

Ministry of Education
Curriculum Planning & Development Division

Primary Agricultural Science

Std. 4

**What is
Agro-Processing?**



Objectives

Primary Agricultural Science Syllabus for Standard 4 - 3.1.1

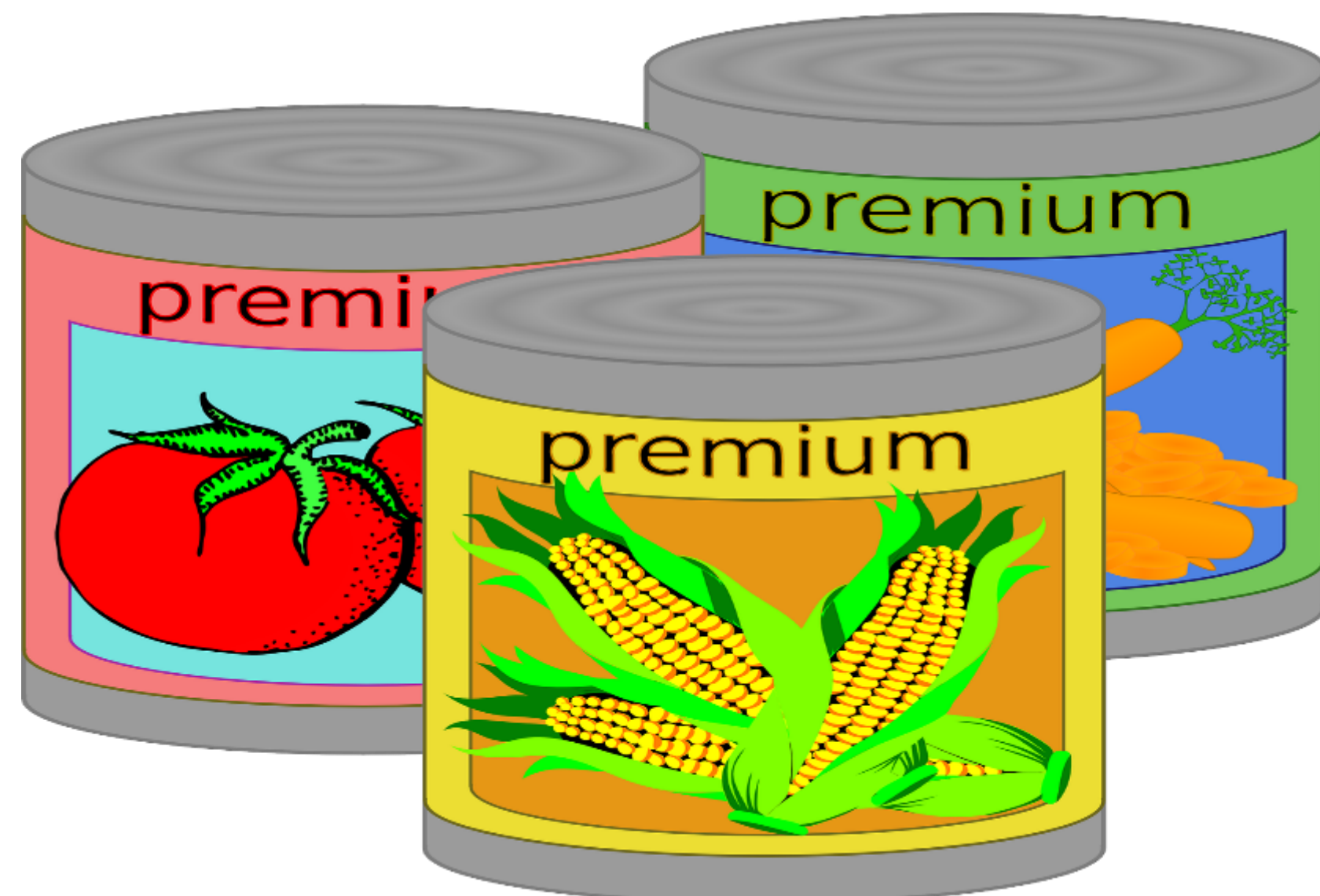
At the end of this lesson students will be able to:

- Understand the use of agro-processing methods to extend the shelf life of agricultural produce



What is Agro-processing?

