

# Screen 1



## Food preparation, cooking and service

### Screen description

This screen shows a kitchen scene with a number of hazards to food safety. As a starting point students are encouraged to look at the screen and suggest things that might be potential hazards.

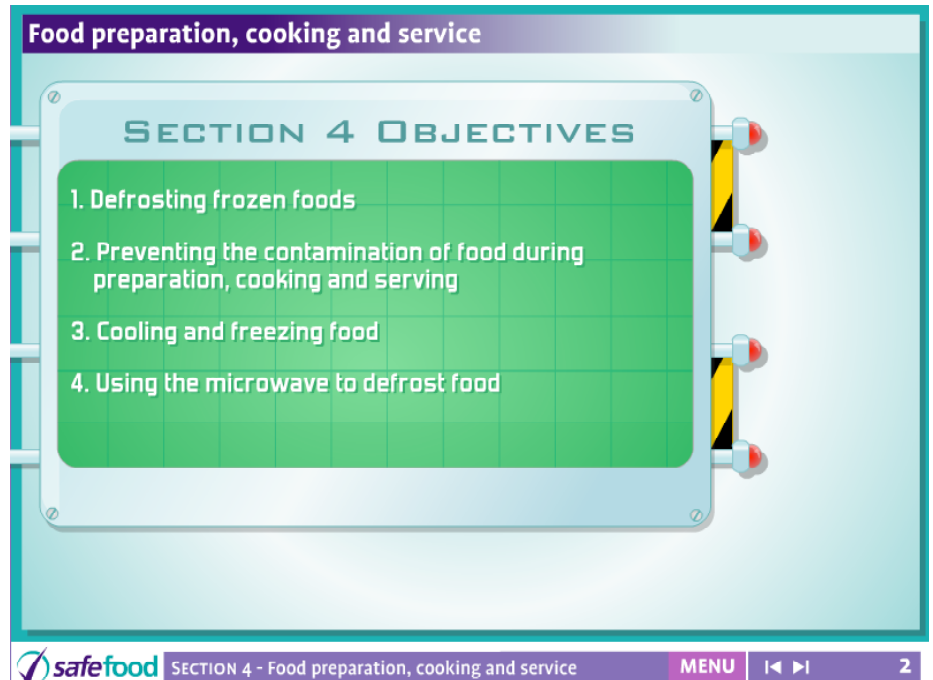
The National Standards Authority of Ireland (NSAI) "Hygiene in the Catering Sector" (Standard 340) will be referred to in this session as it is of vital importance to the catering industry today.

### Teacher

#### Hazards include

1. Preparing food that isn't properly defrosted
2. Raw food being prepared beside other food: cross-contamination risk
3. Open window cooling food - no screen
4. Equipment and food being washed together in the sink
5. Food worker smoking over the food
6. Oven door not closed properly

# Screen 2



## Objectives

### Screen description

**This screen lists the objectives of the chapter:**

1. How to defrost frozen foods
2. How to prevent contamination of food during preparation
3. How to cool and freeze food
4. How to use a microwave to defrost food

### Teacher

Outline the objectives of Session 1.

The importance of good, clean, well-maintained dry goods stores, refrigerator and freezer facilities has been explained. When food leaves these stores the next stage is the preparation, cooking and service of this food. The obvious 'risk' to food during these stages is the possible contamination of the food with food poisoning bacteria or the survival and growth of some harmful bacteria.

Food poisoning outbreaks often result from mistakes being made at the preparation, cooking and serving stage.

# Screen 3



## Defrosting frozen food

### Screen description

This screen shows the three main ways to defrost different kinds of frozen food.

### Teacher - Ask the students:

How do you defrost food at home?

What other methods of defrosting are there?

Which method is the safest?

### 1. Defrosting in the cooking process

This is normally undertaken only with small food items, e.g. frozen chips/vegetables or other foods where manufacturers recommend cooking from frozen.

### 2. Defrosting in the refrigerator

This is the preferred and safest method of defrosting food as it keeps food out of the temperature 'Danger Zone'. It is important to remove wrappers from food and giblets from poultry before placing in the refrigerator. When defrosting meat, fish or poultry in the refrigerator, the items must be placed on the bottom shelf on a covered plate.

