Glossary

- **Aphotic -** The deep zone of an ocean or lake receiving too little light to permit photosynthesis.
- **Aquifer -** A layer of earth material that can transmit water sufficient for water supply purpose.
- **Aspirin-** A synthetic compound used medicinally to relieve mild or chronic pain and to reduce fever and inflammation, usually taken in tablet form.
- **Autotrophs-** An organism that is able to form nutritional organic substances from simple inorganic substances such as carbon dioxide.
- **Benthic-** Describe organisms that live on the bottom of marine and fresh water ecosystem.
- **Biogeochemical cycles-** Cycling of substance or substances through a pathway by which a chemical substance moves through biotic (biosphere) and abiotic (lithosphere, atmosphere, and hydrosphere) compartments of Earth.
- **Biological disasters -** Devastating effects caused by spread of a certain kind of living organism that may spread a disease or an epidemic.
- **Biomass -** Total dry weight of all living organisms that can be supported at each tropic level in food chain.
- **Biome -** A kind of plant and animal community that cover major geographic areas.
- **Biosphere -** Zone of earth where life is found.
- **Community-** Population of all species living and interacting in an area at a particular time.
- **Conservation-** To use in the best possible way so that greatest long-term benefit is realized by society.
- **Consumer -** Organisms that rely on other organisms for food.
- **Corridors -** a long passage or gallery.
- **Cyclones -** Cyclones are violent rotating windstorms.
- **Debris-** scattered pieces of rubbish or remains.
- **Decomposers-** Small organisms, like bacteria and fungi, that cause the decay of dead organic matter and nutrients.
- **Deforestation -** The action of clearing a wide area of trees.
- **Demolish-** To completely destroy any structure example- a building, especially in order to use the land for something else
- **Denudation-** The processes that cause the wearing away of the Earth's surface by moving water, by ice, by wind and by waves, leading to a reduction in elevation and in relief of landforms and of landscapes.
- **Desertification-** The conversion of arid and semi –arid land into deserts by in appropriate farming practices or overgrazing.
- **Detritus-** Organic material that result from fecal waste material or decomposition of plants and animals.
- **Endangered species -** Those species that are present in such small numbers that they are in immediate becoming extinct.
- **Endemic -** Native and restricted to a certain place.
- **Energy Flow -** the flow of energy in ecosystems through the food chain.
- **Epidemic -** a widespread occurrence of an infectious disease in a community at a particular time.
- **Erosion-** The action of surface processes that removes soil, rock, or dissolved

material from one location on the Earth's crust, and then transports it to another location.

- **Ethics-** What we believe to be right or wrong behavior.
- **Ethnobotanical-** The study of a region's plants and their practical uses through the traditional knowledge of a local culture and people, investigating plants used by societies in various parts of the world.
- **Etiquette -** The customary code of polite behaviour in society or among members of a particular profession or group.
- **Euphotic zone-** The upper layer in ocean where the sun's rays penetrate.
- **Evacuate-** Leave or remove (someone) from a place of danger to a safer place.
- **Extinction-** The elimination of all the individuals in a particular species is called extinction.
- **Fault lines -** A line on a rock surface or the ground that traces a geological fault.
- **Fauna -** Animal life in general, a classification of animal of the region.
- **Flash floods-** Generally, the events of hill areas where sudden very heavy rain over a limited area can cause strong flow. Flash floods also occur when a temporary blockage in hilly areas impounds water, which when released suddenly creates the havoc.
- **Flora-** Plant life in general, a classification of animal of the region.
- **Habitat-** Place or type of place where an organism or a population of organisms live.
- **Herbivores-** Primary consumer, animal that eat plants.
- **Heterotrophs-** an organism deriving its nutritional requirements from complex organic substances.
- **Hotspots-** a biogeographic region with significant levels of biodiversity that is threatened with humans.
- **Host-** Plant or animal upon which a parasite feeds.
- **Indigenous-** originating or occurring naturally in a particular place or a native of that place.
- **Inhabitants-** A person or animal that lives in or occupies a place.
- **Invasive species-** species that is not native to a specific location (an introduced species), and that has a tendency to spread to a degree believed to cause damage to the environment, human economy or human health.
- **Landscapes-** all the visible features of an area of land, often considered in terms of their aesthetic appeal.
- **Lichen-** A plant like organism containing characteristics of algae and fungi.it is most sensitive to pollution.
- **Mangrove-** a tree or shrub which grows in tidal, chiefly tropical, coastal swamps, having numerous tangled roots that grow above ground and form dense thickets.
- **Mitigation-** the action of reducing the severity, seriousness, or painfulness of something.
- **Natural hazards-** Natural hazards are naturally occurring physical phenomena caused either by rapid or slow onset events which can be geophysical (earthquakes, landslides, tsunamis and volcanic activity), hydrological (avalanches and floods), climatological (extreme temperatures, drought and wildfires), meteorological (cyclones and storms/wave surges) or biological (disease epidemics and insect/ animal plagues).
- **Niche-** The role or position of an organism plays in a habitat.
- **Omnivores-** Organisms that eat both plants and animals.
- **Parasitic-** Nutrition mode of an animal or plant that lives on or in another animal or plant of a different type and feeds from it:

- **Pastoralism-** Pastoralism is the branch of agriculture concerned with the raising of livestock.
- **Percolation-** It is the process of a liquid slowly passing through a filter.
- **pH-** The negative logarithm of the hydrogen ions concentration, measure of the number of hydrogen ion present.
- **Phytoplankton-** These are the first link in the food chain. They are known as primary producers because they produce the first forms of food. Zooplankton and other small animals that graze on the phytoplankton are known as primary consumers.
- **Power lines-** A cable carrying electrical power, especially one supported by pylons or poles.
- **Predator-** An organism that kills and eats another organism.
- **Preparedness-** activities designed to minimize loss of life and damage, to organize the temporary removal for people and property from a threatened location and to facilitate timely and effective rescue, relief and rehabilitation.
- **Prey-** an organism that is killed and eaten by predator.
- **Receding waves-** The waves that hit the shore and then move back.
- **Red data book-** These books published by of world conservation union, contain the list of endangered species of birds and mammals etc.
- **Remediation-** the action of remedying something, in particular of reversing or stopping environmental damage.
- **Restoration-** the action of returning something to a former owner, place, or condition.
- **Rio-declaration-** The united nation conference on environment and development was held in Rio- de- Janeiro in 1992 and known as earth summit.
- **Salinity-** the quality or degree of being saline/salty.
- **Sea caps-** A basket-shaped sponge which sometimes attains great size,
- **Seismic activity-** It is is the type, frequency and size of earthquakes that happen over a period of time in a certain area.
- **Seismology-** The branch of science concerned with earthquakes and related phenomena.
- **Sewerage lines-** a large pipe, usually underground, that is used for carrying wastewater safely disposed to a place.
- **Succession-** regular and predictable changes in the structure of community ultimately leading to a climax community.
- **Threatened species-** Those species that could become extinct if a critical factor in their environment were changed.
- **Trophic levels-** a stage in the energy flow through ecosystems.
- **Unforeseen consequences-** The outcomes/ situations that are not foreseen and intended by a purposeful action.
- **Vibrations-** Vibration is a periodic motion of the particles of an elastic body or medium in alternately opposite directions from the position of equilibrium when that equilibrium has been disturbed
- **Volcanic eruption-** Outbreak of a volcano which is a rupture in the crust of, Earth (or a planetary-mass object), through which hot lava, ash and gases escape from a magma chamber below the surface.
- **Wetland-** A area that include swamps, tidal marsh, coastal wetlands and estuaries.
- **Zooplankton-** Animal plankton small floating herbivores that fled on plant plankton (Phytoplankton)

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Environmental Education subject is mandatory for the standard 11th and 12th - Arts, Commerce, Science. Students of class 11th and 12th are required to prepare project report in writing during each academic year.

Guidelines for writing project report

- It is mandatory for the students to write project reports according to the following guidelines.
- A reference list of project topics is provided in the textbook.
- Evaluation of Project work should be according to the guidelines.

1. Selection of the project topic (Introduction):

Student is expected to write briefly about the subject and the reasons for selecting the particular topic. Brief history, new updated information, current status of the topic should be included in introduction.

2. Importance of topic:

Student has to write the precise importance of project work by identifying the present environmental, scientific and social value of the project topic.

3. Objectives of the project work:

This should have the wrie an what you will do in the project work and must write the appropriate objectives. The objectives of the project work should be in proper manner.

4. Project work methodology:

A short description of how the information will be obtained under the practical approach. It is necessary to use a variety of data collection methods which includes survey, questionnaire, interviews, experiments, field observations, site visits, etc. The students should generally consider their local environmental issues for the project work (but not limited to). So that they can identify and formulate solutions to the problems surrounding them.

