and also augite pyroxene which gives a black of grey colour.

8 India: Climate, Natural Vegetation and Wildlife

LEARNING OBJECTIVES

The student will be able to:

- know and use terminology related to climatic conditions and vegetation—weather, climate, advancing or south-west monsoon, retreating or north-east monsoon, the various seasons, cyclones, tropical and temperate forests, tropical evergreen and tropical deciduous forests, thorny desert forests, tidal forests, mountain forest, *vanmahotsav*.
- understand that there has to be a wise use of our diminishing resources and a need to protect them for future generations—A sustainable development.

LESSON DEVELOPMENT

TOPICS: Difference between weather and climate; various relief features of India; Seasons in India; Cyclones, cyclonic or temperate cyclones in winter in the North-west part of India; Importance of the monsoons to the economy of India; Effects of the failure of monsoons, drought conditions and consequences; Effects of cyclones on the East coast of India; How rainfall, temperature affect the natural vegetation and the wildlife; Commercial importance of India's forests and the need to protect forests and wildlife too.

RESOURCES

- Blackboard/whiteboard, coloured markers, coloured chalk
- Wall map– Political and Physical Features of India
- Outline maps of India
- Charts/stationery items

TIME: 6 Periods/210–240 minutes

ACTIVITY

- Discuss why monsoon winds reverse directions.
- **Map Work:** On outline map of India, mark:
  - — The SW and NE monsoons(the directions)
  - — Important National parks, wildlife and bird sanctuaries.
  - — Various forests.

APPLICATION OF SKILLS

Project Work on Page 169

- Global warming and its impacts on the climate of India—A Discussion could be put up on a chart to be displayed.
- While teaching the seasons—the various festivals Baisakhi, Holi, Pongal, Onam etc—explain why are they celebrated.

Life Skills

What precautions should be taken if there is a warning of an approaching cyclone—students would learn about disaster management.

Value Based Question

We cut down trees, turn them into paper and then write (save the trees). What are the students thoughts on this? What values do they learn? (Empathy for the environment, respecting it and making decision for the future.

CHECK FOR UNDERSTANDING

(*a*) What are cyclones called in the USA and Japan?
(*b*) How are seasons and festivals connected and why?

WEBLINKS

1. Climate of India/seasons
   https://en.m.wikipedia.org>wiki>clima.....

2. www.importantindia.com>types–of–natu
3. www.yourartleblibrary.com>geography

ANSWERS TO EXERCISES

A. Choose the correct answer:

1. (*a*) Land to sea 2. (*b*) Retreating monsoon season 3. (*b*) Acacia

B. Match the following:

1. Climate of India/seasons
   https://en.m.wikipedia.org>wiki>clima.....

2. www.importantindia.com>types–of–natu
3. www.yourartleblibrary.com>geography

ANSWERS TO EXERCISES

A. Choose the correct answer:

1. (*a*) Land to sea 2. (*b*) Retreating monsoon season 3. (*b*) Acacia

B. Match the following:

		Answer	
1.	Tamil Nadu	(*c*)	Winter rainfall
2.	Thorny Desert Forests	(*e*)	Rainfall less than 50 cm
3.	Sunderbans	(*f*)	Thrive on seaward side
4.	Cherry Blossom showers	(*d*)	Kerala
5.	Tropical Evergreen Forests	(*b*)	Rainfall over 200 cm
6.	Tropical Deciduous Forests	(*a*)	Rainfall of 100 to 200 cm

C. Fill in the blanks:

1. Monsoon 2. Decicuous 3. The ganga, Brahmaputra
4. Gir

E. Short-answer questions:

1. Factors affecting weather of a place—temperature, cloudiness, rain, atmospheric pressure, and winds.
2. The Himalayas stop the cold winds coming from central Asia into India in winter. They stop the rain-bearing winds the south-west monsoons that bring rain to India.
3. Mumbai is near the sea and on the windward side of the Western Ghats and Pune is on the leeward side of the Ghats so drier.
4. Deciduous trees shed their leaves during March and April before the summer season to prevent transpiration and conserve moisture before the high temperatures set in.
5. Tropical evergreen forests are commercially not very important as their wood is hard, difficult to cut and expensive too. The forests have a thick undergrowth and a wide variety of vegetation over a small area. There are no pure stands of trees.

F. In the following question, there are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the correct option:

1. Both A and R are true, and R is correct explanation of A.

G. Read the case based paragraph and answer the questions that follow.

1. (*a*) Van Mahotsav 2. (*c*) Cutting trees and Poaching animals
3. (*c*) Poaching and Selling valuable products of animals

H. Long-answer questions:

1. (*i*) **Location**—Near the sea there is equable climate and far from the sea in the interior, continental climate.
   (*ii*) Latitudinal extent below the Tropic of Cancer.
   (*iii*) **Relief**—Relief features cause more rain on the windward side and less on the lee side. Aravallis are parallel to the winds so less rain in Rajasthan.
   (*iv*) The higher one goes up into the atmosphere, the temperature decreases by 1°C for every 166 meters of ascent.