### Interactive exercise:

#### Ask: Why the bottom shelf?

Raw meat should be stored at the bottom of the refrigerator for two reasons:

- In some refrigerators, i.e. those without a fan, it is the coldest part of the refrigerator as cold air sinks and hot air rises.
- Should the meat juices drip from the container they will not fall on another food and contaminate it

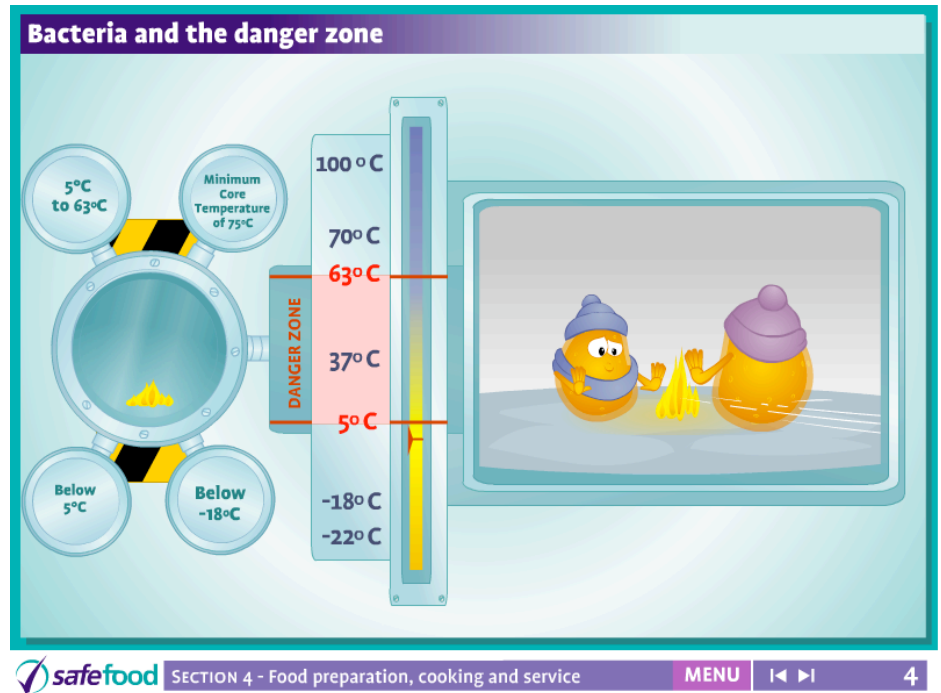
Ideally this should not happen as the container should be leak proof but as an added safety measure the bottom shelf should be used in case the container is not 100% leak proof.

### 3. Defrosting in a microwave

Always defrost food using the 'Defrost' programme only, and follow the manufacturer's instructions for defrost times.

To ensure that food has been properly defrosted, a probe thermometer should be used to check the core temperature of the food. The probe must be washed and disinfected immediately after use.

# Screen 4



## The danger zone

### Screen description

This screen shows how 4 different temperature ranges affect bacterial growth. It is a recap of the screen from Section 1 to remind students of the danger zone.

### Teacher

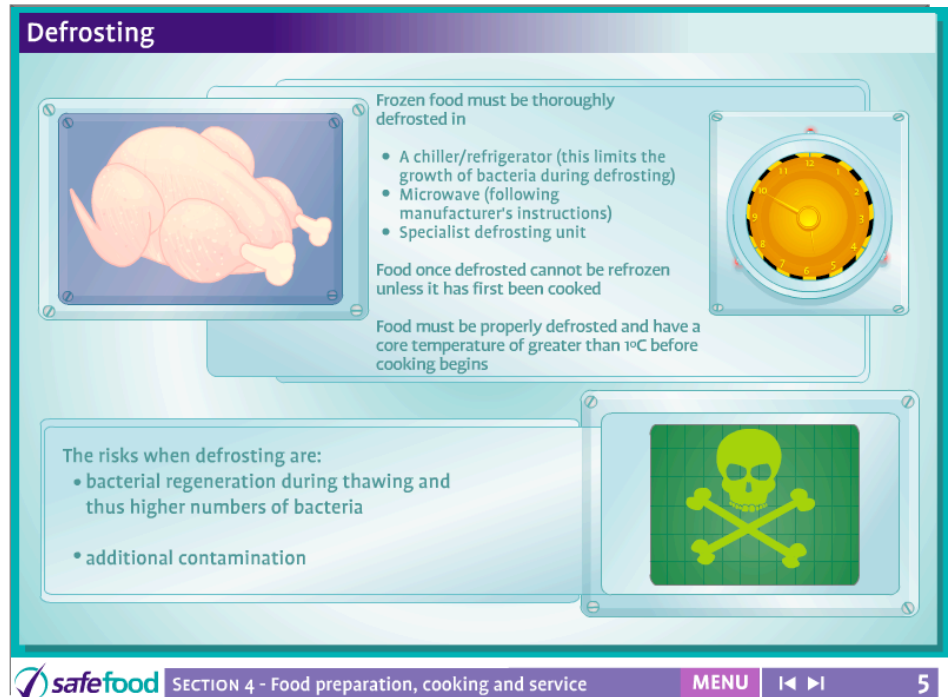
Click on the temperature buttons on the right to display the animations that show how the temperature affects bacterial growth.

