IX. HOT Questions

1. Two blocks of masses 8 kg and 2 kg respectively lie on a smooth horizontal surface in contact with one other. They are pushed by a horizontally applied force of 15 N. Calculate the force exerted on the 2 kg mass.

2. A heavy truck and bike are moving with the same kinetic energy. If the mass of the truck is four times that of the bike, then calculate the ratio of their momenta. (Ratio of momenta = 2:1

3. "Wearing helmet and fastening the seat belt is highly recommended for safe journey" Justify your answer using Newton's laws of motion.

REFERENCE BOOKS

◆ Concept of physics-HC verma
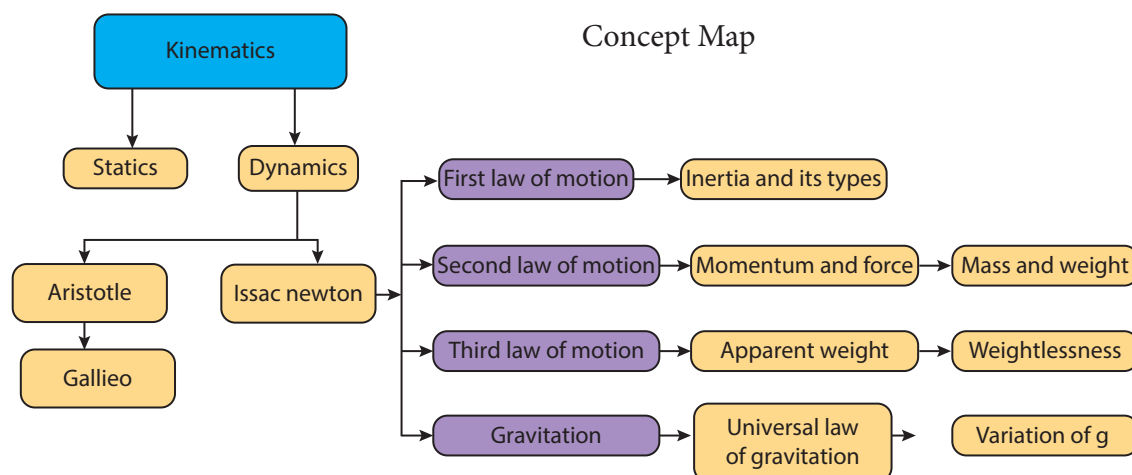
◆ Interactive physics(Newton's law)MTG learning.

INTERNET RESOURCES

https://www.grc.nasa.gov

https://www.physicsclassroom.com

https://www.britannica.com/science/Newtons-law-of-gravitation

Concept Map

ICT CORNER
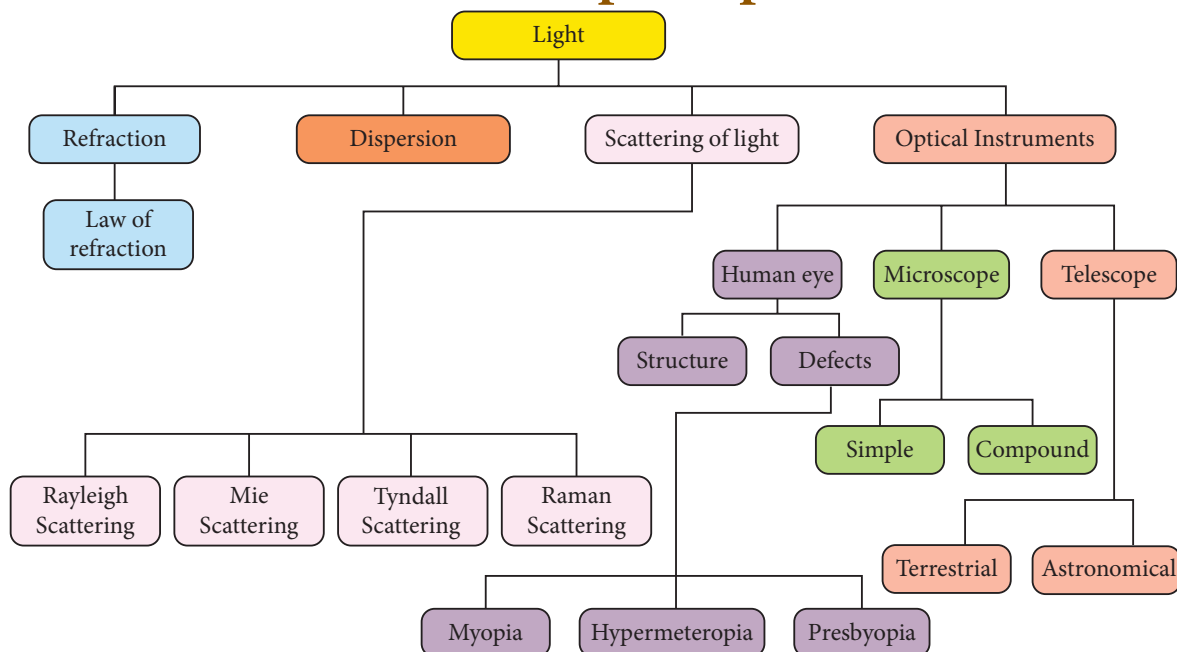
Newton's second law

Steps

- Open the browser and type "olabs.edu.in" in the address bar. Click physics tab and then click "Newton's second " under class 9 section. Go to "simulator" tab to do the experiment.

- Select the desired Cart mass (M_1) and vertical mass (M_2) using respective slider. Also select the desired distance (s) by moving the slider. Click on the "Start" button to start the experiment.

- Observe the time and note it down. Calculate acceleration (a) of the cart using the formula a = $2s/t^2$. Find the fore due to rate of change of momentum using (M_1+M_2) a.

- Calculate force F = M_2 g.

- You will observe (M_1+M_2)a = M_2 g . Hence Newton's Second Law is verified. Repeat the experiment with different masses. Also do this in different environment like Earth, Moon, Uranus and Jupiter. Click reset to restart the experiment.

Link: http://amrita.olabs.edu.in/?sub=1&brch=1&sim=44&cnt=4

B375_10_SCIENCE_EM

Laws of motion

Concept Map

Light

- Refraction
  - Law of refraction
- Dispersion
- Scattering of light
  - Rayleigh Scattering
  - Mie Scattering
  - Tyndall Scattering
  - Raman Scattering
- Optical Instruments
  - Human eye
    - Structure
    - Defects
      - Myopia
      - Hypermeteropia
      - Presbyopia
  - Microscope
    - Simple
    - Compound
      - Terrestrial
      - Astronomical
  - Telescope

ICT CORNER

Formation of different types of images by a convex lens

In this activity you will be able to understand the images formed by convex lenses.
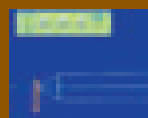
Steps

- Open the browser and type 'phet.colorado.edu/en/simulation/legacy/geometric-optics' in the address bar.

- Take the pencil and raise it so that the eraser is sitting on the principal axis. Click on the "principal rays" button.

- Place the object at different positions (infinity, beyond 2F, at 2F, between F and 2F, at F, between F and optic centre) from a convex lens and observe different types of images. Explain the result.

- Will the rays ever form an image? Click on "virtual image" to check your answer.

Step1   Step2   Step3   Step4
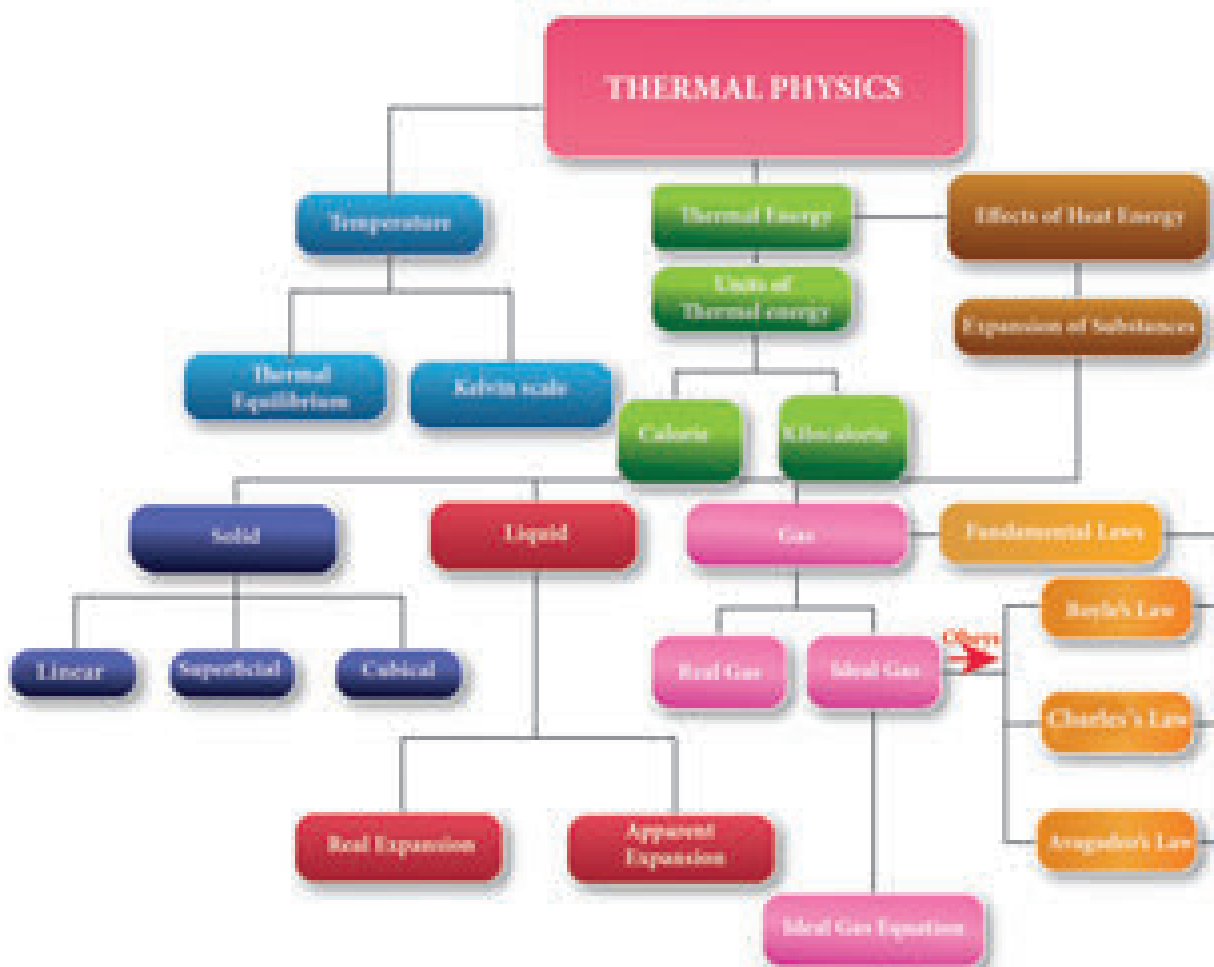
Cells alive

URL: https://phet.colorado.edu/en/simulation/legacy/geometric-optics

*Pictures are indicative only

B375_10_SCIENCE_EM

CONCEPT MAP

THERMAL PHYSICS

- Temperature
  - Thermal Equilibrium
  - Kelvin scale
- Thermal Energy
  - Units of Thermal energy
    - Calorie
    - Kilocalorie
- Effects of Heat Energy
  - Expansion of Substances

- Solid
  - Linear
  - Superficial
  - Cubical
- Liquid
  - Real Expansion
  - Apparent Expansion
- Gas
  - Real Gas
  - Ideal Gas
    - Ideal Gas Equation
- Fundamental Laws
  - Boyle's Law
  - Charles's Law
  - Avogadro's Law

ICT CORNER

Boyle's law

In this activity you will be able to verify pressure is proportional to reciprocal of volume (Boyle's law).

