

STUDY MATERIAL

1. FOOD

I. Choose the correct answer:

1. _____ keep the food fresh.
a. **Moisture** b. Bacteria c. Virus d. both band c
2. _____ break(s) down the larger molecules of food.
a. Moisture b. Air c. **Enzymes** d. Light
3. _____ is added to food to remove the water.
a. Enzyme b. Sugar c. **Salt** d. Baking soda
4. Vegetables are preserved by _____.
a. boiling b. **freezing** c. canning d. drying
5. _____ is a preservative.
a. Water b. Honey c. **Vinegar** d. Soap
6. Goitre is caused by the deficiency of _____.
a. Iron b. **Iodine** c. Vitamin- K d. Vitamin -D
7. Honey and sugarcane are rich in _____.
a. fat b. protein c. **carbohydrates** d. iodine
8. The fruit that is rich in vitamin- A is _____.
a. orange b. lemon c. **papaya** d. mango
9. An example for infectious disease is _____.
a. asthma b. marasmus c. heart attack d. **covid-19**
10. _____ is an inflammable material.
a. Water b. **Kerosene** c. Carbon d. Sodium bicarbonate

II. Fill in the blanks:

1. Fruits and vegetables are healthy foods.
2. Rise in temperature causes food spoilage.
3. The preservative used in the preparation of jam is sugar .
4. Boiling kills the micro-organisms present in the food materials.
5. Regular physical exercises prevent obesity.
6. Obese and overweight are estimated on the basis of BMI.
7. The fire extinguisher used to put out the fire caused by liquid and gaseous fuels is carbon dioxide.

8. Infectious diseases are caused by **micro -organisms.**
9. To put out the oil fire use **sand.**
10. Keep the gas cylinder in **vertical** position at plain level.

III. A) Match the following:

- | | | | |
|----------------|---|--------------------|-----|
| 1. Beri Beri | - | a) Vitamin- C | (d) |
| 2. Scurvy | - | b) Weight loss | (a) |
| 3. Haemorrhage | - | c) Enlarged belly | (f) |
| 4. Marasmus | - | d) Vitamin- B | (b) |
| 5. Kwashiorkor | - | e) Body Mass Index | (c) |
| 6. BMI | - | f) Vitamin - K | (e) |

B) Match the following:

- | | | | |
|--------------------|---|--------------------|-----|
| 1. Micro-organisms | - | a) diabetes | (c) |
| 2. Pickles | - | b) sugar | (d) |
| 3. Milk powder | - | c) Yeast and fungi | (e) |
| 4. Obesity | - | d) salt | (a) |
| 5. Fruit juice | - | e) canning | (b) |

IV. Write True or False:

- | | |
|---|--------------|
| 1. Spoiled food is good to eat. | False |
| 2. Fungi and Yeast can grow well in low temperature. | True |
| 3. The aim of food preservation is to reduce wastage of food. | True |
| 4. Obese people have BMI over 30 kg /m ² . | True |
| 5. Gas and electric stoves are used for cooking. | True |

V. Give reason:

1. Do not operate electric stove with wet hands. Why?

Do not operate electric stove with wet hands because it leads to electric shock.

2. Vegetables and fruits shrink. Why?

Moisture keeps the food fresh, when the moisture is gone vegetables and fruits shrink.

3. Spoiled foods are not suitable to eat. Why?

Spoiled foods are not suitable to eat, because it cause diseases like vomiting, fever, indigestion and dysentery.

VI. Write short answer:

1. Define deficiency disease.

Deficiency in one or more of the nutrients cause various diseases. This diseases are called deficiency diseases.

2. What is known as balanced diet?

For growth and maintenance of good health, our diet should have all the nutrients in right quantities. Such a diet is called balanced diet.

3. How can we prevent obesity?

- 1. Avoid fast foods, fried items and meat with more fat.**
- 2. Eat fruits and vegetables, legumes, whole grains and nuts.**
- 3. Do regular physical exercises.**
- 4. Don't play games in computer and mobile phones.**
- 5. Have adequate sleep.**

4. What should we do in case of minor burns?

In case of minor burns, the burnt area should be held under cool running water for some time and proper medical treatment should be given.

5. Define spoilage of food.

The change in the normal state of the food is called spoilage of food. Spoiled food becomes unsuitable to eat.