Ask: What do you think are typical room temperatures for a kitchen?

Answer: Around 25°C or hotter in kitchens with hot oven and steaming pots.

How would this affect food left out of refrigerated storage?

# Screen 5



## Defrosting

### Screen description

Screen shows some important points about defrosting.

### Teacher

Discuss points with the students

Ask: What are the dangers of not properly and thoroughly defrosting food?

a) The risk of bacterial growth during thawing and producing higher numbers of bacteria in the food

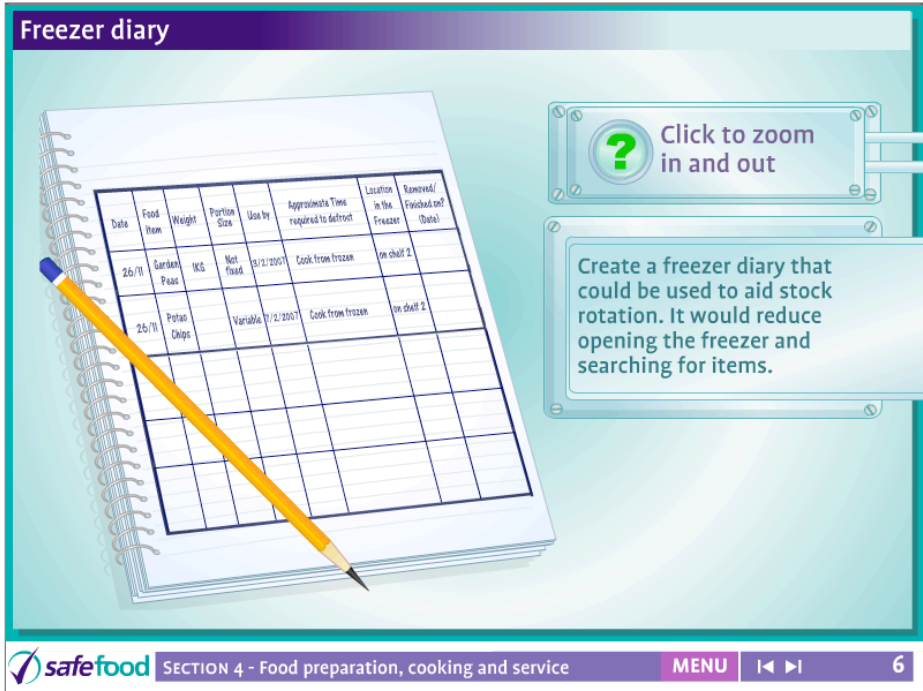
b) Incorrect practices like defrosting under a running tap, transfers bacteria around the kitchen by drops and splashes and leads to cross-contamination.

Food once defrosted cannot be refrozen unless it has first been cooked.

### Frozen food must be thoroughly defrosted in:

- A chiller/refrigerator (this limits the growth of bacteria during defrosting). This is important because otherwise the core temperature of 75°C may not be achieved.)
- Microwave (following manufacturer's instructions)
- Specialist defrosting unit

# Screen 6



## Exercise – freezer diary

## Screen description

This screen shows an example of a freezer diary which the students will create.

## Teacher

Create a freezer diary that could be used in a practical way to aid stock rotation and to cut down on the opening of the freezer to search for and locate food.

Visit a supermarket and fill in the freezer diary with examples of different foods that you could place in the freezer.



