

3

The Mystery of Food

Chapter Notes:**Food Spoilage – The Forgotten Tiffin**

- Food left for long gets **bad smell, colour patches**, and **becomes unsafe**.
- Spoiled food can make us sick.

Microbes – What Spoiled the Uttapam?

- Tiny living organisms, seen only under a **microscope**.
- Present in **air, water, soil, plants, animals** and **inside us**.
- Some **spoil food**, but some are **useful** (like in curd, digestion).

Why Some Foods Spoil Faster?

- **Microbes need:**
 - Moisture (Water)
 - Air
 - Right temperature
- If we remove any of these, **microbes cannot grow**.

**Food Preservation**

- Food preservation means **protecting food from spoilage**.

(a) Drying / Dehydration

- Removes moisture.
- Microbes cannot grow without water.
- Example: Chillies, papad, dried fish, tomatoes.

(b) Oiling & Pickling

- Oil prevents air from entering.
- Stops growth of microbes.
- Example: Mango pickle.

(c) Refrigeration & Freezing

- Low temperature slows down microbes.
- Used for milk, vegetables, butter, cake.

(d) Traditional Methods

- Salt, sugar, spices preserve food.
- Airtight cans & packets used in factories.
- Clay pot (Matka) keeps water cool.
- Ghee lasts longer because water is removed from butter.

Good Microbes & Idli

- Microbes help batter rise in idli.
- Help in digestion.
- Used in curd & fermented food.

Indigestion & Home Remedies

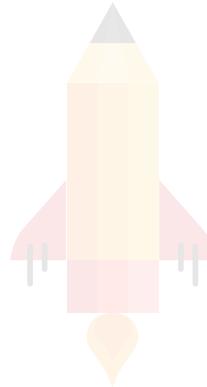
- Bad eating habits can cause stomach problems.
- Curd / buttermilk helps because it has good microbes.
- Severe cases → doctor needed.

Fresh, Local & Seasonal Food

- Fresh vegetables are selected carefully in markets.
- Seasonal fruits taste better and are healthier.
- Local food is fresher and travels less.

Chewing & Teeth

- **Different teeth have different functions:**
 - **Incisors** – Cut
 - **Canines** – Tear
 - **Premolars & Molars** – Crush & Grind
- **Chewing properly:**
 - Breaks food into smaller pieces.
 - Produces saliva.
 - Helps digestion.



One Point Learning

Oral Hygiene

- Brush teeth regularly.
- Rinse mouth after meals.
- Avoid too many sweets.
- Visit dentist when needed.

Choking Safety

- Eat slowly.
- Take small bites.
- Do not talk or laugh while eating.

New Terms

New Term	Meaning
• Microbes / Microorganisms	- Very tiny living organisms that cannot be seen with naked eyes.
• Mould	- Coloured, fuzzy patches seen on spoiled food.
• Microscope	- Instrument used to see very tiny organisms like microbes.
• Food Spoilage	- When food becomes rotten, smells bad or changes colour and becomes unsafe to eat.
• Preservation	- Methods used to protect food from getting spoiled.
• Dehydration / Drying	- Removing moisture (water) from food to stop microbes from growing.
• Pickling	- Preserving food using oil, salt and spices.
• Refrigeration	- Keeping food in the fridge to slow down microbial growth.
• Fermentation	- Process where good microbes help in making food soft and fluffy (like idli batter) or in making curd.
• Seasonal Food	- Fruits and vegetables available only in a particular season.
• Indigestion	- Stomach problem caused by bad eating habits or spoiled food.
• Oral Hygiene	- Keeping our teeth and mouth clean and healthy.
• Cavity	- A small hole in the tooth caused by germs.
• Choking	- When food gets stuck in the throat because it is swallowed too fast or without chewing.

Think

Q. Have you ever had an upset stomach? Do you know what could have caused it? What could happen if spoiled food is eaten by mistake? If yes, what did you do to get well? Share your experiences with the class.

