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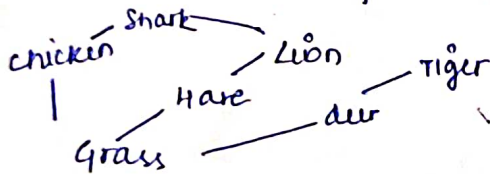
## PRACTICE TEE

1 (a) Food chain - Different species of flora and fauna together form a food chain. A food chain is less complex and includes a chain of organisms. It is less complicated as it links the number of organisms.

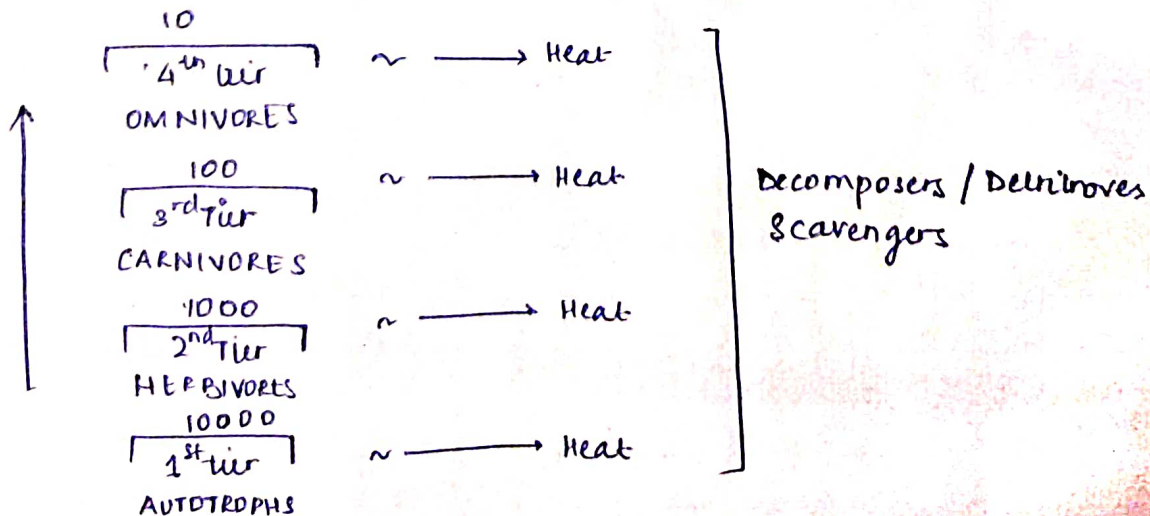
eg → Grass → Hare → Lion → Vulture

Food Web - When different food chains overlap and form a complex connection of who eats whom, is called a food web.

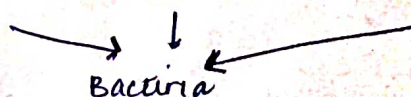
eg



According to second law of thermodynamics, wherever there is flow of energy, some energy is always lost. So as the chain progresses, less energy is delivered to the next tier. Similarly, in case of food webs, the complexity is high and it requires many autotrophs and first and second tier organisms to sustain a food web. No food chain or food web is observed having any more levels than four or five tiers because of this reason.



FOOD CHAIN → Fallen leaves → insect larvae → birds



## 2 Various methods of solid waste disposal:

### \* LANDFILLS →

- Waste is spread over a large area in thin layers, compressed and covered with soil and thick plastic.
- The bottom is covered with an 'impervious layer' in order to protect ground water from being contaminated because of percolation.
- When the landfill is full, it is covered with topsoil, gravel, sand and clay to prevent seepage of water.

### \* INCINERATION

Burning of solid waste to turn it into ashes.

Incinerators are made in such a way that they do not radiate large amounts of heat.

The volume of waste reduces to 20-30% of original volume.

It creates air pollution and has toxin and is <sup>more</sup> expensive than landfills.

### \* COMPOSTING

#### \* Biodegradable waste

Decompose biological waste in oxygen rich environment.

### \* SOURCE REDUCTION - Reuse, Reduce, Recycle.

Reduce and reuse - reduce costs, toxicity and saves resources.

### \* Recycling - reduce environmental degradation, best out of waste, save resources.

## 3 Impact of overpopulation on Environment:

POLLUTION - Increase in waste and other forms of pollution air, water etc.

DEFORESTATION - Due to increased industrialization and demand for space for large population, forests are being destroyed.

RESOURCE DEPLETION - Natural resources are being exploited; out of which many are non-renewable resources. They can't be replenished soon and are not being used in a sustainable way.

POVERTY AND UNSANITARY SURROUNDINGS

HEALTH - Rate of growth of infectious diseases increase. In general, maintaining proper health of the entire population is difficult.

Global warming is also an impact of overpopulation to some extent.



## PRODUCERS

Manufacture organic compounds from inorganic substances  
 Product is consumed by them as well as by the other organisms  
 They derive nutrition from abiotic components, soil or water and manufacture their own food using photosynthesis in presence of sunlight.  
 They are the base of the food chain.

Producers are of two types -

Photo autotrophs - synthesize food through sunlight  
 Chemo-autotrophs - synthesize food from burning of chemicals coming up from Earth's crust.

## \* PRIMARY AND SECONDARY CONSUMERS

Animals feed on producers directly. They are herbivores.

Secondary consumers are animals that feed on primary consumers.

## Sustainable Development

Sources of energy which do not deplete and harm the environment help in sustainable growth / living hence called sustainable energy resources.  
 Renewable energy is a sustainable energy source.

SOLAR ENERGY - Uses nuclear fission in sun

g Solar water heater, solar cooker, solar cell etc

HYDROPOWER - Water stored in a dam falls from a height, the blades of the turbine located at the bottom of the dam moves very fast with fast moving water.

This rotates the generator and produce electricity/energy

Tidal energy - This use of tides produced by the gravitational pull of the earth to produce energy. The generation works as the tide comes in and again when it goes out. The turbines are driven by the power of the sea in both directions.

Ocean thermal energy - The energy obtained due to the difference in temperature of water surface.

A difference of  $20^{\circ}\text{C}$  is required.

Wind energy → It is captured by turbine and turned into energy

Others include geothermal energy, biomass energy →

Hydrogen economy → Energy can be produced with just water.

No  $\text{CO}_2$  emissions, have high efficiency, low cost and pollution