

## PiXL Spine – Technology – Food Safety

### Introduction

With an estimated one million cases of food poisoning a year, it is essential for our health and wellbeing that we understand food safety and how we can reduce the risk of food poisoning occurring. Food safety is vital when preparing or storing any food as poor food safety can result in harmful bacteria being produced.

### Bacteria

- Some bacteria are harmless and useful. They are used in the manufacture of some food and medicines.
- Others can cause harm and result in food poisoning – the result of eating foods which have been contaminated during growth, storage, preparation or cooking.
- The harmful bacteria are called ‘pathogens’.
- They are particularly dangerous because you cannot see, smell or taste them in food.
- Harmful bacteria may enter food from humans, animals, insects, raw food, rubbish, dust, water or the air.
- Certain bacteria can create toxins (poisons) within food.
- Sources of pathogenic bacteria include: raw foods - raw meats, poultry, fish and shellfish; soil, dirt and dust; unwashed vegetables and salads; pests and domestic pets; humans (from hands, hair, noses, throats and infected cuts); food waste; untreated water and sewage.

### **Task 1**

Draw the food associated with the relevant bacteria. Some can be for both.

*Salmonella*

*Clostridium*

*Staphylococcus aureus*

*E. coli*

*Campylobacter*

### **Bacteria causes illness in different ways**

- Large numbers (millions) invade and irritate the stomach and intestine, producing waste products or toxins (poisons). They may also produce toxins in the food itself, which are often difficult to destroy once in the food.
- Small numbers (as few as ten) may invade and multiply in the bloodstream.

### **How bacteria multiply**

- They divide into two, as quickly as in 10-20 minutes, which means after several hours there can be millions.
- To multiply, they need food (mainly protein), moisture, warmth and sufficient time.

### **How do you manage high risk foods?**

- Control temperature
- Avoid handling
- Keep covered or wrapped
- Keep separate from raw foods

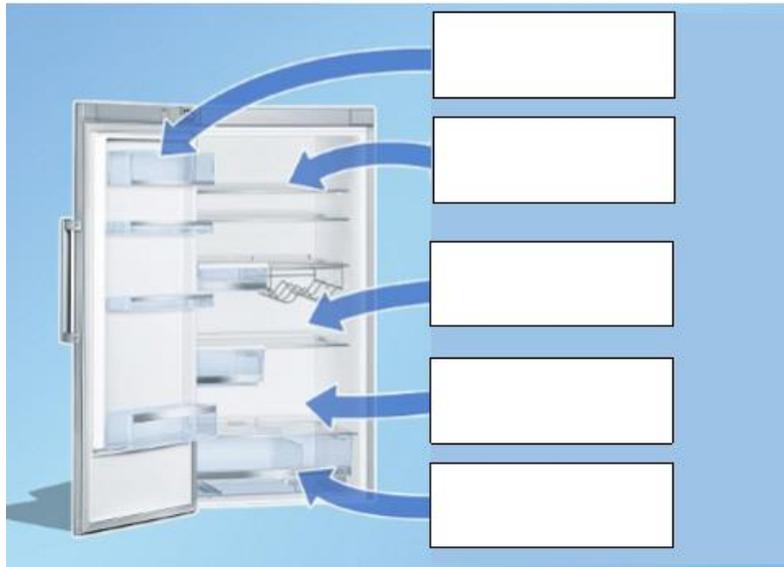
### **Refrigeration**

When refrigerating foods, it is vital that food is stored correctly and at the correct temperature. In a working kitchen staff will do daily checks of both fridges and freezers to ensure the risk level is controlled. Below are some more things to consider when refrigerating foods:

- If possible, store raw foods separately
- Store raw meat and poultry below other foods
- Allow for air circulation
- Keep the door closed
- Do not put hot food in the refrigerator
- Food must be examined regularly for signs of spoilage

### Task 2

Evaluate the storage inside your fridge at home and suggest improvements to reduce the risk of cross contamination. Can you explain why? Also think about why it is important not to put hot food in a refrigerator – what hazards would it cause?



**Think harder challenge:**

In a busy kitchen it isn't uncommon for food to be resealed and stored similarly to the way you would at home. Consider the following questions:

- 1) What methods of storage would ensure that fridges do not become contaminated with high risk foods?
- 2) How can staff in a kitchen identify when an ingredient has been stored, and for how long, until it needs throwing away. For example, grated cheese.

## **Food Hygiene**

Food hygiene refers to all measures necessary to ensure the safety of food.

### **Why is personal hygiene important?**

- Food handlers touch and handle most foods many times a day
- People are sources of contamination
- Infected food handlers are dangerous
- Customers like to see hygienic staff

### **Hygiene food handling**

- Avoid direct contact with food
- Avoid cross-contamination
- Wash hands regularly
- Ensure aprons are clean
- Do not cough, sneeze or use tissues near food
- Taste food hygienically.