Steps

- Open the browser and type "physics-chemistry-interactive-flash-animation.com/matter_change_state_measurement_mass_volume/pressure_volume_boyle_mariotte_law_ideal_gas_closed_system_MCQ.htm" in the address bar. Click enter to start the experiment.

- Change the volume by adjusting the piston of the syringe (between 20 ml to 80 ml) and observe how the pressure changes.

- Tabulate observed values. You will observe when volume decreases pressure inside the syringe gets increased and vice versa. Thus boyle's law (PV = constant) verified.

Cells alive

URL: http://www.physics-chemistry-interactive-flash-animation.com/matter_change_state_measurement_mass_volume/pressure_volume_boyle_mariotte_law_ideal_gas_closed_system_MCQ.htm

B375_10_SCIENCE_EM

CONCEPT MAP

ICT CORNER

Ohm's Law

In this activity you will be able to (i) verify Ohm's law (ii) understand the relation between current, voltage and resistance.

Steps

- Open the browser and type "olabs.edu.in" in the address bar. Click physics tab and then click "Ohm's law and resistance" under class 10 section. Go to "simulator" tab to do the experiment.

- Construct the electric circuit as per the connection diagram by clicking "show circuit diagram" tab. You can connect wires between electric component by dragging the mouse between the component.

- Switch on the key and note down the voltage (V) and curren (I). Find the value of resistance using the formula R = $\dfrac{V}{I}$. Repeat the experiment for different values of voltage and current. Check whether the resistance remains constant.

- Find the value of Resistance/(length (in Cm)). Enter the value of resistance and resistance per unit length in the result. Verify the answer.

Note:

1. One time sign up is needed to do simulation. Then login using that username and password.

2. Read theory, procedure and animation to get the theory by clicking the corresponding tab.
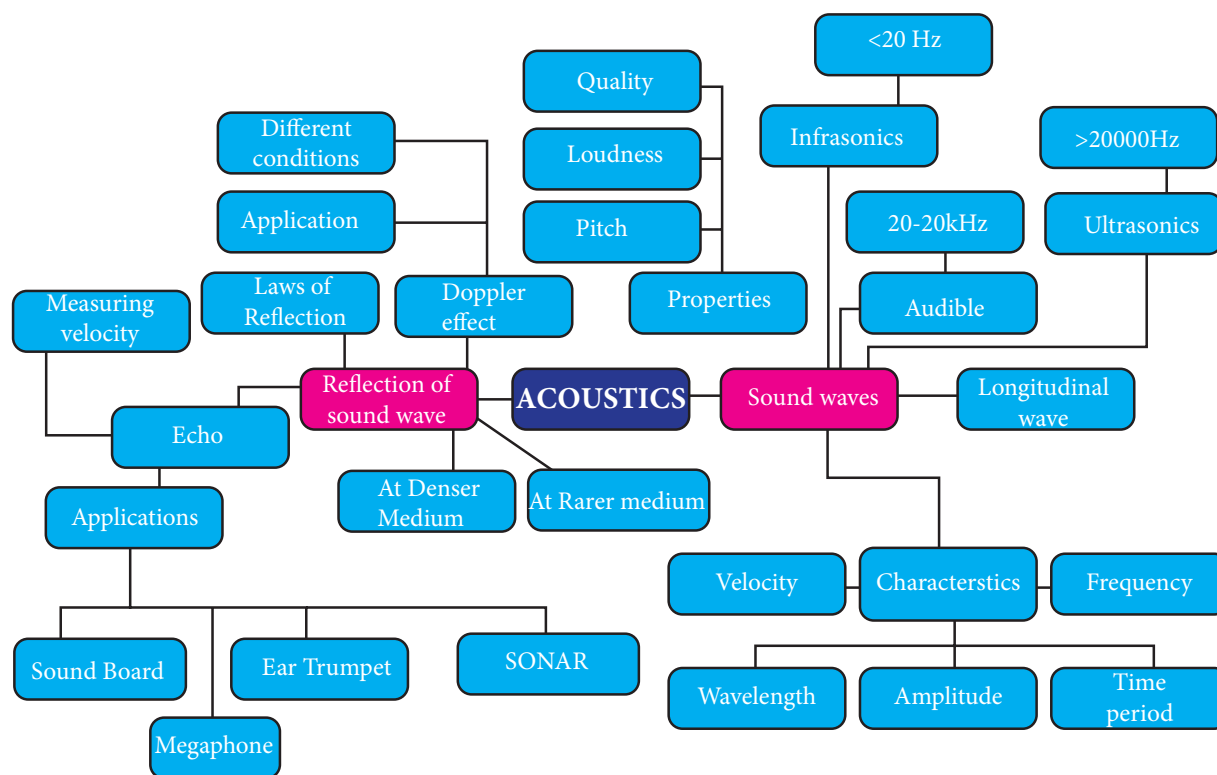
Link

URL:http://amrita.olabs.edu.in/?sub=1&brch=4&sim=99&cnt=4

B375_10_SCIENCE_EM

Concept Map

ICT CORNER

Doppler effect

In this activity you will be able to learn how the observed frequencies of a sound changes with the velocities of the source and the observer (Doppler effect).

Steps

- Open the browser and type "vlab.amrita.edu" in the address bar. Click 'Physical Sciences' and then click 'Harmonic Motion and Waves Virtual Lab'. Click 'Doppler Effect' and Go to "simulator" tab to do the experiment. sign up one time with your e-mail

- Select medium of travel, detector direction and source direction by clicking the drop down menu.

- Change relative motion between source and observer by adjusting the velocity of the source and observer using the slider.

- Discuss how apparent frequency is changes with respect to actual frequency by changing position of source and listener. Also try for different source frequencies.

Link

http://vlab.amrita.edu/?sub=1&brch=201&sim=368&cnt=4

B375_10_SCIENCE_EM

CONCEPT MAP

Radio Activity

Artificial Radioactivity — Natural Radioactivity

Nuclear Fission — Nuclear Fusion

Controlled — Un Controlled — Natural — Artificial

Nuclear Reactor — Atom Bomb — Stellar Energy — Hydrogen Bomb

Uses

Safety Measures

α rays — β rays — γ rays
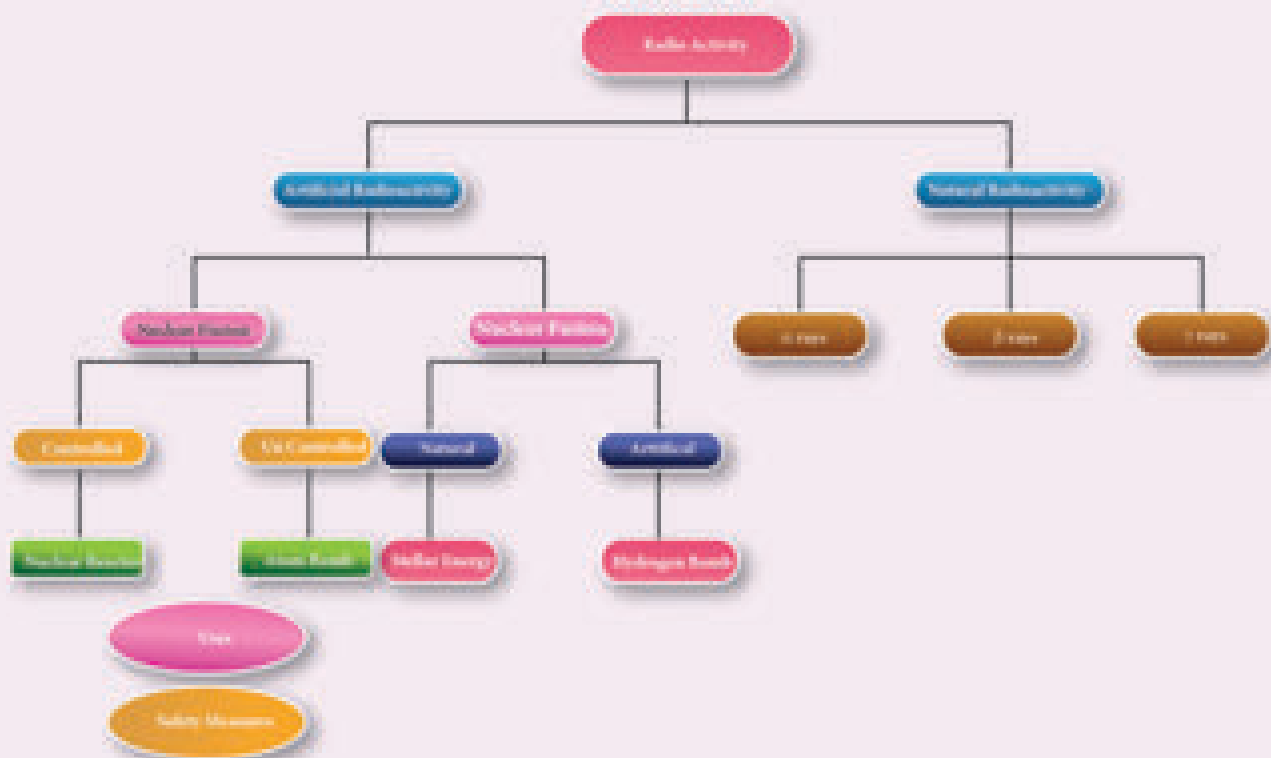
ICT CORNER

Modern Atomic Theory

To enable the students to build structure of different elements with electrons, protons and neutrons. They also know how new elements are formed as a result of Nuclear decays.
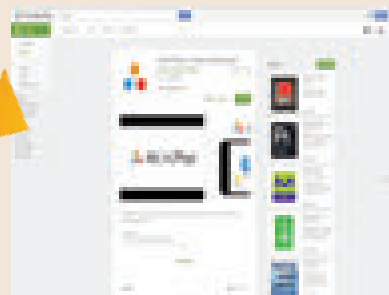
Steps

- Access and download the application 'atom.phys' in your mobile by using the provided URL or QR code.

