

LESSON PLAN BIOLOGY CLASS X

REVISED SYLLABUS OF BIOLOGY AS PER CBSE (SESSION 2021-22)

THEME: The world of the living

Unit II: World of living

Life Processes : Living being, basic concepts of nutrition ,respiration ,transport and excretion in plants and animals

Reproduction: Reproduction in animal and plants (asexual and sexual), reproductive health, need and methods of family planning. Safe sex v/s HIV/AIDS. Child bearing and women's health.

Heredity: Heredity, Mendel's contribution, laws of inheritance of traits; Sex determination; brief introduction.

THEME: NATURAL RESOURCES

Unit V: NATURAL RESOURCES

Our Environment: Eco-system, Environmental problems, Ozone depletion, waste production and their solutions ,Biodegradable and non-biodegradable substances.

ASSESSMENT/PORTFOLIO: This portion of the unit is not to be assessed in the year and examination. This will be conducted in the form of presentation/seminar on zoom app for internal assessment.

MANAGEMENT OF NATURAL RESOURCES: Conservation & judicious use of natural resources. Forest and wildlife, coal and petroleum conservations. Examples of people's participation for conservation of natural resources. Big dams ; Advantages and limitations; alternatives, if any. Water harvesting, sustainability of natural resources.

PRACTICALS

Practical will be conducted along with the concept taught in theory online classes.

1. Experimentally show that carbon dioxide is given out during respiration.
2. Studying (a) binary fission in amoeba, and (b) budding in yeast and hydra with the help of prepared slides

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<https://youtu.be/wfLo1jdwzZU>
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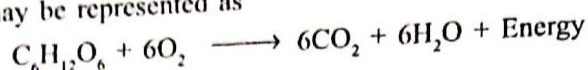
EXPERIMENT 7

Objective

Experimentally show that carbon dioxide is given out during respiration.

CONCEPTS

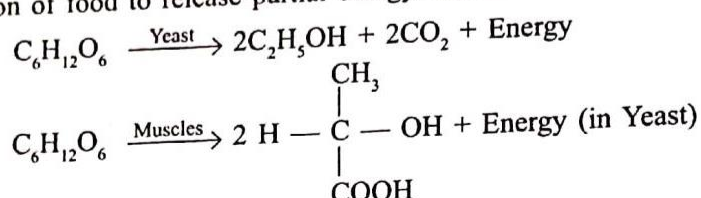
- Respiration is a catabolic process in which carbohydrates like glucose are broken down to release energy. The four steps involved in respiration are :
 - Intake of oxygen
 - Oxidation of glucose
 - Release of energy
 - Release of carbon dioxide and a small amount of water
 The overall process may be represented as



- Respiration is of following two types –

(a) **Aerobic respiration** : It takes place in the presence of oxygen and occurs in mitochondria. It is a complete oxidation of food to release energy.

(b) **Anaerobic respiration** : It takes place in the absence of oxygen and occurs in the cytoplasm. It is an incomplete oxidation of food to release partial energy. Anaerobic respiration can be represented as –



- It is clear from the above equation that respiration may be considered as the reverse of photosynthesis in plants. Respiration, differs from combustion as it is carried out stepwise through enzyme controlled steps at comparatively low temperature.
- In plants the entry and exit of oxygen and carbon dioxide usually takes place through stomata. In old trees it takes place through lenticels.

RESPIRATION IN ANIMALS

Materials Required

- Freshly prepared clear limewater
- A test tube
- A cork with two holes
- Two glass tubings bent at 90°

Procedure

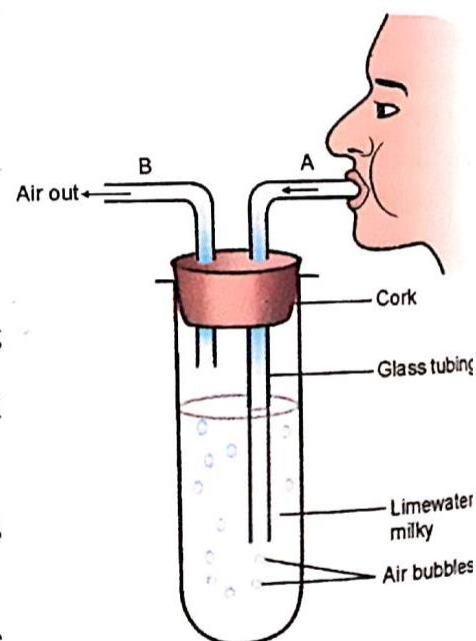
- Fill the test tube half with freshly prepared clean limewater.
- Fix the glass tubings A and B in the cork as shown in diagram.
- Fix the cork in the mouth of test tube, such that one end of glass tubing A is dipping in limewater.
- Put your mouth at the another end of tube A and exhale out air with full force. Repeat this process continuously for atleast one minute.

Observations

You will observe that the exhaled air bubbles passing through limewater, gradually turn it milky.

Conclusion

As the clear limewater turns milky only with carbon dioxide, therefore, we can say that carbon dioxide is present in the exhaled air and is produced by the process of respiration.



Release of CO₂ during exhalation

Precautions

1. Limewater must be clear and freshly prepared.
2. Pass exhaled air vigorously for atleast 1 minute.
3. The mouth of the tube containing limewater, should be sealed with a cork, soon after it is formed.

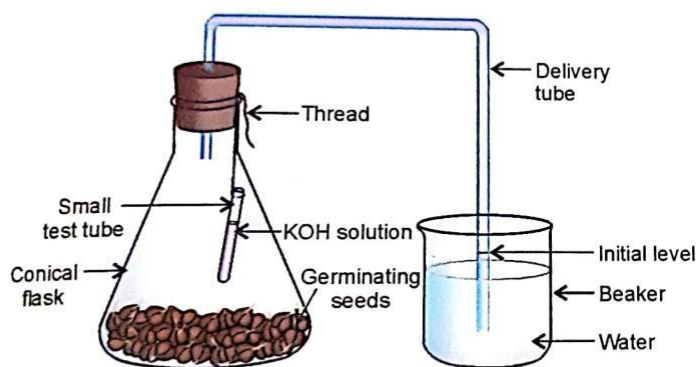
RESPIRATION IN PLANTS (A)

Materials Required

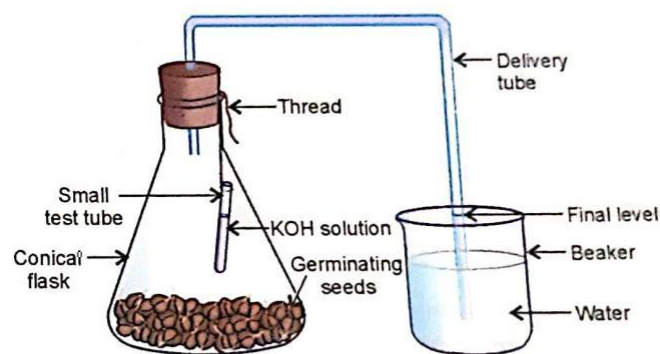
1. Conical flask
2. Germinating gram seeds
3. Potassium hydroxide solution
4. Small test tube
5. A cork with one hole
6. A glass tubing bent twice at right angles
7. A 100 cc beaker half filled with water
8. Cotton thread

Procedure

1. Place about 50 germinating gram seeds in a conical flask and add a few drops of water to keep them moist.
2. Tie a cotton thread to the neck of small tube. Pour about 4 ml of KOH solution in it and suspend it in the conical flask.
3. Close the mouth of conical flask with a cork in which a delivery tube is fitted, such that thread tied to the small test tube is held firmly.
4. Place a beaker containing water under the other end of test tube as shown in Fig. I.
5. Apply vaseline on the cork so as to make the apparatus airtight.
6. Leave the apparatus undisturbed for two hours.



Experimental set-up at the start of experiment.



Experimental set-up at the end of experiment.
(Level of water rises in the delivery tube.)

Observations

After two hours the level of water in the delivery tube rises up as compared to level of water in the beaker.

Conclusion

The rise in level of water in the delivery tube indirectly proves that germinating seeds produce carbon dioxide. It can be explained as follows :

The carbon dioxide produced by the germinating seeds is absorbed by the potassium hydroxide solution (KOH). Now as carbon dioxide is produced due to the consumption of oxygen during respiration, therefore, pressure of air within the flask falls. To make up for this loss in pressure, the air from outside exerts pressure, and hence, forces up the water within the delivery tube.

Precautions

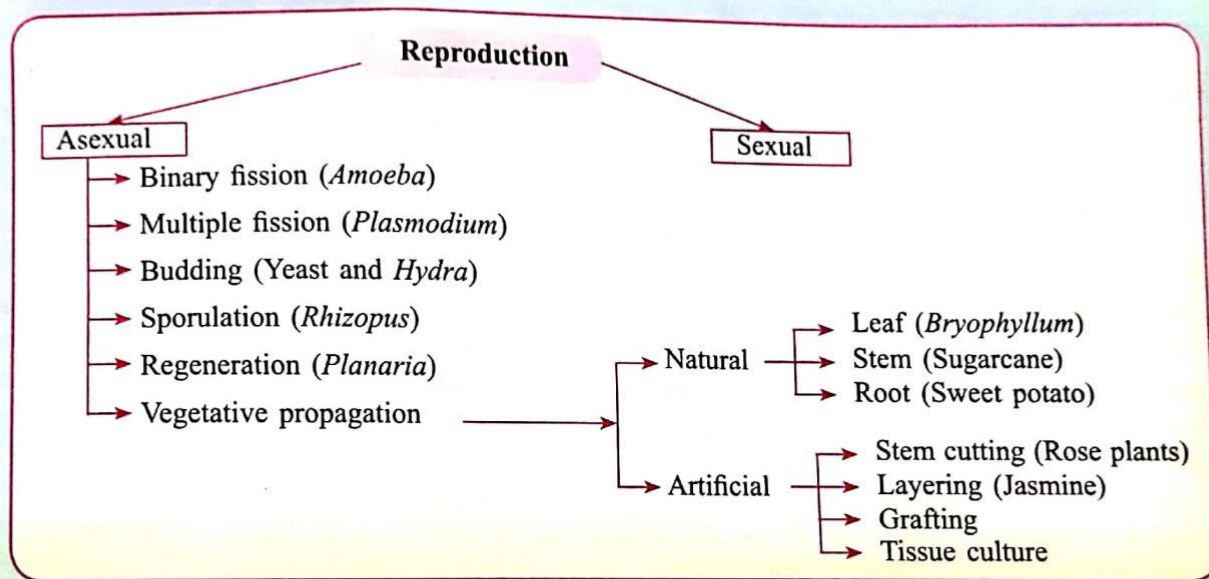
1. Potassium hydroxide should be freshly prepared and concentrated.
2. The seeds should be germinating and remain moist.
3. The apparatus should be airtight.
4. The other end of the delivery tube should be completely dipped into water.

Objective

Studying (a) binary fission in *Amoeba*, and (b) budding in yeast and *Hydra* with the help of prepared slides.

CONCEPTS

1. Both binary fission and budding are the methods of asexual reproduction. Asexual reproduction is the method of reproduction which involves only one individual.
2. In binary fission (seen in *Amoeba*) a single mother cell divides into two daughter cells. Each mother cell undergoes mitotic division. The cell first elongates and then its nucleus divides into two (by karyokinesis). After the separation of the nucleus, a transverse wall is laid, dividing the mother cell into two parts (by cytokinesis). Each daughter cell forms its own organelles.
3. Budding is very common in both *Hydra* and yeast. A small protuberance grows as an outgrowth on the body of the mother organism. It grows to a full size. This is known as a bud. A bud then detaches from the mother's body by forming a constriction at the base.



A. BINARY FISSION IN AMOEBA

Materials Required

1. Prepared/permanent slides of *Amoeba*. In case of non-availability of any permanent slide, collect some pond/stream water in a beaker.
2. Compound microscope.

Procedure

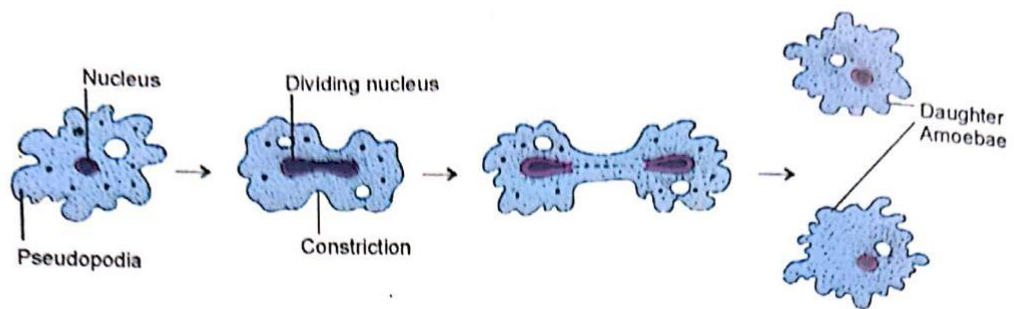
To study the binary fission in *Amoeba*, take a small drop of pond/stream water on a plain slide and cover it with the cover slip. Do not add any stain. Put the slide on the stage of the microscope.

In case the permanent slide is available, place the slide on the stage of microscope.

Adjust the mirror of microscope so that maximum light is reflected from the mirror to the slide. Adjust the eyepiece of the microscope so that the slide is clearly focussed. Observe the slide at first under low power of microscope by using its coarse adjustment. Then observe it under high power by using fine adjustment.

Observations

1. *Amoeba* are usually irregular in shape. Some of them may be in a state of binary fission. In some stages karyokinesis may be seen.
2. Others may show the division of cell body, i.e., cytokinesis. So that an *Amoeba* may divide into two parts, i.e., daughter cells.



Different stages of binary fission in *Amoeba*

Conclusion

Given slide shows the elongated body of *Amoeba* with a constriction in the middle. The nucleus of *Amoeba* is under the process of division, hence the given slide shows binary fission in *Amoeba*.

B. BUDDING IN YEAST AND HYDRA

Materials Required

1. Prepared/permanent slides showing budding in yeast and *Hydra*.
A culture of baker's yeast may also be prepared in the undermentioned way :
 - (a) Add 5 g of yeast powder to about 250 ml of 10% sugar solution in a flask. (i.e., dissolve 25 g of sugar in 250 ml of water).
 - (b) The mouth of the flask should be tightly corked.
 - (c) Keep the flask in a warm place for about 4 days.
2. Compound microscope.

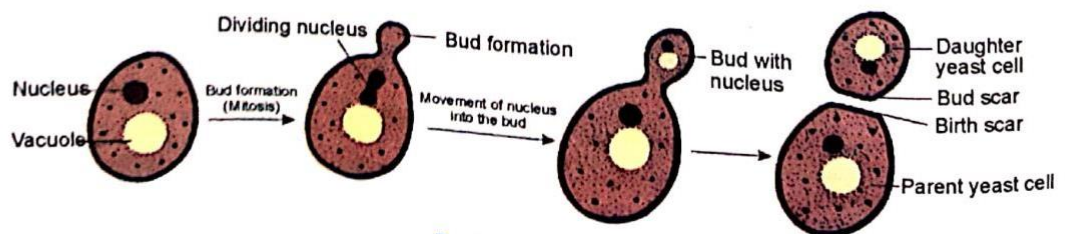
Procedure

1. To study budding in yeast cells, take a small drop of the culture solution on a plain slide and cover it with the coverslip. Do not add any stain. Put the slide on the stage of the microscope.
In case the permanent slide is available, place the slide on the stage of the microscope.
Adjust the mirror of microscope so that maximum light is reflected from the mirror to the slide.
Adjust the objective lens of the microscope so that slide is clearly focussed.
2. Place the permanent slide of *Hydra* on the stage of the microscope and observe it carefully first under low power, then under high power of microscope.