6. What is the purpose of food preservation?

Preservation of food is important for the following reasons.

- To retain the colour, taste and nutritive value of the food.**
- To make food available throughout the year.**
- To prevent the growth of micro-organisms like bacteria and fungi in the food items.**
- To reduce the wastage of food materials.**
- Preserving food protects our health.**
- It also makes food available to the people who need it.**

7. What are the factors that spoil food?

The factors that spoil food are air and oxygen, moisture, enzymes, micro-organisms, light and temperature.

8. What are the causes of obesity?

Obesity is caused by excessive food intake, lack of physical activity and genetic reasons.

9. What is BMI?

BMI is obtained by dividing a person's weight in kilograms by square of his height in meters (kg/ m²).

10. What are the four types of diseases?

There are four main types of diseases. They are infectious diseases, hereditary diseases, physiological diseases and deficiency diseases.

VII. Answer in detail:

1. Write about food preservation methods.

Drying: The removal of water content from the food by drying it in the sunlight.

Eg: grains

Addition of salt: Adding salt to food to remove the water. Eg: fish, pickles

Addition of sugar: Sugar is added to food. Sugar dissolves in the water content of the food and preserve the food items from spoilage. Eg: Jam, fruit juices

Freezing: Freezing prevents the microbial growth and the enzyme activity on the food items. Eg. Fruits, vegetables

Boiling: Boiling kills the micro-organisms present in the food materials. Eg: milk, water

Canning: In this method, food is packed in air tight cans. Eg: Milk powder.

Addition of chemical preservatives: Chemical preservatives are added to stop the growth of micro-organisms in certain food materials. Eg: sodium benzoate is added with fruits, Sulphur dioxide is added with dry fruits, vinegar is added with pickles.

2. Explain the different types of food.

Food can be classified into different types based on the nutrients they provide:

Carbohydrate-rich foods - Give us energy.

Examples: rice, bread, potatoes and cereals.

Protein-rich foods - Help in growth and repair of our body.

Examples: eggs, milk, pulses, fish and meat.

Fat-rich foods - Provide energy and help keep our body warm.

Examples: butter, ghee, nuts and oils.

Vitamin-rich foods - Protect us from diseases and keep us healthy.

Examples: fruits and vegetables.

3. Write about kitchen safety.

- Be careful while using cooking gas cylinder.
- Do not operate electrical appliances with wet hand.

- Handle the fire safely. It cause burns.
- Use proper fire extinguishers to put out fire.

4. What are the Do's and Don'ts on handling gas cylinder?

Do's	Don'ts
Keep the cylinder in vertical position at plain level and in a well aired place.	Do not keep the cylinder in horizontal or inverted position.
Keep the lighter ready and then turn on the gas stove knob.	Do not turn the gas stove knob before lighting the lighter. It may lead to gas leakage.
Keep the windows and doors open to ensure ventilation in case of gas leakage.	Do not turn on electrical appliances in the kitchen, if there is a gas leakage it may lead to fire.
Always use I.S.I standard gas stoves, regulators and gas tubes.	Do not use low quality gas stoves, tubes and regulators. It may lead to gas leakage.

5. Write about the causes of food spoilage.

Air and oxygen: When oxygen reacts with food contents, it produces changes in the colour and flavour of the food.

Moisture: When the moisture is gone vegetables and fruits shrink. Due to evaporation, moisture loss occurs in foods like meat, fish and cheese.

Enzymes: Enzymes breakdown the larger molecules of the food in different ways like oxidation, browning and ripening. So the food items decay.

Micro-organisms: Micro-organisms such as fungi, yeast and bacteria can grow well in low temperatures. They multiply in food and spoil them.

Light: Light produces colour changes and also vitamin loss.

Temperature: Rise in temperature causes food spoilage.