- Agro-processing is the science of preserving agricultural produce (e.g. food)
- If fresh agricultural produce e.g. meat, milk, vegetables and fruits is not preserved it can spoil within a few days
- Preserving food prevents it from spoiling
- Different methods can be used to preserve food



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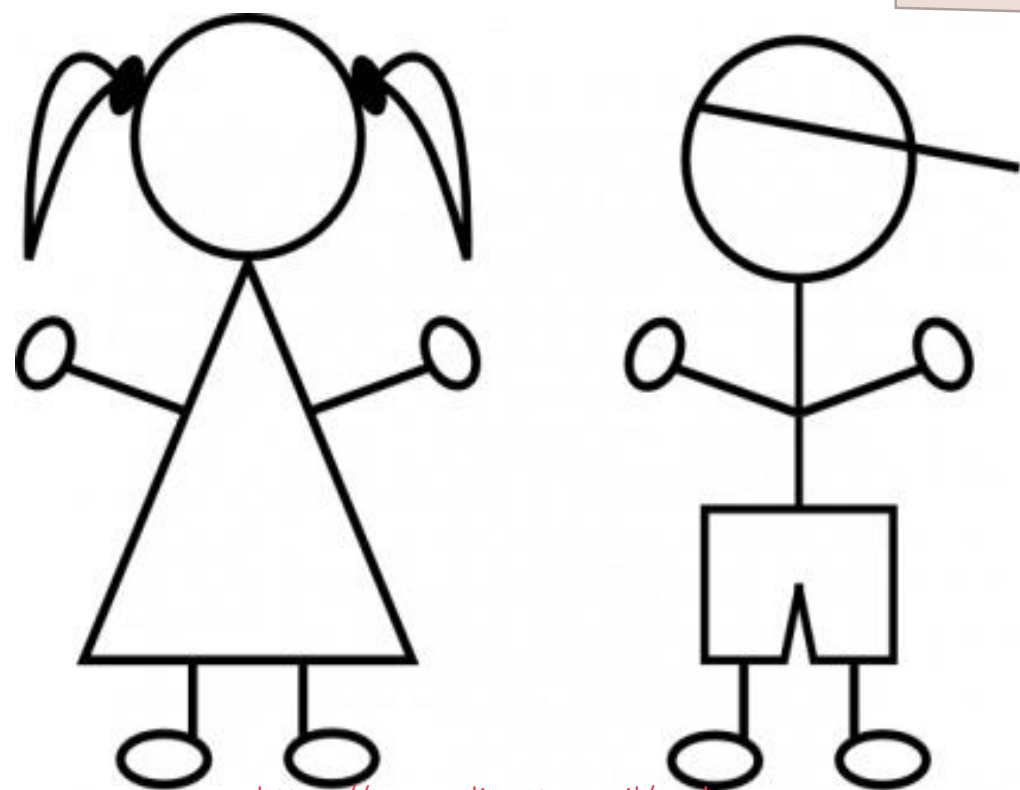
What causes food to spoil?