- Click '**Modeling**' to build the structure of an element by making changes in electron, proton and neutron.

- Click '**Nuclear decays**' to know how new elements are formed because of the decay/ destruction of atoms.

- Finally click '**Tests**' to check your knowledge by answering the questions.

Cells alive

URL: https://play.google.com/store/apps/details?id=com.CowboyBebop.

AtomPhys&hl=en or Scan the QR Code.

B375_10_SCIENCE_EM

CONCEPT MAP

```
                          Atoms and Molecules
        ┌──────────────────────────┼──────────────────────────┐
        ▼                          │                          ▼
   Modern                ┌─────────┼─────────┐          Avogadro's
   Atomic               ▼                    ▼          Hypothesis
   Theory              Atom               Molecule
        │                │                    │              │
        ▼                ▼                    ▼              │
   Isotopes          Atomic Mass        Molecular           │
   Isobars               │               Mass               │
   Isotones              ▼                    │              │
                    Relative             Relative           │
                    Atomic Mass          Molecular          │
                         │                Mass              │
                         ▼                                  ▼
                    Average        Mole          Gay-Lussac's law
                    Atomic Mass    Concept       Atomicity of molecule
                                                 Determine molecular formula
                                                 Relation between M.M and V.D
```
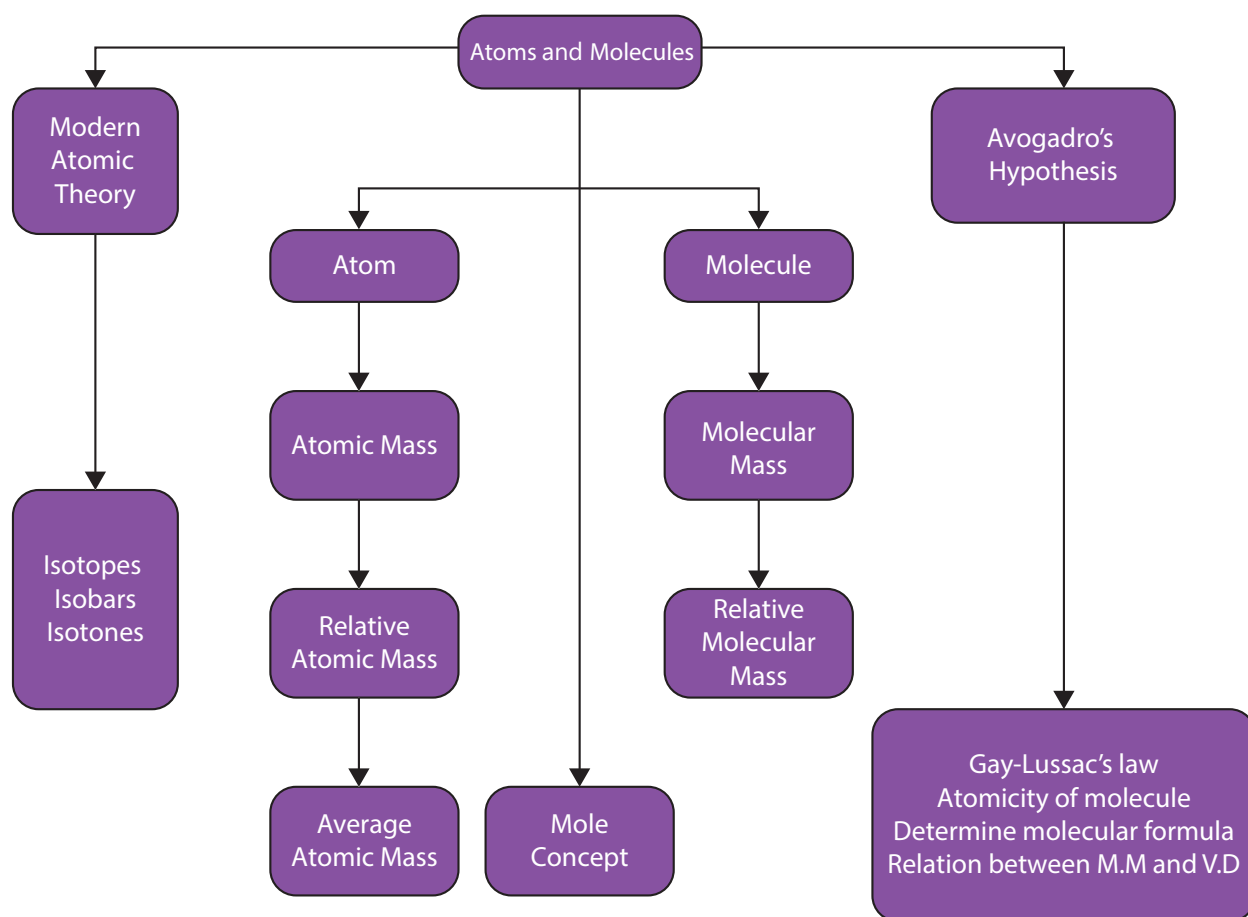
VII. Long answer questions

1. a) State the reason for addition of caustic alkali to bauxite ore during purification of bauxite.

   b) Along with cryolite and alumina, another substance is added to the electrolyte mixture. Name the substance and give one reason for the addition.

2. The electronic configuration of metal A is 2,8,18,1.

   The metal A when exposed to air and moisture forms B a green layered compound. A with con. H_2SO_4 forms C and D along with water. D is a gaseous compound. Find A,B,C and D.

3. Explain smelting process.

VIII. HOT questions

1. Metal A belongs to period 3 and group 13. A in red hot condition reacts with steam to form B. A with strong alkali forms C. Find A,B and C with reactions

2. Name the acid that renders aluminium passive. Why?

3. a) Identify the bond between H and F in HF molecule.

   b) What property forms the basis of identification?

   c) How does the property vary in periods and in groups?

REFERENCE BOOKS

1. Inorganic chemistry by PL Soni
2. Physical chemistry by Puri and Sharma
3. Inorganic chemistry by Atkins
4. Oxford Inorganic chemistry

INTERNET RESOURCES

- https://www.webelements.com
- www.rsc.orgperiodic-table
- https://www.tcyonline.com

CONCEPT MAP

Ore (Concentration of Ores)

Metals of high reactivity
- Electrolysis of molten ore
- Pure metal

Metals of medium reactivity
- Carbonate ore → Calcination
- Sulphide ore → Roasting
- Oxide of metal
- Reduction to metal
- Purification

Metals of least reactivity
- Sulphide ore → Roasting
- Reduction to metal
- Purification

Concept Map

Solvent + solute → solution

- Salt → Hydrated salt
- Salt → Water obsorbing from atmospheric air → Deliquescence, Hygroscopy
- solution → solubility → Factors affecting solubility
- solution → Concentration of solution → Mass percent, Volume percent
- solution → Types of solution
  - Based on type of solvent: 1.Auqous solution 2.Non aqueous solution
  - Based on type of solute: 1.Saturated solution 2.Unsaturated solution 3.Super saturated solution; 1.Dilute solution 2.Concentrated solution
  - Physical state Based on type of solute and solvent: 1.Solid solution 2.Liquid solution 3.Gases solution

---

ICT CORNER

Solutions
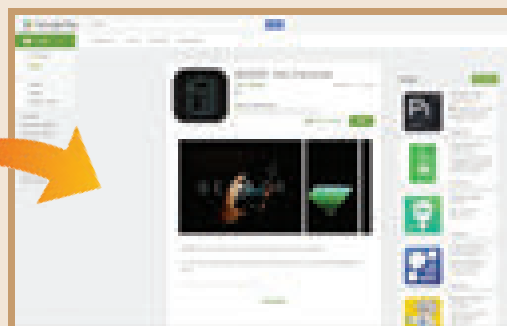

BEAKER application enable the students to use their mobile as virtual chemistry laboratory and also to do various experiments on their own.

Steps

- Access the application "BEAKER – Mix Chemicals" with help of the URL or QR code, Install it in the mobile. You can see that the screen will act like a beaker after opening the application.

- If you click the round button, you can see many elements and compounds.

- If you click any elements and compounds, it will be added to the beaker in the home screen.

- By clicking Menu at the left side, You can see lid, match stick, burner and chemist. Use those whenever necessary.

URL: https://play.google.com/store/apps/details?id=air.thix.sciencesense.beaker

or Scan the QR Code.