2. WATER

I. Choose the correct answer:

1. Water exists as _____ on mountains.

- a. hailstone b. snow c. ice **d. both band c**

2. The salt present in sea water is _____.

- a. Zinc chloride b. Urea **c. Sodium chloride** d. both a and b

3. Evaporation takes place on the surface of _____.

- a. Rivers b. Oceans c. Lakes **d. all of these**

4. Fresh surface water sources are _____.
a. Rivers and lakes b. Rain and ponds c. seas and lakes d. all the three
5. _____ is an agricultural water pollutant.
 a. Oil spill b. Chemical fertilizer c. Insecticide **d. Both b and c**
6. Chemicals present in the industrial waste are _____.
 a. arsenic, aluminium b. Cadmium, sodium **c. Cadmium, arsenic**
 d. iron, silver
7. Causative agent of diarrhea is _____.
 a. Vibrio cholera b. Hepatitis **c. E.coli** d. All the three
8. Dengue fever causes deficiency of _____ in blood.
a. Platelets b. RBC c. Water d. Oxygen
9. Salmonella causes _____.
 a. cholera b. dysentery **c. typhoid fever** d. Hepatitis-A
10. _____ is a respiratory disease caused by virus.
 a. Dengue fever **b. Swine flu** c. Diarrhoea d. Both a and b

II. Fill in the blanks:

- Water covers more than **two -thirds (2/3)** of the Earth surface.
- The origin of river is **hills or mountains**
- The harmful substances which pollute water are called **pollutants.**
- Spring water comes out of the Earth surface due to **pressure.**
- Plants release water by **transpiration.**
- Clouds are formed by the process called **condensation.**
- Evaporation and condensation go side by side in the **water cycle** process.
- Water bodies are contaminated by **human activities.**
- Rainwater harvesting** can reduce flooding in the cities.
- Aedes female mosquitoes bite during **day.**
- Tylenol is a **painkiller.**

III. Match the following:

- | | | |
|-------------------|-----------------------|-----|
| 1. Paracetamol | - a) freshwater | (b) |
| 2. Aedes Mosquito | - b) painkiller | (d) |
| 3. Rainwater | - c) hydrologic cycle | (e) |
| 4. Glaciers | - d) stagnant water | (a) |
| 5. Water cycle | - e) storage tank | (c) |

IV. Write True or False:

- | | |
|---|--------------|
| 1. Clouds contain water vapour. | False |
| 2. River water has more amount of salt. | False |
| 3. Seawater is not suitable for irrigation. | True |
| 4. Evaporation takes place on the surface of water sources. | True |
| 5. Water vapour in the atmosphere is heavy. | False |
| 6. Hail stones are formed, if the air is very cold. | True |
| 7. Groundwater can be conserved by rainwater harvesting. | True |
| 8. Plastic wastes do not pollute the water bodies. | False |
| 9. Mosquitoes breed in fresh clean water. | False |
| 10. Swine Flu affects the respiratory tract. | True |

V. Give reason:

1. Sewage should not be dumped into rivers and ponds. Why?
Because the dumping of sewage into rivers and ponds cause water pollution.
2. Sea water is not suitable for drinking and washing. Why?
Sea water is not suitable for drinking and washing because sea water is salty.
3. Rainwater is suitable for irrigation. Why?
Rainwater is suitable for irrigation because it contains lesser amount of dissolved salt.
4. Sea water is called saline water. Why?
Due to the presence of more amount of salt, sea water is called saline water.

VI. Write short answer:

1. Write down the sources of water.
 - 1. River water**
 - 2. Seawater**
 - 3. Well water**
 - 4. Spring water**
 - 5. Underground water and Lake water.**
2. What is desalination?
It is a process of converting saline water into freshwater.
3. What are the processes involved in water cycle?
The processes involved in water cycle are Evaporation, Condensation and Precipitation.

4. What are water reservoirs?

Man-made lakes created when dam is built on a river is called reservoir.

5. How can we prevent dengue fever?

Spray the house with anti- mosquito spray.

- **Try to wear clothes that cover in areas.**
- **Close the doors and windows during early morning and evening.**
- **Do not leave stagnant water anywhere in and around the house.**

6. Define: a) Water cycle b) Evaporation c) Condensation d) Waste water e) Water pollutants.

a. Water cycle: Continuous movement of water from the earth to the atmosphere and back to the earth is known as water cycle.

b. Evaporation: Change of liquid into vapour on heating is called evaporation.

c. Condensation: Change of gas into liquid on cooling is known as condensation.

d. Waste water: Used water from any activities such as domestic, industrials and commercial is called waste water.

e. Water pollutants: The unwanted and harmful substances which pollute water are called water pollutants.

