

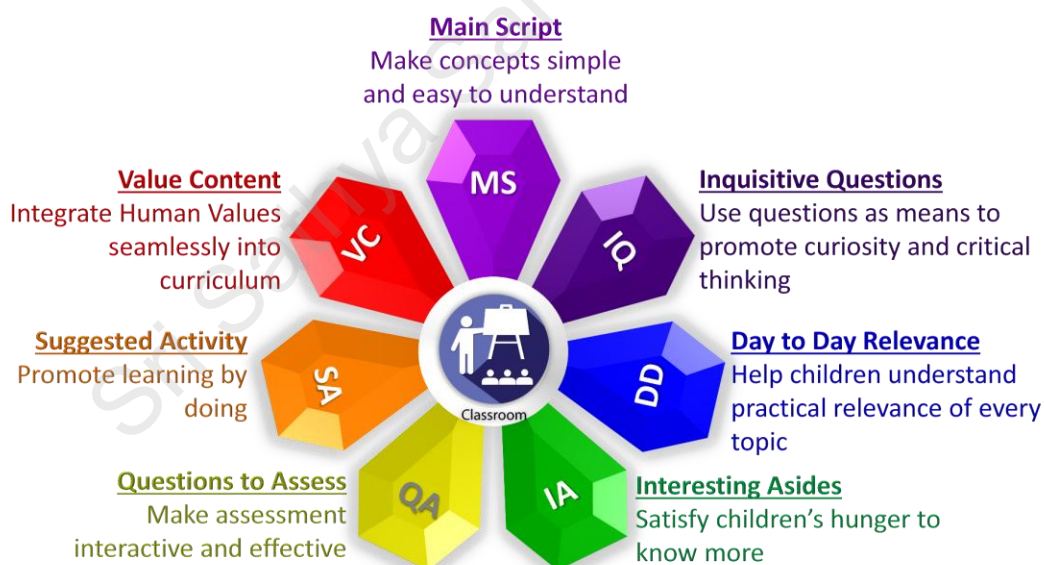
Master Lesson Plan

for

Climate

Board	Standard	Subject	Chapter	Language	Creation date
NCERT	STD IX	Social Science	Climate	English	

7 Assets [Components] of SSSVV



CURRICULAR GOALS	CG-4: Develops an understanding of the inter-relationship between human beings and their physical environment and how that influences the livelihoods, culture, and biodiversity of the region
COMPETENCIES AS PER NCF/NIPUN BHARAT	C-4.3: Draws inter-linkages between various components of the physical environment, such as climate and relief, climate and vegetation, vegetation and wildlife C-4.4: Analyses and evaluates the inter-relationship between the natural environment and human beings and their culture across regions and in the case of India, the special environmental ethos that resulted in practices of nature conservation C-4.6: Develops sensitivity towards the judicious use of natural resources and suggests measures for their conservation
SDG (Sustainable Development Goals)	SDG-13, Climate Action
Technology aids	PPT, Video
Learning Teaching Materials (LTM)	Map, Weather report from newspaper, Hindu Calendar
Cross-Cutting Themes	Indian Knowledge system - 6 seasons and months as per the Indian Hindu calendar Values and dispositions - Conscious action towards sustainable environment Educational Technology - Enriched with PPTs and Videos as teaching aids
Accommodations for Inclusive Practices	Audio book: youtu.be/McKm2jsH2F4 Source: epathshala.nic.in/

MS_Objectives_Climate

Notes to the teacher: The teacher will be able to get an overview of the asset objectives in the MLP for the chapter - Climate. This asset is for the teacher's reference and need not be taught to the students.

