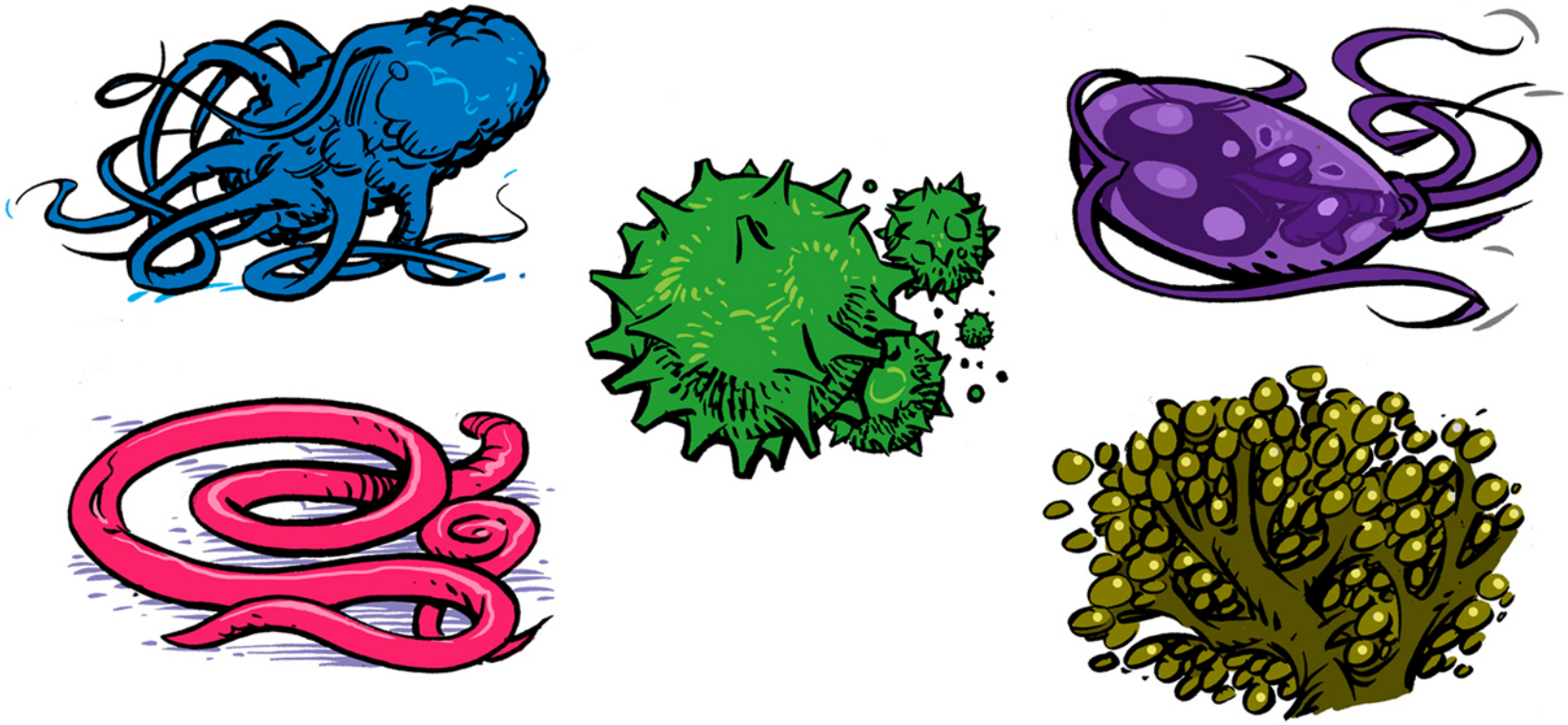
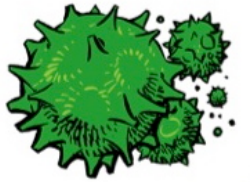
Unit 2
Microbes & Foodborne Illness