7. What are the advantages of wastewater treatment?

- **Ensure that the environment is clean.**
- **It prevents water borne diseases.**
- **There is no water pollution.**

8. How do you prevent water pollution?

- **Avoid excess use of fertilizer and pesticides.**
- **Minimize the usage of synthetic detergents.**
- **Plastic and food waste should not be thrown into open drains.**
- **Trees and shrubs should be planted along the banks of the rivers and lakes.**

9. What are waterborne diseases? Give examples.

Illness caused by the micro-organisms present in the untreated or contaminated water is called water borne diseases. Eg: diarrhea, dysentery, typhoid.

10. What are the sources of water pollution?

The major sources of water pollution are industrial waste, sewage, domestic waste, chemical fertilizers, insecticides, synthetic detergents and oil spill.

11. Define: a) Distillation b) Reverse osmosis

Distillation: The process in which both evaporation and condensation go side by side is called distillation.

Reverse osmosis: Reverse osmosis is a process of forcing water under pressure through a semi permeable membrane.

VII. Answer in detail:

1. Write the advantages of rainwater harvesting.

- **Rainwater harvesting can reduce flooding in the cities.**
- **Rainwater harvesting can reduce top soil loss.**
- **Groundwater level can be increased.**
- **Groundwater can be conserved.**
- **It can improve plant growth.**

2. How can we prevent water borne diseases?

Prevention of water borne diseases,

- **Good personal hygiene should be practiced and basic sanitation should be improved.**
- **Chlorinated and boiled water should be used for drinking.**
- **Drink boiled or pasteurized milk.**
- **Dispose infectious wastes properly.**

3. Write the symptoms and causative agents of waterborne diseases.

Name of the disease	Causative agents	Symptoms
1. Dysentery (Shigellosis)	Bacteria (Shigella)	Blood in stool, indigestion, vomiting, dehydration, fever, weight loss
2. Cholera	Bacteria (vibrio cholerae)	Severe diarrhea, vomiting, dehydration
3. Typhoid fever	Bacteria (salmonella)	High fever, head ache, stomach pain, muscle weakness, weight loss

4. What are the symptoms and treatment of dengue fever?

Symptoms:

- Symptoms of dengue fever typically begin three to fourteen days after infection.
- Symptoms may include high fever, severe headache, muscle and joint pain and a characteristic skin rash.
- Deficiency of platelets in blood.
- Intense stomach pain.
- Regular vomiting with blood.

Treatment:

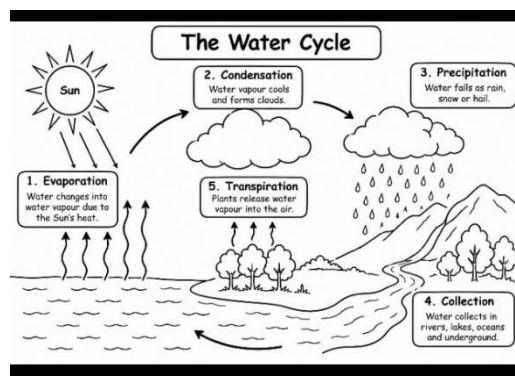
- Dengue is caused by a virus and so there is no specific treatment.
- Rehydration salts can help replace the fluids and the minerals lost in the body.
- Taking painkillers like a Tylenol or Paracetamol can help to reduce fever and pain.

5. Write short notes: a. Rainwater harvesting b. Wastewater management

a. Rainwater harvesting: The process of collecting rainwater from the roof top of the building is called rainwater harvesting. In this system rainwater is stored into a storage tank for later use.

b. Wastewater management: The goal of wastewater management is to purify and protect water. Wastewater is treated by physical, chemical and biological processes using filtration, sedimentation, adding cow dung powder and bacteria. This method is followed in industries.