# Screen 7



## Preventing contamination and bacterial growth during food preparation

### Screen description

This screen shows ways of preventing cross-contamination and bacterial growth during food preparation.

### Teacher

Ask: How can you prevent cross-contamination?

Answer: Wear gloves and use kitchen utensils to lift or transfer food.

### To prevent contamination:

1. Use separate work areas, utensils and equipment
2. Wash foods (fruit, fish, vegetables) in designated sink in potable water
3. Minimise the handling of food

Separate work areas, utensils and equipment for raw and cooked food would in practice mean colour-coded knives, boards, clothes etc., and in larger kitchens separate work areas. Remember that all utensils and equipment must be clean and sanitised before beginning the process of food preparation. Clean as you go.

### Interactive exercise:

Ask: Why do we need to separate these areas or use different coloured equipment?

Answer: To prevent cross-contamination.

Examples of separate work areas required include:

- a) Raw vegetable preparation
- b) Raw meat preparation

- c) Dessert, pastry preparation
- d) Cooked food preparation
- e) Service
- f) Wash-up

**Class exercise:**

List examples of when food may be left in the danger zone and ways to prevent this.

**During deliveries**

Foods should be placed in chilled storage immediately upon delivery

**During storage**

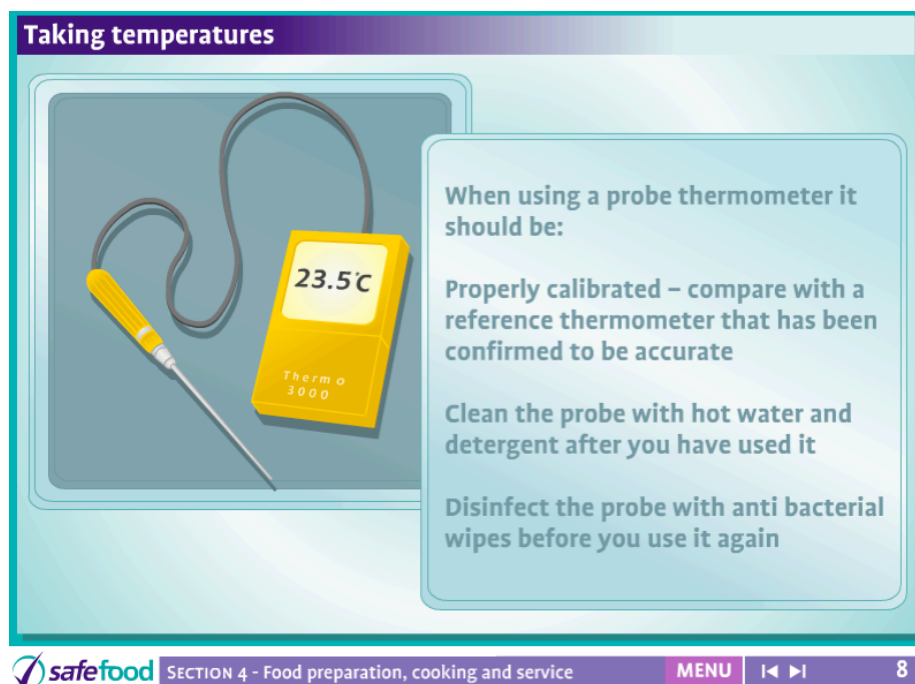
Correct temperature control and storage facility essential

**During final preparation**

Food should be removed from chilled storage immediately before use to minimize exposure to temperatures in the danger zone



# 8 Screen



## Taking Temperatures

### Screen Description

The screen shows a probe thermometer and illustrates some points on taking temperatures.

### Teacher

Explain the procedure for taking temperatures in different situations.

### Taking Temperatures

Measuring devices should be used to take temperatures – hard probe thermometer or infra red probe thermometer.

When using a probe thermometer it should be:

- Properly calibrated – compare with a reference thermometer that has been confirmed to be accurate
- Clean the probe with hot water and detergent after you use it and disinfect it with anti-bacterial wipes before you use it again.

Fridge temperatures should be recorded daily. Remember it is the temperature of the food that is important. If you take the air temperature you may not get an accurate picture. It is good practice to use a substitute product if probing refrigerator contents to monitor cold temperatures.

When taking the temperature of cooked food it is important to take a core temperature (the temperature at the thickest part of the food).

