Causes of Food Deterioration and Spoilage
What causes Food to go off?
Microbial Activity

Micro-organisms occur naturally in the environment and they can cause foods to become rotten.

There are 3 types of micro-organisms;

1. Bacteria
2. Yeasts
3. Moulds
1. **Bacteria:** Bacteria are microscopic organisms that cause food poisoning when consumed. Bacteria like moist, warm, low acid environments.
2. Yeasts: Yeasts are single-celled plant organisms that can produce slime on fruit juices and vinegar products and can cause other foods to ferment and thus spoil.

Ferment – production of acid or alcohol by microorganisms that changes the texture, flavour and aroma of food.

Therefore, foods affected by yeast can give a tingly sensation to the tongue and a slightly acidic flavour.

Yeasts are unpleasant, but not harmful.
3. **Moulds**: Mould is different from the other micro-organisms as it can be seen by the naked eye.

- Moulds are a form of fungi and reproduce by forming spores on the surface of foods.

- Mould appears as dark cottonwool-like mass on the surface of food like bread, cheese and fruit.

- The appearance of mould make food undesirable, but they do not cause as much illness as bacteria.

- Moulds are used in the production of food, such as; blue vein cheese.
Enzymatic Changes

- Enzymes help to speed up reactions.

- Some Enzymes found naturally in foods can cause food spoilage. These natural chemicals cause foods to ripen and age.

- This process does not ‘switch itself off’ and continues past the optimum ripening stage.

- For example, when you pick a banana and leave it to sit in a fruit bowl for a while, it will begin to brown and soften.
Physical and Chemical Reactions

- Storing food correctly is important as it reduces the opportunity for foods to be exposed to conditions that will affect their physical and chemical properties.

- Non-Perishable foods, such as canned foods, should be stored in a clean pantry that is at room temperature and free from any moisture to prevent mould from developing.

- Dry goods, such as cereals and breads, should be stored in airtight containers to stop contamination by insects and rodents.
Cold storage includes refrigerated and frozen storage areas. Refrigerators should be operating at or below 5°C, while Freezers usually keep foods below -18°C.

All foods in the refrigerator should be well covered and organised to avoid **cross contamination**.

Frozen Foods should be well covered and the air should be released to avoid ‘Freezer Burn’.
Environmental Factors

Food can be contaminated as a result of environmental factors. These include:

- Food coming in contact with dirt or dust.
- Insect spray being used in the kitchen while food is left uncovered.
- Foods being exposed to the air.
- Damaged packaging.
- Foods stored in the temperature danger zone.
✓ A waiter accidentally putting his/her fingers on the plate while serving food.

✓ Food placed on crockery (plates, bowls) that have been incorrectly cleaned.

✓ A food handler using a gloved hand for both serving food and handling money.