Observations

In Yeast

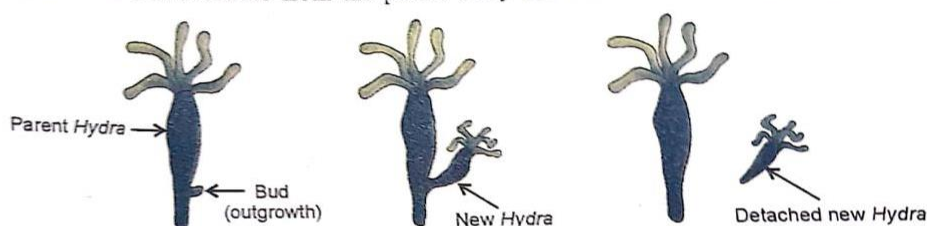
1. Yeast cells are usually spherical or oval in shape.
2. Yeast cells show protuberances on them called 'buds'. These buds upon reaching maturity separate from the parent cell. This process of reproduction is known as 'budding'.
3. Sometimes a chain of buds is seen on the parent cell.



Budding in Yeast

In *Hydra*

1. *Hydra* is a multicellular organism that contains regenerative cells. A bulging, lateral outgrowth appears on it. This outgrowth is a developing bud.
2. The bud enlarges in size and attains the shape of the parent body.
3. Now the fully mature bud detaches from the parent body and becomes a new individual (*Hydra*).



Budding in *Hydra*

Conclusion

1. In the given slide some yeast cells show protuberances, while some other cells are present as a chain of buds, hence the given slide shows budding in yeast.
2. In the given slide of *Hydra*, the process of bud-development, and then development of a mature *Hydra* after detaching from the parent body has been shown.

Precautions

1. Always set the microscope mirror and diaphragm before placing the slide.
2. Focus the slide first under low power, then observe it under high power.
3. Focus the slide first by using coarse adjustment knob and then by using fine adjustment knob.
4. While focussing at high power, use only fine adjustment. Do not use coarse adjustment.

Chapter 6 - The Life Processes(MONTH OF APRIL & MAY)

Topic: Nutrition in Plants

Nutrition in Human Beings

Objectives: Students will be able to;

- Understand different modes of nutrition
- Will understand the raw material for photosynthesis.
- To Know about Animal Nutrition
- Will understand Holozoic nutrition in amoeba
- To make them understand various parts of human alimentary canal in digesting and absorbing food.

PK Testing : Few questions will be asked to the students -

1. Why do we eat food or what is the importance of food?
2. How do you feel, if you do not take food?
3. Why water is essential for plants?
4. How living things are different from non-living things?

Important spellings and vocabulary used :

Autotrophs, heterotrophs , molecular movement, holozoic, salivary amylase, biocatalyst , epidermis, pseudopodia, amoeba, chlorophyll, peristalsis , pepsin ,mucus, trypsin etc.

[Type text]

Innovative methods and Resources :

1. Content of the topic will be taught online Class through zoom app.
2. Working of human alimentary canal will be shown.
3. Group discussion related to human digestive system will be performed (i.e. one of the first step in digestion)

Resources : NCERT Text Book

DIKSHA app by CBSE

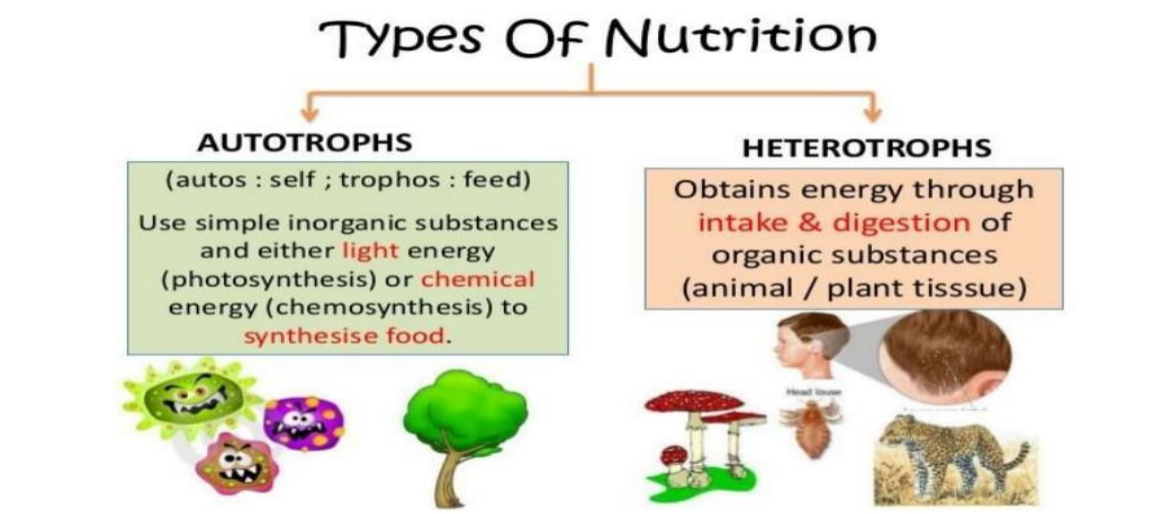
Biology Today by Cordova Publication (X)

Biology by: Dinesh Publications

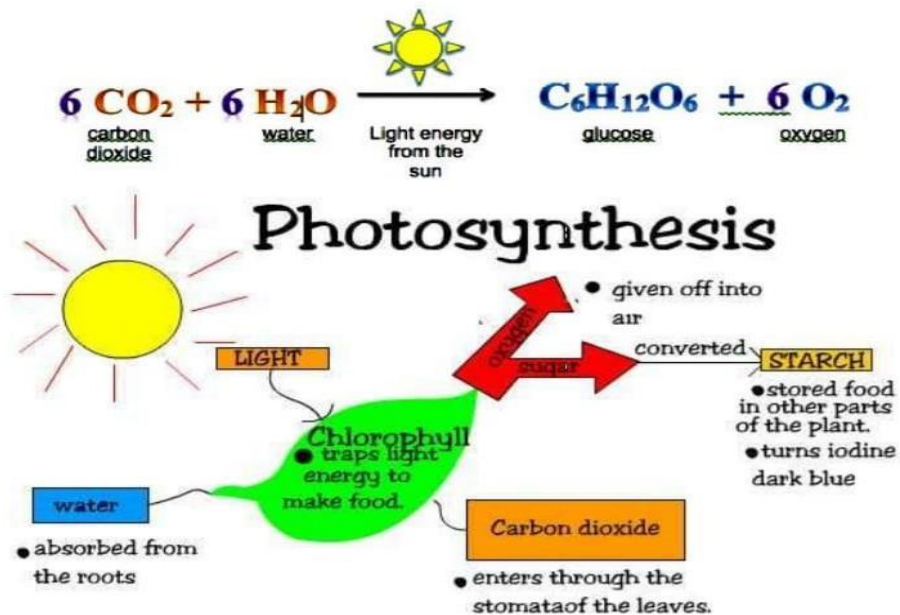
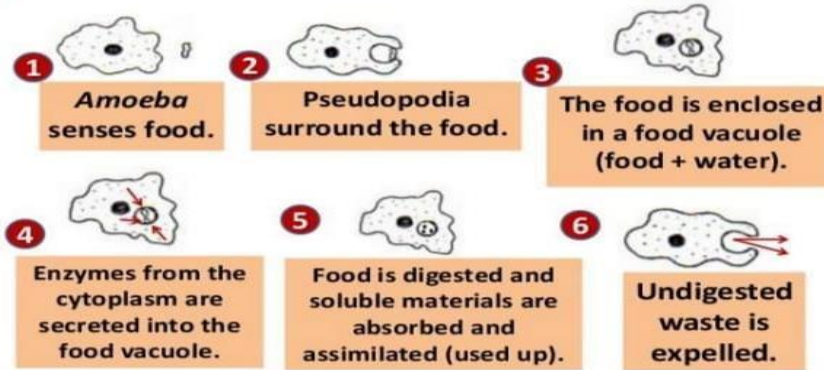
LINK: <https://www.youtube.com/watch?v=fzUWYyd0As8&authuser=0>

LINK: <https://youtu.be/IGR3MMS1bm0>

Procedure : Introduction of various life processes will be given with the help of examples. Differences between living and non-living organisms will be explained. Definition of life processes i.e. nutrition, transportation , respiration and excretion will be explained. Types of nutrition and nutrition in amoeba will be explained with the help of diagrams by screen sharing on zoom app. Plant nutrition and photosynthesis and raw material for photosynthesis will be explained. Different modes of nutrition in organisms will be explained. Children will be asked to draw diagrams. Extra questions given in DIKSHA app will be discussed side by side. Videos related to the topics will also be shared on screen on Zoom App.

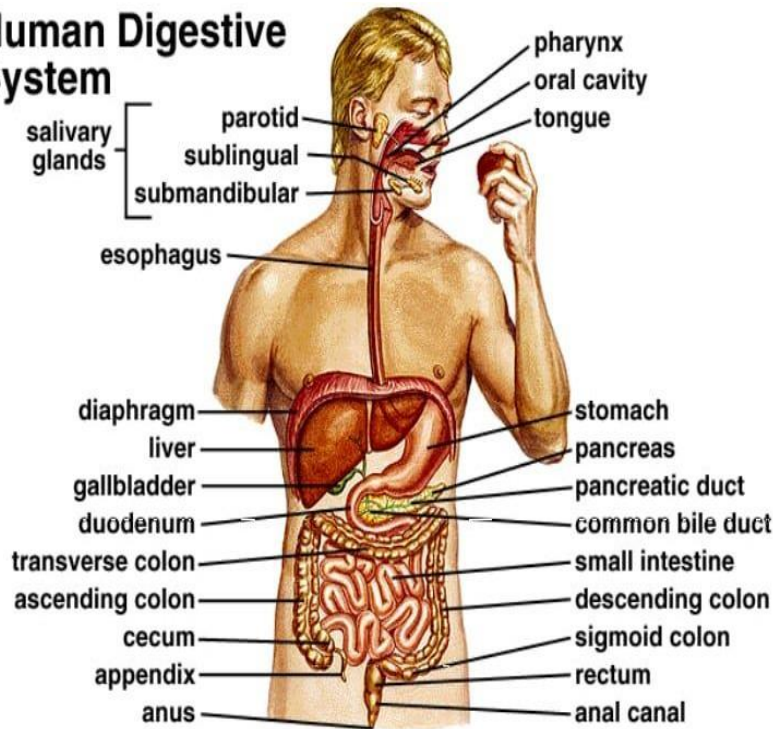


Holozoic nutrition in *Amoeba*

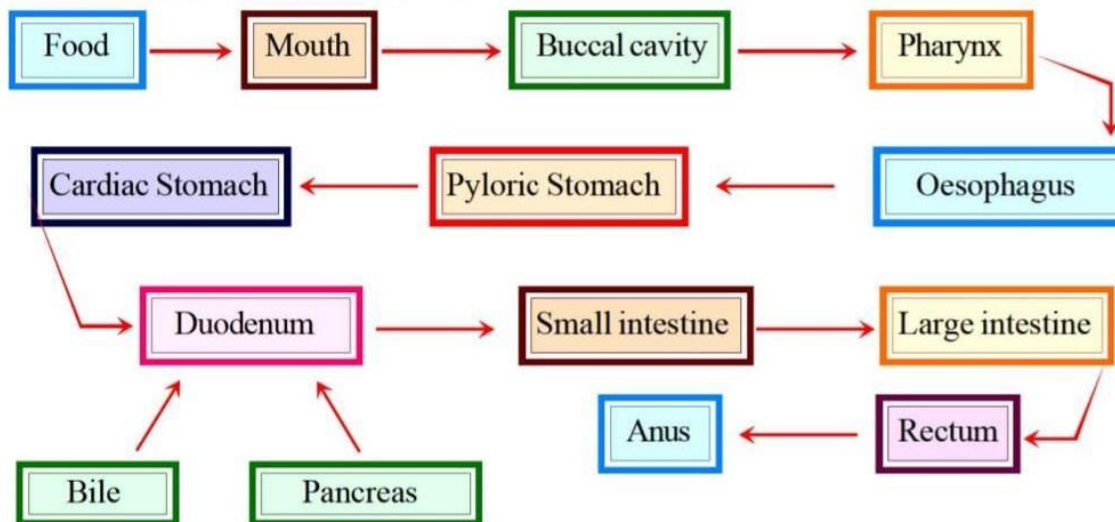


Structure and functions of organs of human alimentary canal will be explained by using zoom app and also by sharing diagrams on the screen in online class. Different types of digestive glands their enzymes will be explained. Video and notes made by the teacher will be sent for better understanding.

Human Digestive System



Flow chart of human digestive system



Health aspects of the alimentary canal

Students will be told to do activity related to 1st step in digestion with the help of the parents.

Activity : Have a representative from the group and come up to the front of the classroom and get one saltine cracker per group member. Student will take a small bite of the cracker holding it in the mouth without chewing or swallowing. After two minutes, discussion of the following questions will be discussed with the group members and students will be told to write the answer in their notebook.

- What happened to the cracker when it was in your mouth?

- Why did it start to get softer?
- What did you taste?
- After a few minutes, did the taste change?
- Did it become sweet?
- Did the cracker get soft in your mouth even if you were not chewing? The sweet taste means an enzyme in their saliva had started to breakdown the starch to sugar. This is the first step in digestion.

Student's participation and co - scholastic activities :-Students will be made to underline the important terms from NCERT Book.

- Students will frame questions related to the topic and will be orally asked by the students.
- Students will draw the diagrams of cross section of leaf, stomata, human alimentary canal.
- Students will perform the activity related to digestion.

With the above activity they got the spirit of team work and observation skill.

Assignment:-

- Students will do NCERT Question in the notebook.
- Assignment of extra question discussed in the class will also be given.
- What is the role of saliva in digestion?
- What are the differences between autotrophic and heterotrophic nutrition?
- Draw the diagrams of nutrition in amoeba.
- Define Photosynthesis.
- What is the role of Hcl.

Art Integration with other domains :

Role play for different organs of digestive system by making colourful charts.

Students will draw human alimentary canal on chart.

Students will draw colourful diagram of nutrition in amoeba and open and closed stomata.

Learning Outcomes:

Students will know and understand -

- Different modes of nutrition in organisms.
- Students will able to know the differences between autotrophic and heterotrophic nutrition
- Will develop the skill of drawing diagrams of human alimentary canal
- Will become aware of the different organs of digestive system and their functions.

[Type text]

Assessment:-

- Oral tests/Class work/Holiday homework
- Quiz/Role play
- Written test
- Periodic Test
- Concept Maps/Visual expression
- Practical based questions/Subject Enrichment Activity.

1. Define photosynthesis with diagram. (2)
2. Draw well labelled diagram of HUMAN ALIMENTARY CANAL (5)
3. What is the role of saliva in digestion? (2)
4. Define saprophytic and Parasitic nutrition with examples. (3)

Topic: Respiration and Transportation in Human Beings(July-Mid August)

Objectives :

- Students will be able to track how the blood gets around the body.
- They will identify and investigate the function and parts of primary organs of circulatory system and human respiratory system.
- They will be able to measure blood pressure of a person and will have knowledge of its significance.
- They will be able to identify key terminology related to human respiration and circulatory system.

PK Testing :-

Some questions will be asked to students -

1. What is respiration?
2. How will you differentiate between respiration and breathing?
3. What are the organs of respiration in humans?
4. What are the functions and components of blood?
5. Name four chambers of human heart.

Vocabulary used and important spellings :-Nostrils , Pharynx , Trachea, Respiratory pigments , Haemoglobin , Rings of cartilage , Artery , Vein , Vena Cava, Aorta , Pulmonary artery and vein , Ventricle , Atrium , Double circulation.