# Screen 9



## Preventing contamination and bacterial growth during cooking

### Screen description

This is an interactive screen for the teacher to display suggested answers.

### Teacher

Use the panel on the left to type in the students' suggestions. When you're ready click the 'reveal' button to see the definitive list of answers.

Ask: Why is it advisable to keep joints of meat below 2.5kg in weight?

Answer: Large joints would take much longer to cool. This would result in the meat being exposed to temperatures in the danger zone for extended time periods and could lead to microbial growth.

Ask the students what they generally see chefs using on TV when tasting food.

### When cooking:

1. Preheat ovens to the required temperature.
2. Keep joints to 2.5 kg if possible.
3. It is recommended not to stuff poultry.
4. Cook to a minimum core temperature of 75°C - NSAI "Hygiene in the Catering Sector" standard 340

Food must be properly defrosted before cooking begins. This is important because otherwise the minimum core temperature of 75°C may not be achieved. If the centre of the food remains in the danger zone it will allow any bacteria present to multiply and possibly cause food poisoning.

Ovens must be preheated to the required temperature before the foodstuff is placed into the oven. A probe thermometer should be used

to check the temperature of the cooked food at the thickest point. At a minimum core temperature of 75°C a high level of bacteria kill will be achieved.

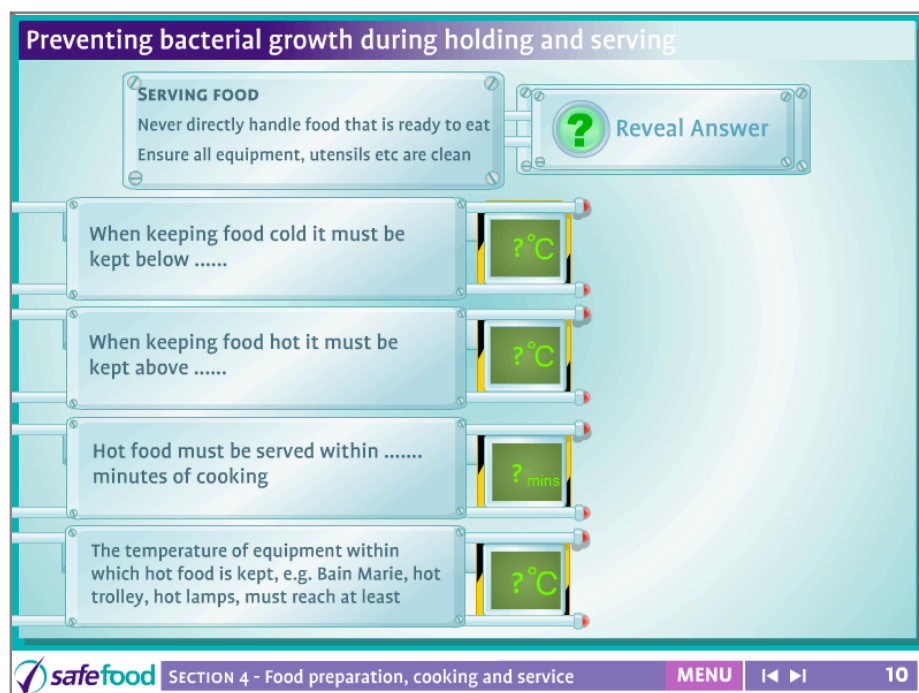
You can eat beef steaks or whole joints of beef or lamb 'pink' or 'rare' in the middle because harmful bacteria can be on the outside but not in the middle. So long as the outside of the meat is cooked, any harmful bacteria should be killed.

You should always make sure that poultry, pork, rolled joints or any meat that has been minced or skewered (such as burgers, sausage and kebabs) are cooked until they are piping hot all the way through with no pink meat left and juices run clear. This is because these types of meat can contain harmful bacteria throughout, so they must be cooked thoroughly to make them safe to eat.

## **Tasting**

Apart from temperature control and proper cooking, another risk is the tasting of foods, such as stews, sauces and soups. There is also a risk of contamination from the bacteria in your mouth, so tasting must be done with a clean spoon and washed each time after tasting.

# Screen 10



## Preventing bacterial growth during holding & serving

### Screen description

This screen shows the points without revealing the full answer until the teacher wants to.

### Teacher

Ask the students to suggest the answers to each of the sentences. When you're ready to move on click the 'reveal answer' button for the definitive answer.