### **Why do we need to clean equipment?**

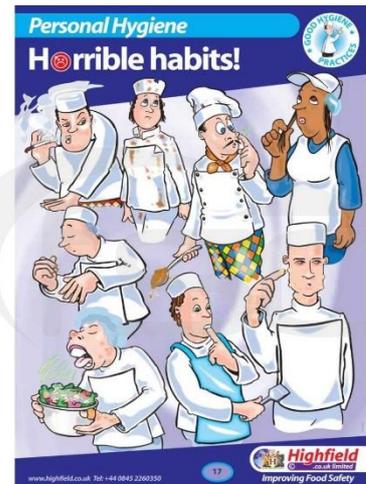
Mainly, we need it to remove harmful contamination, including bacteria, physical contamination and waste food.

### **Cleaning**

Cleaning removes dirt, grease, food and soil, but it does not destroy bacteria fully. It requires: heat/hot water, physical effort (with a brush, cloth or scourer) and detergent.

### **Temperature control**

- Applies to high risk foods
- Cold foods – below 5°C
- Hot foods – above 63°C



### Task 3

Using your knowledge of food safety and poisoning, as well as the clues provided below, can you solve the mystery of what caused the food poisoning outbreak in Lanarkshire, Scotland?

|  |  |
|--|--|
| 20 people died. 16 children were ill. Lots of pensioners got the illness.  | The 18 <sup>th</sup> birthday party made cheesecakes the night before. They were stored in a fridge.   |
| A recent survey by the Scottish Food Co-ordinating Committee, an advisory body on food safety, found that 95 per cent of outlets were failing to comply with food safety regulations.  | Around 200 people were officially confirmed ill, but there were between 1,500 and 2,000 who went through the clinic set up at the time. Some were fine, some were very ill.  |
| The Macfarlane family threw an 18 <sup>th</sup> birthday party for 106 guests at Wishaw's Cascade Bar. At the party, guests ate 300 slices of roast turkey, baked ham and cooked meat. They ate cheesecakes. Shortly after, a Lanarkshire doctor telephoned Mr Scott to tell him that some of the guests had fallen ill. | 20 people died from this food poisoning bug. Others died with diarrhoea, nausea and abdominal pain.<br>In November 1996, a group of pensioners gathered for lunch at the local church hall. They sat down to stewed steak and puff pastry with various desserts. Within two weeks, six were dead.  |
| The pensioners had members bring in various desserts to eat at the party.  | An elderly man who now lives with a colostomy bag; a young, once super-fit guy – football training five nights a week – who said he barely has the energy to walk to his lawyer's office; a middle-aged woman, Mary Cairns, who said her life had been ruined.<br>Both parties brought their soft drinks from Tesco and both parties brought their meat from J. M. Barr, the butcher in the village. |
| Clostridium is found in meat, meat products and gravy. Affects all ages, especially the elderly and infants. Symptoms include diarrhoea and abdominal pain. Onset tends to occur within 8-22 hours. Duration of illness lasts 12-24 hours  | E-coli found in – sewage, soft cheese, minced beef and chicken. Particularly affects infants, the elderly and people who have been to under-developed countries. Symptoms include diarrhoea, nausea and abdominal pain. Onset tends to occur within 12-24 hours. Duration of illness lasts 1.5 days.   |
| Mrs Cairns said she has been left partially disabled by the bug: "I do not think my health will ever be the same again. There's the physical pain and the memories of that terrible time." Both parties brought baked breads and cakes were brought from CS Holt the local baker.  | Staphylococcus found in meat, meat products, poultry and salad. Affects all age groups. Symptoms include diarrhoea, vomiting and abdominal pain. Onset occurs within 1-7 hours. Duration of illness lasts 6-24 hours.  |
|  | Campylobacter found in meat, poultry, raw milk, untreated water and chicken. Affects all ages. Symptoms include diarrhoea, flu, headache, fever and abdominal pain. Onset occurs within 2-5 days. Duration of illness lasts 7-10 days.   |
| Salmonella found in raw meat, poultry, eggs, milk. Particularly affects pregnant women, infants and the elderly. Symptoms include diarrhoea, vomiting, fever, headache and abdominal pain. Onset occurs within 6-48 hours. Duration of illness lasts 1-8 days.   | Listeria found in pasteurised and raw milk, cheese and soft ice cream. Particularly affects pregnant women, unborn babies and diabetics. Symptoms include diarrhoea, flu, vomiting and nausea. It can also cause abortion, still birth, meningitis and septicaemia. Onset occurs within 1-79 days. Duration of illness is unknown.   |



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