Students should be encouraged to illustrate the problems of the selected environmental issue. Encourage use of the newspapers / self-drawn pictures/ photographs of the issues taken by the students themselves.

5. Observations:

The data / information obtained from the selected topic should be depicted in the form of observation tables, graphs and brief points. The next part - conclusion is based on the observations recorded.

6. Analysis of data:

It is an important step to analyze/evaluate the observations based on a various numerical or statistical methods, e.g. Mean, mode, median, correlation, average, percentage etc. Based on this analysis it becomes more accurate and effective. By this method, you can effectively indicate the numerical values through graphs, histograms, and images.

7. Results and Conclusions:

The results should have interpretation and inference of the data / information obtained.

Project List

01: Visit/ study a watershed development programme and prepare a project report explaining how it is sustainable development Example achieving environmental, social and economic development of the area.

02: Study the role of any one national / International organization mentioned in the book and write about the work done by that organization in environment protection.

03: List the various NGOs in your area working for environment protection and document various activities they have conducted.

04: Arrange an interview with a person in your area working for environment and write down about his work.

05: Visit website of any one of the organisations in Maharashtra which is working for environment protection or conservation of biodiversity and prepare a short write up on the work carried out in last five years.

06: Collect the information regarding any one of the nationally recognized movement related to environment and prepare a short report on it.

O7: Start a ' Nature-club/Eco-club in your school/college. Carry out any two activities like keeping premises clean , preparing a garden and taking care of plants and write report on it.

08 : Collect the information about " Nobel Peace Prize" winner Environmentalists (at least two) and write about the work done by him/her and what message you get from this information.

09: Study any pond, lake, river ecosystem in your area and make a report on what biodiversity you have seen at the place and also if there are any threats like pollution, solid waste and what you can do to.

10: Study any natural area in your surrounding and document flora and fauna of the area and write information on the species observed (any ten species).

11: Study any natural area in your village/ town / city (ex. hill, grassland , forest, river bank, lake) and prepare a report on biodiversity observed and food-chain and food-web in the area.

12: Document the biodiversity related news that are reported in local newspaper. Categorize them as positive and negative news. Write down any three actions that you can do to improve the situation.

13: Study the trees (any ten) in your surrounding and write down changes over time on these trees like flowering, fruiting time, leaf fall, birds/ insects seen or any nesting of birds etc.

14: Study the different flora in your locality with respect to their social/ religious values.

15: Collect the information about different invasive species in your area , where it is seen , how it has affected local biodiversity and what you can do to control them.

16: Collect the information on (any five) National Parks of Maharashtra and make tabular record of form name of the NP, area, location, district, common flora, fauna and any special feature mentioned .

17: Collect information on endangered species of plants (any five)/ animals (any five) in our country. Make tabulor record including name of the species, scientific name, location where it is found, threats to the species and any special feature mentioned .

18: Prepare a list of medicinal plants (any five) found in your area after interviewing an expert. (vaidu, any local tribal, grandparents in your/ friends house). Find out the current status of the species. Write what you can do to conserve.

19: Conduct a survey of biodiversity in your village/ town/ city (can be a group activity). Document heritage trees (old ,big trees), write their information, what you can see on them like birds. (nesting, roosting), insects, monkeys, squirrels etc.

20: Prepare photo-gallery/album related to biodiversity (birds, insects, butterflies in the local area/school area and make a report on it.

21: Observe the different types of birds-nests, make sketches and identify the birds.

22 : Visit any wetland in your area and write a report on the species of plants and birds seen on the wetland. Visit the site in winter month of October and document the changes in water level, bird seen (species and number). Write about any local migration/winter long distance migration of birds.

23: Make a disaster evaluation plan for your school during emergency. Explain during the National Day.

24: Study water conservation methods through various water harvesting techniques/ recharge system in your locality which is in practice. Make documentation of it with diagrams.

25: Survey and make a report of recycling of materials practiced at your home and create awareness about it among people.

26: List the recently occurred natural disaster phenomena likely in the Indian subcontinent. Describe the regional and seasonal profile of any two disasters.

27: Prepare a list of natural disasters, which are affect Maharashtra and explain their impacts and identify your role to reduce it.

28: Draw a chart of Do's and Don'ts for common disaster experienced in your region and display the same in your classroom/school or college notice board and also during festivals/public meetings.

29: Design the disaster emergency kit on a chart. Write the working/Functions uses of Kit material.

30: Make an evacuation plan for your school during emergency. Display it in your classroom/notice board. Explain during the assembly and National Day assembly too.

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