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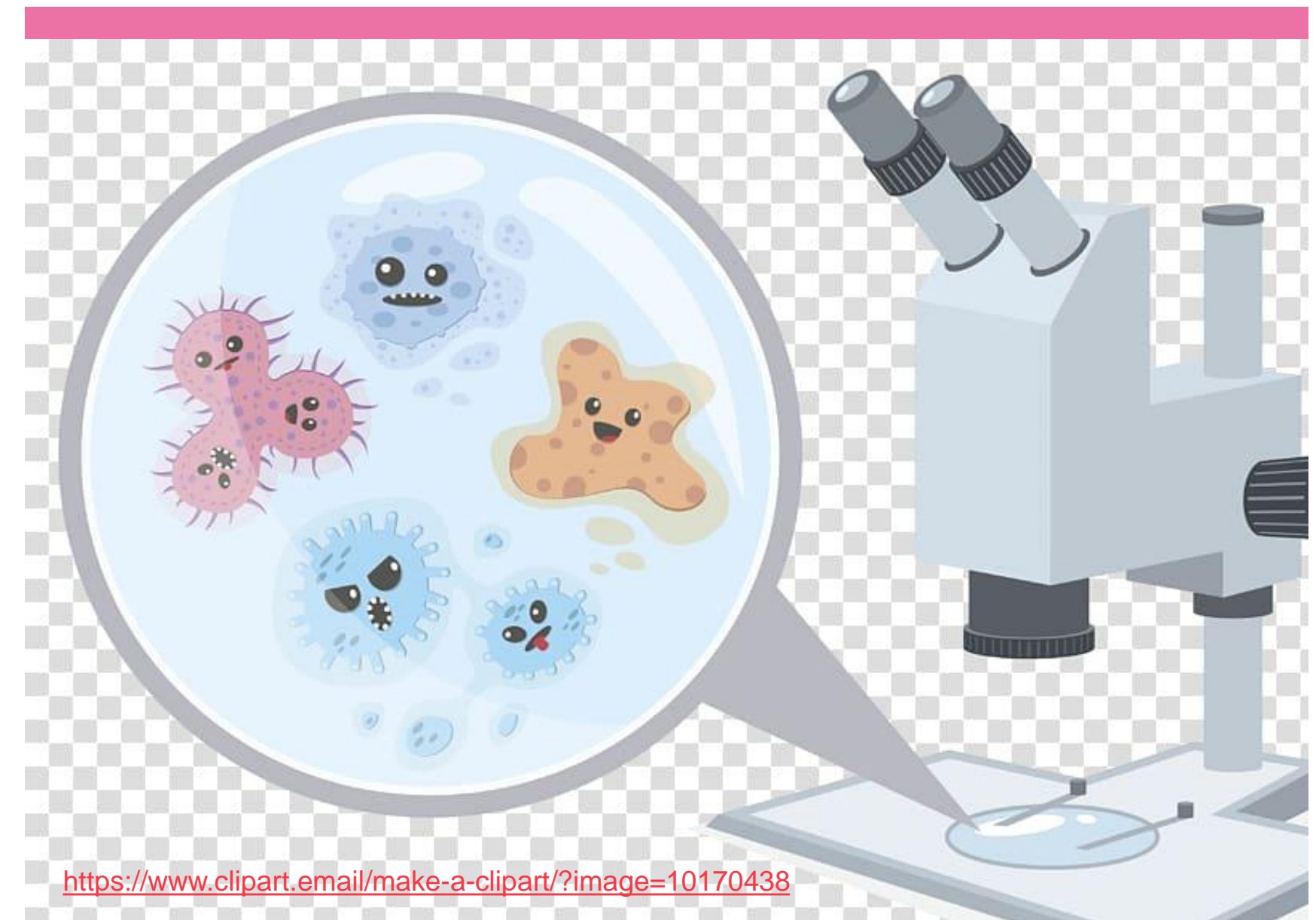
- Germs or **microorganisms** can cause food to spoil.
- Once germs get in contact with food it can spoil. This is called **contamination**
- Microorganisms are very tiny and can only be seen using a **microscope**

What are microorganisms?

Germs like bacteria and fungus. They are very tiny and you cannot see them with your eyes. You need a microscope to see them