Microbes and Foodborne Illness Part 1

Bacteria



Viruses

Parasites

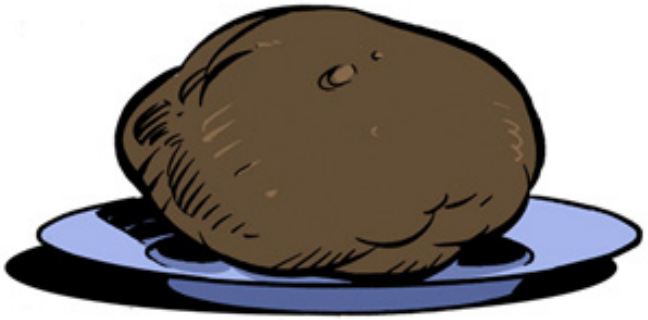
Protozoa

Fungi

Spores & Toxins

RAW POTATO

Contains active *Clostridium botulinum* spores

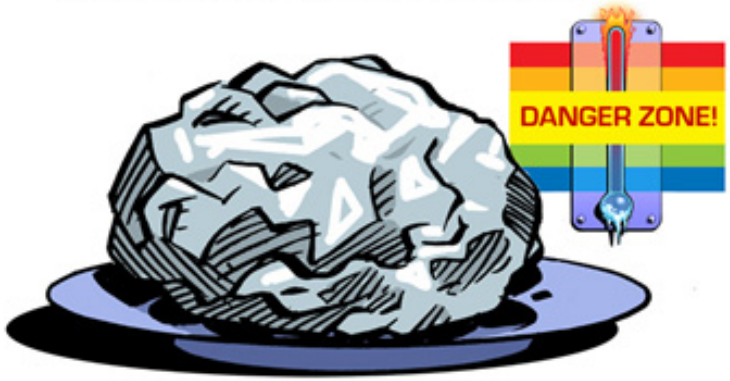


POTATO IN AIR TIGHT FOIL PROPERLY BAKED

Clostridium botulinum spores survive

