CLASS – X SCIENCE

CHAPTER-15

OUR ENVIRONMENT

MODULE- 1/2

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What is meant by environment?

- The environment includes our physical surroundings like air, water bodies, soil and all the organisms such as plants, animals, human beings and microorganisms.

- Different materials are cycled in the environment in separate biogeochemical cycles.

- In these cycles essential nutrients like nitrogen, carbon, oxygen and water are changed from one form to another.

- Human activities affect these cycles.

What happens when we add waste to the environment?

- In our daily activities we generate a lot of materials that are thrown away.

- The food we eat is digested by various enzymes in our body.Enzymes are specific in their action.

- Specific enzymes are needed for the breakdown of a particular substance. That is why we do not get any energy if we try to eat coal.

- Because of this many human made materials like plastics will not be broken-down by the action of bacteria or other saprophytes and they persist in the environment for a long time.

Biodegradable and non-biodegradable Materials

- Substances that are broken down by biological processes are said to be biodegradable.

Eg. Vegetable peel, paper

- Substances that are not broken down by biological processes are said to be non-biodegradable.These substances may be inert and simply persist in the environment for a long time or may harm the various members of the ecosystem.

Eg. Plastic, glass

Ecosystem

- All organisms such as plants, animals, microorganisms and human beings as well as the physical surroundings interact with each other and maintain a balance in nature.

- All the interacting organisms in an area together with the non-living constituents of the environment form an ecosystem.

Components of an ecosystem

- An ecosystem consists of biotic components comprising living organisms and abiotic components comprising physical factors like temperature, rainfall, wind soil and minerals.

Biotic components of an ecosystem

i) Producers

- All green plants and certain blue green algae which can produce food by photosynthesis are called the producers.

- They can make organic compounds like sugar and starch from inorganic substances using the radiant energy of the sun in the presence of chlorophyll.

ii) Consumers

- These organisms which consume the food produced either directly from producers or indirectly by feeding on other consumers.

- Consumers can be classified as

a) Herbivores – eat plant and plant products

Eg: deer, rabbit

b) Carnivores – eat other animals

Eg. Tiger, lion

c) Omnivores – eat both plants and animals

Eg. Human beings, birds.

d) Parasites – take ready made food from other plants and animals.

Eg. Cuscuta, tape worm

iii) Decomposers

- The microorganisms comprising bacteria and fungi breakdown the dead remains and the waste products of organisms.

- These microorganisms are the decomposers as they break down the complex organic substances into simple inorganic substances that go into the soil and are used up once more by the plants.

- The decomposers are responsible for the natural replenishment of the soil.

Natural and artificial ecosystems

- Natural ecosystems are natural, self-sustainable and complete.

Eg. Forest, Pond, Lake.

- Artificial ecosystems are man-made.They are not self- sustainable and incomplete.

Eg. Aquarium, garden, crop field.

Garden- An Ecosystem

- In a garden we can see different plants such as grasses, trees, flowering plants like rose, jasmine, sunflower and animals like frogs, insects and birds.

- All these living organisms interact with each other and their growth, reproduction and other activities are affected by the abiotic components of the ecosystem. So a garden is an ecosystem.

Aquarium- An artificial Ecosystem

- Aquarium is a human-made ecosystem. We have to provide everything to the fishes kept in an aquarium and also we have to clean it regularly,

- It is incomplete and not self-sustainable.

THANK YOU!