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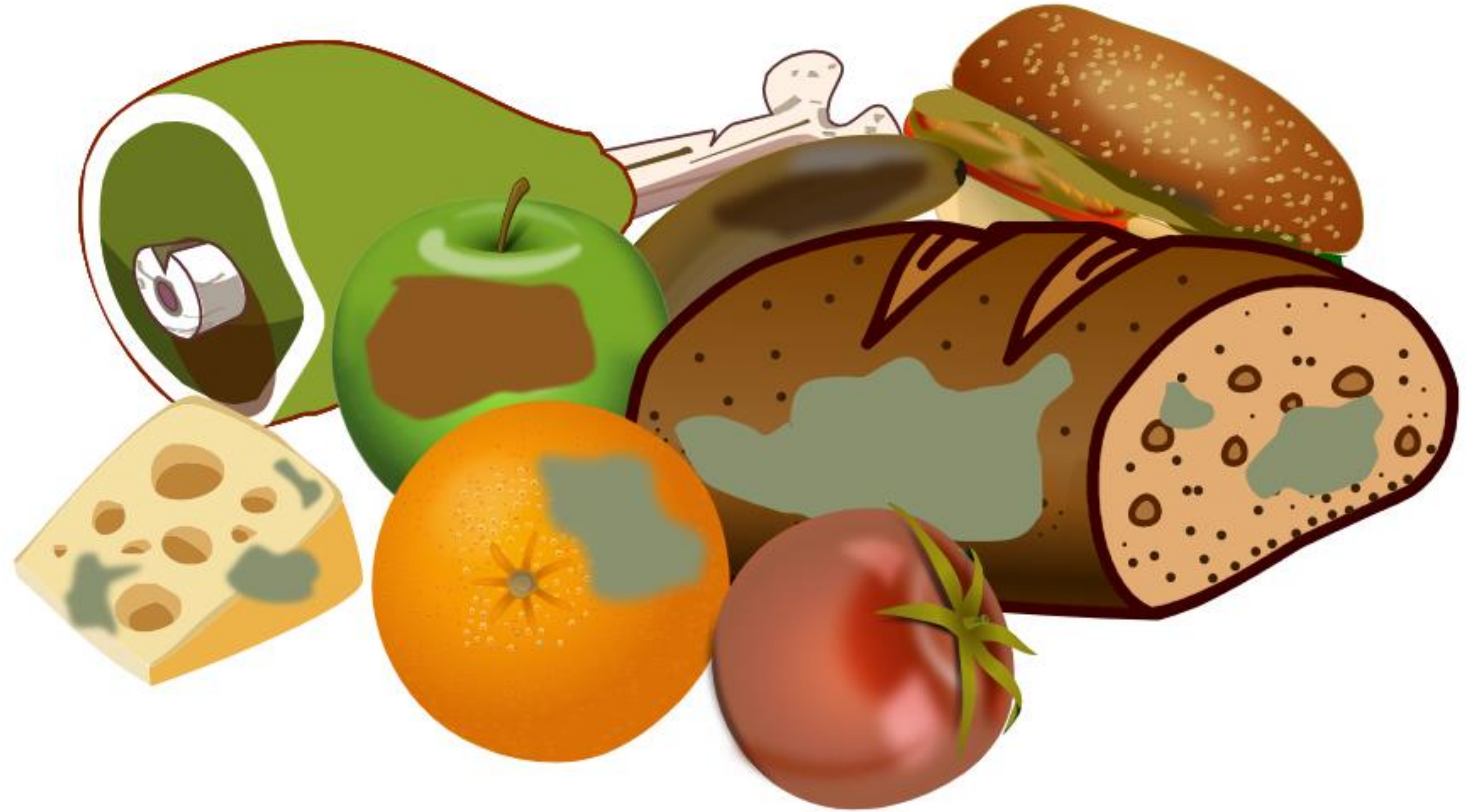


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Microorganisms are very tiny and can be only seen using a microscope

What happens to food when it spoils?

- Spoiling food will lose its colour, flavor, smell, texture and nutrients
- If people eat spoilt (**contaminated**) food they can become very sick



How can food spoilage be prevented?