Innovative methods and resources :-

- Content of the topic will be shown on zoom app.
- Mechanism of breathing and blood circulation will be shown.
- Students will be trained to draw diagrams of human respiratory system and human heart. (3-D Model of heart)
- To measure the BP by sphygmomanometer.
- Activity of inhalation and exhalation by deep breathing.

Resources :

- NCERT Text book/ DIKSHA app
- Biology Today by- Cordova Publication.
- Biology by - Dinesh Publications.
- LINK:<https://www.youtube.com/watch?v=b85JTa13umM&authuser=0>
- LINK: <https://www.youtube.com/watch?v=MPovpAXcmIU&authuser=0>
- LINK:<https://www.youtube.com/watch?v=rN20xPg3ir4&authuser=0>

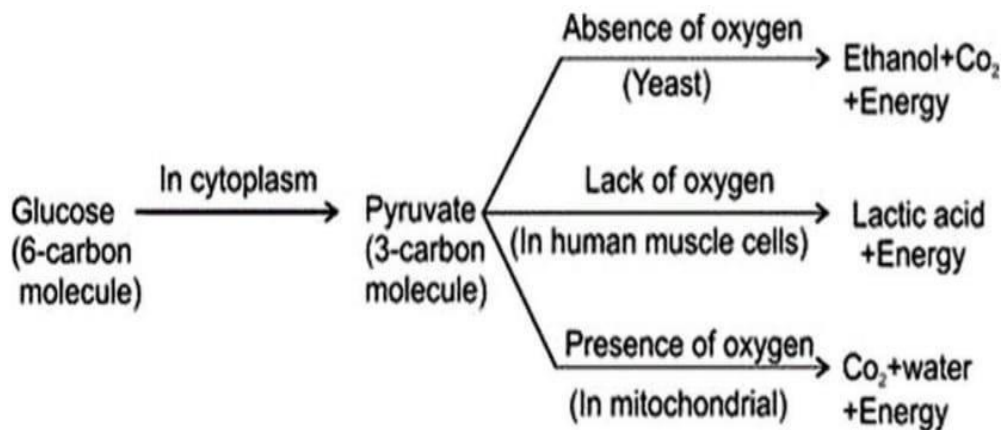
Procedure :

Term respiration and transportation will be explained to the students. Differences between breathing and respiration will be explained. Organs of respiratory system along with their functions will be explained. Mechanism of breathing will be explained in online class. Inhalation and exhalation will also be explained by using DIKSHA app. Structure and functions of organs of human respiratory system will be explained in detail with the help of NCERT and sharing

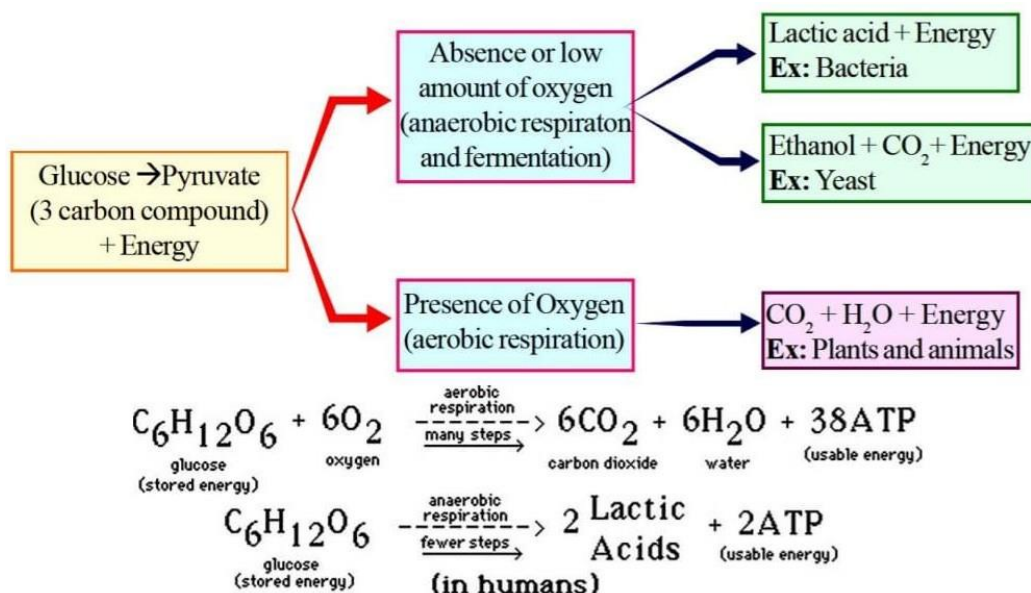
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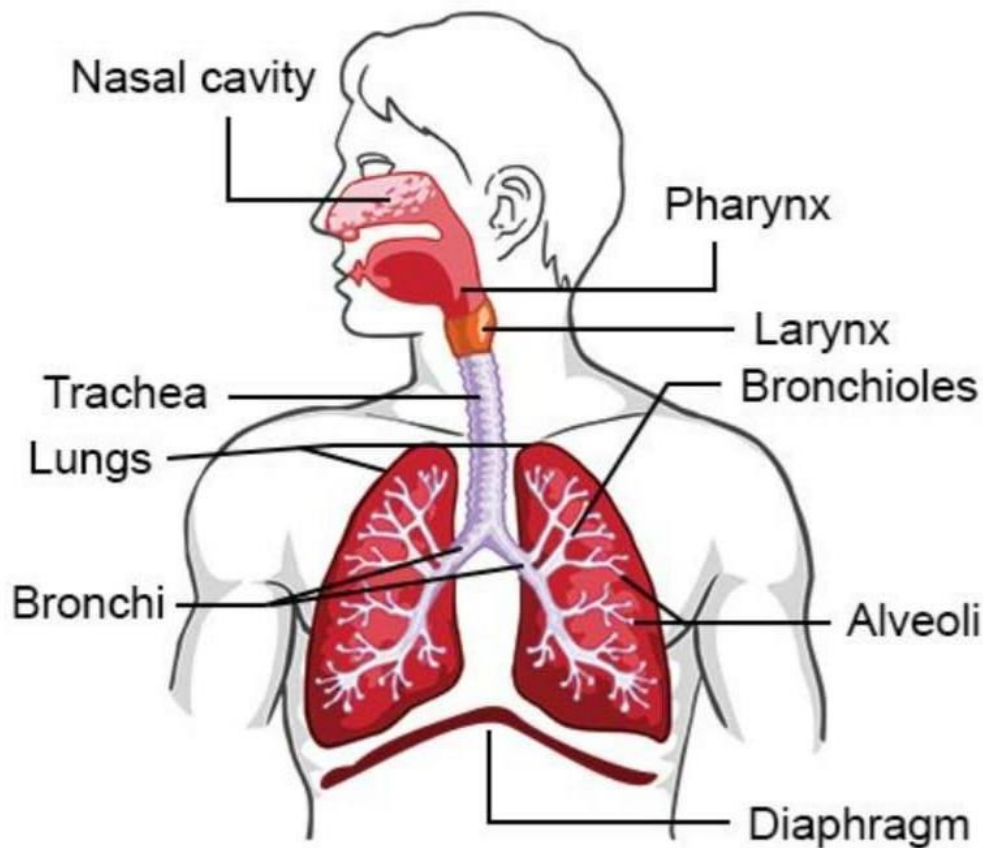
diagrams on screen while teaching on zoom app. Breakdown of glucose by various pathways will also be explained with the help of NCERT Book and through video sharing on screen. Students will make model to show inhalation and exhalation process by using material easily available at home with the help of link given below.

LINK:<https://www.youtube.com/watch?v=b85JTa13umM&authuser=0>



(Break down of glucose by various pathways)





HUMAN RESPIRATORY SYSTEM

Human respiratory system and human heart , pumping of heart , circulation of blood in human heart will be explained on zoom app. Single and double circulation terms will be explained by giving examples. Blood Pressure, Systolic ,diastolic pressure will be explained by (using) showing sphygmomanometer. Differences between arteries and veins , functions of capillaries will be explained by using NCERT Book . Students will be told to measure BP with the help of BP apparatus.3D medical mechanism of breathing will be shown with the help of given link.

LINK:<https://www.youtube.com/watch?v=MPovpAXcmIU&authuser=0>

ASSIGNMENT TOPIC

NUTRITION & RESPIRATION

VERY SHORT ANSWER TYPE QUESTIONS

- 1) What are life processes?
- 2) Define nutrition.
- 3) Which type of energy is used by living organisms?
- 4) What are peristaltic movements?
- 5) Define photosynthesis. Give its equation.

[Type text]

- 6) Give importance of nitrogen.
- 7) In which two forms nitrogen can be taken?
- 8) Why do herbivores need longer small intestine?
- 9) Give full form of ATP?
- 10) What is fermentation?
- 11) What is the function of rings of cartilage present in the throat?

SHORT ANSWER TYPE QUESTIONS

- 12) Why different kinds of organisms use different nutritional process?
- 13) Why are molecular movements needed for life?
- 14) Define stomata .Give its functions.

- 15) Define saprophytic & parasitic nutrition with examples.
- 16) Which enzyme is present in saliva & what is its function?
- 17) What are the secretions of gastric glands?
- 18) Which enzymes are secreted by pancreatic juice? Give their functions.
- 19) When we eat something we like, our mouth 'waters'. What is the actual meaning of the statement?
- 20) Define respiration. Give its importance.
- 21) Give differences between aerobic and anaerobic respiration.
- 22) Why role of breathing faster in aquatic animals than the terrestrial animals?
- 23) What is the function of hair and mucus that line the passage of nostrils?
- 24) Why CO_2 is transported in the dissolved form in our blood as compared to O_2 ?
- 25) What is the function of alveoli?
- 26) State the role of nasal cavity & diaphragm in human respiratory system.

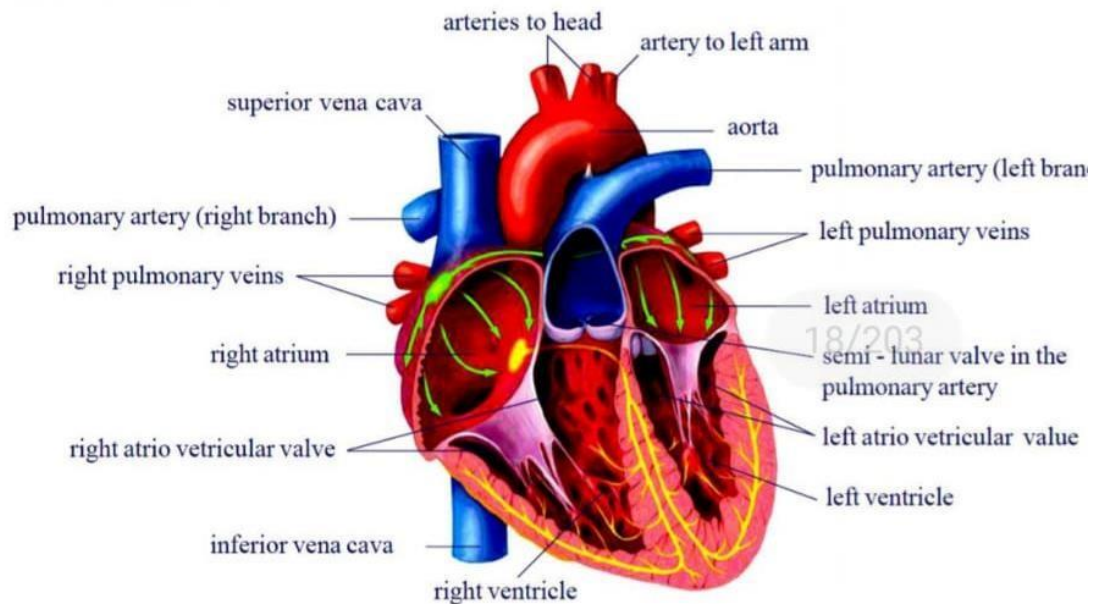
LONG ANSWER TYPE QUESTIONS

- 27) What is the location of gastric glands? Give its secretions with the functions.
- 28) What are the functions of HCl?
- 29) How nutrition takes place in amoeba?
- 30) What is secreted by liver? Give its functions. Where does it get stored?
- 31) What is meant by residual volume of air? What is its function?
- 32) Name the respiratory pigment in humans? What is unique about it? Where is it present?
- 33) With the help of diagram. Explain mechanism of closing and opening of stomata.

DIAGRAMS

- 1) Cross section of leaf
- 2) Human alimentary canal
- 3) Human respiratory system

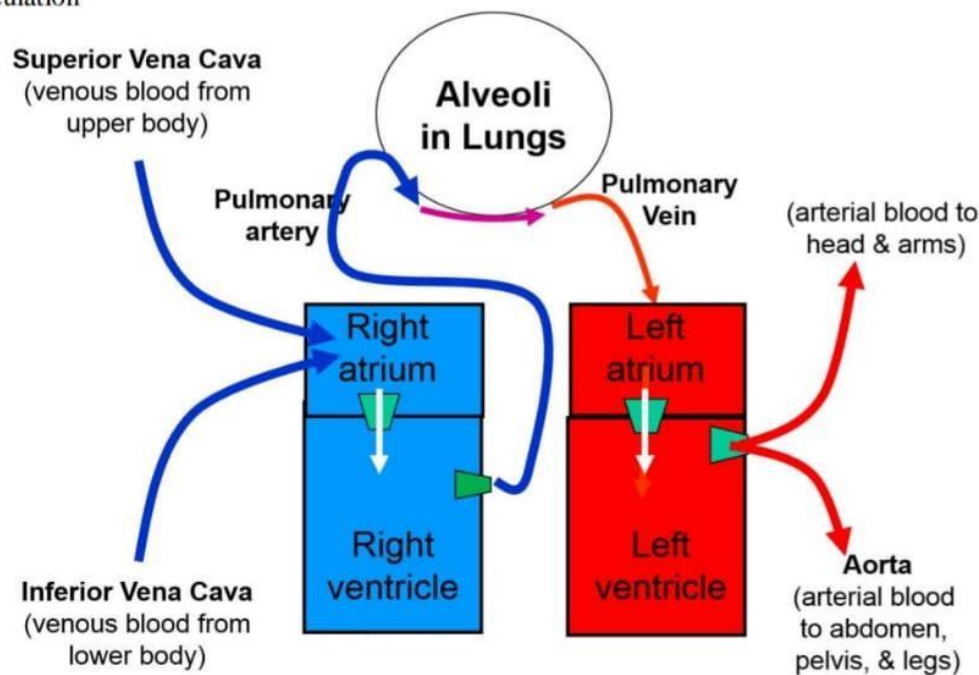
DO ALL NCERT QUESTIONS GIVEN IN THE BOOK.



Internal structure of heart

Circulation of Blood through the heart:

Systemic Vein → Sinus Venosus → Right Auricle → Right Ventricle → Pulmonary Artery → Lungs → Pulmonary Vein → Left Auricle → Left Ventricle → Truncus Arteriosus → Systemic Circulation



LINK:https://www.youtube.com/watch?v=NS_l127FoFA&authuser=0

Participation of students and Co-scholastic activities :-

- Students will be told to check BP of their family members with the help of sphygmomanometer.
- Students will perform the activity of inhalation and exhalation by counting of deep breathing.
- Students will draw the diagrams of Human respiratory system and human heart.
- Students will also frame questions related to the topics.
- Students will be able to understand about systolic and diastolic pressure.
- From the above activities students will develop observation skill and also get the spirit of team work. The knowledge gained through activities will be applied in daily life.

Assignment:

- Students will do NCERT questions in notebook.
- Extra question in the form of assignment will be given in the class.
- Write the differences between aerobic and anaerobic respiration.
- What is blood pressure?