The students will be able to -

- analyse information about climatic differences in different parts of India
- differentiate between the terms weather and climate
- deduce the factors affecting the climate of a place
- enumerate the factors affecting the climate of a place
- appreciate that our conscious actions in the present would influence the quality of the environment in the future
- analyse the various factors influencing the monsoon in India
- delight in knowing how cyclones get their names
- describe the climatic conditions during the different seasons
- correlate the festivals celebrated in India to its seasons
- analyse the climatic conditions during different seasons in India
- explain how India receives rainfall from south-west monsoon winds
- associate the relationship between climate and its impact on the life of the people
- justify how the Indian monsoon is a unifying factor inspite of variations in the distribution of rainfall
- analyse the factors affecting the climatic conditions in different regions of India
- discuss the features of the winter season in India
- revise the factors leading to the monsoon climatic conditions of India
- summarise the characteristic features of the climate of India in the chapter - Climate

Time to teach	Asset type	Theme	Sub Theme
3 minutes	Main Script	Climate and vegetation	Climatic Controls Cold Weather Season or Winter Distribution Of Rainfall Factors Affecting India's Climate Hot Weather Season or Summer Season Of Retreating Monsoons Or Autumn South West Monsoon Season Or Rainy Season The Indian Monsoon

			The Seasons
--	--	--	-------------

IQ_Climatic Impact on Human Life

Objective: The students will be able to analyse information about climatic differences in different parts of India.

Teaching Aids: NA

Notes to the teacher: The teacher:

- can display the map of India in the classroom so that the students can relate to the location of the places mentioned in the questions
- may pose the following questions to the students
- can allow them to think and come out with as many answers as possible before arriving at a conclusion. If there is any difficulty in getting the answers, the teacher can ask leading questions

Q1. The houses in Terai region in North India, Goa and Mangalore have sloping roofs. Explain.

Possible Answer: Terai region and the western coastal region of Karnataka and Goa are prone to heavy rainfall. If there is a flat roof, there would be water stagnation leading to other issues like leaking, caving in and mosquito breeding. Hence, the houses in the Terai region, Goa and Mangalore are constructed with sloping roofs as water will flow down easily without damaging the houses.

Q2. Ram recently built his house in Rajasthan with thick outer walls and flat roofs. Why do you think he got his house constructed in this manner?

Possible Answer: Rajasthan has extreme summers as well as winters. Ram is aware that the thick outer walls will protect the household members from extreme heat and cold. Flat roofs will help in the collection of rainwater.

Q3. The Thar desert of Rajasthan lies to the northwest of India. Explain why most of the deserts of the world are located in the western margins of the continents.

Possible Answer: When the easterly tropical winds or the trade winds move towards the western sides of the continents, they lose moisture and become dry. Hence, these regions are dry and over a long period of time form deserts.

Time to teach	Asset type	Theme	Sub Theme
4 minutes	Inquisitive Questions	Climate and vegetation	Climatic Controls

--	--	--	--

MS_Weather and Climate

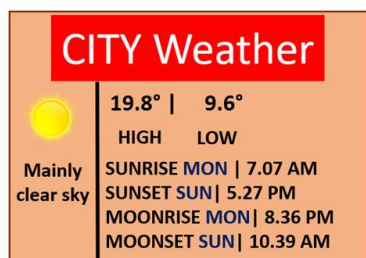
Objective: The students will be able to differentiate between the terms weather and climate.

Teaching Aids: PPT

Notes to the teacher: The teacher can cover the entire topic with the **Guided Discovery Method**.

Teaching Learning Material (TLM):

The teacher can take the newspaper cutting of the weather report to the class.



Sun: pixabay.com/vectors/sun-sunny-weather-sunshine-yellow-159392/
 Attribution: OpenClipart - Vectors

What do you need?: Newspaper cutting of weather reports for two to three days.

Get Ready: The teacher can take adequate clippings and circulate in the class for the students to view and ask them about the information they have gathered after reading the weather report.

Notes to the teacher: The teacher can start the asset by asking the students to identify whether the statements given below refer to weather or climate.

1. The icebergs are melting in Antarctica. (Climate)
2. It is raining heavily in Bangalore. (Weather)
3. The month of April-May will be very hot. (Climate)
4. It is quite humid today. (Weather)
5. Cherrapunji has an annual average rainfall of about 450 inches during monsoon. (Climate) ----

Notes to the teacher: The teacher can ask the students to use the information given in the table below and fill in the blank table.