Answer: Yes, I have had an upset stomach once. It happened because I ate stale food that was left outside for a long time. Eating spoiled food can cause stomach pain, vomiting, diarrhoea and fever. When I felt sick, my parents gave me light food and curd/buttermilk to drink. I took rest and also visited the doctor who gave medicine. After that, I started eating fresh food and became careful about hygiene.

Write

Q. Why do you think food gets spoiled?

Answer: Food gets spoiled because tiny living organisms called microbes grow on it. They grow faster when food has moisture, air and warm temperature. Spoiled food changes its smell, colour and taste and becomes unsafe to eat.

Write

Q. What other things are dried so that they remain unspoilt throughout the year?

Answer: Other things that are dried to keep them unspoilt are:

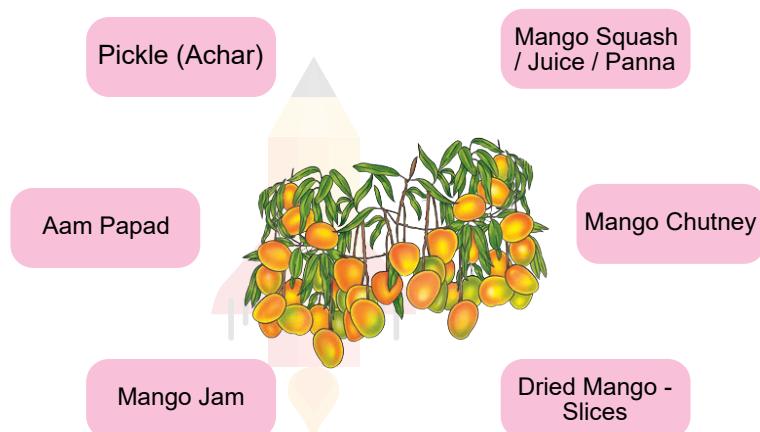
- Papad
- Dry fish
- Dried fruits (like raisins, dates)
- Spices (like chillies, pepper)
- Pulses and grains
- Herbs and leaves (like curry leaves, mint)

Drying removes moisture, so microbes cannot grow on them.

Activity 1

What items can be made from mangoes to enjoy them for longer durations? Write their names in the space given below.

Activity 2



1. Take a tomato and cut it into slices.
2. Put the slices of tomatoes on a tray and place it on the window where the sunlight comes through.
3. What changes did you observe in the fruit?

Can you think of a way to preserve items like tomato?

Answer: Observation-

After keeping the tomato slices in sunlight for some days,

- they **became dry**
- **lost water** and **shrunk in size**
- became **hard** and **lighter**

This happened because the **sun removed the moisture** from the tomato.

How can we preserve tomatoes?

Tomatoes can be preserved by:

- Drying them in the sun (to make dried tomatoes)
- Making tomato sauce / ketchup
- Storing in airtight containers
- Refrigerating / freezing them

Discuss

Q. What would happen to this pickle if no oil had been added?

Answer: If no oil had been added to the pickle, air and moisture would enter it easily. This would allow microbes to grow, and the pickle would spoil quickly. It would start smelling bad, change colour and taste, and become unsafe to eat. So, oil is important because it keeps air away and protects the pickle from spoiling.

Activity 3

Find out about food preservation practices at your family by asking the elders at home. Write at least one such practice.

Answer: In my family, elders use pickling and drying as food preservation methods. For example, they make mango pickle and store it in jars with oil and salt so that it does not spoil for many months. They also dry chillies and papads in the sun, which removes moisture and keeps them safe for a long time.

How are Idlis made?

Disha watched her mother make idlis at home.

Q 1. Can you find out how idlis are made?

Answer: Yes. Idlis are made by:

- Soaking rice and urad dal (black gram)
- Grinding them to make a smooth batter
- Leaving the batter for a few hours
- Then steaming the batter in moulds to make soft idlis

Q 2. Is there something that makes the idli batter fluffy?

Answer: Yes, the batter becomes fluffy because it gets fermented.

Q 3. Do you know what it is?

Answer: Fermentation happens due to good microbes present in the air, which make the batter rise and become soft and spongy.

Think

Q 1. Did you ever have an upset stomach, vomiting or indigestion?