6. Draw the diagram of water cycle.



3. PLANTS

I. Choose the correct answer:

1. Plants release _____.
a. **oxygen** b. carbon dioxide c. nitrogen d. all the three
2. The outer part of a flower is _____.
a. petal b. style c. anther **d. sepal**
3. The part of a flower that attracts insects is _____.
a. sepal **b. petal** c. ovules d. filament
4. Wind helps for pollination in _____.
a. **maize** b. brinjal c. hydrilla d. all the three
5. Zygote develops into _____.
a. Seed b. pollen grain **c. embryo** d. stigma
6. Cotton seeds are dispersed by _____.
a. rain b. water **c. wind** d. insects
7. Coconut seeds are dispersed by _____.
a. wind b. insects **c. water** d. man
8. Things necessary for agriculture are _____.
a. Soil and water b. Storm and sunlight c. Soil and rock d. all the three
9. Farmer's friends are _____.
a. Grasshopper b. Earthworm c. Honey Bee **d. Both b and c**
10. Silt occurs as a deposit in _____.
a. rocky mountains b. sea beds **c. river beds** d. wells

II. Fill in the blanks:

1. The reproductive part of a flowering plant is **flower**.
2. The female part of a flower is **gynoecium**.
3. The smell and colour of a plant attracts **insects**.
4. The process of fusion of male and female gametes is called **fertilization**.
5. **Dragonfly** prevents the spreading of diseases.
6. The new cell formed after fertilization is called **zygote**.
7. Honey bees convert **nectar** into honey.
8. **Soil** is a mixture of sand, clay and silt.
9. The seedling absorbs water and nutrients with the help of **roots**.
10. **Anther** is present at the tip of the filament.
11. Pollination by birds is known as **Ornithophily**.

III. A) Match the following:

- | | | |
|-------------------------|------------------|-----|
| 1. Dispersal by wind | - a) Guava | (c) |
| 2. Dispersal by water | - b) Dragonfly | (e) |
| 3. Dispersal by animals | - c) Drumstick | (d) |
| 4. Dispersal by birds | - d) Achyranthus | (a) |
| 5. Farmers friend | - e) Lotus | (b) |

B) Match the following:

- | | | |
|---------------------|--------------------------|-----|
| 1. Vermicompost | - a) rose. | (c) |
| 2. Dicotyledons | - b) papaya | (d) |
| 3. Monocotyledons | - c) Earthworm | (e) |
| 4. Unisexual flower | - d) Tap root system | (b) |
| 5. Bisexual flower | - e) Fibrous root system | (a) |

IV. Write true or false:

- | | |
|---|--------------|
| 1. Plants produce their own food. | True |
| 2. Flower is a modified root. | False |
| 3. Sepals are colourful. | False |
| 4. Pollen sacs are present in the anther. | True |
| 5. Ovules are present in the ovary. | True |
| 6. All plants spread their seeds only through agents. | False |
| 7. Clay and loamy soils have good water holding capacity. | True |
| 8. Pollens are the source of natural protein. | True |
| 9. After fertilization ovules become seeds. | True |
| 10. In sexual reproduction new plans emerged from buds and seeds. | False |

V. Write short answer:

1. Define pollination.

The transfer of pollen grains from the anther to stigma of a flower is called pollination.

2. What is germination of seed?

The seed is a fertilized ovule. It consists of embryo, food materials which are protected by the seed coat. During favourable conditions, the seed germinates and gives rise to a new seedling.

3. How soil is formed?

Soil is formed by the breaking of rocks by the action of wind, water and climate.

4. What is known as vermi-compost?

The process of decomposing bio-degradable wastes by earthworms is known as vermicompost.

5. How the seeds are spread by water?

Seeds are spread by water when they float on water and are carried to different places by the flow of water. Eg. coconut seed.

6. What is reproduction of plants? Name its type.

Reproduction is the process by which new plants of the same species are produced. There are two types of reproduction.

- **Sexual reproduction**
- **Asexual reproduction**

7. What is androecium? Write its function.

Androecium is the male reproductive part of a flower. It produces pollen grains.

8. What is gynoecium? Name its parts.

Gynoecium is the female reproductive part of the flower. It has ovary, style and stigma.

9. Define: a. Unisexual flower b. Bisexual flower c. Fertilization d. Dispersal of seeds e. Silt

a) Unisexual flower: The flower which contains either androecium or gynoecium are called unisexual flower.

b) Bisexual flower: The flowers which contain both androecium and gynoecium are called bisexual flowers.

c) Fertilization: The fusion of male and female gametes is called fertilization.

d) Dispersal of seeds: Spreading of seed from one place to another with the help of agents like air, water, animals and birds is known as dispersal of seeds.

e) Silt: Silt is a type of soil. It is highly fertile and improves soil fertility.

10. Who are the friends of farmers?

Earthworm, honey bee and dragonfly are the friends of farmers.