WRAPPED BAKED POTATO LEFT IN THE DANGER ZONE FOR 4 HOURS

Spores germinate, grow and produce toxins



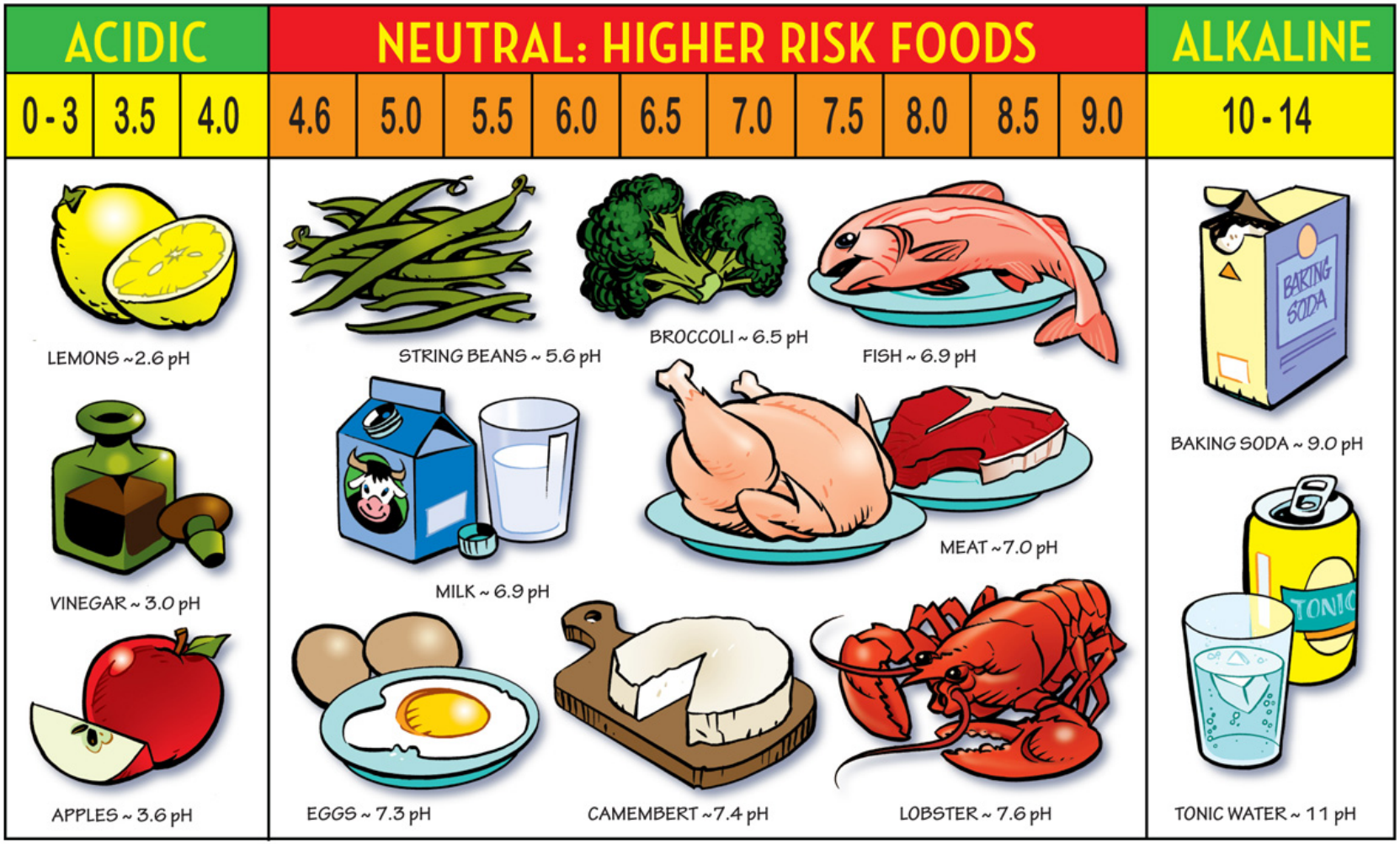
BAKED POTATO EATEN

Toxins cause botulism

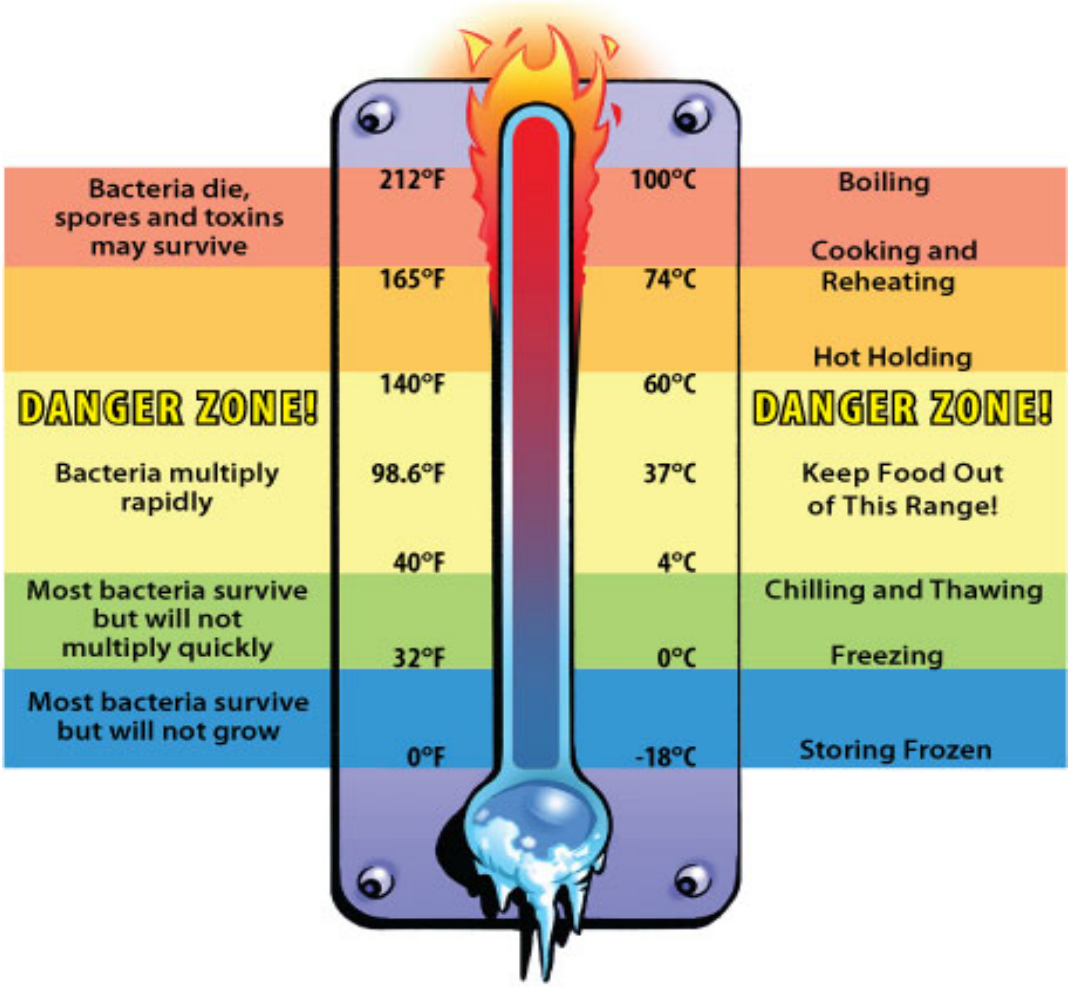
FATTOM

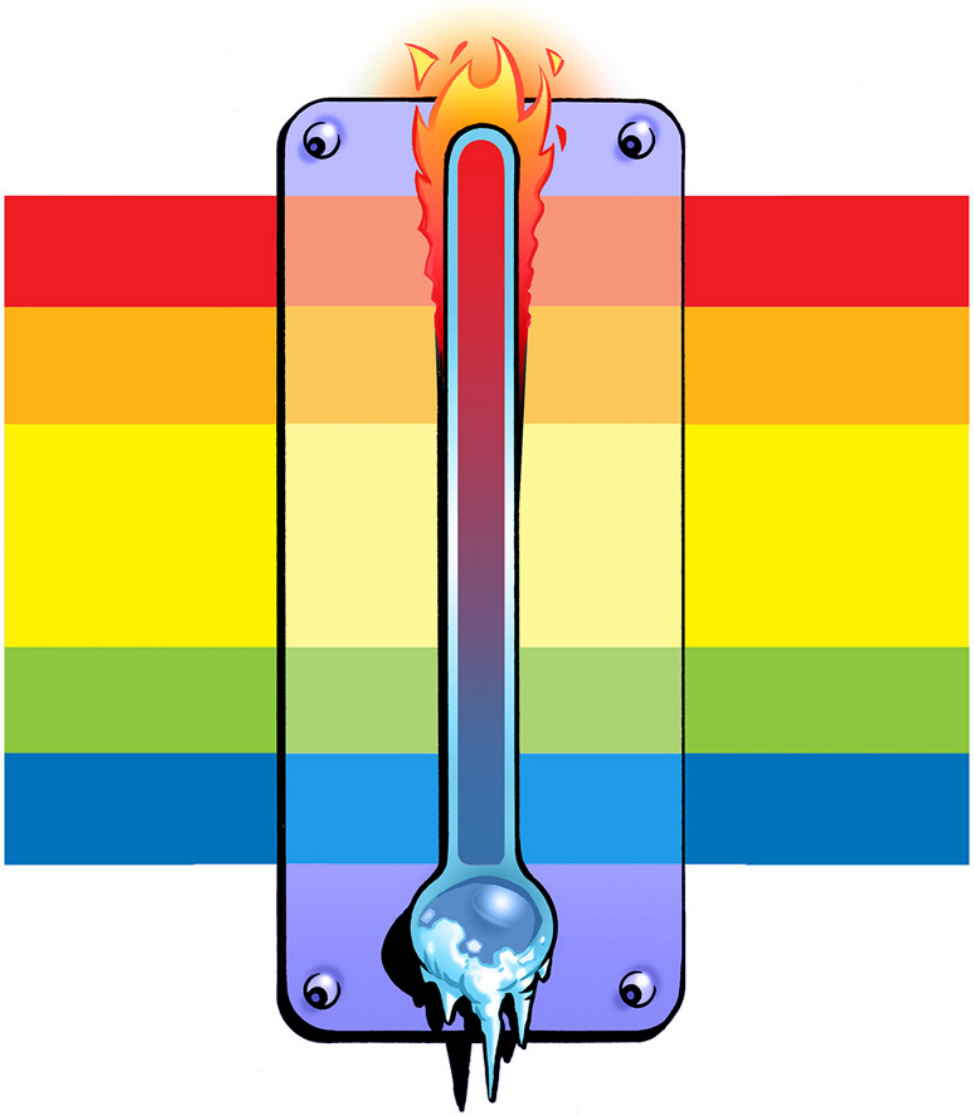
Food

Acid


ACIDIC