B375_10_SCIENCE_EM

2. Can a nickel spatula be used to stir copper sulphate solution? Justify your answer.

VIII. Solve the following problems

1. Lemon juice has a pH 2, what is the concentration of H^+ ions?

2. Calculate the pH of 1.0×10^{-4} molar solution of HNO_3.

3. What is the pH of 1.0×10^{-5} molar solution of KOH?

4. The hydroxide ion concentration of a solution is 1×10^{-11}M. What is the pH of the solution?

REFERENCE BOOKS

1. Text book of inorganic chemistry-P.L.Soni-S.Chand & sons publishers, New Delhi.

2. Principles of Physical Chemistry- B.R.Ruri, L.R. Sharma, Vishal publishing Co Punjab.
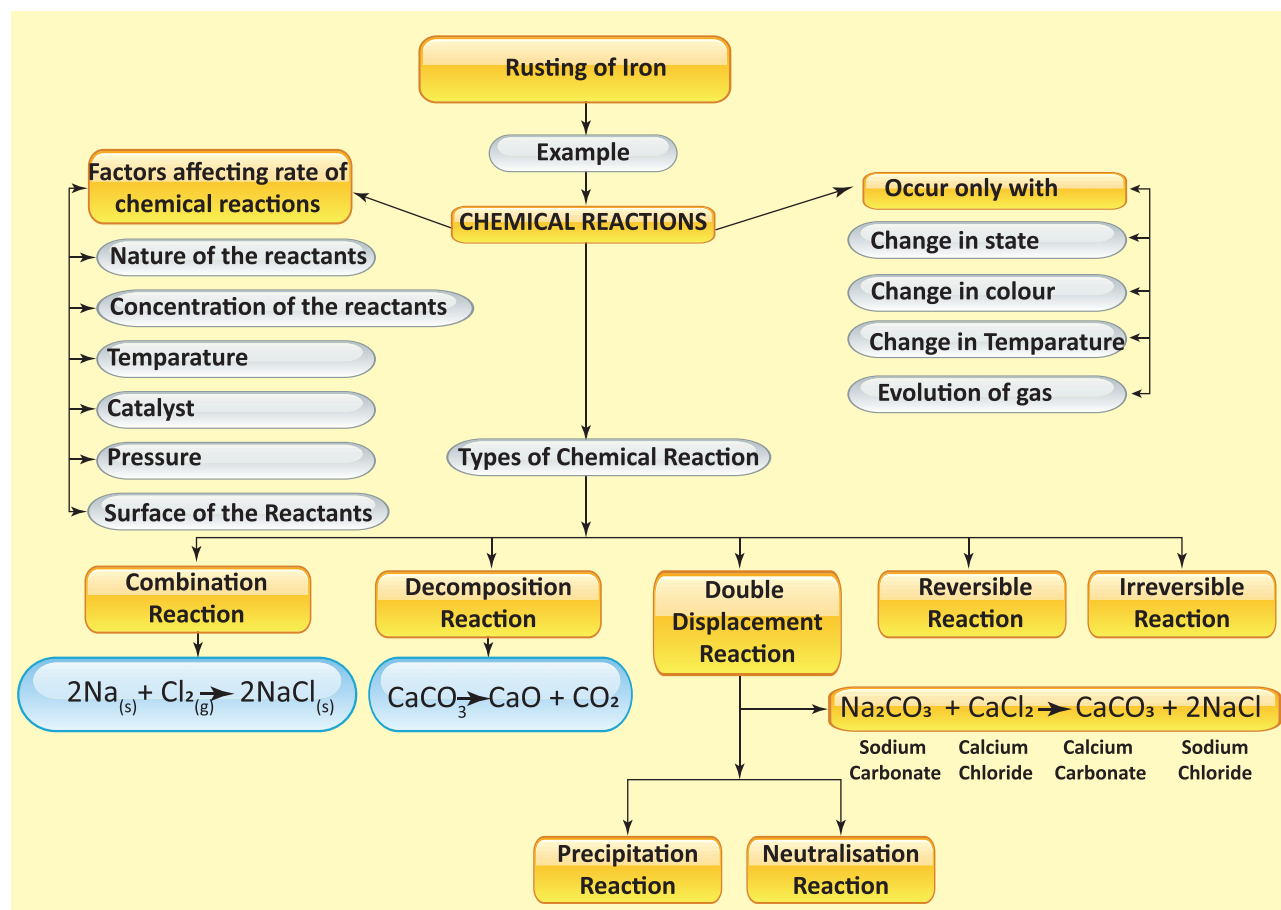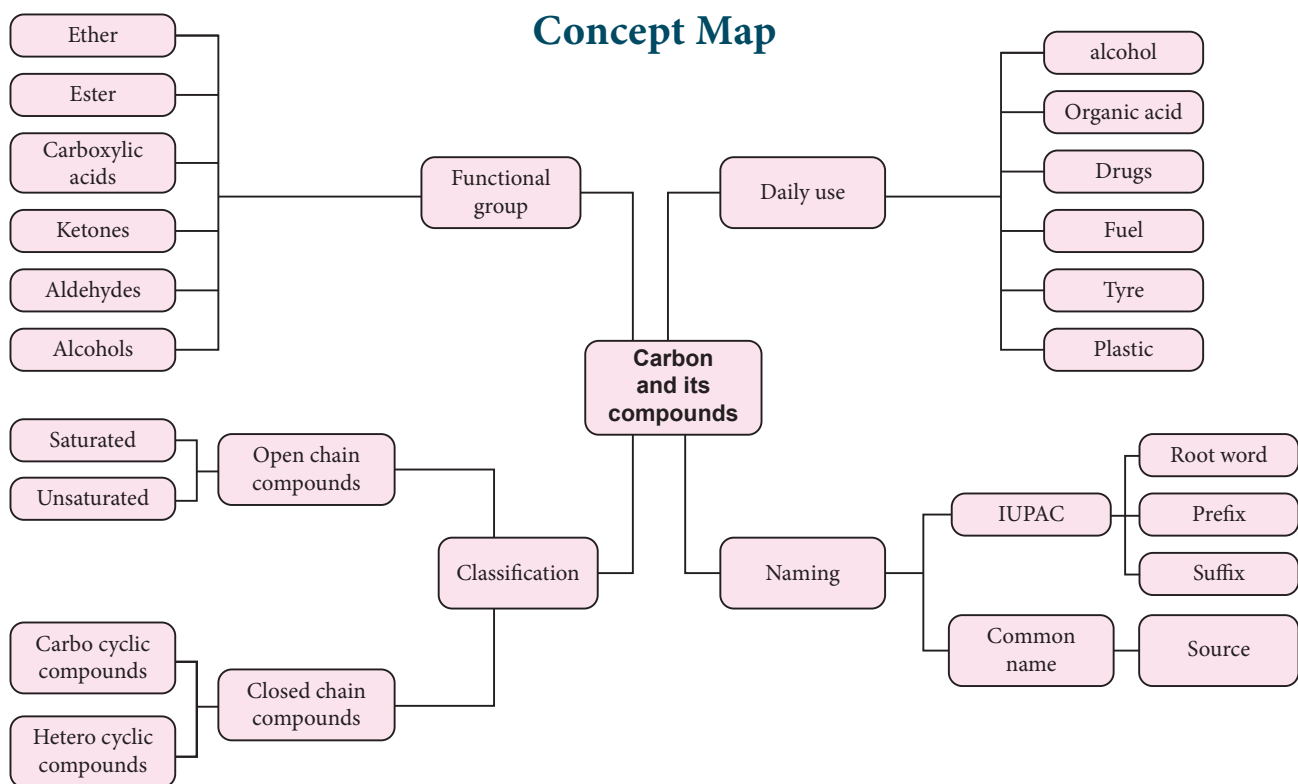
INTERNET RESOURCES

Webliography:www.chem4kids.com

http://aravindguptatoys.com/filims.html

Concept Map

Rusting of Iron

Example

CHEMICAL REACTIONS

Factors affecting rate of chemical reactions

Nature of the reactants

Concentration of the reactants

Temparature

Catalyst

Pressure

Surface of the Reactants

Occur only with

Change in state

Change in colour

Change in Temparature

Evolution of gas

Types of Chemical Reaction

Combination Reaction

$2Na_{(s)} + Cl_{2(g)} \rightarrow 2NaCl_{(s)}$

Decomposition Reaction

$CaCO_3 \rightarrow CaO + CO_2$

Double Displacement Reaction

$Na_2CO_3 + CaCl_2 \rightarrow CaCO_3 + 2NaCl$

Sodium Carbonate   Calcium Chloride   Calcium Carbonate   Sodium Chloride

Reversible Reaction

Irreversible Reaction

Precipitation Reaction

Neutralisation Reaction

Concept Map

```
Ether ─┐
Ester ─┤
Carboxylic acids ─┤─ Functional group ─┐          ┌─ alcohol
Ketones ─┤                              │          ├─ Organic acid
Aldehydes ─┤                            │          ├─ Drugs
Alcohols ─┘                   Daily use ┤          ├─ Fuel
                                        │          ├─ Tyre
                    Carbon and its      │          └─ Plastic
                    compounds
Saturated ─┐
Unsaturated ─┴─ Open chain compounds ─┐
                                      ├─ Classification
Carbo cyclic compounds ─┐             │
Hetero cyclic compounds ─┴─ Closed chain compounds
                                                  Naming ─┬─ IUPAC ─┬─ Root word
                                                          │         ├─ Prefix
                                                          │         └─ Suffix
                                                          └─ Common name ─ Source
```
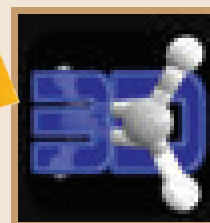

ICT CORNER

Organic Carbon and its Compounds

The students can know about the **Hydrocarbons, its formulae, descriptions and also in animated form.**

Steps

- Type the URL or use the QR code to access the application "Organic chemistry visualized / OCV" and install in the mobile.

- Click 'Content' to view the list of Hydrocarbon. Explore about the hydrocarbons by clicking those.

- On clicking '**anim**' button, you can view the formulae of hydrocarbon as well as in animated form.

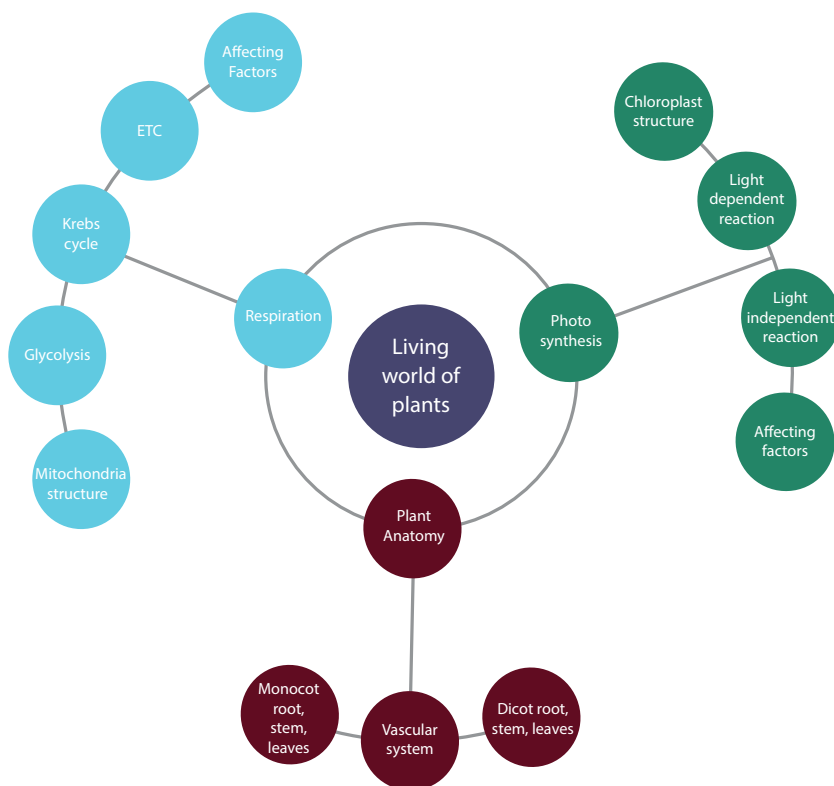- Click '**Quiz**' to evaluate yourself in this topic.