[A] Draw diagrams of human respiratory system and label the following parts :

- (i) Which terminates in balloon like structure?
- (ii) Part which air is filtered by fine hair and mucus.

[B] Draw a flowchart to show breakdown of glucose by various path ways.

Art integration with other domains :

- Students will draw diagrams of Human respiratory system and human heart and will colour them.
- Activity of inhalation and exhalation by counting deep breathing and by making models and charts.

Learning outcomes :

- Students will be able to trace path of oxygenated and de oxygenated blood in human body.
- Students will be able to measure blood pressure of a person and will have knowledge of its significance.
- Students will be able to understand the importance of transpiration in plants.
- Will develop the skill of drawing diagrams.

Assessment :

- Oral test/Quiz
- Peer assessment in class activity.
- Written test
- Weekly test
- MCQ'S
- Define respiration and write differences between aerobic and anaerobic respiration.
- Differences between arteries and veins.
- State the role of nasal cavity and diaphragm in human respiratory system.
- Draw well labelled diagram of human heart.

Topic : Transportation in plants and excretion in human beings and plants(August)

Objectives : Students will have knowledge to

- Understand transport of water and minerals in plants.
- To make them understand transport of food and other substances in plants.

- Students will be able to define transpiration and translocation.
- Students will be able to define terminology related to excretion.
- Students will be able to draw well labelled diagram of human excretory system and state function of each part.
- They will be able to know the structure of nephron and the process of dialysis.
- Students will be able to differentiate xylem and phloem.

PK Testing:

- What is transportation?
- What will happen if xylem is removed from plants?
- What are the components of xylem and phloem?
- Define excretion.
- What type of patient are put on dialysis?
- What are the organs of excretory system in human?

Vocabulary used and important spellings :

Xylem , Phloem , transpiration , vessels, Tracheid , Nephrons , Bowman's , capsule , blood capillaries , glomerulus , Renal Failure, Tubules , Dialysis, Amino acids etc.

Innovative methods and resources :

- Content of the topic will be shown on zoom app.
- Structure and working of human excretory system will be shown.
- The principle of the kidney dialysis machine will be shown by screen sharing while online class.
- Mechanism of transport of water and minerals in the plants will be discussed with the help of NCERT BOOK.
- Students will be trained to draw human excretory system.
- Activity to collect different material of waste product in plants like bark , gums and resins etc. and students will paste in the notebook.
- Chart of excretory system.
- Filtration of blood in human excretory system. Activity will be performed by using different materials by the students.

Resources :

NCERT Textbook/DIKSHA APP

Biology Today by: Cordova publications.

Biology By: Dinesh Publication

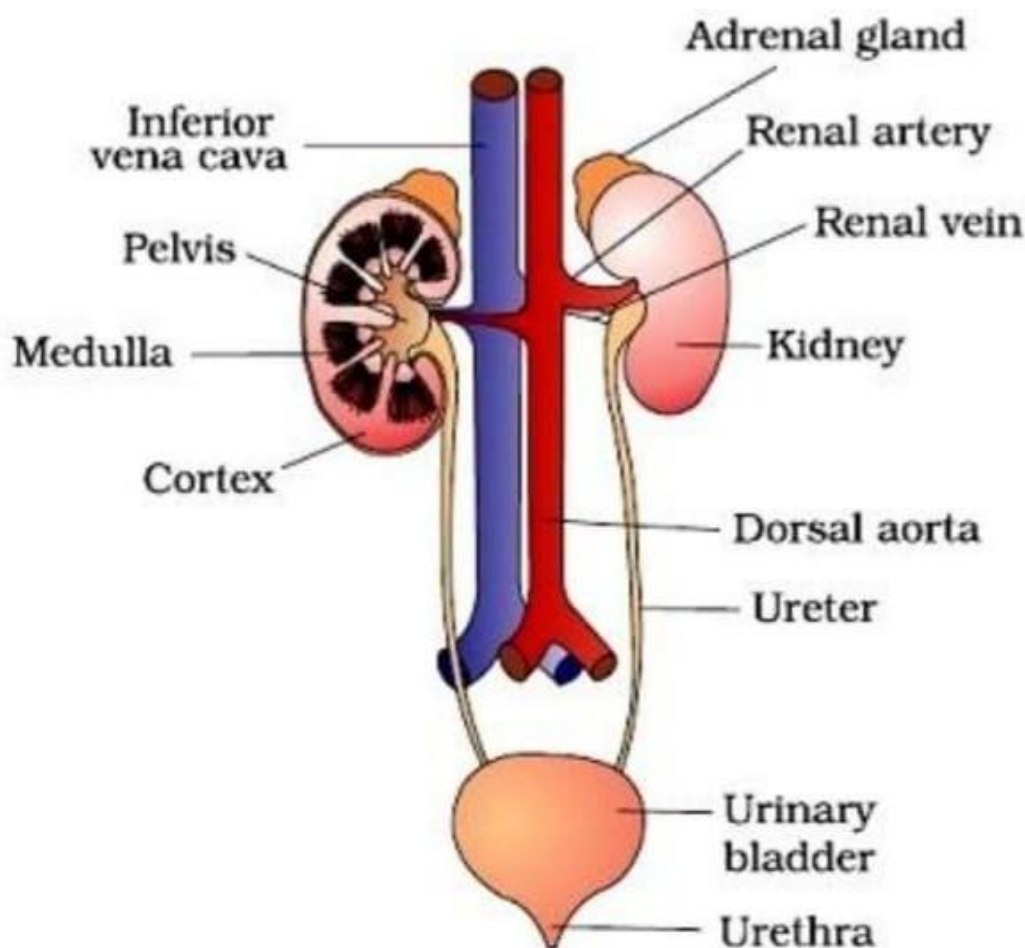
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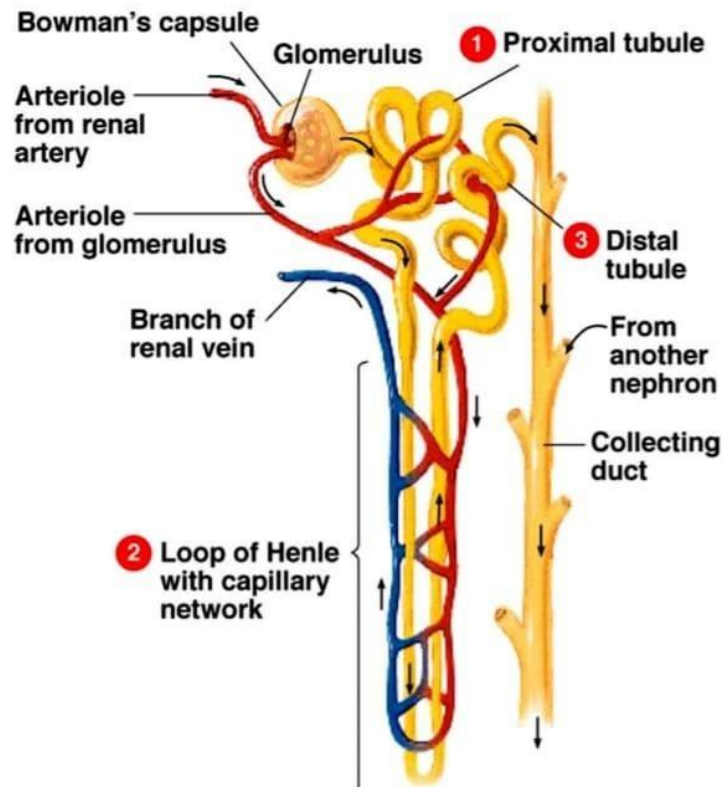
Procedure :Transportation in plants i.e. role of xylem and phloem will be explained . Mechanism of transport of water, minerals and food will be explained with the help of NCERT Book. Children will be told to collect different materials of waste product in plants like bark, gums, resins etc. will paste in the notebook .Term transpiration, translocation and ascent of sap will be explained. Very short, short and long question will be discussed from DIKSHA app as prescribed by CBSE.

Term excretion will be explained .Human excretory system along with their organs and functions of organs will be explained by Sharing diagrams on the screen while using zoom app online teaching and also by using NCERT book .Videos related to the content given on DIKSHA app will be sent to the students for better understanding .Questions given on this app will also be discussed side by side.



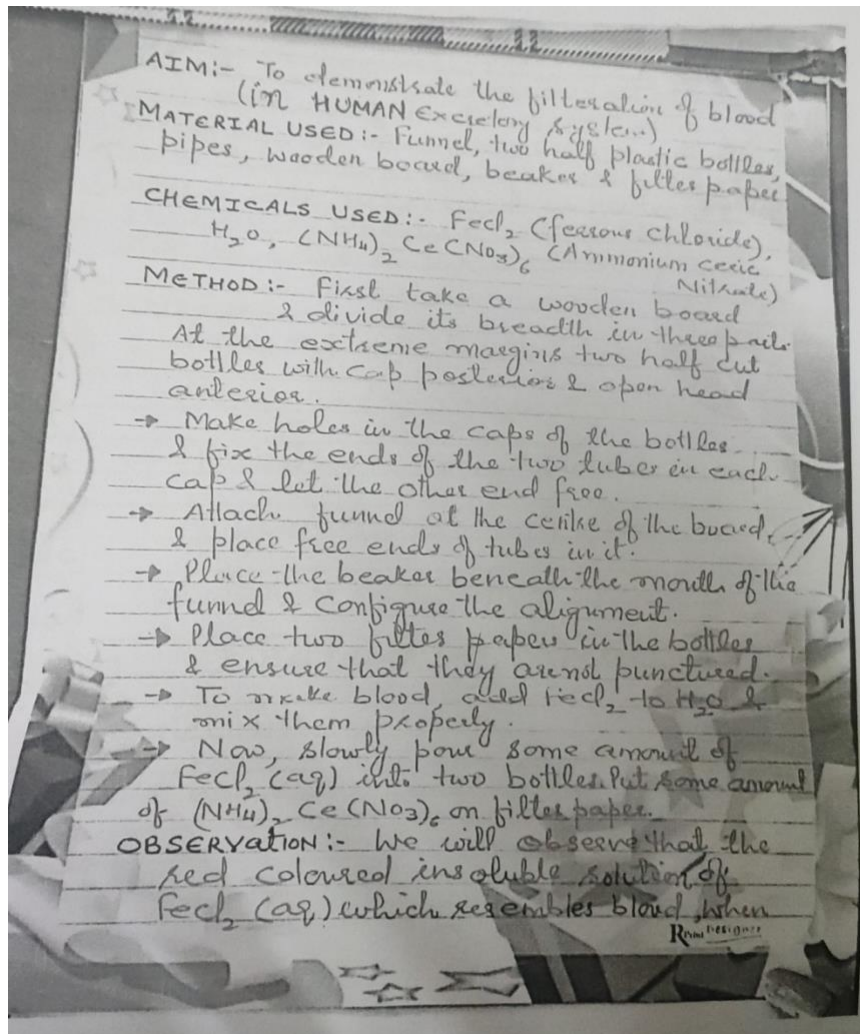
HUMAN EXCRETORY SYSTEM

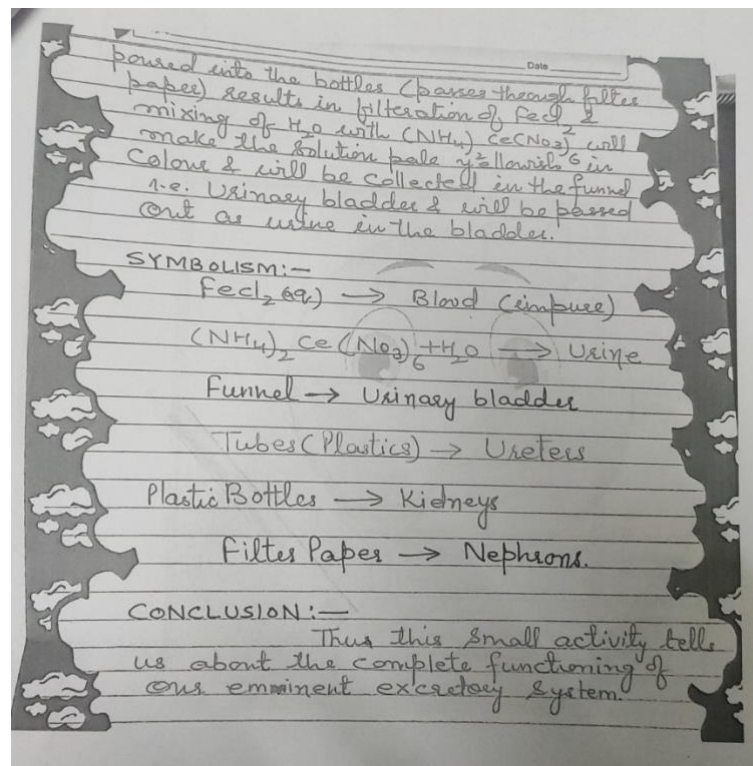
Term Dialysis, Artificial Kidney will also be explained. Structure of nephron along with the parts will also be explained. Working model of filtration of blood in human excretory system will be made.



STRUCTURE OF NEPHRON

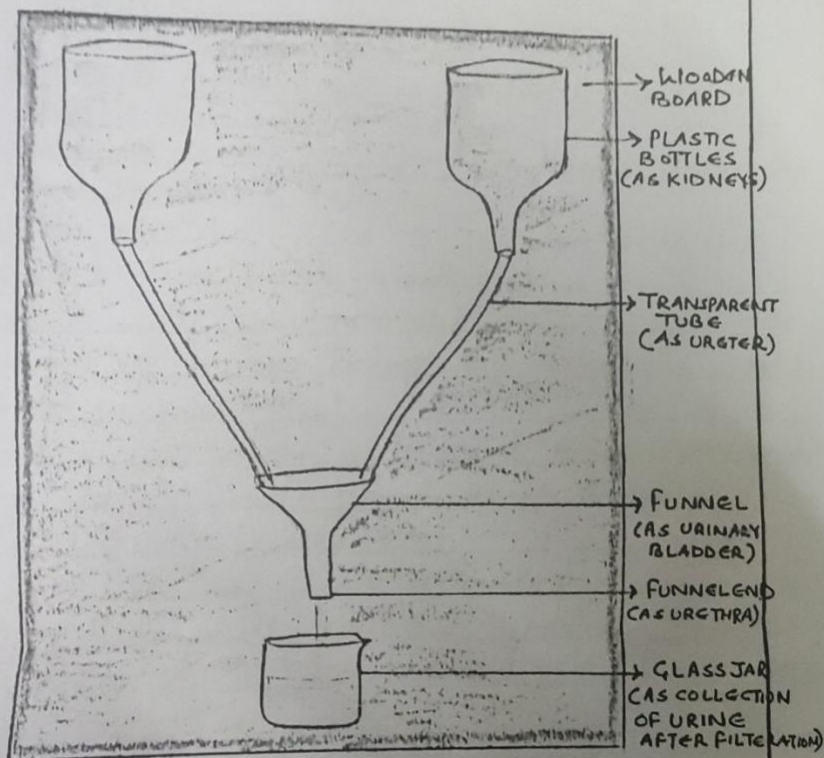
Activity : To demonstrate the kidney filtration (kidney model and function)





To demonstrate the filtration of blood in Human Excretory system.

To Demonstrate the filtration of
Blood in HUMAN EXCRETORY SYSTEM



Students participation and co - scholastic activities :

- Students will be made to underline the important terms from NCERT Book.
- NCERT questions and question from DIKSHA app will be discussed side by side.
- Students will frame questions related to the topic and will also be discussed in the class.
- Students will draw the diagrams of human excretory system and structure of nephron.
- Students will be able to understand the structure and functions of nephron.
- Students will perform the activity of filtration of blood in human beings by making working in peer group.
- Students will paste different materials of waste products in plants i.e. resins, gums, bark etc.
- With the above activities they develop observation skill, critical thinking and gained knowledge of the concerned topic and got the spirit of team work.

