Starter:

1. What type of bacterium is responsible for the most cases of food poisoning in the UK? [1 mark]
2. Staphylococcus aureus is only found in faeces. True/False. [1 mark]
3. Listeria is often found in soil and, therefore, eating raw vegetables might increase the risk of food poisoning. True/False. [1 mark]
4. Definite the term cross- contamination. [1 mark]
5. List **three** symptoms of food poisoning. [3 marks]

Revision- Food Safety- Bacterial Contamination

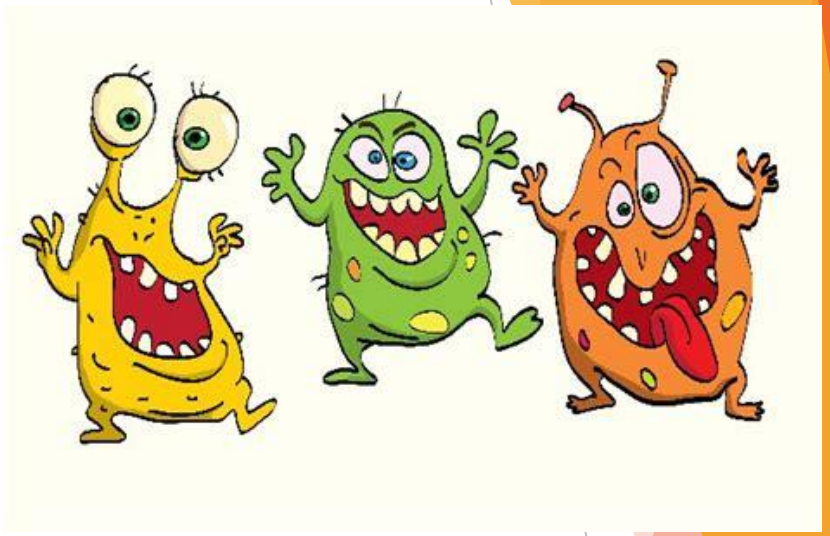
Learning Objectives:

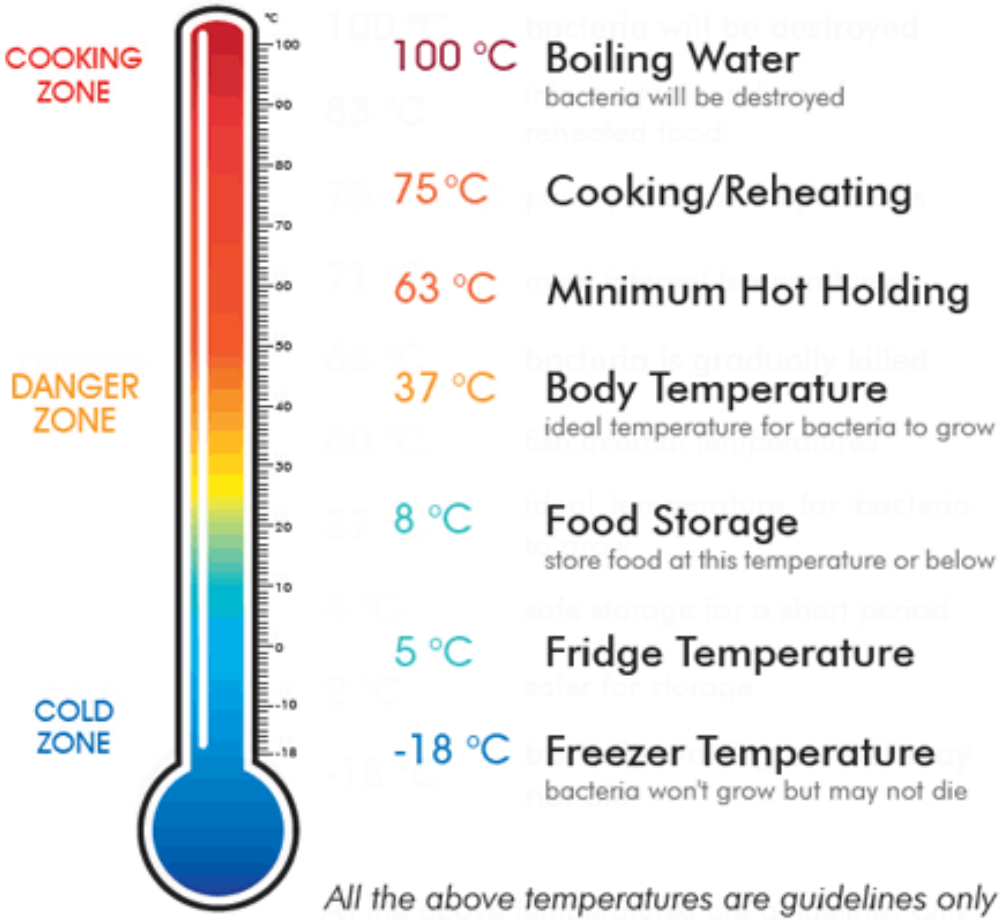
Recall information about Bacterial Contamination