Step1	Step2	Step3	Step4

URL: https://play.google.com/store/apps/details?id=com.budgietainment.oc
or Scan the QR Code.

*Pictures are indicative only

B375_10_SCIENCE_EM

Concept Map

Affecting Factors — ETC — Krebs cycle — Glycolysis — Mitochondria structure — Respiration — Living world of plants — Photo synthesis — Chloroplast structure — Light dependent reaction — Light independent reaction — Affecting factors — Plant Anatomy — Monocot root, stem, leaves — Vascular system — Dicot root, stem, leaves
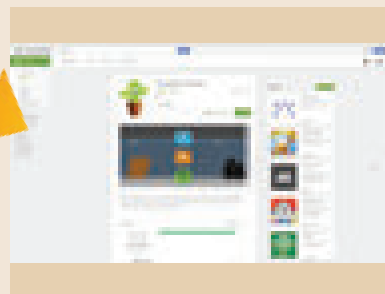

ICT CORNER

PLANT ANATOMY

PHOTOSYNTHESIS – This application enables students to play a game to adjust sunlight rays to reach the plant.

Steps

- Access the application Photosynthesis with the help of the provided URL or QR code. Install in your device. After opening the app, Click LEVELS to begin the game.

- A palnt sapling will be in one side, and sun rays will be at the other side. You have to drag and adjust the mirror so that the sunlight rays will fall on the plant.

- At the top left, there is a indicator to show the timings.

- Explore and complete the other levels gradually.

| Step1 | Step2 | Step3 | Step4 |

Cells alive

URL : https://play.google.com/store/apps/details?id=com.Rinekso.PhotoSHinythesis

*Pictures are indicative only

B375_10_SCIENCE_EM

IX. Value based questions

1. Leeches do not have an elaborate secretion of digestive juices and enzymes -Why ?

2. How is the digestive system of rabbit suited for herbivorous mode of feeding?
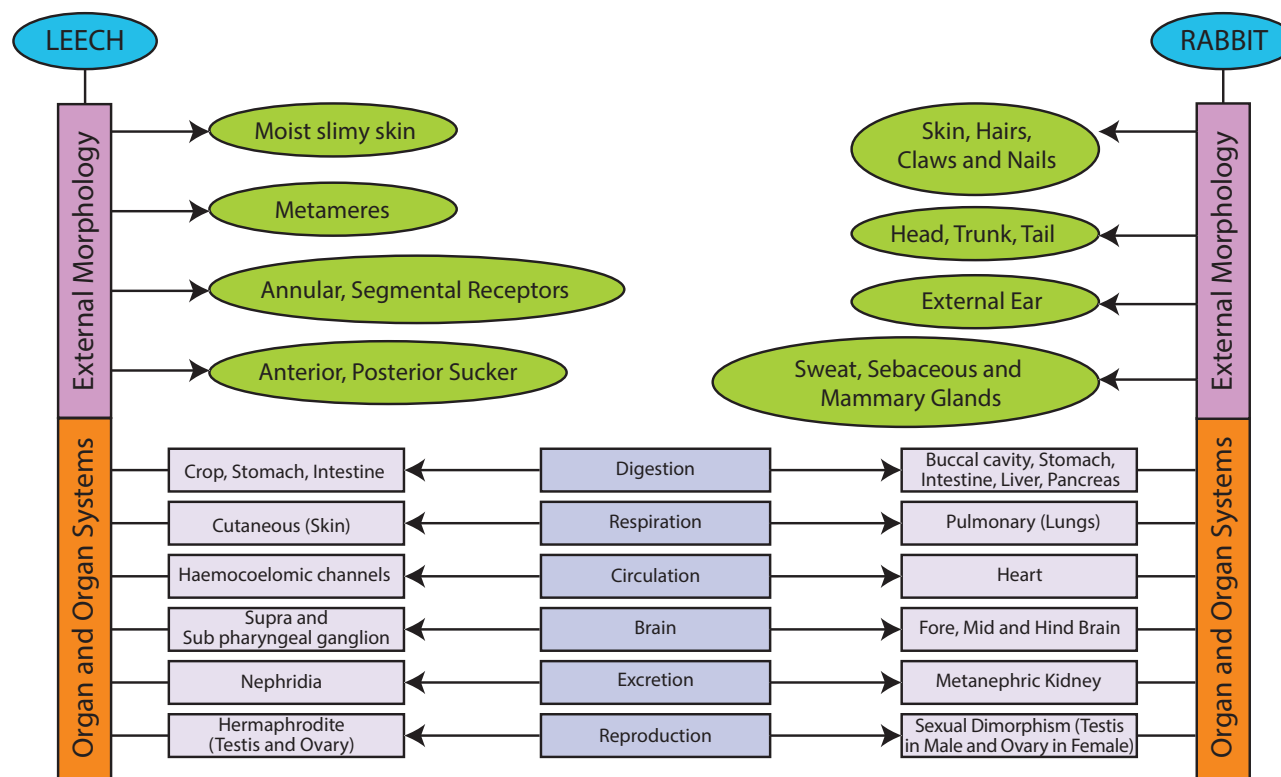
REFERENCE BOOKS

1. Kotpal R.L, 2014 Modern Text Book of Zoology - Invertebrates, Rastogi Publications, Meerut.

2. Ekambaranatha Ayyar M and Anantha krishnan T. N. 2003. Manual of Zoology, Vol I, Part I & II (Invertebrates), S. Viswanathan Printers and Publishers Pvt Ltd.
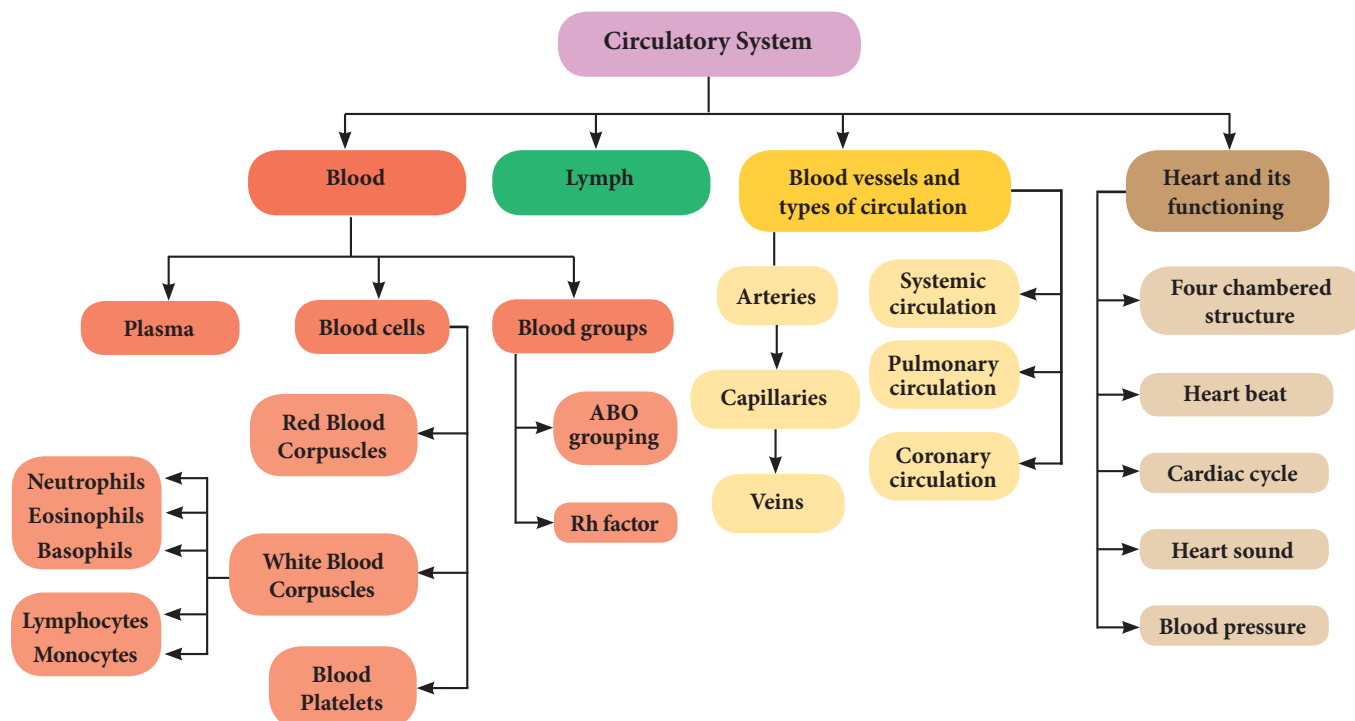
3. Kotpal R.L, 2012 Modern Text Book of Zoology - Vertebrates, Rastogi Publications, Meerut

4. Jordan E.L. and Verma P.S. 2003 Chordate Zoology, S. Chand and Company Ltd, New Delhi.

INTERNET RESOURCES

http://leeches-medicinalis.com/

http://www.biologydiscussion.com/zoology

http://animaldiversity.org/accounts/Hirudo_medicinalis/

http://www.notesonzoology.com/rabbit/external-morphology/external-morphology-of-rabbit-with-diagram-chordata-zoology/7642

Concept Map

Structural Organisation of Animals

Circulatory System

- **Blood**
  - **Plasma**
  - **Blood cells**
    - **Red Blood Corpuscles**
    - **White Blood Corpuscles**
      - Neutrophils
      - Eosinophils
      - Basophils
      - Lymphocytes
      - Monocytes
    - **Blood Platelets**
  - **Blood groups**
    - **ABO grouping**
    - **Rh factor**
- **Lymph**
- **Blood vessels and types of circulation**
  - **Arteries**
  - **Capillaries**
  - **Veins**
  - **Systemic circulation**
  - **Pulmonary circulation**
  - **Coronary circulation**
- **Heart and its functioning**
  - **Four chambered structure**
  - **Heart beat**
  - **Cardiac cycle**
  - **Heart sound**
  - **Blood pressure**

ICT CORNER

CIRCULATION IN ANIMALS

CHE-cardiovascular system- This 3D application enables the student to know about the structure and functions of cardio vascular system.
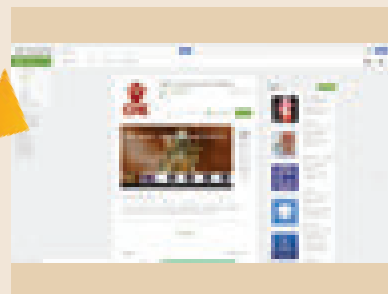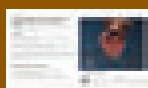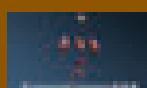
Steps

- Access the application CHE – cardiovascular system with the help of URL or QR code given below. After installing it in your device, when you open the app, you can see 4 sections as Introduction, Heart – structure & functions, Blood circulatory system and Blood.