Answer: Yes, I once had an upset stomach.

Q 2. Did you use any home remedies?

Answer: Yes, my parents gave me a simple home remedy.

Q 3. Write about the home remedy given to you.

Answer: I was given curd / buttermilk to drink because it has good microbes that help in digestion. I also ate light food like khichdi and took rest. When I did not feel well, we visited the doctor for medicine.

Activity 4

Do you ever accompany your elders for buying vegetables and fruits? During such visits, observe how elders select fruits and vegetables in the market. Write one thing that you learnt from your shopping trip and write it as a Finding #9, the way Disha would write.

Answer: Finding #9 - Today, I went to the market with my grandmother. I noticed that she always chooses

fruits and vegetables that are fresh, without any spots or wrinkles. She also checks if the vegetables are firm and the fruits smell sweet. This helps her pick the best quality for our family.

Write

Q. Name three seasonal fruits or vegetables of your region. For example, amla in winter and jamun in summer.

Answer: Three seasonal fruits/vegetables of my region:

- Mango – Summer
- Guava – Winter
- Pumpkin – Autumn

Activity 5

When you eat, try chewing each item properly till it breaks down into smaller pieces and then into mush. Which teeth did you use to cut and chew? Look at the diagram given on the next page and name them.

Answer: While eating and chewing my food, I used:

- **Incisors** – to cut the food into smaller pieces.
- **Canines** – to tear the food.
- **Molars** – to grind the food into mush.

Teeth and Chewing

Q. Disha wondered whether more saliva come out when you chew the food for long.

Answer: Yes, Disha noticed that when we chew food for a longer time, more saliva comes out. This happens because chewing stimulates the salivary glands to produce more saliva, which helps in breaking down the food and making it easier to swallow.

Write

Q. How can you avoid choking?

Answer: You can avoid choking by:

- Chewing your food properly before swallowing.
- Eating slowly and not talking while eating.
- Taking small bites of food.
- Avoiding running or playing while eating.

Let us reflect

1. Why do some food items last for weeks and others spoil in just a few days?

Answer: Some food items spoil quickly because microbes grow on them easily when they get moisture (water), air and suitable temperature. Foods like milk, bread and cooked food spoil faster. Foods like pickles, dried food and canned food last longer because air, moisture or suitable temperature are reduced or controlled, so microbes cannot grow.

2. You are going on a field trip for two days. List five food items you will carry. How will you keep them from getting spoiled?

Answer: Food items I will carry:

- Dry fruits
- Biscuits
- Pickle
- Parathas / Thepla / Khakhra
- Dry snacks / Namkeen

How I will keep them safe:

- Pack food in airtight containers
- Use zip bags or sealed packets
- Avoid carrying food with too much water
- Keep food in a cool place / insulated bag
- Avoid keeping food in open air

3. What if food cannot be preserved? Imagine a world without food preservation and discuss the consequences.

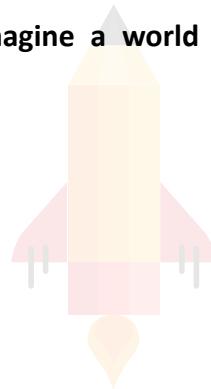
Answer: If food cannot be preserved:

- Food will spoil very quickly
- People cannot store food for future
- There will be shortage of food
- Farmers' hard work will get wasted
- More people may suffer from hunger
- Travelling with food will become difficult
- People may fall sick by eating spoiled food

So, food preservation is very important to save food, prevent wastage, and keep people healthy.

4. Match the following.

Which method is used to preserve the following food items (A) to make the final product (B).



One Point Learning

Item (A)	Method of Preservation	Product (B)
1. Roti	Dehydration	Khakhra
2. Papad	Dried in sun	Dried papads
3. Mango	Dehydration / Drying	Aam papad
4. Lemon	Pickling	Lemon pickle
5. Butter	Heating (removing water)	Ghee
6. Juice	Canning / Airtight packing	Canned juice
7. Chillies	Drying	Chilli powder
8. Fish	Drying in sun / Smoking	Dried fish