NEUTRAL: HIGHER RISK FOODS
ALKALINE
0 - 3
3.5
4.0
4.6
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
10 - 14
LEMONS ~2.6 pH
STRING BEANS ~ 5.6 pH
BROCCOLI ~ 6.5 pH
FISH ~ 6.9 pH
BAKING SODA
BAKING SODA ~ 9.0 pH
VINEGAR ~ 3.0 pH
MILK ~ 6.9 pH
MEAT ~7.0 pH
TONIC
APPLES ~ 3.6 pH
EGGS ~ 7.3 pH
CAMEMBERT ~7.4 pH
LOBSTER ~ 7.6 pH
TONIC WATER ~ 11 pH

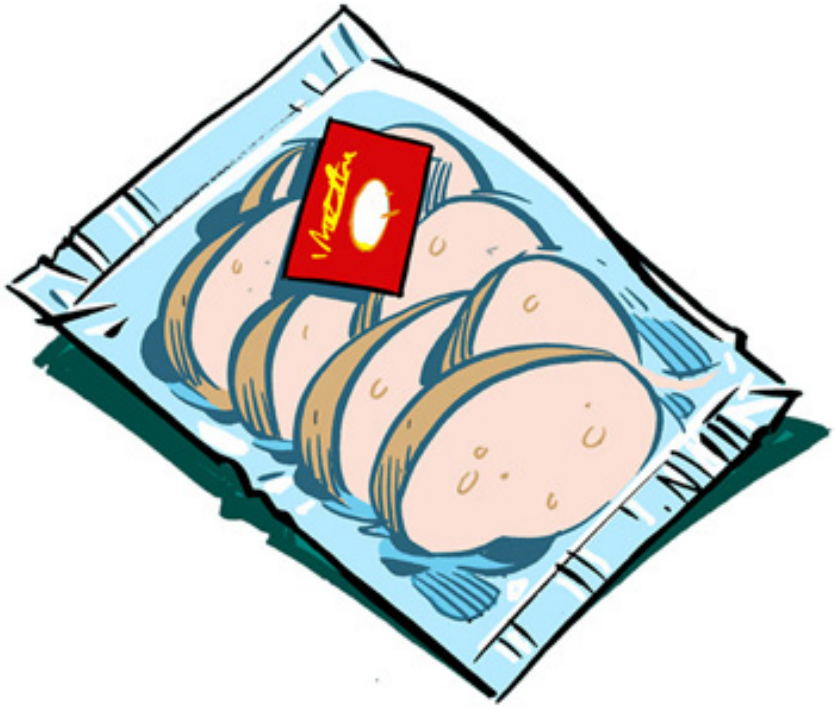
Temperature





Time

Oxygen



Moisture


LOWER Aw FOODS 0.00 - 0.85 = LOWER RISK!


HIGHER Aw FOODS 0.86 - 1.00 = HIGHER RISK!
OJ
CONCENTRATE
TOFU

Which is Potentially Hazardous?

Why?

Which is Potentially Hazardous?

Why?

