DESERT ECOSYSTEM

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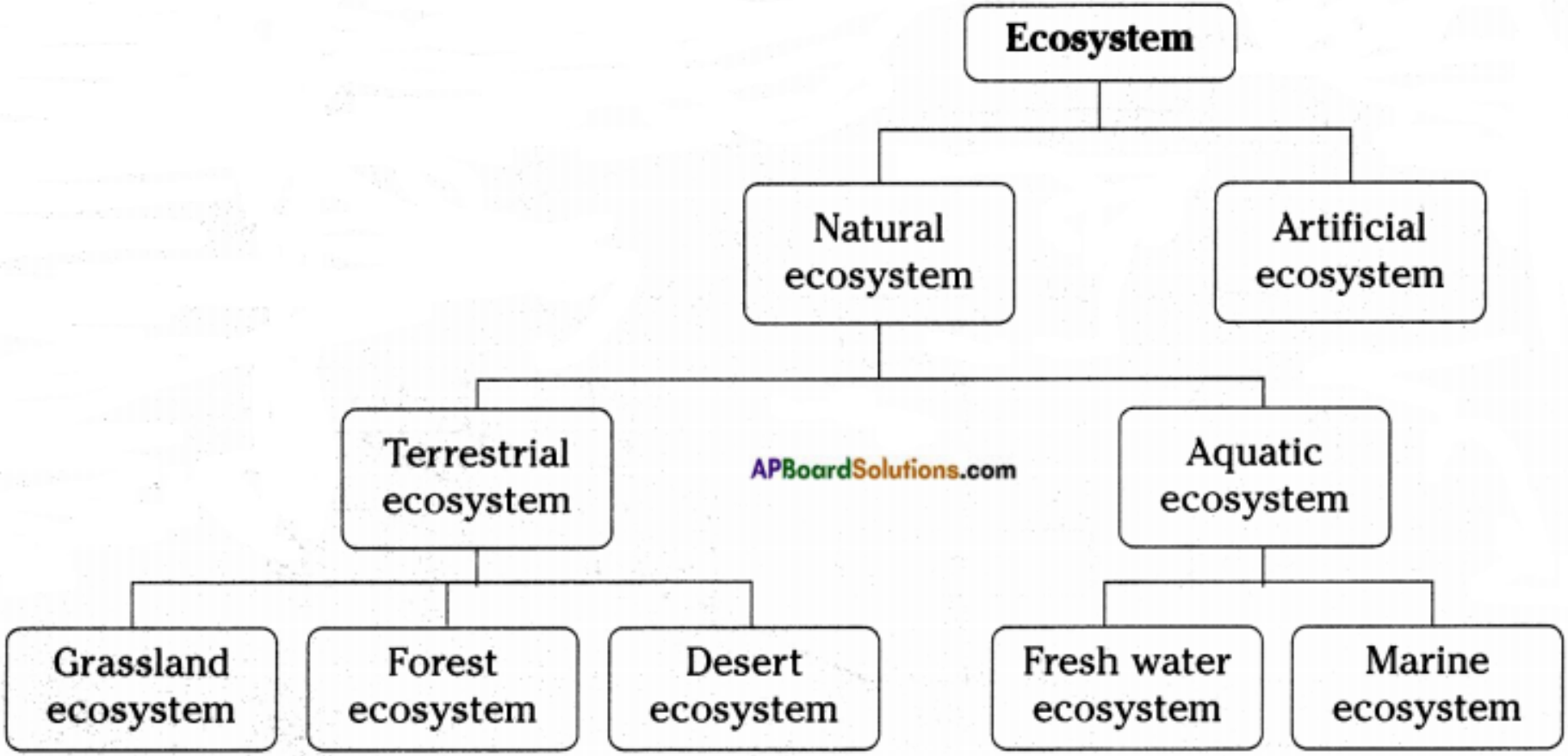
Flow chart of classification of ecosystem



WHAT IS TERRESTRIAL ECOSYSTEM?

A terrestrial ecosystem is a land based community of organisms and the interaction of biotic and abiotic components in a given area.

Desert ecosystems

Introduction

Desert occupies about 14% of our world's land area. It is charecterized by less than 25cm rainfall . The atmosphere is dry and hence it is a poor insulator.
The flora and fauna in these ecosystems is generally not much developed because of the high temprature, intense sunlight and low availability of water.

A desert is a landscape form or region that receives very little precipitation less than 25 cm per annum

Types of desert ecosystems

Based on the climatic condition, deserts are classified into three types.

- Tropical desert
- Temperate desert
- Cold desert

Features of different types of deserts

- **Tropical desert (Tundra)** is an environment of extremes, it is the driest and hottest place on earth. They have wide variation in daily temperature .
  They are home to many animals and plants that have adapted to survive in the hot, dry conditions.
  Eg. Africa: Sahara desert,
  Rajisthan: Thar desert

- **Temperate desert** of continental regions have low rainfall and strong temperature contrasts between summer and winter
  Eg. Atacama, Mojave.

- **Cold desert** have hot summers but extremely cold winters. These are found in high, flat area, called plateaus.
  The largest desert on earth is Antarctica, which covers 14.2 million square kilometers. It is also the coldest desert on Earth

Characteristics of Desert ecosystem

The desert air is dry and the climate is hot. Annual rainfall is less than 25 cm. The soil is very poor in nutrients and organic matter, Vegetation is poor.

Structure and functions of the desert ecosystems

I. Abiotic Components

Intense solar radiation, lashing winds, and little moisture i.e. less than 10 inches (25 cm) of rainfall. The nutrient cycling is also very low. The characteristic feature of the abiotic component is lack of organic matter in the soil and scarcity of water

II. Biotic Components

- **Producers**: In deserts mostly Succulent (e.g., cacti) plants are found available. They have water inside them to stay alive, waxy coating to prevent intense heat, thorn on the outside to protect them from being eaten.

  Ex: Succulents, Shrubs, bushes, some grasses and few trees.

- **Consumers:** These animals dig holes in the ground to live in. They come out at night to find food. Most of the animals can extract water from the seeds they eat.
  Ex: Locust, scorpions, snakes, camel, elk etc.

- **Decomposers:** Desert has poor vegetation with a very low amount of dead organic mater. They are decomposed by few fungi and bacteria.
  Ex: Fungi and bacteria

A Food Web in the Desert Biome

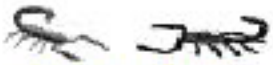
Larger Predators

Hawk

Kit Fox

Small Predators
Carnivores,
Insectivores

Tarantulas



Scorpions

Lizards

Snakes

Plant Eaters
Primary Consumers

Insects

Lizards

Rodents
Kangaroo Rats

Primary Producers

Cacti
Creosote Bushes
Thorn Acacias
Annual Flowers
Rabbit Brush
Ocotillo
Sage Brush

Soil Bacteria

ADAPTATAIONS

Adaptation is the key to survival in desert organisms

Adaptation in plants

- Desert plants have highly modified features that helps them to thrive at extreme climatic condition.
- They have short growing seasons and long dormancies.
- The well known desert plant, cactus Is a succulent, meaning it has thickened, fleshy parts to store water.
- Stem is the only part that stores water and water is stored as a thick viscous liquid.

Adaptation in animals

- **To avoid heat :** The animals avoid being out in the sun during daytime and live in burrows to escape intense heat.

- **To dissipate heat :** Animals have developed long body parts that provide greater surface area to dissipate heat . Light collours are poor absorbers of heat. Most desert animals are pale in collours which prevents their bodies from absorbing more heat from the sun.

THANK YOU