Assignment :

- Students will do NCERT questions in the notebook.
- Students will do extra question given in the printed assignment.
- Define dialysis. What type of patient are put on dialysis?

- Draw well labelled diagram of human excretory system.
- How water and food is transported in plants?
- Define translocation.

Art integration with other domains :

- Students will draw human excretory system on chart or with the help of clay.
- Students will draw colourful diagram of nephron.
- Diagram to show filtration of blood on chart.

Learning outcomes :

- Students will be able to apply their understanding to create a model for function of kidney to filter blood.
- Students will be able to learn the structure of nephron with the help of diagram.
- Will become aware about the process of dialysis.

Assessment :

- Oral test
- Quiz
- MCQ
- Weekly test
- Peer group activity

1. Explain the role of transpiration in the movement of water through xylem?
2. Draw excretory system in human being and label the following parts
 - (a) Where Urine is formed?
 - (b) Store Urine until it is passed out.
 - (c) A long tube which collect urine from kidneys.
3. State two vital functions of human kidney
4. What will happen to a plant if its xylem is removed?

ASSIGNMENT TOPIC

TRANSPORTATION & EXCRETION

VERY SHORT ANSWER TYPE QUESTIONS

1. What is transportation?
2. List components of blood.
3. What is the size of human heart?
4. Name the blood vessels which carry deoxygenated blood to (a) lungs (b) heart
5. Define double circulation.
6. What is the function of xylem?
7. What is the function of phloem?

8. What is normal blood pressure in humans?
9. Define excretion?
10. What is meant by dialysis?
11. Name an instrument used in measuring blood pressure.

SHORT ANSWER TYPE QUESTIONS

12. Give functions of plasma.
13. Why ventricles have thicker walls than auricles?
14. Give one reason why multicellular organisms require special organs for exchange of gases between the body and their environment.
15. What is translocation in plants?
16. Give functions of blood.
17. Name the parts of phloem which help in translocation of food and other substances.
18. What will happen to a plant if its xylem is removed?
19. Explain main role of heart in our body?
20. What are the main functions of nephrons?
21. State two vital functions of human kidney?
22. Why is double circulation of blood necessary in human beings?
23. Why plants have low energy need in comparison to animals?
24. Define transpiration? How is it useful?
25. Give difference between artery and veins.
26. Give functions of blood vessels.
27. Where urine is produced? Name the ducts which carry urine. Where urine is stored?

LONG ANSWER TYPE QUESTIONS

- 28) What is meant by blood pressure? Is this pressure same in all blood vessels? How does systolic pressure differ from diastolic pressure?
- 29) Explain structure and working of heart with the help of well labelled diagram.
- 30) Draw well labelled diagram of
 - (a) Human excretory system
 - (b) Structure of nephron.

DO ALL NCERT QUESTIONS GIVEN IN THE BOOK.

**REVISION OF TRANSPORTATION AND EXCRETION AND
INTRODUCTION OF HOW TO ORGANISM
REPRODUCE?(September)**

CHAPTER 8 How do organism reproduce?

Sub topics :

- DNA Copying
- Types of asexual reproduction
- Sexual reproduction in flowering plants
- Reproduction in human being
- AIDS and Contraceptive methods

Objectives –

Student will be able to:

- Know significance of DNA Copying mechanism.
- Will understand the methods of Asexual Reproduction in plants.
- Understand the basic differences in different asexual methods of reproduction.
- To get the students aware about different parts of a plant which take part in asexual reproduction.
- Will understand Sexual reproduction in human being.
- Know the role of placenta and uterus line in pregnancy.
- Understand the importance of reproductive health.
- STD's caused by bacteria and virus.
- Understand the role of contraceptive methods in maintaining population.

P.K.Testing:

Some questions will be asked from the students:

1. What is reproduction?
2. Why reproduction is important?
3. What are the differences between sexual and asexual reproduction?
4. Parts of flower.

Important spellings and vocabulary used :

Binary Fission, Regeneration, Budding ,Ovaries, Fallopian tubes, Vas deferens, Prostate Gland, Cervix, Uterus, Urethra, AIDS, Warts, Stamen, Carpel, Sepals etc.

Innovative Methods and Resources :

- Floral parts of flower will be shown.
- Cutting of money plant will be shown to students in class. They can be told to keep them in glass bottles at home to observe the roots due to vegetative propagation.

Resources :

- NCERT book and DIKSHA APP
- Biology today by CORDOVA Publications
- Biology by Dinesh Publications

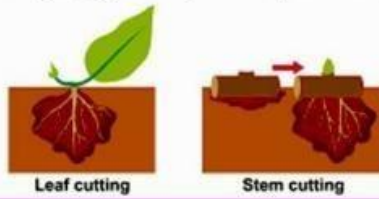
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LINK: <https://www.youtube.com/watch?v=rFy20Vxm5bM&authuser=0>

Procedure : Term Reproduction , types of reproduction , need of reproduction , differences

between sexual and asexual reproduction will be explained. Different types of asexual reproduction i.e. Binary Fission , Budding , Spore formation , Fragmentation , Regeneration etc. will be explained along with the diagrams on zoom app. Vegetative propagation will be explained. Cutting, Layering and grafting will also be explained with the help of diagrams.

Cutting – A part of stem is cut and the cut end grows into new plant when placed in moist soil
e.g. mango, guava, litchi, lemon, rose



Layering – The stem of a plant is bent down until it touches the soil. The stem is then cut once it develops roots and grows into a new plant.
e.g. lemon, rose, jasmine

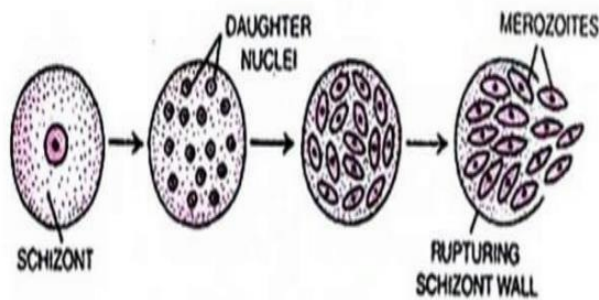
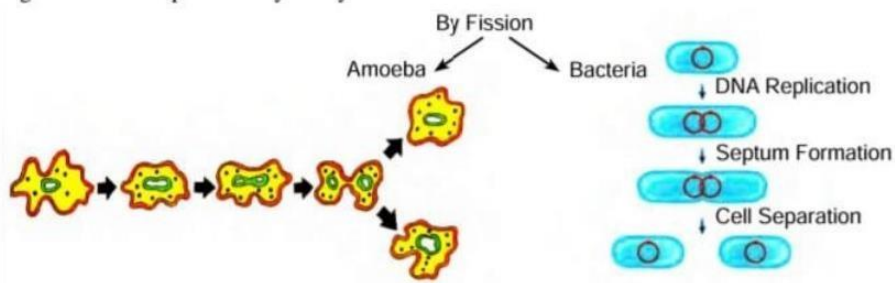


Grafting – The stem of a plant is cut and then fitted on another strong plant and covered with grafting wax.
e.g. apples, oranges, water melon, ornamental plants

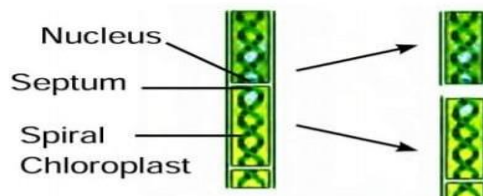


Air Layering – A slanting cut is made in the stem and kept separate with a toothpick. Moss and plastic is wrapped around it till roots grow. Then new plant is cut and planted separately.





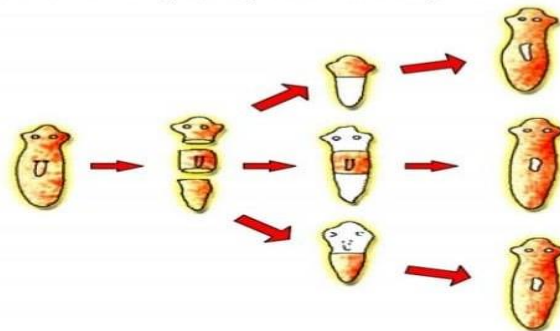
Multiple Fission in *Plasmodium*.



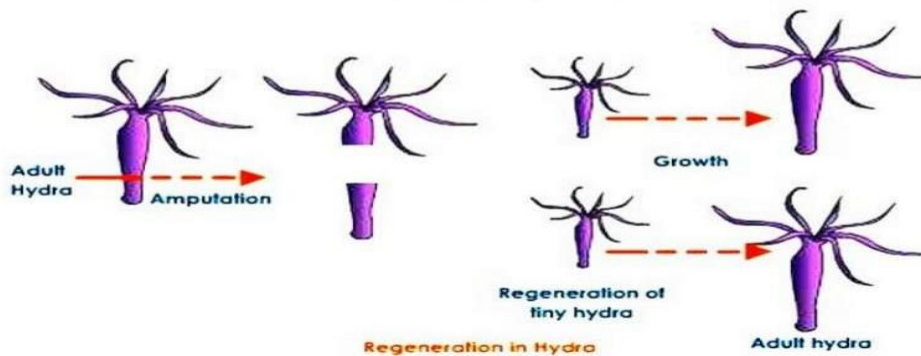
Fragmentation in *spirogyra*

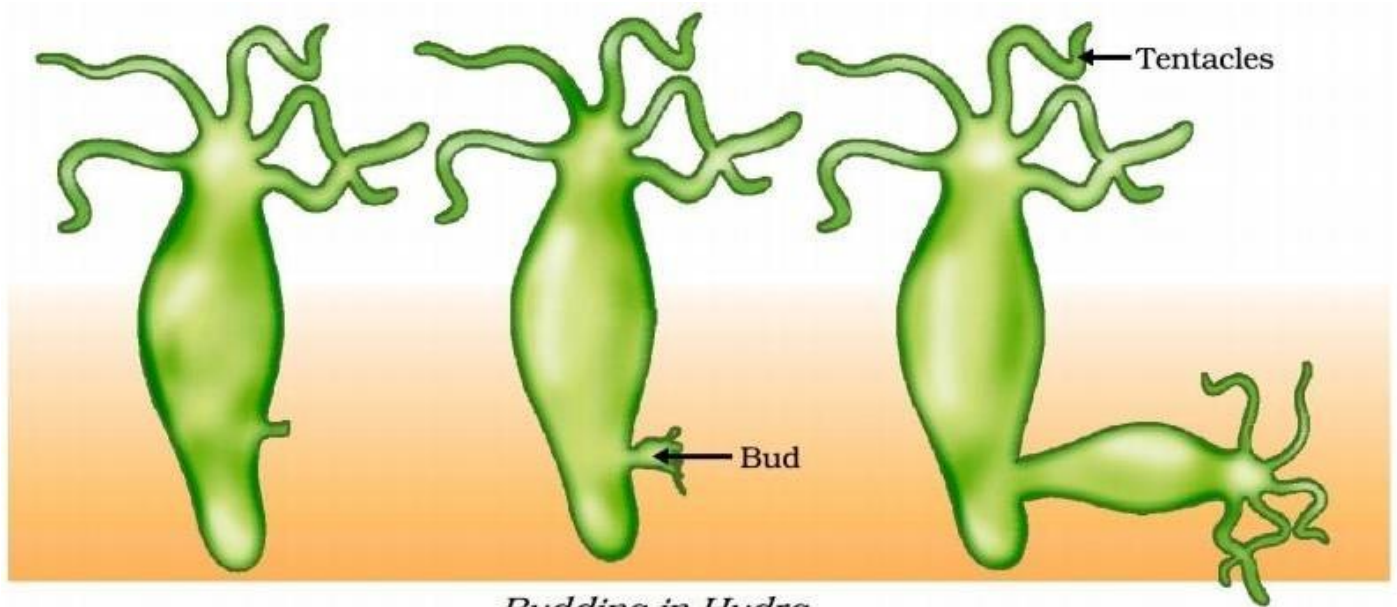
REGENERATION

If the individual is somehow cut or broken up into many pieces, many of these pieces grow into separate individuals. For example, simple animals like Hydra and Planaria can be cut into