CYCLE OF TRANSMISSION OF CONTAMINANTS

FOOD HANDLER

THE VICIOUS CIRCLE

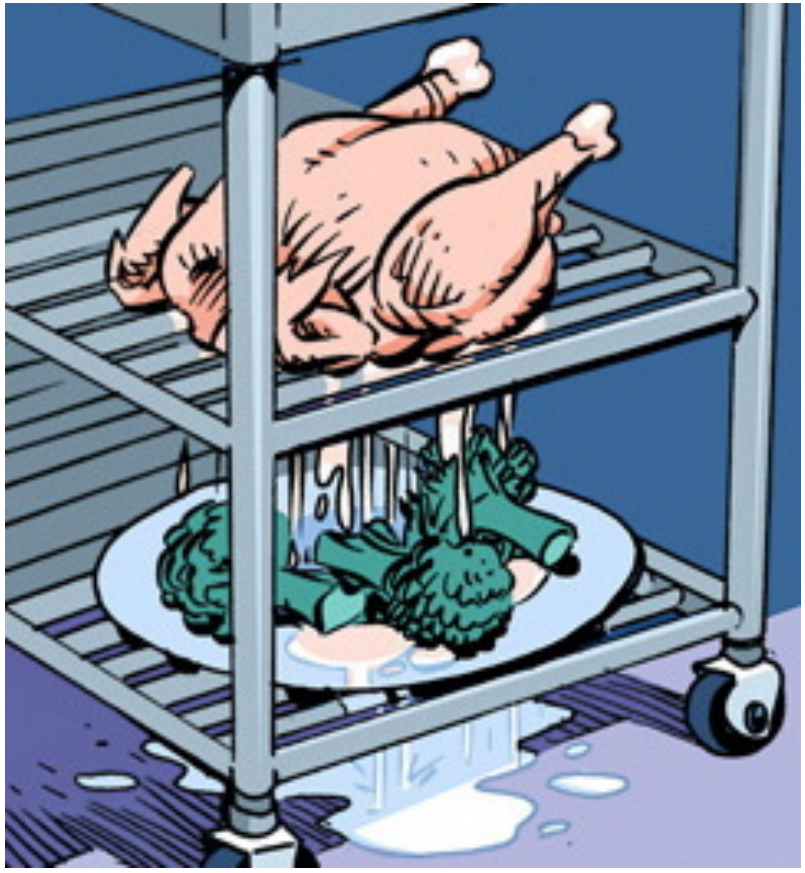
ENVIRONMENT

FOOD

Microbes and Foodborne Illness Part 2

Direct Transmission

Pathogens transfer directly from the source of contamination to food



Cross-Contamination

(indirect transmission)

when there is an intermediate step between the source and the food

Unit 2 Review

1. Microbes that can cause illness or death are called:
    a) toxins
    b) yeasts
    c) pathogens

2. The DANGER ZONE temperature range where bacteria can multiply rapidly is:

a) 0°C (32°F) to 4°C (40°F)

b) 4°C (40°F) to 60°C (140°F)

c) 60°C (140°F) to 74°C (165°F)

3. Raw hamburger that contains *E.coli* has been prepared on a cutting board. The same board is then used, without sanitizing, to slice tomatoes for the hamburgers and the *E.coli* is transferred to the tomatoes. This is an example of:

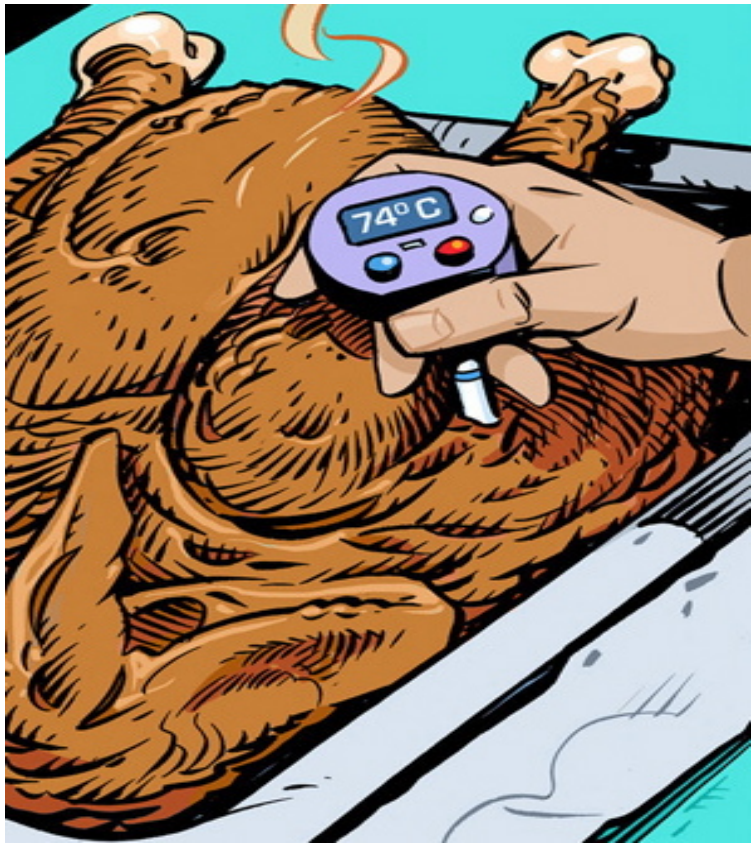
   a) direct transmission
   b) cross-contamination
   c) spore production