### Food service

'Keep hot food hot and cold food cold or don't keep it at all'

Ideally all food should be served immediately after cooking.

The NSAI "Hygiene in the Catering Sector" standard 340 requires:

When keeping food hot, it must be kept at temperatures above 63°C.

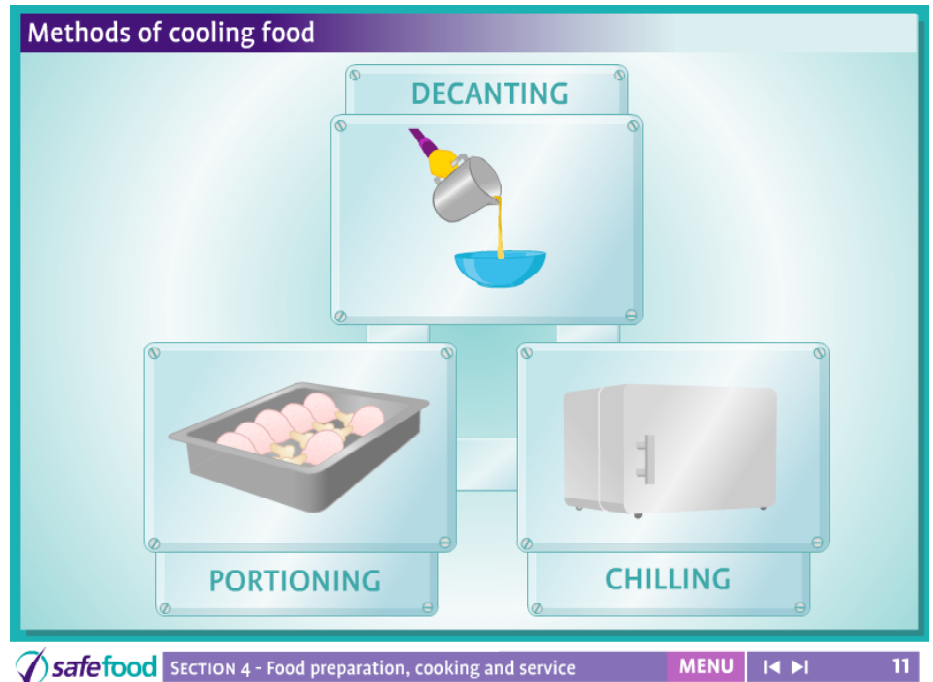
When keeping food cold, it must be kept at temperatures below 5°C.

### Serving hot food

Cooked food which is to be served hot, unless it is cooled and reheated, should be cooked on the day of serving. The food must be served within 90 minutes of cooking and maintained above 63°C.

Don't rely on the temperature gauge of your equipment. The food must be at or above 63°C. To check this use a digital probe thermometer.

# Screen 11



## Methods of cooling food

### Screen description

The screen displays the various methods of cooling food.

### Teacher

**Ask:** What are the dangers of cooling food in a warm kitchen?

**Answer:** If food is cooling slowly in a warm kitchen then it is actually sitting in the danger zone in relation to the surrounding temperatures. This means that any bacteria that were not destroyed during cooking or any bacteria that have subsequently contaminated the food after cooking will actually begin to multiply. The solution is to have good ventilation to keep the kitchen cool and to cool the food as quickly as possible.

Food must be cooled as quickly as possible and refrigerated.

Cooling can be achieved:

1. In a blast chiller

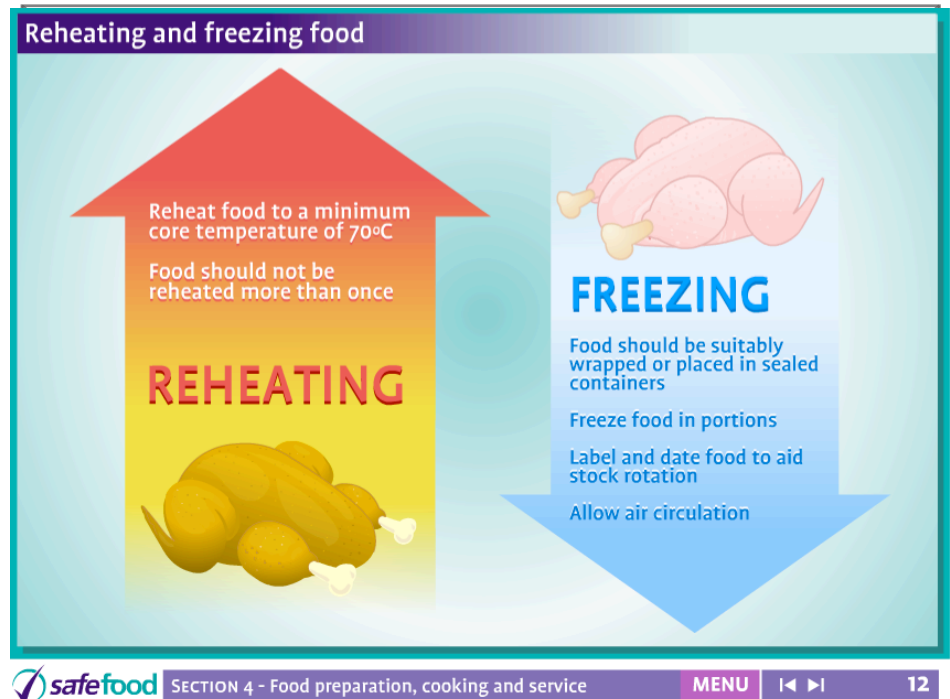
2. By portioning/slicing food and placing it in cold clean shallow trays
3. By decanting sauces, soups, stews into cold clean shallow trays

Smaller portions of food will cool more quickly.

These trays can be placed on ice or in a suitable cooler area off the kitchen, properly protected from any possible contamination, until the food has lowered to a temperature suitable for refrigeration.

Do not put hot food in a fridge – it will affect the temperature of all the other foods in the fridge.

# Screen 12



## Reheating and freezing food

### Screen description

This screen shows the safe way to reheat and freeze food.

### Teacher

Explain points on screen.

### Reheating food

The temperature of the food should be checked using a digital probe thermometer.

The NSAI “Hygiene in the Catering Sector” standard 340 requires:

When reheating the food, a core temperature of 70°C must be reached to ensure the safety of the food.

### Freezing food

- Freezing is effective in preventing bacterial growth and allows food to be stored for a long period of time. Remember, freezing does not kill bacteria.

### When freezing:

- Food should be suitably wrapped or placed in

sealed containers to prevent cross-contamination and freezer burn

- Freeze food in portions
- Label and date food prior to placing in freezer (this helps stock rotation)

### Interactive exercise

For a practical reason it is important to freeze food in portions.

### Why?

Because it means you can defrost the exact amount you need to use. It is also easier to defrost quantities that are portion size rather than full batches.

Ask the students to give examples of foods that can be portioned before freezing.

Examples could include freezing a few slices of bread rather than a full loaf.

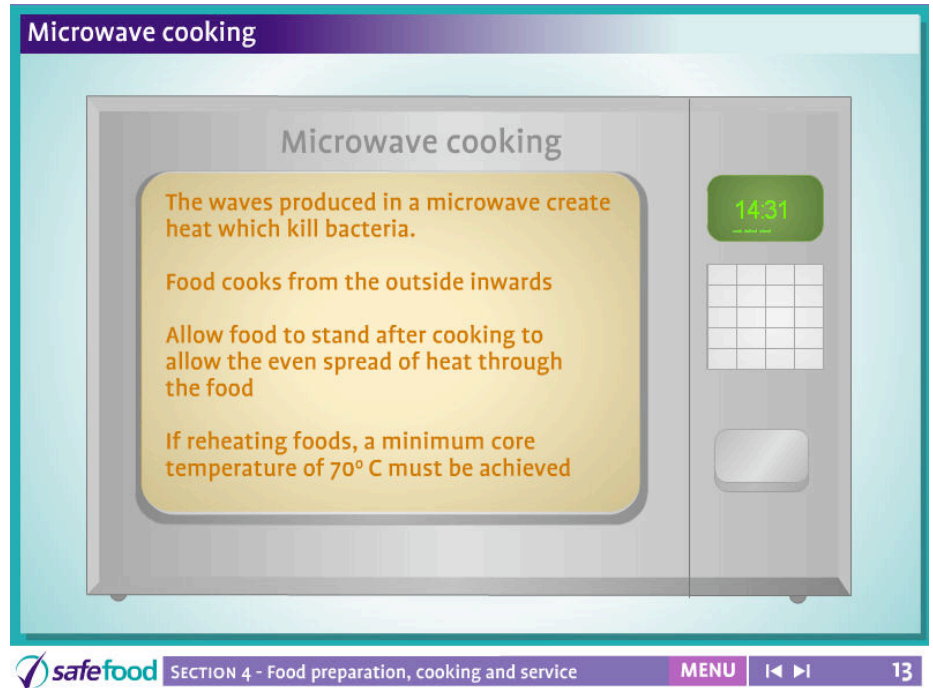
### Why would you do this?