Rain, sunshine, cloud cover, snow, hail, wind and flooding	Meteorological data based on air temperature, pressure, wind speeds and direction
Temperature, precipitation and wind velocity	Climatology
Average weather statics over a period of 30 yrs	Maximum temperature 30°C
Humidity, frost, fog and hailstorms	A short term atmospheric condition of a given place
Tropical, temperate, meteorology	An atmospheric change which lasts for a longer period of time
Thunderstorms, excessive heat, heat waves	Minimum temperature 20°C

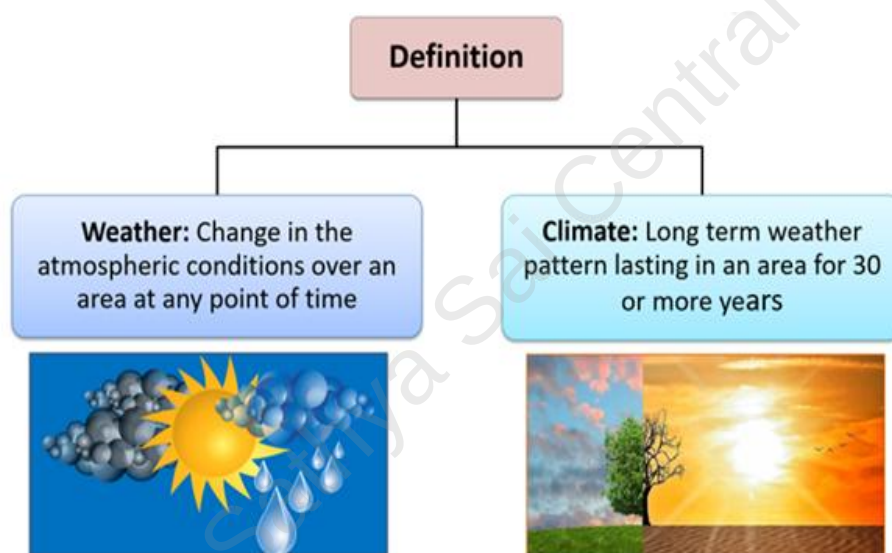
Description	Weather	Climate
Elements/Examples		
Forecast known by		
Study		
Definition		

Answer:

Description	Weather	Climate
Elements/Examples	Rain, sunshine, cloud cover, snow, hail, wind, flooding, thunderstorms, excessive heat, heat waves, Maximum temperature 30°C and Minimum temperature 20°C	Temperature, precipitation, wind velocity, humidity, frost, fog and hail storms, tropical and temperate

Forecast known by	Meteorological data based on air temperature, humidity, pressure, wind speed and direction	Average weather statistics over a period of 30 yrs
Study	Meteorology	Climatology
Definition	It is a short term atmospheric condition of a given place	It refers to an atmospheric change which lasts for a longer period of time

Now let us define the terms weather and climate we commonly use in our daily lives.



Weather: pixabay.com/vectors/clouds-rain-sun-weather-1293230/

Attribution: OpenClipart-Vectors

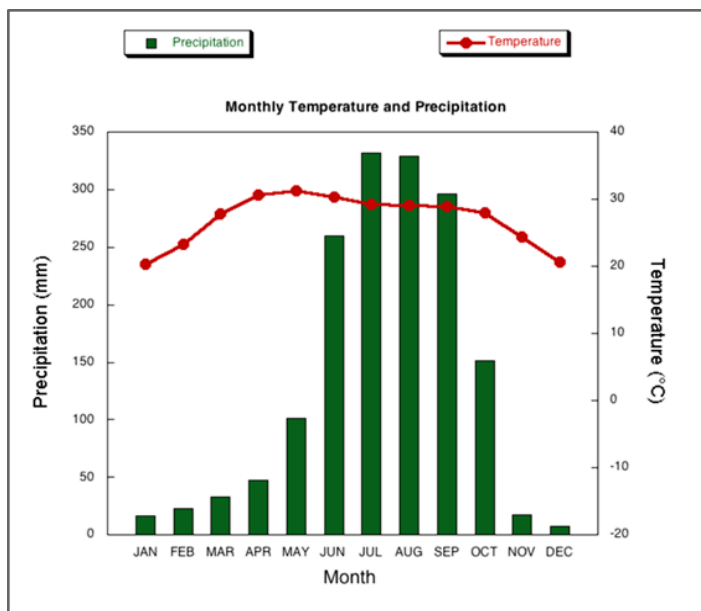
Climate: pixabay.com/illustrations/climate-change-global-warming-2063240/