4. A bacterium with a protective coating that can survive high temperatures, cold and chemicals is called a:

   a) spore
   b) virus
   c) fungi

5. Foods that contain toxins:
   a) are usually discoloured and have an unpleasant odor
   b) grow a yellowish fuzz that must be removed before eating
   c) may not look, smell or taste different from uncontaminated food

Unit 3
Food Safety Plans & HACCP



A Food Safety Plan identifies:

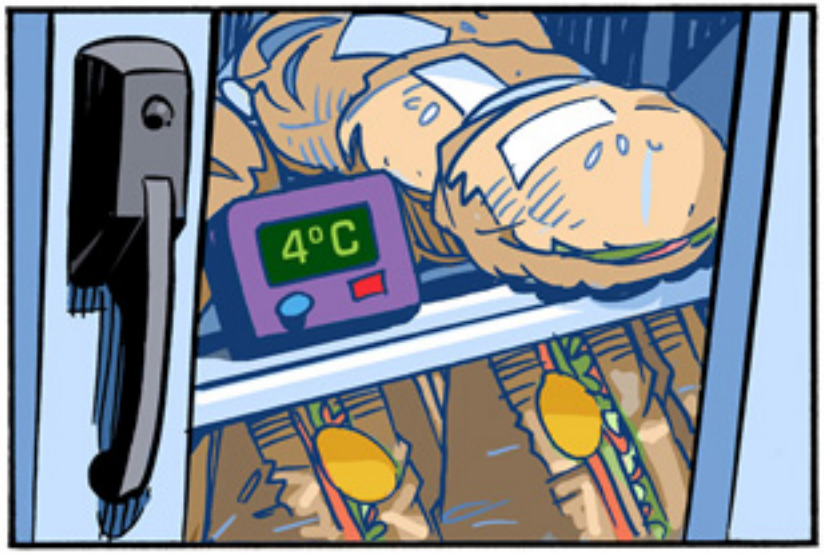
HAZARDS

A Food Safety Plan identifies:

CRITICAL CONTROL POINTS

A Food Safety Plan identifies:

CRITICAL LIMITS



A Food Safety Plan identifies:

MONITORING ACTIONS

A Food Safety Plan identifies:

CORRECTIVE ACTIONS

Unit 3 Review

1. One step in a Food Safety Plan is:
    a) monitoring critical limits
    b) following procedures for chemical storage
    c) preparing a cleaning schedule for staff

2. Food handlers should follow Food Safety Plans to ensure:
    a) food contact surfaces are sanitary
    b) recipes are followed precisely
    c) food safety hazards are minimized

3. A Critical Control Point is:

a) the point after which no further action can be taken to eliminate a hazard

b) a procedure that should be followed when critical limits are not met

c) a biological, physical or chemical hazard that may contaminate food

4. A Corrective Action in a Food Safety Plan is:

a) a biological, physical or chemical hazard that may contaminate food

b) a procedure that should be followed when critical limits are not met

c) the specific and measurable limit for critical control point

5. Pre-made sandwiches are displayed in a self-serve cooler. The temperature of the cooler was 3°C at 11:00 am. You checked the cooler again at 12:00 noon and found the temperature had risen to 6°C. What corrective action should you take?

   a) transfer the sandwiches to a working cooler that is below 4°C
   b) immediately discard the sandwiches
   c) adjust the temperature gauge on the cooler