the starch changes to dextrin which has reduced thickening ability and more soluble.
<b>7. Carbonisation</b>	When too much dry heat is applied to starch, the starch changes colour into carbon which is black and inedible.
<b>8. Polenta</b>	A traditional Italian dish made from boiled ground yellow corn meal.
<b>9. Ting</b>	Maize-meal porridge left to stand to become sour, also known as sour porridge.
<b>10. Syneresis</b>	When cooked starch is left to stand for a long period, the starch network shrinks and forces out free water trapped in the network.

## NUTRITIONAL VALUE OF CEREALS



Cereals belong to the cereal and starch products. Grain cereals consist of carbohydrates, incomplete proteins, fat, vitamin B and E, calcium and phosphorus.

**Large central part of the grain: contains starch and incomplete proteins**

**The outside husk: contains cellulose (dietary fibre)**

**The small part inside the endosperm which is the growth point of seed: consist of incomplete proteins, polyunsaturated fat, vitamin B, vitamin E, calcium and phosphorus.**

- The **structure** of all grains is similar although the actual seed vary in size and shape.
- Whole grain products use every part of the grain.
- In very refined cereals, the germ and bran are removed.

## TYPES OF CEREALS

TYPE	ILLUSTRATION	USES
<b>Maize</b>		Maize meal (mealie meal), polenta, samp, maize rice, corn flour (maizena).
<b>Wheat</b>		Cake flour, bread flour, semolina, couscous, whole wheat.
<b>Oats</b>		Rolled oats for breakfast porridge, muesli and for biscuits.
<b>Sorghum</b>		Maltabela porridge and beer.

CLASSIFICATION OF CEREALS		
CLASSIFICATION	DESCRIPTION	EXAMPLES
<b>WHOLE GRAIN</b> 	Whole with all the cereal parts intact. Nothing is removed.	Maize, wheat, rice, barley, oats, rye, sorghum.
<b>CRUSHED GRAIN</b> 	The whole grain is broken into smaller pieces.	Samp, maize rice, crushed wheat.
<b>ROLLED SEEDS</b> 	The bran of the grain is removed and the grain is flattened by rollers.	Oats, cornflakes.
<b>COARSELY GRANULATED SEEDS</b> 	The bran and germ are removed before the grain is coarsely granulated.	Maize meal, sorghum, semolina.
<b>FINELY GRANULATED SEEDS</b> 	The bran and the germ are removed before the grain is finely granulated.	Flour, corn flour (maizena).

## HOT AND DRY BREAKFAST CEREALS

TYPE	EXAMPLES	ACCOMPANIMENTS
<b>HOT PORRIDGE</b>	Oats, maize porridge, ting (sour maize porridge), sorghum (Maltabela porridge).	Milk (full cream, low fat, skimmed milk), sugar (white and brown).
<b>DRY BREAKFAST CEREALS</b>	Muesli, corn flakes, puffed wheat, wheatbix, etc.	Milk, yoghurt, honey, syrup.

## COOKING METHODS

**Reasons for cooking cereals:**

- Softens the cellulose.
- Makes the product more edible and digestible.
- Enhances the taste and flavour of the product.

### **(1) MOIST HEAT COOKING METHODS**

- When starch granules are added to cold water, they absorb some of the water and swell slightly.
- When the mixture is heated, water penetrates the starch granules, causing them to swell and soften.
- An increase in temperature, the mixture increases in viscosity and translucency. This is known as **gelatinisation**.
- The mixture should not be over stirred because the swollen grains will break and the mixture become thinner again.
- When cooked starch is cooled, a gel is formed.
- Special care should be taken when cooking fine cereals in moist heat as the lumps are easily formed and the skin can form on cooked cereals when they are cooled.

## METHODS FOR PREVENTING LUMPS

METHOD	DESCRIPTION	EXAMPLES
Paste method	The starch is mixed with a little cold water to form a paste. Add boiling liquid to the paste and pour back into the saucepan. Place the saucepan on heat and stir to prevent lump formation.	Maize porridge, thickening sauces with corn flour
Roux method	Starch is mixed with melted butter, margarine or oil to form a roux. Add milk. Place on heat and stir continuously to prevent lumps from forming.	Béchamel sauce
Screening method	The starch is mixed with sugar and cold water to form a paste. Add boiling liquid and pour back into the saucepan. Place on heat and stir continuously.	Custard and milk tart filling

## HOW TO PREVENT SKIN FROM FORMING

- Stir the cereal regularly while it is cooling.
- Place a layer of plastic in contact with the surface.
- Sprinkle a layer of sugar on the surface (suitable for sweet dishes).

## FACTORS INFLUENCING THE GELATINISATION OF STARCH

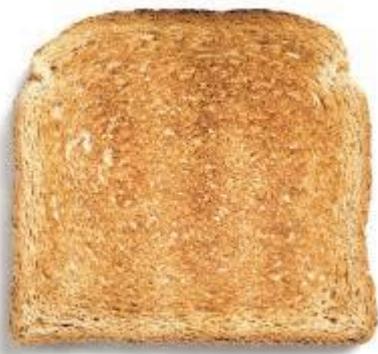
- **Temperature:** the process of gelatinisation is usually completed at the temperature of between 88°C and 90°C.
- **Agitation (Stirring):** If the mixture is stirred too much or too fast after gelatinisation, the swollen granules rupture and the absorbed seeps out. This causes the mixture to become thin again.
- **Sugar:** The sugar and starch compete for the available water, if there is not enough water, the mixture will be runny.
- **Acid:** addition of acids such as vinegar, lemon juice, tartaric acid will reduce the thickening ability of starch and the mixture will be runny.

- **Type of starch:** Maize have double the thickening ability of wheat products. This is why we need less corn flour than cake flour to thicken sauces.

## (2) DRY HEAT COOKING METHOD

- When dry heat is applied to starch, **Dextrinisation** takes place.
- The starch changes to dextrin. The dextrin is golden brown and has a slight caramel taste.
- The starch loses its thickening ability and becomes more soluble.
- If too much dry heat is applied to starch, carbonisation occurs. The starch is changed to carbon which is black and inedible.

### DEXTRINISATION



### CARBONISATION



### CEREAL SERVING PORTIONS:

- 200-250ml of cooked cereal per person
- 20g of raw oats weighs 100g when cooked with water
- 20-30g of dry breakfast cereal per person

### ACCOMPANIMENTS

- Usually served with milk and sugar
- Honey, syrup, yoghurt and compote can also be served with muesli.