- In each section, description as well as supportive images will be given.

- If you click the picture, a video will be played in it. You can zoom in and zoom out the images and also you can see its any direction by making movements.

- We can maximize as well as minimize the speed of the 3D animation to get clear details of it.

Step1 **Step2** **Step3** **Step4**

Cells alive

URL : https://play.google.com/store/apps/details?id=com.bodyxq.appbookCardio

*Pictures are indicative only

B375_10_SCIENCE_EM

Transportation in Plants and Circulation in Animals

2. Illustrate the structure and functions of brain.

3. What will you do if someone pricks your hand with a needle? Elucidate the pathway of response with a neat labelled diagram.

4. Describe the structure of spinal cord.

5. How nerve impulses are transferred from one neuron to next neuron?

6. Classify neurons based on its structure.

IX. Higher Order Thinking Skills (HOTS)

1. 'A' is a cylindrical structure that begins from the lower end of medulla and extend downwards. It is enclosed in bony cage 'B' and covered by membranes 'C'. As many as 'D' pairs of nerves arise from the structure 'A'.

    (i) What is A?

    (ii) Name (a) bony cage 'B' and (b) membranes 'C'

    (iii) How much is D?

2. Our body contains a large number of cells 'L' which are the longest cells in the body. L has long and short branch called as 'M' and 'N' respectively. There is a gap 'O' between two 'L' cells, through which nerve impulse transfer by release of chemical substance 'P'.

    (i) Name the cells L

    (ii) What are M and N?

    (iii) What is the gap O?

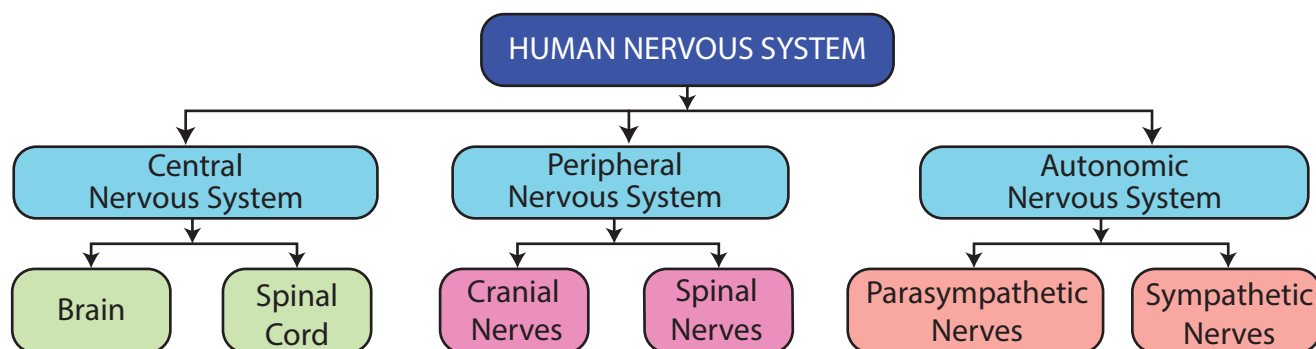   (iv) Name the chemical substance P

REFERENCE BOOKS

1. Guyton and Hall, 2003, Textbook of Medical Physiology; Harcourt Indian Private Limited.

2. Sherwood. L., 2007, Human Physiology: From cells to systems 6th Edition, Indian edition, Thomson Brooks/Cole.

3. Singh, H.D., 2007, Handbook of Basic Human Physiology for Paramedical Students. S. Chand and Company Ltd. New Delhi.

INTERNET RESOURCES

1. http://www.britannica.com/science/nervous-system

2. http://www.sumanasine.com/webcontent/animations/neurobiology.html

Concept Map

```
                    HUMAN NERVOUS SYSTEM
         ┌───────────────────┼───────────────────┐
   Central              Peripheral            Autonomic
Nervous System       Nervous System        Nervous System
   ┌────┴────┐         ┌────┴────┐          ┌─────┴──────┐
 Brain    Spinal    Cranial   Spinal   Parasympathetic  Sympathetic
          Cord      Nerves    Nerves      Nerves          Nerves
```

Concept Map

Plant Hormones

Growth Promoters
- Auxins
- Cytokinins
- Gibberellins

Growth Inhibitors
- Abscisic Acid
- Ethylene
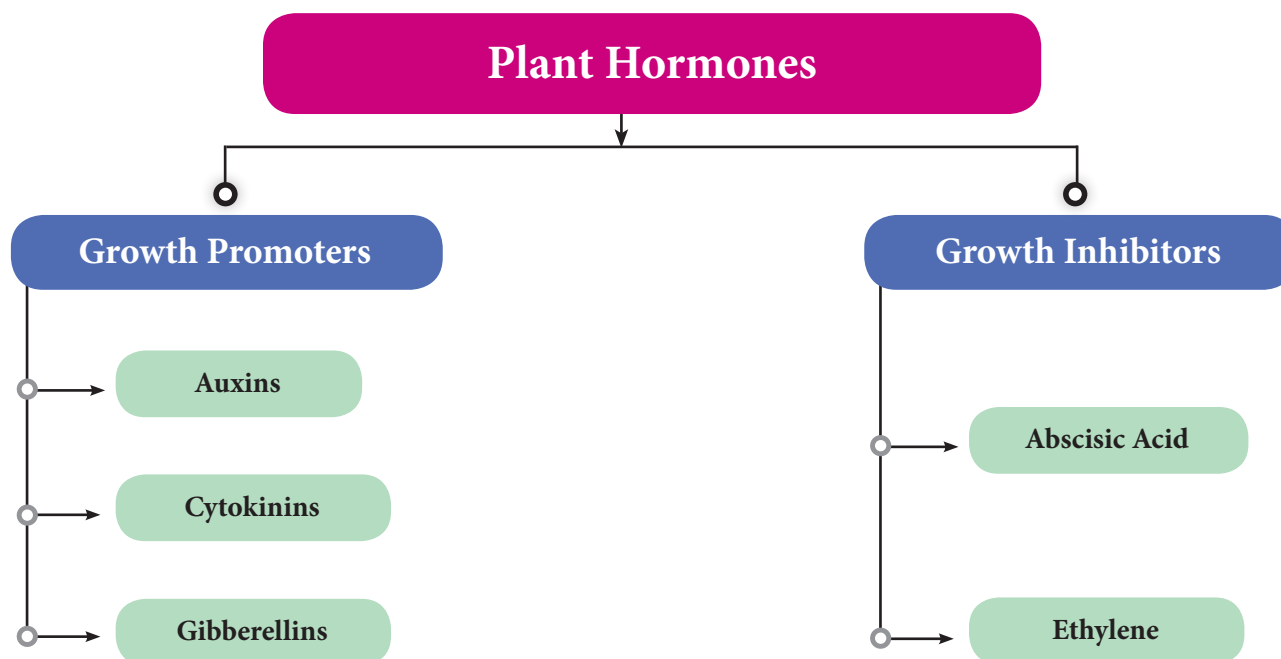
Human Endocrine Glands - Concept Map

ENDOCRINE GLANDS

- PITUITARY GLAND
  - ADENOHYPOPHYSIS → GH, PRL, TSH, ACTH, FSH, LH
  - NEUROHYPOPHYSIS → VASOPRESSIN, OXYTOCIN
- THYROID GLAND → T3, T4
- PARATHYROID GLAND → PARATHORMONE
- GONADS
  - TESTIS → TESTOSTERONE
  - OVARY → ESTROGEN, PROGESTERONE
- ADRENAL GLAND
  - ADRENAL CORTEX → CORTISOL, ALDOSTERONE
  - ADRENAL MEDULLA → EPINEPHRINE NOREPINEPHRINE
- THYMUS GLAND → THYMOSIN
- PANCREAS (ISLETS OF LANGERHANS) → INSULIN, GLUCAGON

SEXUAL REPRODUCTION IN HUMAN

SEXUAL REPRODCUTION
- **MALE**
  - **TESTIS**
  - **SPERMATOGENESIS**
  - **SPERM**
- **FEMALE**
  - **OVARY**
  - **OOGENESIS**
  - **OVUM**

- **FERTILIZATION**
- **IMPLANTATION**
- **GESTATION**
- **PARTURITION**
- **LACTATION**

- **MENSTRUAL CYCLE**
  - **FOLICULAR PHASE**
  - **OVULATORY PHASE**
  - **LUTEAL PHASE**

FAMILY WELFARE PROGRAMMES
- **POPULATION EXPLOSION**
- **FAMILY PLANNING**
  - **CONTRACEPTION**
    - **BARRIER METHODS**
    - **HORMONAL METHODS**
    - **IUDs**
    - **SURGICAL METHODS**

HYGIENE
- **PERSONAL HYGIENE**
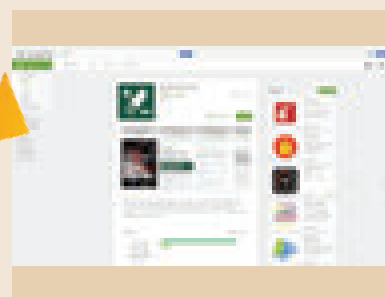 - **TOILET HYGIENE**
  - **MENSTRUAL HYGIENE**

ICT CORNER

REPRODUCTION

WHO HTS INFO – This application enables the students to know about HIV tests and information. It was created by World Health Organization.

Steps

- You can see the moving Menu bar at the top of the home screen. The same thing can be accessed from the Menu at the left bottom.
- You can view the latest news and events about HIV by clicking the News button.
- It includes many updates and information in Testing strategies, Pre and Post test service.
- You can reach the home page from any page of the application by clicking HOME button.