Address any misconceptions

Apply knowledge to exam questions

Bacterial growth





In depth look- preparing food

Preparing

- **Avoid cross contamination** – chopping boards should be coloured coded so that raw meat is never cut on the same board as fruit and vegetables. Utensils should be washed after being in contact with raw meat to avoid cross-contamination.
- **Wash fruit and vegetables** – all fruit and vegetables (especially root vegetables that may have excess soil) should be thoroughly washed to prevent the risk of spreading harmful bacteria such as E. coli.
- **Take care when defrosting foods** – ideally, plan ahead and leave enough time to defrost food. Safe thawing should be done in small amounts in the fridge. Ensure meat and poultry are defrosted on the bottom shelf. If meat is thawed in the microwave, cook it immediately. Foods should be thoroughly defrosted before being cooked.
- **Keep work surfaces clean** – it is important for food safety that all worktops are kept clean and free of bacteria. Use a clean cloth and anti-bacterial sprays. Ensure any surfaces are wiped clear of cleaning residue before preparing food.

In depth look- cooking and serving food

Cooking

- **Temperature control when cooking food** – all foods should be cooked for the correct amount of time and temperature. A **food thermometer** is the only safe way to check the core temperature of a food to ensure safety - especially when cooking **meat, poultry** and **seafood**. The core temperature of a food should reach **75°C** instantaneously. The equivalent – for example **70°C** for two minutes – is acceptable.
- **Follow label instructions** – when cooking food it is important to follow the cooking instructions displayed on the label. This is especially important for foods cooked in the microwave as stirring and standing times are vital to ensure the core of the food has reached the required temperature.

Serving and reheating

- **Serving cooked foods** – when a food is cooked it must be kept at **63°C** and covered until it is ready to eat.
- **Reheating foods** – When reheating a food, it should reach a core temperature of **70°C** for two minutes. A food should not be reheated more than once. HIGH RISK FOODS should be reheated once and until piping hot.

) 6 . 2 Give **four** personal hygiene rules that should be followed when preparing a chicken wrap.

[4 marks]

1 _____

_____

_____

2 _____

_____

_____

3 _____

_____

_____

4 _____

_____

_____

Indicative content

- Wash hands using warm water and antibacterial soap. **Accept soap/soap and water.**
- Wash hands after visiting the toilet/coughing/sneezing/touching face/blowing your nose/handling raw chicken, etc.
- Tie hair up/wear a hair net.
- Wear a beard net.
- No jewellery/remove jewellery.
- Cover cuts with a blue plaster/blue waterproof plaster.
- Wear clean chef whites/a clean apron.

SCHEME – GCSE FOOD PREPARATION AND NUTRITION – 858

- Good personal hygiene, eg shower regularly.
- Make sure nails are short/cut.
- No nail varnish/false nails.
- Avoid coughing/sneezing over the food.
- Do not work with food if feeling unwell.