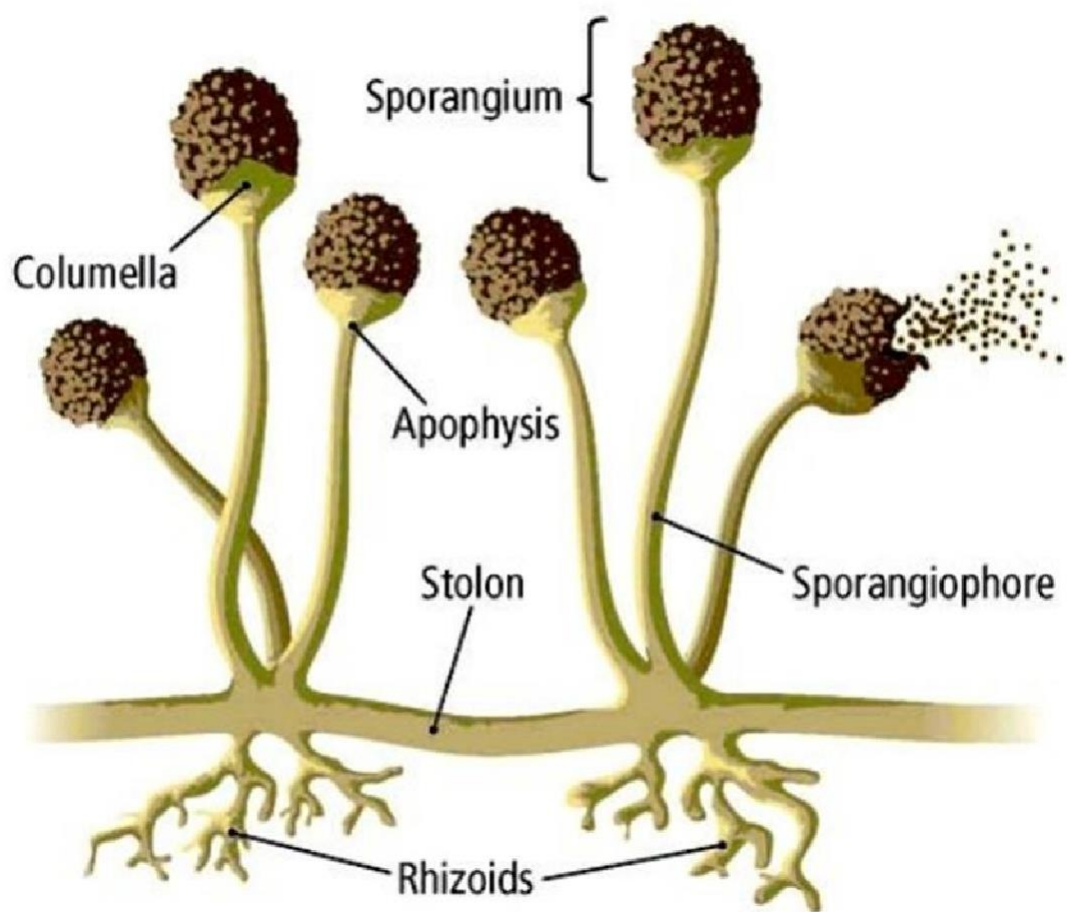


Regeneration in *Planaria*





Budding in Hydra

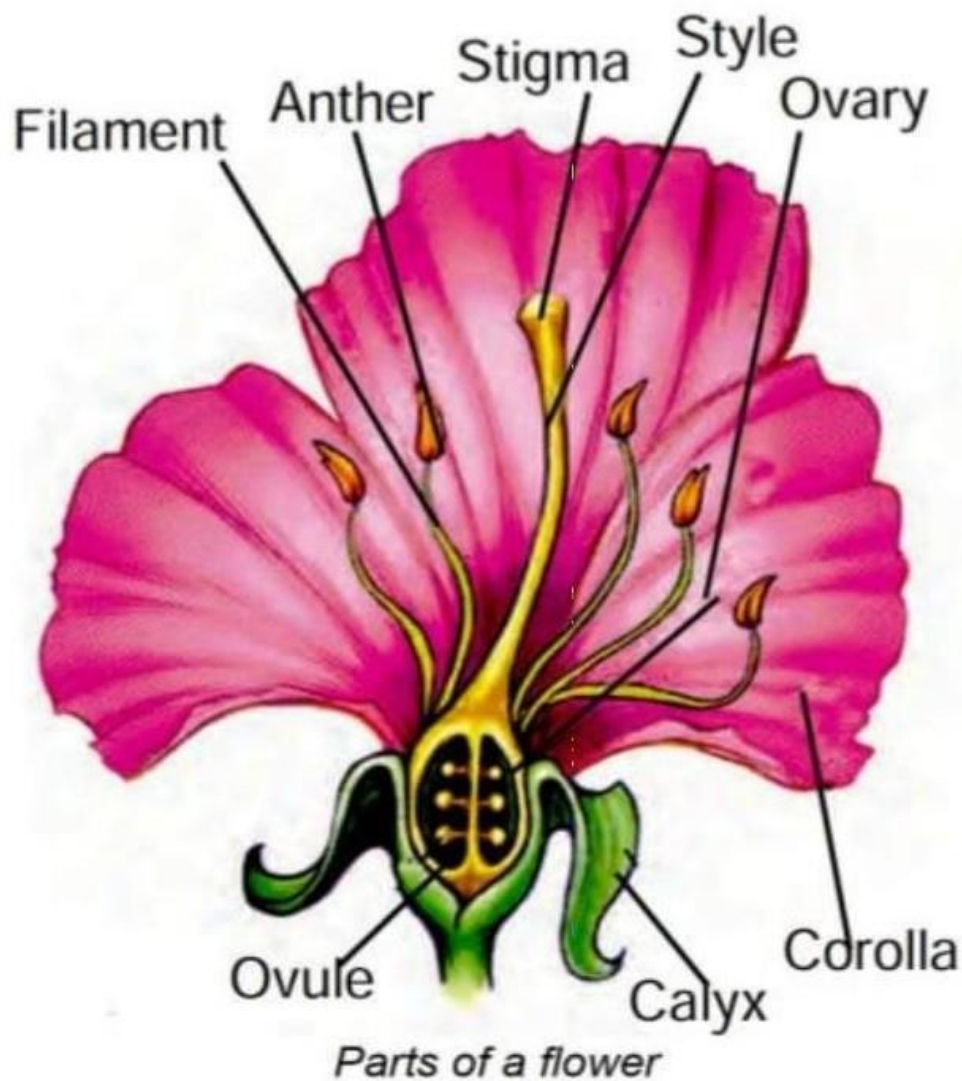


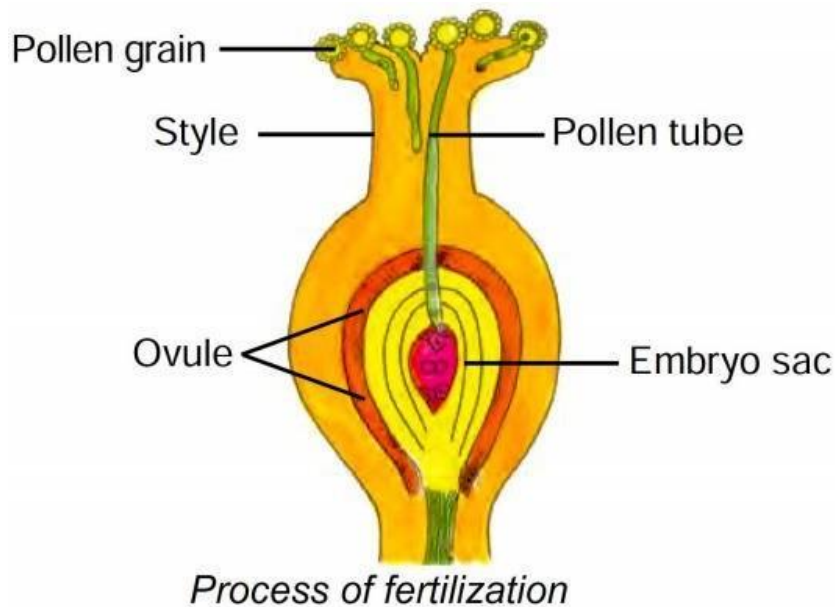
SPOREFORMATION IN RHIZOPUS

Sexual reproduction in flowering plants will be discussed along with the diagrams.

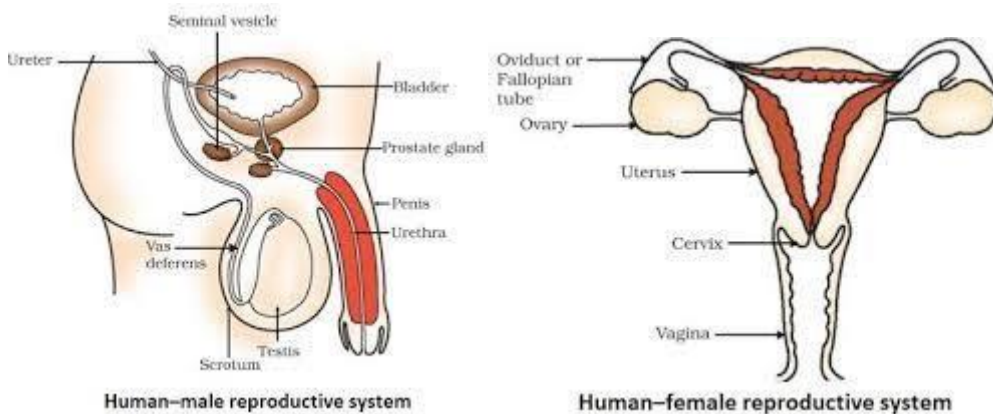
Floral parts of flowers will be shown to the students in the class by explaining their parts along with their functions.

Term Germination will be explained and will also be shown practically in the class with the gram seeds. Pollination, types of pollination (self and cross pollination), process of fertilization ,post fertilization changes will be explained with the help of diagrams.





Reproduction in human beings i.e. Male and Female reproductive system in human beings will be explained along with their organs and functions. Sexually transmitted diseases along with the examples will be explained.



Birth control methods, methods of contraception in women will be explained with the help of examples. Topic female foeticides, AIDS, Prenatal sex determination will be discussed in the class. Video clipping will be shown to students regarding the process of fertilization. Open discussion on reproductive health will be initiated in the class. Students will become aware about reproductive health and different contraceptive methods. Extra questions will be discussed from DIKSHA APP.

Student's participation and co - scholastic activities :

- Students will be told to study different floral parts of flower.
- Soaked black gram seeds and in a group of 4 students will dissect the part of seed and to display them on white paper to show various parts.
- Students will draw the diagrams of the related activities.
- Student will also frame the questions related to the topic.
- Students will be able to understand the structure and functions of seed coat, plumule and radicle.

With the above activities, they develop observation skill and gained knowledge of the concerned topic and got the spirit of team work.

Assignments :

Students will do NCERT questions in the notebook :

- Extra questions discussed in the class will also be given.
- Define fertilization.
- What are STD's ? Give examples of viral and bacterial STD 's
- Name the male and female gamete in flowering plants.
- Draw the diagram of male and female gamete of flower (Stamen and pistil or carpel)
- Give functions of Placenta.

Art Integration with other domains :

- Students will draw V.S. of flower on chart.
- Students will draw diagram of germination of seeds and colour them.

Learning Outcomes - Students will be able to;

- Appreciate the importance of sexual and asexual reproduction.
- Will become aware of the term adolescence and its associated changes in boys and girls.
- will be able to identify the asexual reproductive methods of reproduction in animals.
- Understand the basic difference in different asexual methods of reproduction.

Assesment:

- Oral Test /MCQ
- Practical
- Written test
- Weekly test

- 1) Describe the structure of flower with diagram.
- 2) Draw diagrams of binary fission in Amoeba
- 3) Explain any three contraceptive devices to avoid pregnancies.

ASSIGNMENT

TOPIC:HOW DO ORGANISMS REPRODUCE

1. What is DNA?
2. Define 'niches'?
3. Why reproduction is important for living organisms?
4. Which organism causes 'kalaazar'?
5. Give one example each of unicellular and multicellular organism which reproduce by budding?
6. Name a protozoan which divides by binary fission?
7. What grows on a piece of bread kept in moist, cool and dark place?
8. How does Leishmania reproduce?
9. What are the vegetative buds present in bryophyllum?
10. What do the eyes present in the potato tuber bear ?
11. How do the plants which do not produce viable seeds propagate? Give one example of such plants.
12. Mention the reproductive organs of a flower?
13. Mention the various agents which helps in pollination?
14. How do male gametes reach the egg which is present in the ovule of a flower?
15. Which part of the seed forms the future plant?
16. What terms are used for the root and shoot like structure coming out of the seed when it germinates?
17. What is the function of stigma?
18. Name the structure produced from ovary and ovule after fertilisation?

19. What are gonads? Name the male and female gonads found in human body?
20. Which structure carries eggs from ovary to uterus in human beings?
21. Name the process by which a mature ovum is released from the ovary?
22. When does reproductive tissue in human start maturing to produce gametes?
23. Why is the scrotum placed outside the abdomen?
24. What are the terms used for male and female gametes in humans?
25. What is vasectomy and tubectomy?
26. Define reproduction. Why do organisms reproduce?
27. Give difference between sexual and asexual reproduction?
28. Mention difference between unisexual and bisexual organisms.
29. What is double fertilisation. Explain with the help of a diagram.
30. What are post fertilisation changes in a flower?
31. What is germination? Draw diagram to show seed germination.
32. What is puberty? Write the changes that take place in males and females during puberty.
33. Give difference between self and cross pollination.
34. What is vegetative propagation? Give its advantages.
35. What is placenta? Give its functions.
36. What are STDs? Give bacterial and viral diseases.
37. (a) Write organs of male and female reproductive system and give their functions.
(b) Draw well labelled diagram of male and female reproductive systems.

ALL NCERT TEXT BOOK QUESTIONS

October- Pre Board(1st Term)

November- 1st Term Exam

Chapter 9 :Heredity and Evolution(December)

And

REVISION OF HOW DO ORGANISM REPRODUCE?

Sub Topics :

- Inherited traits
- How do these traits get expressed ?
- Sex determination
- Acquired and inherited traits
- Human evolution.

Objectives :

Students will be able to -

- Learn importance of variation
- Will understand the rules of inheritance given by Mendel and will work on monohybrid and dihybrid cross.
- Will have knowledge of sex determination in human being.

P.K.Testing :

Some questions will be asked from the students :

- Define Heredity and variation
- What are inherited traits ?
- What are homogametes and heterogametes?
- Rules for the inheritance of traits- Mendel's contributions

Important spellings and vocabulary used :

Heredity , Genetics , Variation , Progeny , Monohybrid , dihybrid , Phenotype , Genotype, Acquired traits ,

Innovative methods and resources :

- PPT would be shown regarding crosses.
- Introduction of the chapter by Brain storming.

A group of 4 students each will do the following activities :

1. Ask students to count the number of children with blue and brown eyes in given class and to reason out the low frequency of blue eyed children.
2. The teacher will ask the students to find out whether they are having attached or free ear lobe and on the basis of this will try to explain the inheritance.

RESOURCES :

- NCERT Book /DIKSHA APP
- Biology Today by CORDOVA Publication.
- Biology by Dinesh Publication
- LINK : <https://www.youtube.com/watch?v=Eq3WLj1UdzM&authuser=0>
- LINK: <https://www.youtube.com/watch?v=wTdmOUxSUco&authuser=0>
- LINK: <https://www.youtube.com/watch?v=2Cf3oMZCnol&authuser=0>

Procedure :

Under this chapter terms Heredity ,Variation will be explained along with examples. Before MENDEL'S experiment terms chromosomes , genes , dominant gene , recessive gene , genotype , phenotype , F1 generation , F2 generation will be explained. The seven pairs of contrasting traits or characters by Mendel observed in garden pea plants will be explained with the help of diagrams.

Rules for inheritance of traits, monohybrid and dihybrid cross and law of independent assortment will be explained .