Attribution: Tumisu

A climate which is neither too hot nor too cold is called an equable/British climate.

The basic climate of a location can be graphically represented and they are known as climographs or climatographs. They show the average monthly temperature and rainfall of a place.

Example: Climographs below show the variations in temperature and rainfall in different parts of the country.



Climographs: commons.wikimedia.org/wiki/File:CalcuttaMetric.png
 Attribution: NASA

There are many climatic regions in the world and India has a 'Monsoon' type of climate.

- The monsoon climatic conditions are mainly found in South and Southeast Asia
- Although there is an overall unity in the general pattern, the climatic conditions vary in different regions due to variations in temperature and precipitation

Regional Variations:

The two important elements - temperature and precipitation vary from place to place and from season to season.

Example: Temperature

Regional Variation	Temperature
Pahalgam and Drass in Jammu and Kashmir	20°C, as low as -45°C
The Thar desert (temperature will rise and drop down the same night)	50°C, 15°C
Thiruvananthapuram	22°C
In Andaman and Nicobar islands or in Kerala	Hardly any difference in day and night temperatures

Example: Precipitation

Regional Variation	Precipitation
Snowfall in upper parts of the Himalayas	Rainfall in the rest of the country
Meghalaya	> 400 cm
Ladakh and Western Rajasthan	< 10 cm
Cherrapunji in Meghalaya	1200 cm
Most parts of the country get rainfall	June to September
Tamil Nadu coast	Large portion of rain in October and November

There is great variety in the lives of people in terms of the food they eat, the clothes they wear and the type of houses they live in due to these variations.



Eating food: pexels.com/photo/white-rice-on-white-and-red-floral-ceramic-plate-7351644/

Attribution: Vivaan Rupani

Sikkim clothing: picryl.com/media/lepcha-women-in-traditional-clothing-in-singhik-Sikkim

Attribution: Kandell, Alice S., photographer – Source - Library of Congress

Houses in Sikkim: unsplash.com/photos/ItohlyZFsak

Attribution: Photo by Pritam Laskar on Unsplash

Time to teach	Asset type	Theme	Sub Theme
10 minutes	Main Script	Climate and vegetation	Climatic Controls

IQ_Factors affecting Climate

Objective: The students will be able to deduce the factors affecting the climate of a place.

Teaching Aids: NA

Notes to the Teacher: The teacher:

- can display the map of India in the classroom so that the children can relate to the location of the places mentioned in the questions.
- may pose the following questions to the students and allow them to think and come out with as many answers as possible before arriving at a conclusion
- can ask leading questions, if there is any difficulty in getting the answers

The teacher can display the map of India and call out two students to mark the location of Kanyakumari and New Delhi and ask the following questions:

Q1. Why is the average temperature in Kanyakumari higher than the average temperature in Delhi?

(Clue - latitude)

Possible Answer: The intensity of the temperature depends on the latitude. Average temperature for the year drops as we go further away from the equator. Kanyakumari lies in the southern part of India and lies in the tropical belt closer to the equator. Therefore, this region has a higher average temperature than the northern part. This is one of the reasons why the average temperature is higher in Kanyakumari than the temperature in Delhi, which lies in the subtropical zone.

Q2. Why does Darjeeling have pleasant weather when compared to Kolkata during the summer season?

