ANNEXURE II

CONCEPT MAPS

ON

- Classification of natural resources
- Natural resources management
- Components and layers of atmosphere
- Causes of pollution
- Air pollution (green house effect, global warming and ozone layer depletion)
- Water pollution (pollutants, sources, effects)
- Soil pollution (sources, effects)
- Soil erosion (causes, effects, prevention)
- Noise pollution
- Energy flow in an ecosystem

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TOPIC: CONCEPT MAP ON CLASSIFICATION OF NATURAL RESOURCES

➤ Objectives

General Objectives:

• To know about natural resources in environment.

• To understand common natural resources such as air, water, land, minerals, energy, plants and animals.

• To apply the knowledge of natural resources to solve environmental problems.

• To develop the observation, preservation and conservation skills.

➤ Specific Objectives:

• To recognize different types of natural resources.

• To classify natural resources according to chemical nature, abundance, availability and distribution.

• To give explanation about different natural resources.

• To describe the important and harmful effects of natural resources.

• To give measures to conserve these natural resources.
Natural Resources

Classified according to:

- Chemical nature (Three types)
  - Inorganic resources
  - Organic resources
  - Mixed resources

- Abundance and availability (Two types)
  - Inexhaustible resources
  - Exhaustible resources

- Distribution (Three types)
  - National resources
  - Multinational resources
  - International resources

Two types

Renewable resources
Non-renewable resources

Concept Map on Classification of Natural Resources
Concept Map on Natural Resources

Inexhaustible
- Solar energy
- Rainfall
- Hydropower
- Wind energy
- Power of tides
- Clay and sand

Exhaustible
- Renewable
  - Water
  - Wild life
  - Aquatic Animals
  - Humans
  - Soil fertility
  - Natural vegetation
- Non-renewable
  - Biological species
  - Minerals
  - Fossil fuels

also includes

Natural Resources
TOPIC: CONCEPT MAP ON NATURAL RESOURCES MANAGEMENT

➢ Objectives

General Objectives:

• To know about natural resources management

• To understand the different ecosystems in natural resources.

• To apply the knowledge of natural resources management to solve various environmental problems of pollution.

• To develop the preservation skill.

Specific Objectives:

• To recall different types of natural resources and their management.

• To classify various factors of natural resources management.

• To describe environmental resistance with different examples.

• To explain fisheries management practices as a part of natural resources management which include selection, laws, artificial propagation, habitat improvement.
TOPIC: CONCEPT MAP ON COMPONENTS AND LAYERS OF ATMOSPHERE

➢ Objectives

• General Objectives:

  • To know about atmosphere and its layers.
  
  • To understand the comments and different layers of atmosphere.
  
  • To apply the knowledge of different layers in understanding the functions of atmosphere.

Specific Objectives:

• To recall the different components of atmosphere.

• To describe different layers with their formation, distance from earth and functions.

• To explain importance of atmosphere in climate control.
TOPIC: CONCEPT MAP ON CAUSES OF POLLUTION

➢ Objectives

• General Objectives
  - To know the term pollution
  - To understand various causes of pollution
  - To apply the knowledge in protecting the environment
  - To develop the skill of protecting the environment from pollution.

Specific Objectives:

• To define the term pollution
• To understand the different causes like population, industry and technology.
• To explain the reasons of imbalance in the environment.
• To identify the causes of environmental problems related to air, water and soil pollution.
Concept Map on Causes of Pollution
TOPIC: CONCEPT MAP ON AIR POLLUTION

➢ Objectives

General Objectives

- To acquire knowledge about air pollution.
- To understand different sources of air pollution.
- To apply the knowledge to find harmful effects of air pollution.
- To develop observation and prevention skill.

Specific Objectives:

- To know about different air pollutants.
- To understand different changes which occur in air.
- To classify different sources of air pollution.
- To explain harmful effects of air pollution i.e. respiratory problems, acid rain, green house effect, global warming, depletion of ozone layer etc.
- To formulate various measures to control air pollution.
Concept Map on Air Pollution

Air is polluted by Air pollutants

Dust Gases Ash Radioactive rays Pollen grains

Air Pollution

leads to

Physical change

Chemical change

Biological change

two main sources

Natural sources

are

Volcanic eruptions Electric storms and solar flares Forest fire Decay of vegetation matter Pollen grains, bacteria, spores

Man-made Sources

are

Burning of fuel Urbanization Industrialization Automobiles

Over-population Mining activities Deforestation Explosives used in wars

Concept Map on Air Pollution
Concept map on Air pollution

Air Pollution

Primary types

Particulate pollution

Smog

Produces

by

Natural causes

Human causes

Gas Pollution

form

Natural sources

Human sources

affects

Upper atmosphere

through use of

Chlorofluoro carbons

lower atmospheres

Through production of

Sulphur dioxide

Nitrogen oxides

Carbon monoxide

Carbon dioxide

Possible solutions

For which there are

Mostly involving
**Concept Map on Greenhouse Effect and Global Warming**

- **Man made**
  - Chlorofluoro carbons
    - Are
    - In
      - Destroy
    - Broken by
      - Ultra violet
        - Causes
          - Cataracts
          - Skin cancer

- **Greenhouse gases**
  - Trap
  - Cause

- **Infra-red rays**

- **Refrigerators**
  - Cause

- **Air conditioners**

- **Ozone layer**
  - Blocked by

- **Enhanced greenhouse effect**
  - Causes
    - Global warming
Concept Map on Ozone Layer Depletion

CFCs are effecting Ozone Layer, letting in Ultra Violet rays which causes damages to Skin Cancer and Crops.
TOPIC: CONCEPT MAP ON WATER POLLUTION

➢ Objectives

General Objectives

• To know about water pollution.