For those living on their own the food might spoil before they have a chance to eat it all.

The students should suggest different members of the community that might need to do this, such as the elderly, students and those with diet-related disorders who might have special foods for themselves.



# Screen 13



## Microwave cooking

### Screen description

This screen shows points about microwave cooking.

### Teacher

Ask the students if they have a microwave at home and what they use it for.

The most common use of microwaves is for the purpose of reheating pre-cooked meals. Always remember that a core temperature of 70°C must be achieved if food is to be reheated properly.

The waves produced in a microwave create heat which kills bacteria.

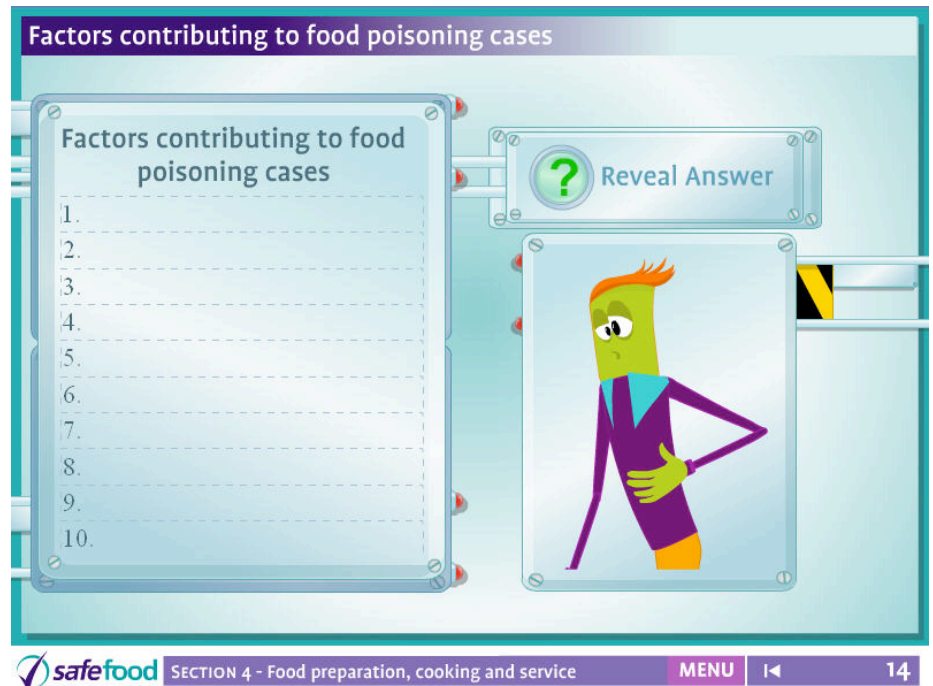
Food cooks from the outside inwards.

Allow food to stand after cooking to allow the even spread of heat through the food.

If reheating foods, a minimum core temperature of 70°C must be achieved.

When using a microwave oven you must follow the manufacturer's instructions concerning cooking and standing times. Standing time is very important as it allows the heat created to penetrate throughout the food.

# Screen 14



## Factors contributing to food poisoning

### Screen description

This is an interactive screen that allows the teacher to post up suggestions before the answers are revealed.

### Teacher

Ask the students to categorise the ten points into three areas:

The main causes of food poisoning during preparation, cooking, storage.

This will make the students focus on the points and look at them carefully.

1. Food prepared too far in advance
2. Cooling food too slowly prior to refrigeration
3. Not reheating food to high enough temperatures to destroy food poisoning bacteria
4. The use of cooked food contaminated with food poisoning bacteria

5. Undercooking
6. Not thawing frozen poultry for sufficient time
7. Cross-contamination from raw food to cooked food
8. Storing hot food below 63°C
9. Infected food handlers
10. Use of leftovers