(Clue - altitude)

Possible Answer: Kolkata is a coastal city whereas Darjeeling lies at a higher altitude. As temperature is inversely proportional to the altitude, Darjeeling will have pleasant weather compared to Kolkata.

Q3. The weather report in Kerala on 11th Nov 2022 reads as follows: 11 pm - 78°F (25.5°C). At 3 AM - 77°F (25°C). There is hardly any difference in the day and night temperatures in Kerala. Explain.

Possible Answer: Due to its long coastline, a large part of southern India comes under the moderating influence of the sea. As such, the difference between day and night temperatures and that of summer and winter is not much. This is known as equable climate.

Time to teach	Asset type	Theme	Sub Theme
4 minutes	Inquisitive Questions	Climate and vegetation	Climatic Controls Factors Affecting India's Climate

Sri Sathya Sai Central Trust

MS_Climatic Controls

Objective: The students will be able to enumerate the factors affecting the climate of a place.

Teaching Aids: PPT

Climate is the sum total of weather conditions of a place over a long period of time. The factors that affect the climate of a region are called climatic controls. These are:

1. Latitude:

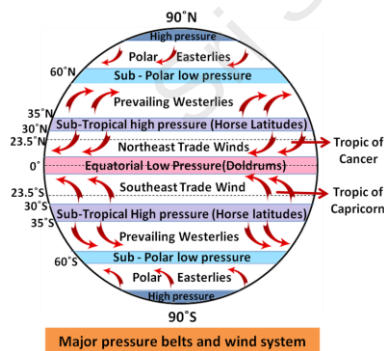
- Places close to the equator receive direct rays of the sun due to the curvature of the earth
- Places away from the equator receive less warmth from the sun

2. Altitude:

- Regions situated at greater heights are colder compared to regions closer to the sea
- The air temperature decreases as one goes from the equator to the poles. Temperature is inversely proportional to the altitude
- Temperature decreases at the rate of 6.5°C for every 1000 metres of ascent. It is called **normal lapse rate**

3. Pressure and Winds:

- The circulation of air is another factor that influences the climate of a region
- The earth's atmosphere is in constant motion, circulating cool or warm air
- Wind blows from a high pressure area to a low pressure area
- The temperature and rainfall of a place is influenced by the wind system depending on the latitude and altitude



Major Pressure and Wind System: SSSVV Gallery

4. Distance from the Sea:

Notes to the teacher: The teacher can ask these two questions given below to explain the point clearly.

Q. Why do places near large water bodies like the sea tend to have a milder climate?

Suggested Answer:

- Climate is influenced by the distribution of land and water on the earth's surface. Land heats or cools faster than water
- Therefore, places near large water bodies like the sea tend to have a milder climate. Temperature around the seas is moderate
- As one moves further away from the sea, weather conditions become extreme. This is known as continentality, i.e., very hot summers and extremely cold winters

Q. Although the eastern coast of the USA lies next to the Atlantic ocean, it experiences severe winters. Explain.

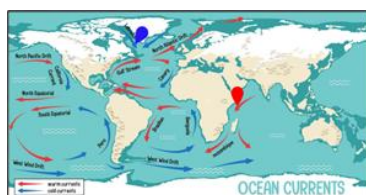
Suggested Answer: Climate of a particular region is influenced by several factors. During winter land is much colder than the ocean. The air above the land also cools down to a great extent. The moisture brought by the westerly winds results in the region receiving heavy rainfall. As the air around is very cold the moisture gets converted into snow when it reaches the east coast and the eastern coast experiences severe snowfall.