Step1 **Step2** **Step3** **Step4**

Cells alive

URL : https://play.google.com/store/apps/details?id=com.whohtsinfo

*Pictures are indicative only

B375_10_SCIENCE_EM

3. Kavitha gave birth to a female baby. Her family members say that she can give birth to only female babies because of her family history. Is the statement given by her family members true. Justify your answer.

REFERENCE BOOKS

1. Veer Bala Rastogi, Introductory Cytology, Rastogi Publications, Meerut

2. P. S. Verma and V.K. Agarwal, Genetics, S. Chand and Company, New Delhi

3. Gerald Karp, Janet Iwasa and Wallace Marshall, Cell and Molecular Biology - Concepts and Experiment, 8th Edition, Wiley and Sons Publishers
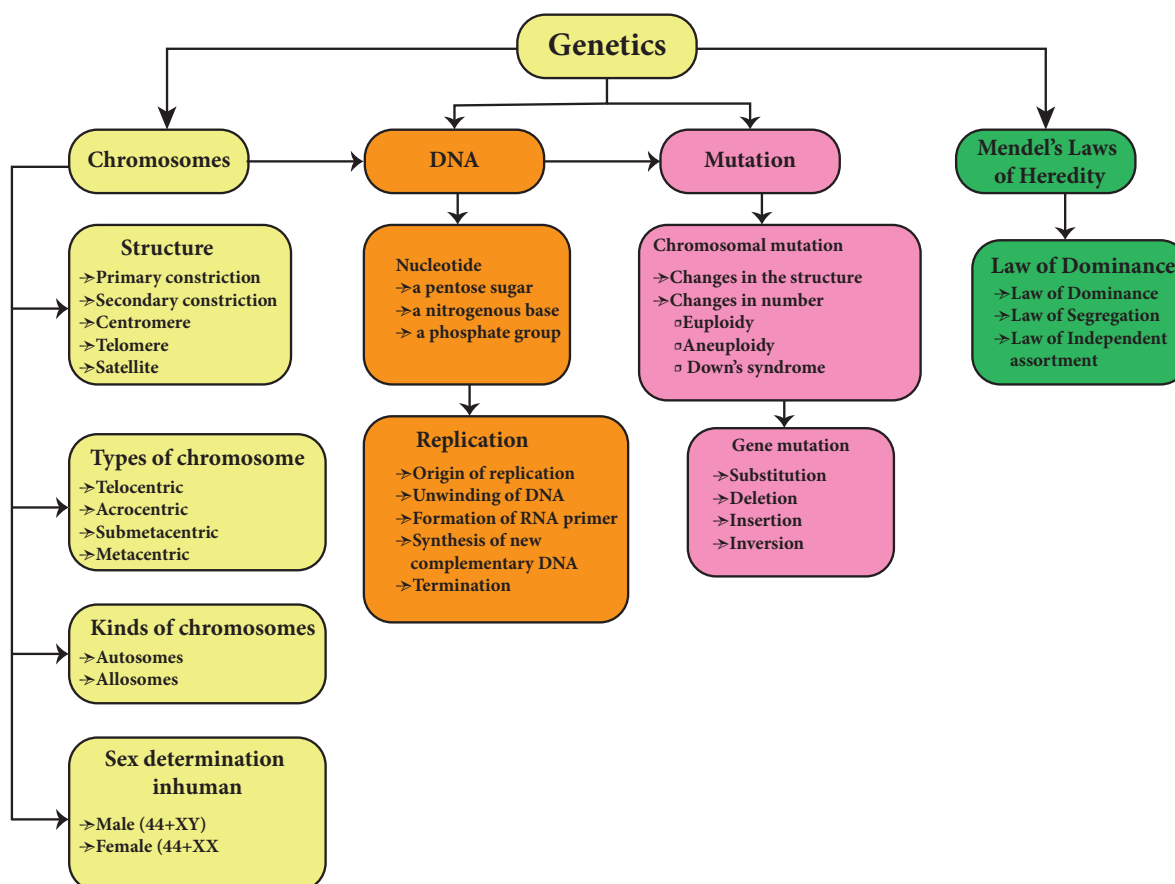
IX. Value based question

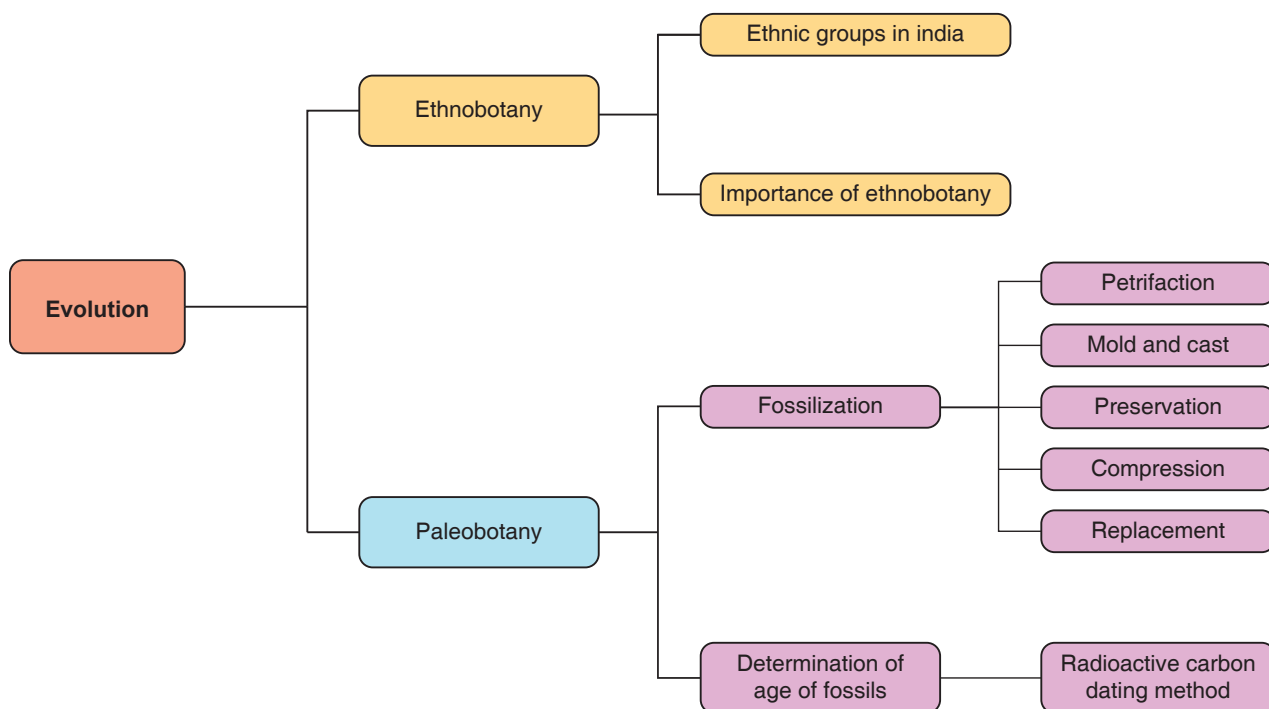1. Under which conditions does the law of independent assortment hold good and why?

INTERNET RESOURCES

https://www.genome.gov

https://www. genetics.edu.au

https://www.bioexplorer.net/chromosomal-mutation.html/

https://www.ndss.org/about-down-syndrome/down-syndrome/

Concept Map

Genetics

Chromosomes

Structure
→Primary constriction
→Secondary constriction
→Centromere
→Telomere
→Satellite

Types of chromosome
→Telocentric
→Acrocentric
→Submetacentric
→Metacentric

Kinds of chromosomes
→Autosomes
→Allosomes

Sex determination inhuman
→Male (44+XY)
→Female (44+XX

DNA

Nucleotide
→a pentose sugar
→a nitrogenous base
→ a phosphate group

Replication
→Origin of replication
→Unwinding of DNA
→Formation of RNA primer
→Synthesis of new complementary DNA
→Termination

Mutation

Chromosomal mutation
→Changes in the structure
→Changes in number
  ▫Euploidy
  ▫Aneuploidy
  ▫ Down's syndrome

Gene mutation
→Substitution
→Deletion
→Insertion
→Inversion

Mendel's Laws of Heredity

Law of Dominance
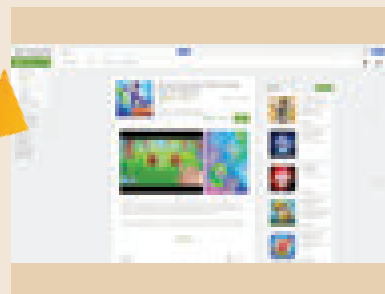→Law of Dominance
→Law of Segregation
→Law of Independent assortment

ICT CORNER   ORIGIN AND EVOLUTION OF LIFE

This game will enable the students to understand the evolution of living organisms. But it was created on the basis of general truths and not specific scientific related.

Steps

- Access the application "HUMAN EVOLUTION CLICKER GAME:RISE OF MANKIND" with the help of provided URL or QR code. Download and Install it in the mobile.

- You can view a bubble for ten seconds, touch it to reveal the hidden DNA.

- By joining two DNAs, a bacteria will be formed. By joining two bacteria, amoeba will be appeared.