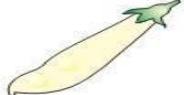
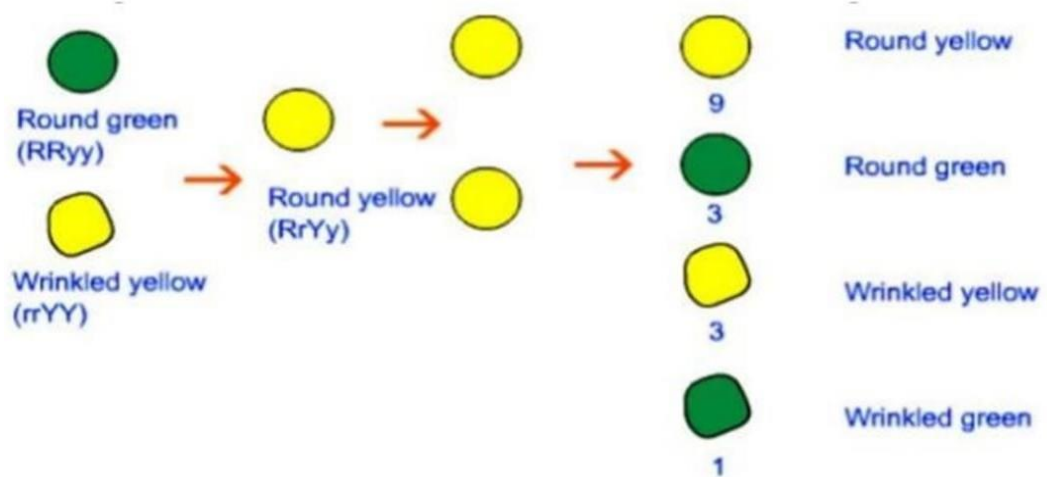
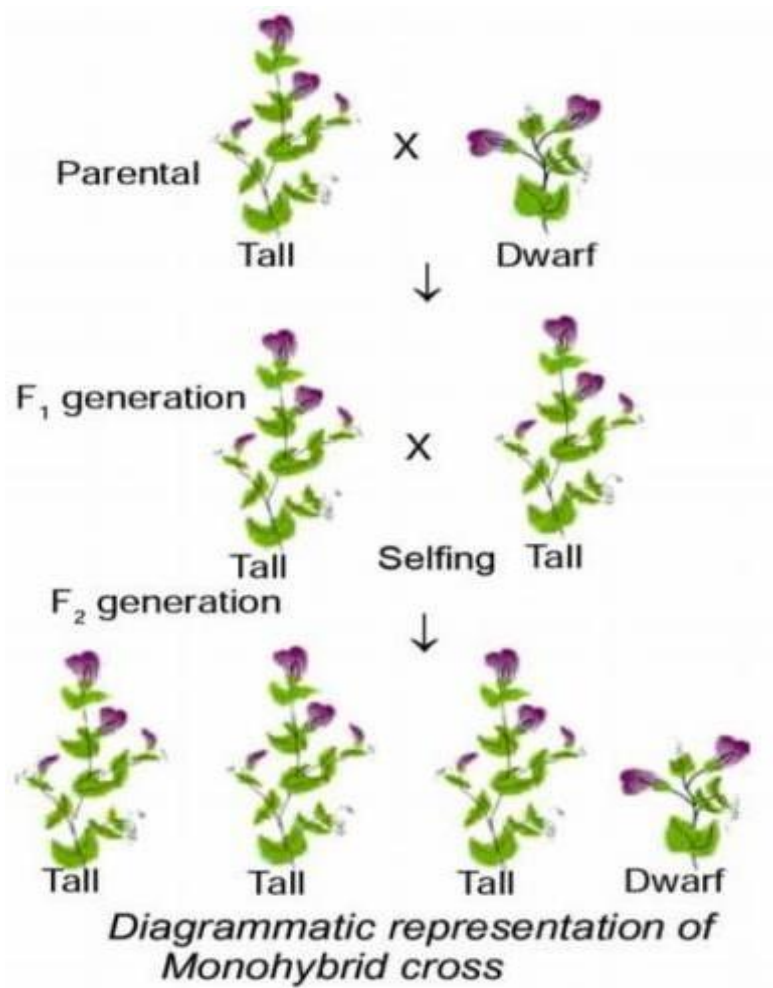
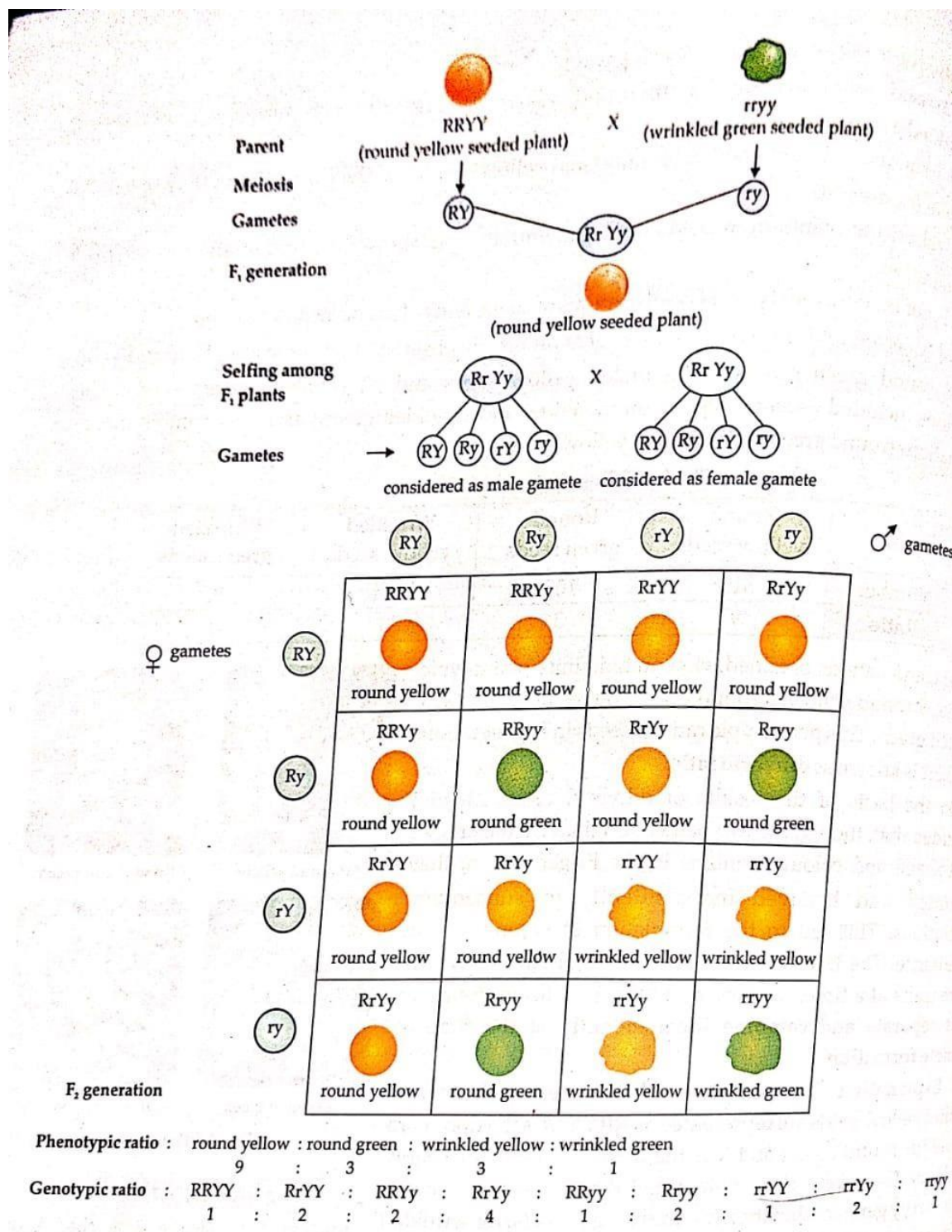
Character	Dominant trait	Recessive trait
Seed shape	 Round	 Wrinkled
Seed colour	 Yellow	 Green
Flower colour	 Violet	 White
Pod shape	 Full	 Constricted
Pod colour	 Green	 Yellow
Flower position	 Axial	 Terminal
Stem height	 Tall	 Dwarf

Figure Seven pairs of contrasting traits in pea plant studied by Mendel



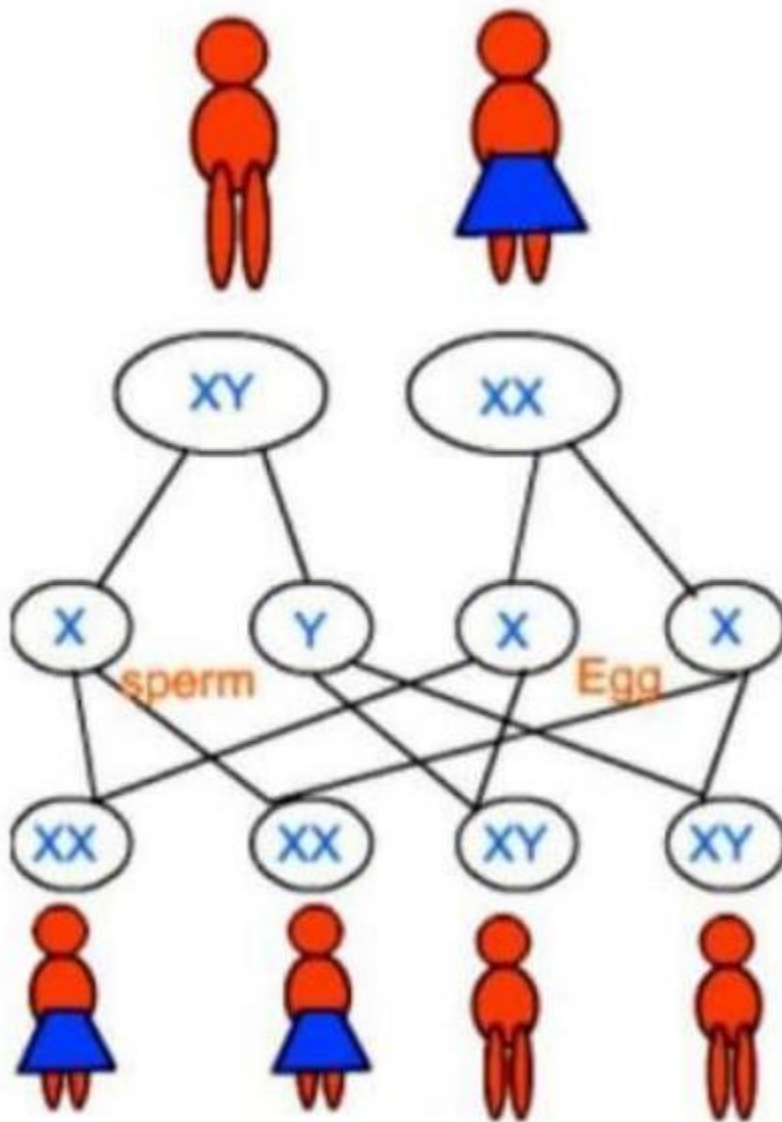


DIYHYBRID CROSS

How do genes control the characteristics? How blood groups are inherited ?

Sex determination in humans ,acquired and inherited traits will be explained along with the examples.

Sex Determination in human beings will be explained with the help of flow chart.



Sex determination in humans

Extra Question Answers related to these topics will be discussed with the help of DIKSHA app in the class.

Value based question answers will also be discussed.

Student's participation and Co – scholastic activities :-

- Students will be told to do activities related to heredity

and with these activities they develop critical thinking

(Evidence based learning), competitive evolution of given information.

- Students will draw mono hybrid and dihybrid cross.
- Students will also frame the question related to the topic.
- Students will be made to underline the important terms from NCERT.
- NCERT questions will be discussed.

Assignment :

Students will do NCERT questions in the notebook and will

Draw sex determination in human being.

Extra questions would be given to the students :-

- 1) Draw monohybrid and dihybrid cross.
- 2) Revise the content taught in the class

.

Art Integration with other domains :-

- Students will draw Mono and Dihybrid cross on a chart.
- Students will draw sex determination in human being.

Learning Outcomes–

Students will be able to :

- Explain how the number of chromosomes changes during male and female gametogenesis and fertilization.
- Know the sex of offspring (humans).
- Differentiate between heredity and variations.
- critically analysis about monohybrid and dihybrid cross

ASSESEMENT :

- Oral Test
- Quiz (oral)
- Weekly test
- Written test
- MCQ (written)

ASSIGNMENT

1. Explain the mechanism of sex determination in humans.
2. “The sex of the children is determined by what they inherit from their father by not their mother” Justify?
3. Define variation in relation to a species. Why is variation beneficial to the species?
4. A blue colour flower plant denoted by BB is cross bred with that of white colour flower plant denoted by bb
 - (a) State the colour of a flower you would expect in their F1 progeny.
 - (b) What must be the percentage of the white flower plants in F2 generation if flowers of F1 plants are self-pollinated?
 - (c) State the expected ratio of genotypes BB and Bb in the F2 progeny.

CHOOSE THE CORRECT ANSWER

1. Exchange of genetic material takes place in
 - (a) vegetative reproduction
 - (b) asexual reproduction
 - (c) sexual reproduction
 - (d) budding
2. Two pink coloured flowers on crossing resulted in 1 red, 2 pink and 1 white flower progeny. The nature of the cross will be
 - (a) double fertilisation
 - (b) self pollination
 - (c) cross fertilisation
 - (d) no fertilisation
3. A cross between a tall plant (TT) and short pea plant (tt) resulted in progeny that were all tall plants because
 - (a) tallness is the dominant trait
 - (b) shortness is the dominant trait
 - (c) tallness is the recessive trait
 - (d) height of pea plant is not governed by gene 'T' or 't'
4. Which of the following statement is incorrect?
 - (a) For every hormone there is a gene.
 - (b) For every protein there is a gene.
 - (c) For production of every enzyme there is a gene.
 - (d) For every molecule of fat there is a gene
5. If a round, green seeded pea plant (RR yy) is crossed with wrinkled, yellow seeded pea plant, (rr YY) the seeds produced in F1 generation are
 - (a) round and yellow
 - (b) round and green
 - (c) wrinkled and green
 - (d) wrinkled and yellow

Chapter 15 : Our Environment (January)

Sub Topics:

- Eco system
- Trophic Levels
- Food chain and food web
- Energy flow through the food chains
- Ozone depletion

Objectives : Students will be able to :

- Classify the various components and their interrelationships in an ecosystem.
- Know about food chain.
- Co-relate trophic levels and flow of energy between them.

- Analyse reasons for ozone depletion.

P.K.Testing:- Some questions will be asked from the students

- 1.What is Food chain and food web ?
- 2.What are the causes of depletion of ozone layer?
3. What are the components of eco system?
4. Explain bio degradable substances?

Important spellings and vocabulary used :-

Producers, Ecosystem, Terrestrial ,Trophic levels , Consumers , Biotic and abiotic component .

Innovative Methods and Resources :-

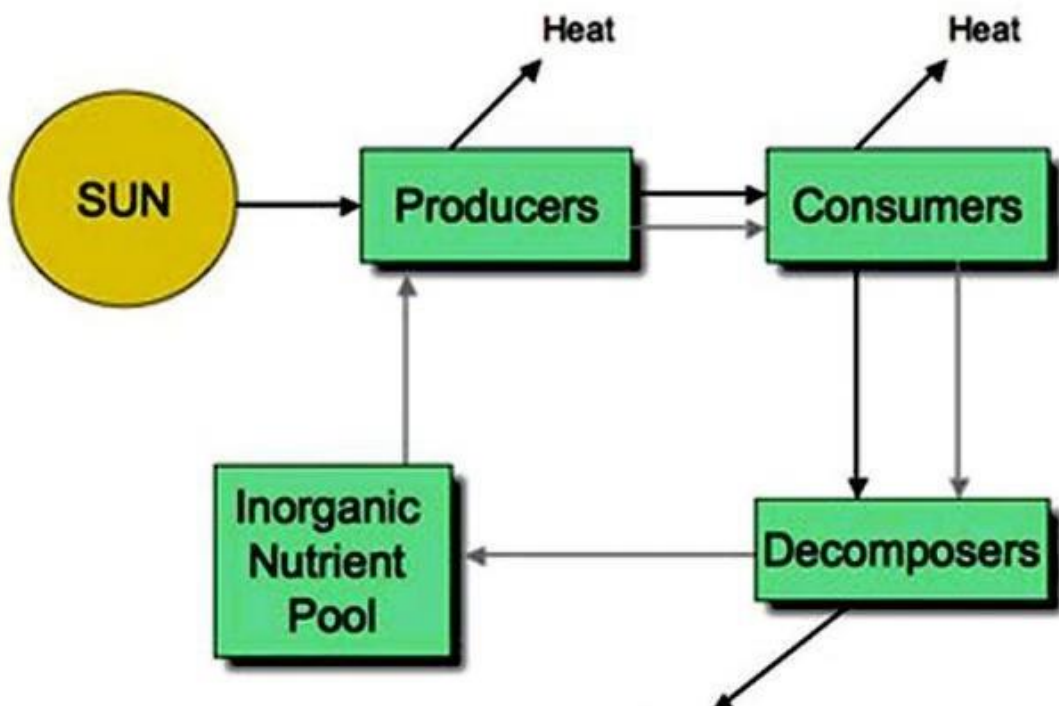
A video will be shown to the students related to food chain and food web i.e. How are they related in the environment.

- Presentation and seminar on environment in groups.
- Activity "**Have a Paper Free Day**" to raise awareness of the amount of paper that gets used and goes to waste every day in school and at home.

Resources :

- NCERT book and DIKSHA APP
- Biology Today by Cordova Publication
- Biology by Dinesh Publication
- LINK;<https://www.youtube.com/watch?v=W6Us1jdXcrI&authuser=0>

Procedure : Under the subtopics term ecosystem, components of ecosystem , flow of energy in a ecosystem, food chain , food web will be explained with the help of NCERT Book . A video will be shown related to food chain and food web and will be explained how are they related to the environment.