0 6 . 3 The chicken wrap was left in a warm room for four hours.

Explain how this could lead to food poisoning.

[4 marks]

Indicative content

- Bacteria will grow rapidly in the danger zone of 5 to 63 °C.
- 37 °C is the optimum temperature for bacteria growth.
- The chicken wrap would be a high-risk food.
- Bacteria need warmth, food/nutrients, moisture and time to grow, all of which are present.
- The chicken wrap should have been stored in a refrigerator at 0 to below 5 °C if not being eaten immediately.
- The chicken wrap should have been refrigerated within two hours of being made to limit bacteria growth.
- Refrigerating the chicken wrap would have slowed the growth/reproduction rate of the bacteria.
- Campylobacter/salmonella/clostridium perfringens could be present because of the chicken.
- More bacteria would be present if the chicken is undercooked, further accelerating bacterial growth in the four hour time period.
- Staphylococcus aureus/e-coli bacteria could be present due to poor personal hygiene practices when the chicken wrap was made.
- Listeria bacteria could be present if the grated cheese or sour cream were made using unpasteurised milk.
- If bacteria divide and multiply every 20 minutes, there will be a high quantity of bacteria after four hours.
- After four hours, there might be no noticeable signs that the food is unsafe to eat.
- When consumed, the chicken wrap would contain a high level of bacteria due to the chicken, cheese and sour cream, causing food poisoning.

In depth look- Sources

- Raw food contamination- many different types of bacteria lives in the intestine of animals. When an animal is slaughtered, bacteria can get onto the meat.
  Raw eggs may have bacteria on the inside and outside of their shells, as well as shellfish.

In depth look- Micro-organisms in food

- Yeast- Biological raising agent (in bread), ferments grapes and hops into wine and beer.
- Moulds- Improve flavour and colour (cheese). Ripen surface of sausages (salami)- extends shelf life. Soy sauce – ferments to make MSG.
- Bacteria- cheese and yoghurt (lacto bacillius- turns lactose into lactic acid). Lactic acid DENATURES and COAGULATES protein in milk= thickened.

Plenary- Exam question

Identify one sign of spoilage caused by:

a) Enzymatic action
b) Mould growth
c) Yeast action [3 marks]

Explain why yeast is useful in the production of bread. [4 marks]

Plenary- Exam question

Fill in the gaps using the keywords below. Note that each keyword may be used once, more than once or not at all. **(4 marks)**

catapult	*catalysts*	*cataract*	*slow down*	*speed up*
protein	*carbohydrates*	*fresh*	*ripen*	*stay green*
room	*low*	*high*	*fats*	*stay*

i) Enzymes are biological _____ usually built from _____.

ii) This means that they can _____ chemical reactions.

iii) Enzymes naturally occurring in plants help them to _____ and develop flavour.

iv) If fruits are left for too long at _____ temperature, they can become brown.

Mark Scheme

The answer indicates at least one for each point from: *(1 mark for each correct, max. 3 marks)*

i) Ripening of bananas, browning of fruits such as apples, pears or avocados.

ii) A green, black or white furry mould coat is growing on bread, cheese or fruits.

iii) Yeast ferments sugar in fruit and juices and turns them sour, fizzy and foamy, e.g. grapes, strawberries, tomatoes.

Accept other suitable answers.

i) The answer may include a reference to: *(1 mark for each correct statement, max. 4 marks)*

- Yeast ferments sugar in dough/flour.
- Yeast produces carbon dioxide as an effect of fermentation.
- The more sugar, the more gas can be produced.
- Carbon dioxide causes the dough to rise and become soft and sponge-like.

i) Enzymes are biological **catalysts** usually built from **protein**.

ii) This means that they can **speed up** chemical reactions.

iii) Enzymes naturally occurring in plants help them to **ripen** and develop flavour.

iv) If fruits are left for too long at **room** temperature, they can become brown.