- Continue the same to form many other species by combining different species. There are 52 living organism exist now in the application. Explore everything.
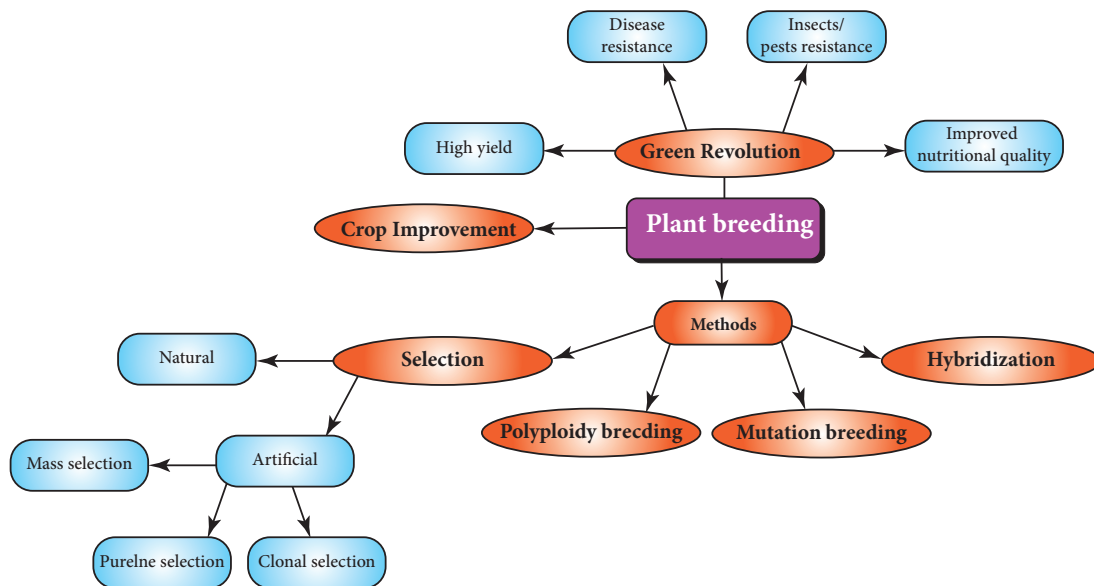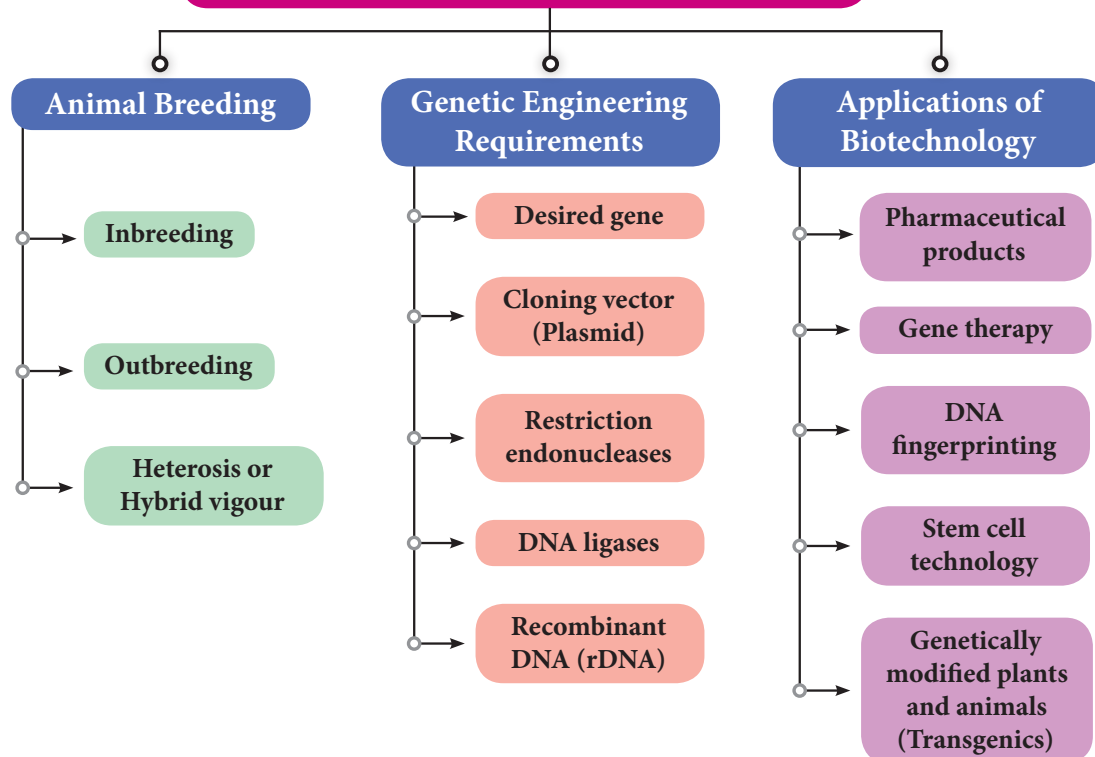
| Step1 | Step2 | Step3 | Step4 |

Cells alive

https://play.google.com/store/apps/details?id=com.banana4apps.evolution&hl=en

*Pictures are indicative only

B375_10_SCIENCE_EM

Concept Map

Plant Breeding

Plant breeding

- Green Revolution
  - Disease resistance
  - Insects/pests resistance
  - High yield
  - Improved nutritional quality
- Crop Improvement
- Methods
  - Selection
    - Natural
    - Artificial
      - Mass selection
      - Purelne selection
      - Clonal selection
  - Polyploidy breeding
  - Mutation breeding
  - Hybridization

Animal Breeding and Biotechnology

Animal Breeding
- Inbreeding
- Outbreeding
- Heterosis or Hybrid vigour

Genetic Engineering Requirements
- Desired gene
- Cloning vector (Plasmid)
- Restriction endonucleases
- DNA ligases
- Recombinant DNA (rDNA)

Applications of Biotechnology
- Pharmaceutical products
- Gene therapy
- DNA fingerprinting
- Stem cell technology
- Genetically modified plants and animals (Transgenics)

Concept Map

Abuses and Disorders due to Lifestyle Modification

Abuses

- Child abuse
- Sexual abuse
- Drug abuse
- Tobacco abuse
- Alcohol abuse

Protection and Prevention

- Counselling and Psychotherapy
- Family support
- Community based efforts
- Abuse prevention campaigns
- Rehabilitation

Disorders due to Lifestyle Modification

- Diabetes Mellitus
- Obesity
- Cancer

Protection and Prevention

- Dietary management
- Physical activity and body weight maintenance
- Education and awareness

Medication and therapy

X. Value based questions

1. Why is it not possible to use solar cells to meet our energy needs? State three reason to support to your answer.

2. How would you dispose the following wastes?

   a. Domestic wastes like vegetable peels

   b. Industrial wastes like metallic cans

   Can the disposal protect the environment? How?

3. List any three activities based on 4R approach to conserve natural resources.
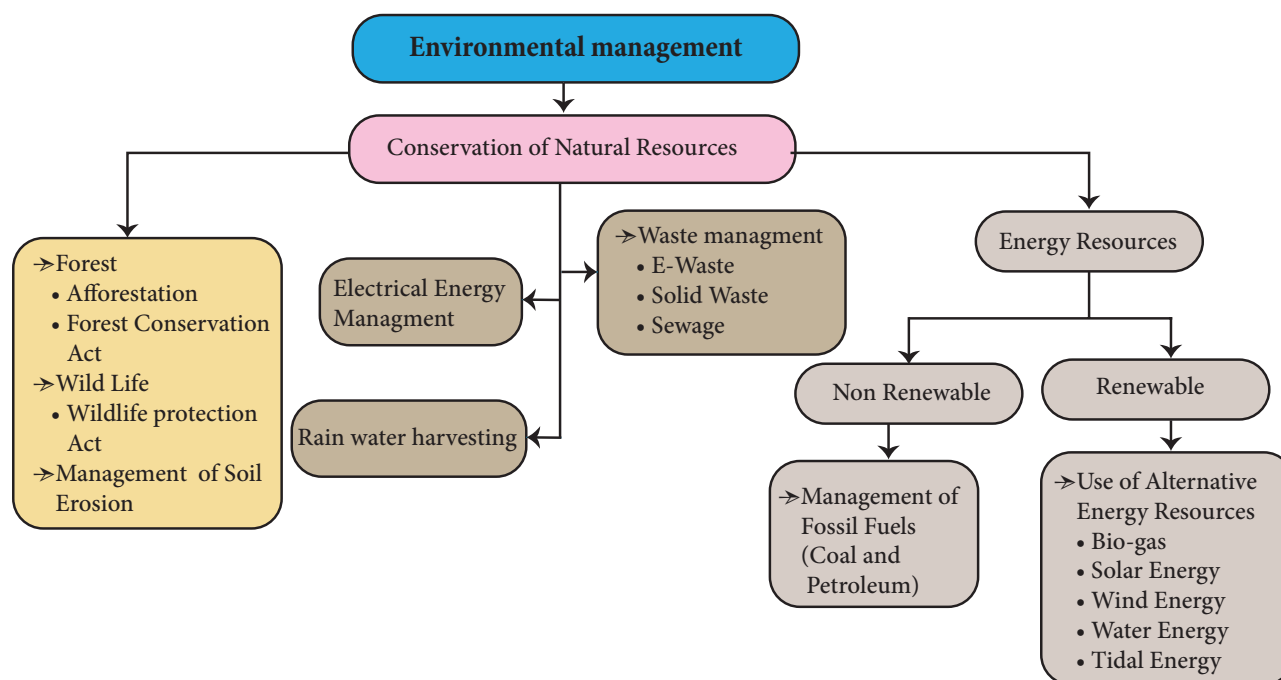
REFERENCE BOOKS

1. Ghatwal G.T. and Harish Sharma, 2005. A Text Book of Environmental Studies', Himalaya Publishing House.

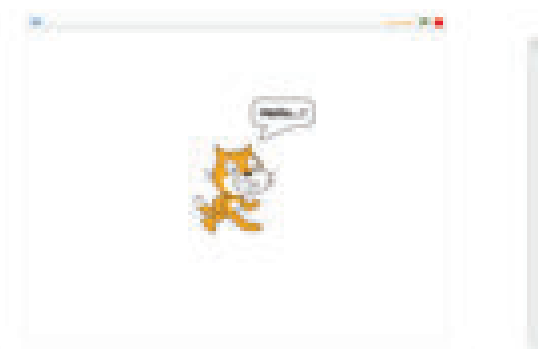2. P. D. Sharma, 2013. Ecology and Environment, Rastogi Publications, Meerut.

INTERNET RESOURCES

1. http://envfor.nic.in

2. https://www.ovoenergy.com/guides/energy-guides/120-ways-to-save-energy.html

Concept Map

10th Standard Science

Output:

TEXTBOOK EVALUATION

I. Choose the best answer

1. Which software is used to create animation ?
   a) Paint   b) PDF
   c) MS Word   d) Scratch

2. All files are stored in the _____
   a) Folder   b) box
   c) Pai   d) scanner

3. Which is used to build scripts?
   a) Script area   b) Block palette
   c) stage   d) sprite

4. Which is used to edit programs?
   a) Inkscape   b) script editor
   c) stage   d) sprite

5. Where you will create category of blocks?
   a) Block palette b) Block menu
   c) Script area   d) sprite

II. Match the Following

1. Script Area	Type notes
2. Folder	Animation software
3. Scratch	Edit programs
4. Costume editor	Store files
5. Notepad	Build Scripts

III. Answer the following

1. What is Scratch?

2. Write a short note on editor and its main parts?

3. What is Stage?

4. What is Sprite?