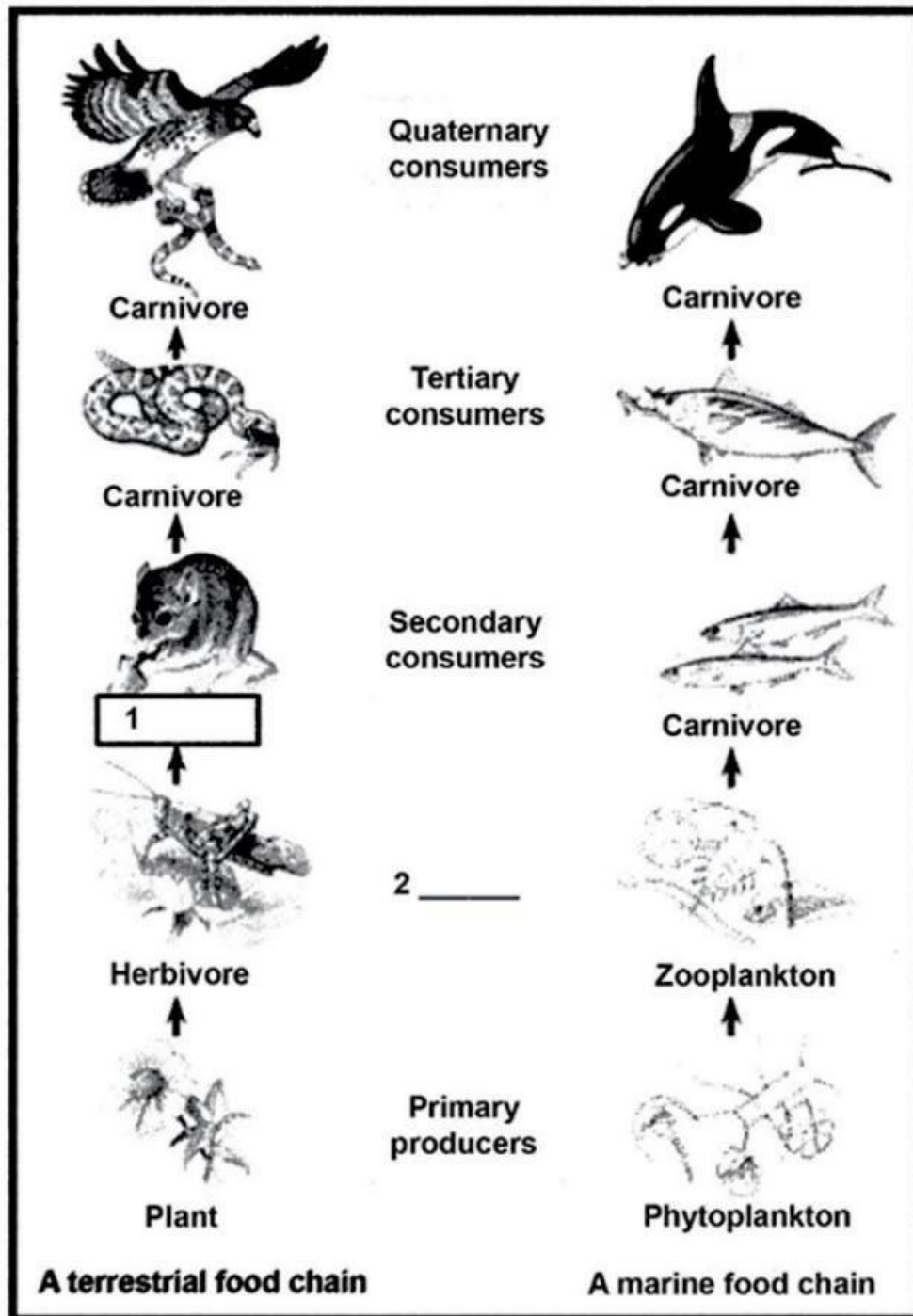


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FLOW OF ENERGY IN AN ECOSYSTEM

Components of ecosystem, biodegradable and non-bio degradable substances will be explained with examples.10% Law , ozone layer and how it is getting depleted will be explained. Discussion on the topic "Managing the garbage we produce " will be done. Related question answers will be discussed. Biological magnification will also be explained. "**Paper Free Day**" activity will be done. Extra questions from DIKSHA app will also be discussed side by side. Activity based questions related to the topic will be given.

ACTIVITY BASED QUESTION: Given below is the pictorial representation of a terrestrial food chain and a marine chain. Observe them carefully and answer the questions given in the worksheet.

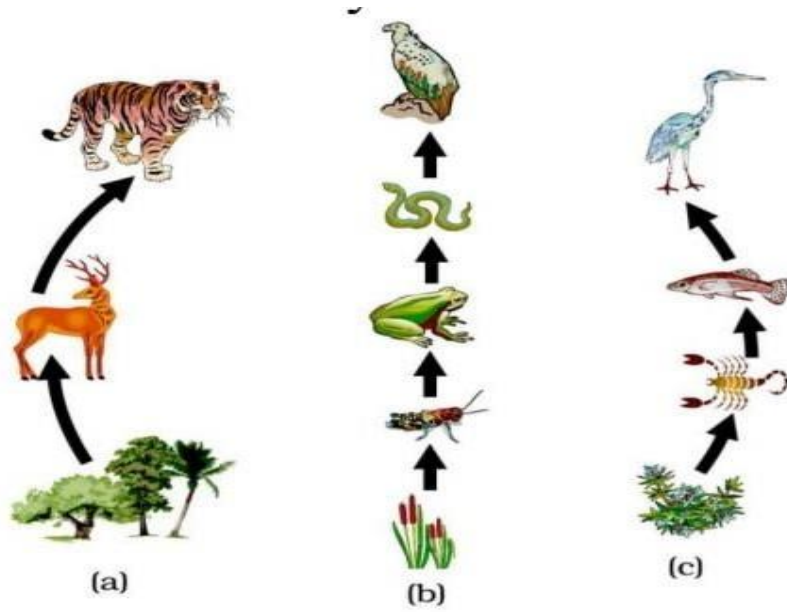


Fill in the blank in the terrestrial food chain (Blank no. 1). Why is the rat given this term?

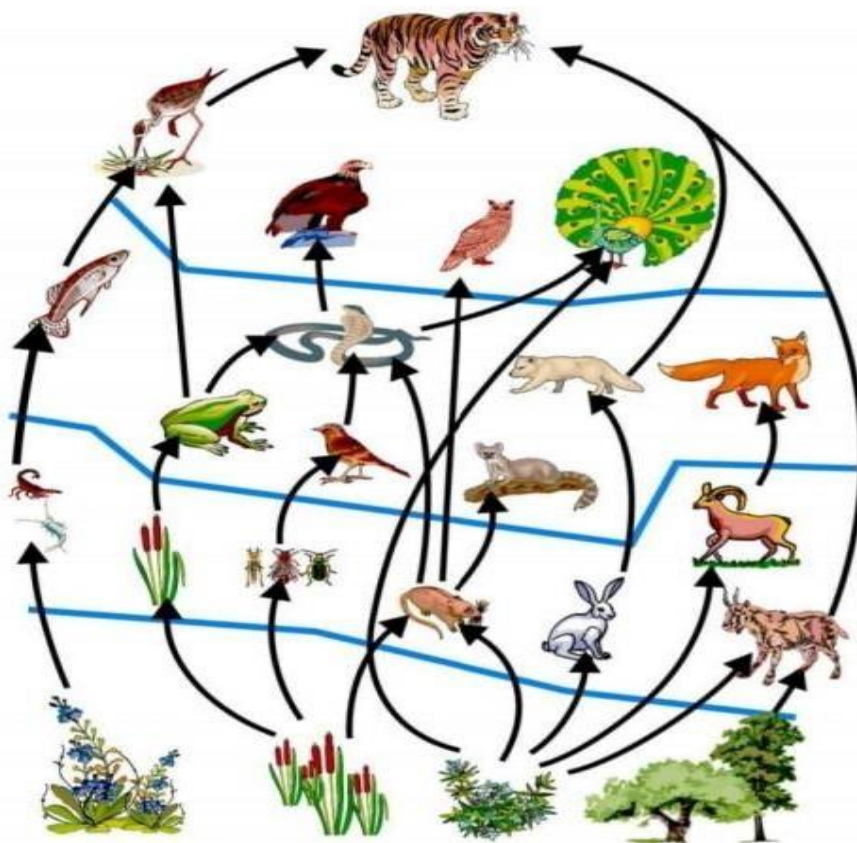
Can the rat come at a lower position in the terrestrial food chain? Give reasons for your answer.

Fill up the blank no. 2. Write one common feature of all organisms that are placed at this level in a food chain.

What will be the fate of this terrestrial food chain if all the rats were removed?



Food chain



Food web, consisting of many food chains

Student's participation and co - scholastic activities :

- Students will take part actively while doing activity " **Have a paper free day** " in school. The knowledge gained through activity will be applied in the daily life and with team work they develop communication skill.
- Students will frame questions related to the content.
- Students will be made to underline important terms from NCERT.
- Students will draw food chains ,food web and various trophic levels.

Assignment :

Students will do NCERT questions in the notebook and will also draw food chain and food web. Extra questions will also be given to the students.

1. What is Biological magnification?
- 2.Explain10% law.
- 3.Explain the role of decomposers in an ecosystem.
- 4.Why is damage to the ozone layer a cause for concern ?
What steps are being taken to limit this challenge ?
- 6.Revise the whole content taught in the class.

Art Integration with other domains:

- Students will draw colourful food chain and food web on a chart.
- Have a "**Paper Free Day** ". On this activity they will make a chart with beautiful pictures related to the topic.

Learning Outcomes - Students will be able to:-

- Identify the given examples of food chain and food web.
- know 10% law of energy flow and biological magnification.
- aware of various trophic levels of food chain.
- critically analysis the causes of ozone depletion and its consequences.
- Understand the intimate association of all biotic and abiotic components in an ecosystem.

Assessment :-

- Oral Test /Quiz
- Class work/Activity
- Weekly Test
- visual expression
- Concept maps

2. Why are plastics called non-biodegradable substances? (1)

3. How is Ozone both beneficial and damaging? (2)

4. What is the role of decomposers in the ecosystem? (2)

Short Answer Type Questions

1. Why is improper disposal of waste a curse to environment?
2. Write the common food chain of a pond ecosystem.
3. What are the advantages of cloth bags over plastic bags during shopping?
4. Why are crop fields known as artificial ecosystems?
5. Differentiate between biodegradable and non-biodegradable substances. Cite examples.
6. Suggest one word for each of the following statements/ definitions
 - (a) The physical and biological world where we live in
 - (b) Each level of food chain where transfer of energy takes place
 - (c) The physical factors like temperature, rainfall, wind and soil of an ecosystem
 - (d) Organisms which depend on the producers either directly or indirectly for food
7. Explain the role of decomposers in the environment?
8. Select the mis-matched pair in the following and correct it.
 - (a) Biomagnification — Accumulation of chemicals at the successive trophic levels of a food chain
 - (b) Ecosystem — Biotic components of environment
 - (c) Aquarium — A man-made ecosystem
 - (d) Parasites — Organisms which obtain food from other living organisms
9. We do not clean ponds or lakes, but an aquarium needs to be cleaned. Why?

Long Answer Type Questions

1. Indicate the flow of energy in an ecosystem. Why is it unidirectional? Justify.
2. What are decomposers? What will be the consequence of their absence in an ecosystem?
3. Suggest any four activities in daily life which are eco-friendly.
4. Give two differences between food chain and food web.
5. Name the wastes which are generated in your house daily. What measures would you take for their disposal?
6. Suggest suitable mechanism (s) for waste management in fertiliser industries.
7. What are the by-products of fertiliser industries? How do they affect the environment?
8. Explain some harmful effects of agricultural practices on the environment.

Chapter 15 - Management of Natural Resources(Mid-February)

ASSESSMENT/PORTFOLIO: This portion of the unit is not to be assessed in the year and

[Type text]
examination. This will be conducted in the form of presentation/seminar/role play on zoom app for

internal assessment.

MANAGEMENT OF NATURAL RESOURCES Conservation & judicious use of natural resources.

Forest and wildlife, coal and petroleum conservations. Examples of people's participation for conservation of natural resources. Big dams : Advantages and limitations; alternatives, if any Water harvesting Sustainability of natural resources.

Topics :

- Natural resources and need to manage natural resources
- Forest and wild life
- Water for all
- Coal and petroleum

Objectives : Students will be able to :

- Understand the problems caused due to exploitation of water resources.
- They will be able to understand the importance of watershed management.
- Students will understand the management of forest resources.

PK Testing : Some questions will be asked from the students :

- Identify the main natural resources on earth.
- Awareness about the problem of pollution.
- Ganga Action Plan.
- Causes for loss of biodiversity.

Important spellings and vocabulary used : Resources , Coliform , Narmada, Stakeholder , underground water , petroleum , wildlife, contamination etc.

Innovative methods and Resources :

- The whole content will be shown in the smart class.
- A PPT of Ganga Action plan i.e. Ganga pollution will be shown to the students.
- The graph on total coliform bacteria count in Ganga River will also be analysed and explained as a method to check contamination of water sample.
- Seminar / Presentation on natural resources.
- Poster on 5R's.

Resources :

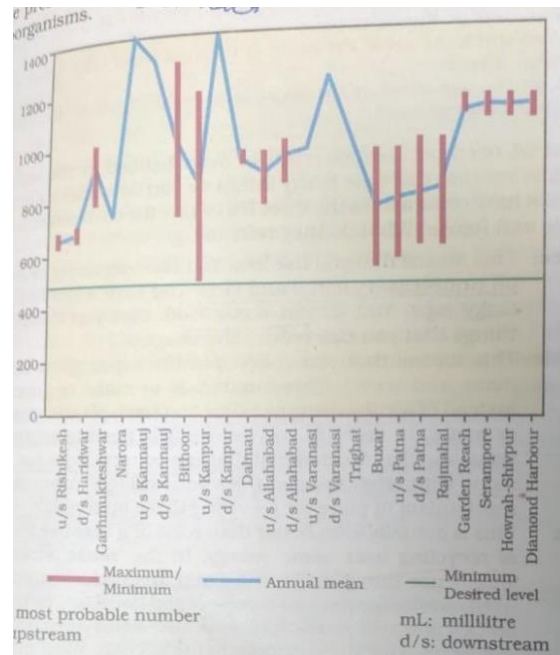
- NCERT Text book
- Biology Today by : Cordova Publication
- Biology by : Dinesh Publication
- LINK: <https://www.youtube.com/watch?v=EQpZR53UACc&authuser=0>
- LINK: <https://youtu.be/Kq9MnrloVj0>

Procedure :

Term Natural resources.5R's , Why do we need to manage natural resources will be discussed
Wildlife , stakeholders will be explained. Sustainable management , conservation of forest and
wildlife will be explained. Ganga Action Plan, three problems while constructing the dams will be
explained with the help of link given.

Water harvesting , coal and petroleum and how to conserve natural resources will be discussed.

NCERT questions related to the topics will be explained and discussed in the class for presentation.



TOTAL COLIFORM COUNT LEVELS IN THE GANGA

Student's participation and co - scholastic activities :

- Students will be made to underline the important terms from NCERT Book.
- Students will frame questions related to the content
- NCERT questions will be discussed.
- Students will make poster / collage on 3R's and 5 R's.
- Students will draw a graph on total coliform bacteria count in Ganga River on a chart.

From these activities students will develop environmental skill and will apply knowledge to protect environment.



Assignment :

Students will do NCERT questions in notebook. Extra questions discussed the class will also be given.

(i) Why are forest called "Biodiversity hotspot"?

(ii) Why local people have an interest in forest conservation ?

[Type text]

(iii) Give two methods to check the contamination in water ?

Art Integration with other domains :

- Students will make PPT on natural resources.
- Presentation on natural resources.
- Students will make charts showing 5R's
- Graph on total coliform bacteria count in Ganga river on chart.

Learning outcomes : Students would be able to -

- Adopt environment friendly practice to save fossil fuel and for sustainable development.
- Understand the problems caused due to exploitation of natural resources.
- Indulge in more environment friendly practice.

Assessment:

- Oral Test
 - Peer Assessment on presentation
 - Quiz
- 1) Explain 5R's and 3R's with examples.
 - 2) What are stakeholders?
 - 3) What are three problems faced by people while constructing dams?
 - 4) Prepare presentation on natural resources with the help of link given above for internal assessment.

Mid –February To March – Revision