   (*v*) Winds are affected by low and high pressure conditions as winds blow from high pressure to low pressure areas.
2. The north-west part of India receives rainfall and snow from the temperate cyclones that come from the mediterranean region of Europe—eastwards towards India.
3. The south-west monsoon winds blow from the sea to land in the month of June to September, breaking into two branches—the Arabian sea current and the Bay of Bengal current bringing rain to the whole of India.
   The north-east or retreating monsoons bring rain to the east coast of India in October-November.
4. In dry areas of Rajasthan, where rainfall is less than 50 centimetres, the vegetation turns into scanty scrubs or bushes and is called Thorny Forest. The most important trees found here are various types of acacia, babul and kikar. These trees have long tap roots, small leaves and thorny branches. These trees are an important source of wood, tanning and dyeing material, catechu or *kattha*, etc. One can find thorny vegetation all through the Thar Desert, the leeward side of the Deccan Plateau and in large parts of Rajasthan, Punjab, Haryana, Andhra Pradesh and Gujarat.

Tropical Deciduous Forests	Tropical Evergreen Rainforests
1. Tropical Deciduous Forests are also called Monsoon Forests. These forests cover a relatively much larger area of the subcontinent (India).	1. Tropical Evergreen Forests are also called Evergreen Rainforests or semi-evergreen rainforests. These forests are found along the length of the windward side of the Western Ghats and in larger areas of north-east India,
2. Trees in these forests are commercially far more important than those of the	

and dyeing material, catechu or *kattha*, etc. One can find thorny vegetation all through the Thar Desert, the leeward side of the Deccan Plateau and in large parts of Rajasthan, Punjab, Haryana, Andhra Pradesh and Gujarat.

Tropical Deciduous Forests

1. Tropical Deciduous Forests are also called Monsoon Forests. These forests cover a relatively much larger area of the subcontinent (India).
2. Trees in these forests are commercially far more important than those of the Evergreen Forests.
3. The trees shed their leaves during the dry season, *i.e.* in March and April. Shedding of leaves in summer helps forest trees conserve moisture as water-loss through evaporation is reduced.
4. Trees of the Tropical Deciduous or Monsoon Forests are not as tall and dense as those of the Evergreen Forests.

Tropical Evergreen Rainforests

1. Tropical Evergreen Forests are also called Evergreen Rainforests or semi-evergreen rainforests. These forests are found along the length of the windward side of the Western Ghats and in larger areas of north-east India, and also in the Andaman and Nicobar Islands.
2. They are found in areas having an annual rainfall of over 300 centimetres and temperatures ranging between 25°C and 30°C.

5. The Government of India is making policies to protect and conserve the forests.
   India, as per its plan, should have a forest cover amounting to 33% of the total land area. However, due to rapidly growing population there is an increasing demand of land for agriculture, industries and for the expanding towns and cities as well.
   As a result, we are now left with only 20.64% of forest-cover which is an alarming situation. The government started a plantation programme known as *Vanmahotsav*.
   To reduce global warming due to deforestation, trees are planted in large numbers to increase forest areas. All wastelands are brought under plantation. In addition, both sides of the roads and hill slopes are being planted with trees. Strict laws have been made against illegal felling of trees.
   The government has also made some forest reserves to conserve forests.
   - It has announced awards such as Vrikshamitra to promote plantation of trees, and to prevent deforestation as well.

- The environmentalist Sunderlal Bahuguna has earned great fame as he has contributed significantly to stop deforestation.

PICTURE STUDY

Look at the picture below and answer the following questions:

1. Tulsi Gowda
2. Padam Shri, she is an Indian Environmentalist known as (Encyclopedia of forest, A Tribal Woman).
3. Tulsi Gowda is from Honnali village, Ankola Taluk in Karnataka state. She has planted more than 30,000 saplings and looked after the nurseries of the forest department. She has no formal education but has 'Endless knowledge' of plants and herbs.

EXTENDED LEARNING

HOTS

The location of India is unique—

- Conservation of wildlife is essential to protect wild life as there would be consequences if there are no animals.
- Wildlife conservation is the practice of protecting wild plants and animal species and their habitat.
- It is essential to prevent floods, fires, new deserts and brought.
- The oxygen we breathe, water we drink, food we ear – They all depend on other forms of life.
- Without the rest of the species on the planet, there would be no prosperity, no economy, no us.