- Food spoilage can be prevented by killing the germs (**microorganisms**) that spoil food
- Our forefathers would **dry** agricultural produce e.g. rice, tamarind fruit, mango slices, etc. in the sun to prevent it from spoiling and make it last longer
- Some methods of agro-processing are:
 - Adding chemicals e.g. sugar, salt, vinegar
 - Canning
 - Drying
 - Heating
 - Refrigeration / Freezing



What are the benefits of agro-processing? 7

- Agro-processing has many benefits e.g.
 - Prevents food from spoiling
 - Causes foods to last longer (extends the shelf life)
 - Reduces wastage of fresh foods
 - Makes food available when it is not in season
 - Adds value to the food and can be sold at a higher price e.g. use tomatoes to make ketchup
 - Develops more convenient food products that are easy for consumers to use
 - Saves us money because we can make our own products at home e.g. jam, chutney, pepper sauce, frozen seasoning, frozen cassava
 - We can earn income (make money) by selling agro-processed products

What are some examples of different products that can be made using agro-processing?

Produce	Product	Agro-processing method used
• Chicken	• Seasoned-up chicken	• Adding chemicals (salt) and freezing / refrigeration
• Chicken	• Chicken nuggets	• Adding chemicals (salt), heating & freezing
• Guava	• Jam	• Heating & adding chemical (sugar)
• Orange	• Juice	• Refrigeration
• Mango	• Anchar	• Drying & adding chemicals (salt, oil)
• Milk	• Powdered milk	• Drying
• Milk	• Condensed milk	• Adding chemicals (sugar), heating & canning
• Pepper	• Pepper sauce	• Adding chemicals (salt, vinegar / lime juice)
• Tamarind	• Tamarind balls	• Adding chemicals (sugar, salt)
• Watermelon	• Juice	• Refrigeration / freezing
• Mango	• Frozen mango slices	• Freezing

Assessment

1. What is agro-processing?
2. What causes food to spoil?
3. How can you tell if food is spoilt?
4. How can food spoilage be prevented?
5. Name FOUR agro-processing methods.
6. What are TWO benefits of agro-processing?
7. Name at least FIVE different products you can make from mangoes
8. Look for at least THREE agro-processed products inside your kitchen

Answers for Assessment

1. What is agro-processing?
 - Agro-processing is the science of preserving food
2. What causes food to spoil?
 - Microorganisms (microbes) e.g. bacteria, fungus
3. How can you tell if food is spoilt?
 - It smells bad
 - It tastes bad
 - It has a different colour
 - It is too soft / too hard
 - It has rotten spots
 - It has fungus growing on it
4. How can food spoilage be prevented?
 - By killing the microorganisms (bacteria, fungus) inside them
5. Name FOUR agro-processing methods.
 - Any 4 answers
 - Adding chemicals e.g. salt, sugar, vinegar
 - Canning
 - Drying
 - Heating
 - Refrigeration / Freezing

Answers for Assessment

6. What are TWO benefits of agro-processing?

- Any 2 answers:
 - Prevents food from spoiling
 - Causes foods to last longer (extends the shelf life)
 - Reduces wastage of fresh foods
 - Makes food is available outside the growing season
 - Adds value to the food and can be sold at a higher price
 - Develops more convenient food products that are easy for consumers to use

7. Name at least FIVE different products you can make from mangoes

- Any 5 or more answers
 - Chow
 - Chutney
 - Kuchela
 - Anchar
 - Red mango / preserve mango
 - Jam
 - Juice
 - Sliced, frozen mango
 - Curry mango / mango talkarie
 - Fruit leather / Dried mango
 - Ice-cream

Answers for Assessment

8. Look for at least THREE agro-processed products inside your kitchen

- Any 3 answers:
 - Pasta e.g. macaroni, elbows, spaghetti
 - Dried items e.g. rice, red beans, channa, lentils
 - Tinned foodstuff e.g. sardines, milk, peas and carrots, corn, juice, corned beef
 - Frozen chicken, sausage, minced meat, fish, frozen cassava
 - pepper sauce, pickles, anchar, kuchela
 - pack milk, pack juices
 - Jams , jelly , peanut butter
 - Salt fish, pig tail, smoked herring
 - Salted nuts, fried channa
 - Red/preserved mango, salt prunes, corn curls, popcorn
 - Cooking oil e.g. soybean oil, coconut oil
 - Margarine, butter, cheese

Acknowledgement

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