• To understand causes of water pollution.

• To apply the knowledge to identify the sources of water pollution.

• To find measures to control water pollution.

Specific Objectives

• To know different types of changes occur due to water pollutions.

• To classify different types of water pollutants.

• To understand main sources of water pollution, point and non-point sources of water pollution.

• To describe harmful effects of water pollution i.e. diseases, eutrophication, biomagnifications etc.
Concept Map on Water Pollution

- Aquatic life, makes water unfit for use
  - Adversely affects Water pollution
  - Changes Physical Biological, Chemical quality of water

Three types of water pollutants

- Physical pollutants
  - include Heat and oil spills

- Chemical Pollutants
  - include Organic wastes, detergents, pesticides, polychlorinated biphenyls (PCBs), inorganic Chemicals, radioactive wastes

- Biological Pollutants
  - include Pathogens as viruses, protozoa, algae, fungi, etc.
Concept Map on Water Pollution

**Water pollution**

- **Main Sources are**
  - Industrial wastes
  - Sewage
  - Synthetic soaps and detergents
  - Fertilizers and Pesticides
  - Petroleum Oil
  - Heat

- **Points and non-point sources**
  - Factories, power plants, underground coal mines, oil wells
  - Run-off from fields, lawns and gardens, roads and streets, logging areas

**Causes**

- **Human diseases**
  - Such as Typhoid, Cholera, Jaundice, Dysentery

- **Destruction of useful microorganisms**
  - Natural cleansing bacteria

- **Eutrophication**
  - Such as occurs in water bodies
  - Causes Minimata disease, Itai-Itai disease

- **Biomagnification of Chemicals**
TOPIC: CONCEPT MAP ON SOIL POLLUTION

➢ Objectives

General Objectives:

• To know about soil pollution.
• To understand different sources of soil pollution.
• To apply the knowledge to find harmful effects of soil pollution.
• To develop observation and prevention skill.

Specific Objectives:

• To know about different soil pollutions.
• To understand different changes which occur in soil.
• To classify different sources of soil pollution.
• To explain harmful effects of soil pollution.
Concept Map on Soil Pollution

Soil pollution

Harmful effects

Has

Lead to

Disease

Cause

Reduced

Acidic soil

Fertility of soil

Destroy food chains

Affects

Biotic components

Sources

Has

Are

Solid wastes

Include

Water from industries, houses, fields etc.

Chemical

Such as

Sulphur lead and gases

Excess of fertilizers and pesticides

Such as

DDT, BHC urea
TOPIC: CONCEPT MAP ON SOIL EROSION

➢ Objectives

General Objectives:

• To know about soil erosion.
• To understand the different causes of soil erosion.
• To find effects of soil erosion.
• To develop prevention skill.

Specific Objectives:

• To understand human and natural causes of soil erosion.
• To find effects of soil erosion on fertile soil, hilly areas, rivers.
• To apply preventive measure to control soil erosion such as cropping, proper drainage, sowing grasses, terrace farming.
TOPIC: CONCEPT MAP ON NOISE POLLUTION

➢ Objectives

General Objectives:

• To know about noise pollution.
• To understand the sources of noise pollution.
• To find effects of noise pollution.
• To develop preventive skills.

Specific Objectives:

• To define noise pollution.
• To understand natural and man made sources of noise pollution such as domestic gadgets, loud speakers, vehicles, aircraft etc.
• To find harmful effects of it on ear, heart, brain, eye, liver etc.
• To explain remedial measure to control noise pollution.
Concept Map on Noise Pollution

Noise pollution

- has sources
  - Domestic gadgets
  - Loud Speakers
  - Agricultural equipments

- effects
  - Ear, Heart, brain
    eye, livers, CNS
    of unborn babies

- Personal entertainment
  sources

- Vehicles
  - Aircraft
    rocket

- Crackers
  - Commercial
    establishments
TOPIC: CONCEPT MAP ON ENERGY FLOW IN AN ECOSYSTEM

➢ Objectives

General Objectives:

• To make aware about ecosystem.
• To understand flow of energy in an ecosystem.
• To find out the relationship among different trophic levels.
• To develop skill of conservation of energy.

Specific Objectives:

• To define ecosystem, trophic levels, energy processes.
• To understand the process of energy consumption and energy production.
• To get information about different food chains.
• To develop measurements to conserve energy at different levels.