VI. Answer in detail:

1. Write a note on parts of flower.

Flowers have four important parts they are,

Sepal: It is the outer part of the flower and green in colour. It protects the bud in the early stage.

Petal: It is often colourful and it attracts the insects.

Androecium: It is the male reproductive part of the flower. It produces pollen grains.

Gynoecium: It is the female reproductive part of the flower. It has ovary, style and stigma.

2. Explain the methods of pollination.

Methods of Pollination

Pollination is the transfer of pollen grains from the anther to the stigma of a flower.

There are two main methods:

Self-pollination - Pollen grains are transferred to the stigma of the same flower or another flower on the same plant.

Cross-pollination - Pollen grains are transferred from one flower to a flower on another plant of the same kind.

3. Explain the different types of soil.

The mixture of rock particles and humus is called the soil. The soil is classified on the basis of the proportion of various sizes.

Sandy soil: It contains greater proportion of big sand particles. They cannot fit closely together. So sandy soils tend to be light, well aerated and dry.

Clay soil: It contains greater proportion of fine particles. It can retain a lot of water in the tiny gaps between the particles. Plants like paddy grow well in this soil.

Loamy soil: Loamy soil contains large and fine particles. It is the best top soil for growing plants.

4. How are the following useful to plants?

a. Dragonfly b. Honey Bee c. Earthworm

a. Dragonfly: Dragonfly destroys the egg and larva of harmful insects and mosquitoes. It is also helpful in cross fertilization.

b. Honey bee: Honey bees are helpful for cross pollination. Bees also produce wax, which is used for making candles.

c. Earthworm: Earthworm breaks down organic matters like leaves and grass into smaller particles so that plants can use them.

5. Explain the agents of dispersal of seeds.

Spreading of seeds from one place to another with the help of agents like air, water animal and bird is known as dispersal of seed.

- Dispersal by wind - Cotton seed, drumstick.
- Dispersal by animals - Xanthus , Achyranthus.

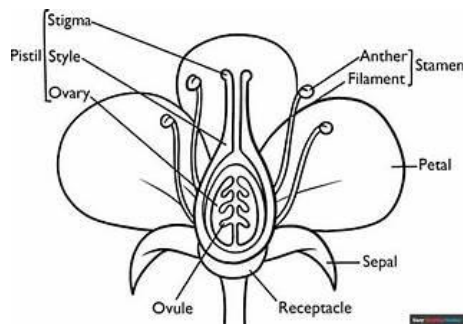
- **Dispersal by water** - Lotus, coconut.
- **Dispersal by birds** - Guava.
- **Self-Dispersal Method** - Ladies finger, balsam.

6. Describe the agents of pollination.

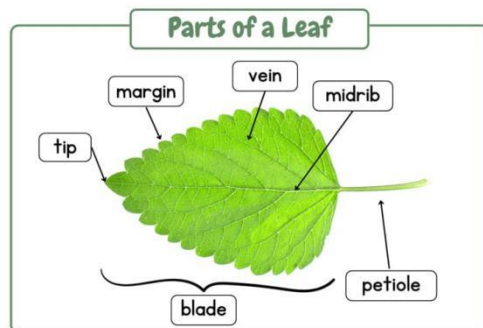
Pollination takes place through different agents. They are,

- **Pollination by wind** – Grass, Maize.
- **Pollination by water** – Hydrilla , Vallisneria.
- **Pollination by insects** – Sunflower , Brinjal

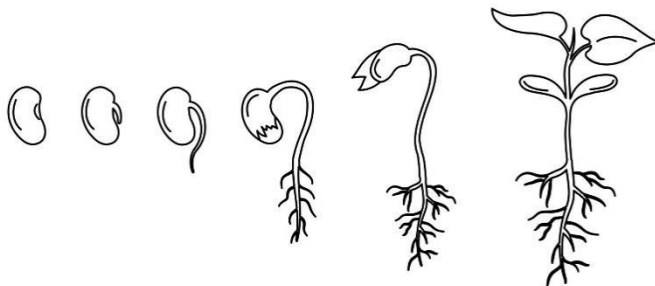
7. Draw the picture of a flower and label the parts.



8. Draw a leaf and label the parts.



9. Draw the various stages of germination of seed.



Germination of seed