Sea Land Breeze - freepik.com/free-vector/diagram-showing-sea-land-breeze_5837828.htm
Attribution: brgfx

5. Ocean Currents:

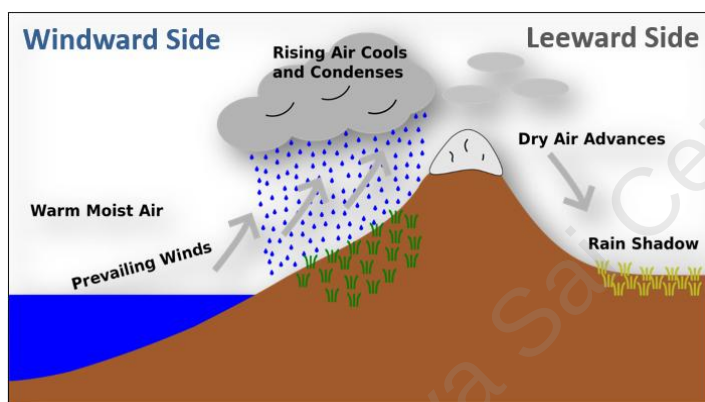
- Movement of ocean water gives rise to ocean currents. There are 2 types of ocean currents: warm and cold water ocean currents
- Warm ocean currents increase the temperature of the regions around while cold ocean currents decrease the temperature of the regions around. Examples of warm ocean currents - Somali ocean current - and cold ocean currents - Labrador ocean current



Ocean Current: freepik.com/free-vector/ocean-currents-world-map_16508310.htm
Attribution: brgfx

6. Relief Features:

- Landforms such as mountains change the direction of winds. They act as barriers and divert winds and moisture thereby affecting the climate of the region
- The climate of different regions located on the different sides of a mountain varies drastically
- The windward side of the mountain receives rainfall as it pushes rain bearing winds upwards. The temperature of these winds fall and as a result moisture condenses to form rain. Example: Western Ghats - Mumbai
- Leeward sides receive relatively lesser rainfall. The leeward side of the mountain is usually dry and resembles a desert. Example: Western Ghats - Pune
- The Himalayas act as a barrier to the freezing cold winds that blow from central Asia and keep the Indian subcontinent warm



Rain shadow: commons.wikimedia.org/wiki/File:Rain_shadow.svg#/media/File:Rain_shadow.svg
Attribution: Kagee

Time to teach	Asset type	Theme	Sub Theme
7 minutes	Main Script	Climate and vegetation	Climatic Controls

VC_Nature's Gifts

Objective: Students will be able to appreciate that our conscious actions in the present would influence the quality of the environment in the future.

Teaching Aids: Climate Change Song - VC_Nature's Gifts.mp4

Teaching Learning Material: NA

Concept-Value Connection: Climate is the average weather i.e. the state of the atmosphere, in a place over many years. The elements of weather and climate are the same, i.e. temperature, humidity, wind, atmospheric pressure and precipitation.

Over the past few decades, the climate has been changing across the world. Plants and trees play an important role in regulating the climate because they absorb carbon dioxide from the air and release oxygen back into it. Deforestation by humans for personal gains has given rise to global warming. Global warming, in turn leads to flooding, heat waves, increased desertification and poses a danger of extinction to some species.

Development has to be linked to sustainability, i.e., our present way of living should ensure continued good quality of life for ourselves and future generations



Global warming: pixabay.com/illustrations/climate-change-global-warming-2254711/
Attribution: TheDigitalArtist

Notes to the teacher: A story is narrated to open a discussion of the responsibilities each one of us share towards preserving our environment.

Activity: Discussion

A master employed three workers. Before going on a long journey, he called the three of them and gave them each some equal number of gold coins. He told them that he was unsure when he would return, but they could keep the coins and do what they wished with the coins till his return.

One worker spent all the gold coins happily very soon; he then started struggling to feed himself and his family.

The second worker put the gold coins into a box, used whatever he needed sparingly and kept the balance safely.

The third one used some of the gold coins to buy some land and cultivated vegetables on it. He used some of the vegetables to feed himself and his family. He sold the excess and made a considerable profit. He doubled the gold coins that were originally given to him.

The master returned after a few years and asked the three men about their life in his absence and about the gold coins given to them. He also tells them that whatever remaining gold coins they each have now belongs to them and their families.

Discussion Questions

1. What would you do if someone gifted you some money?
 - a. Spend it all straightaway
 - b. Keep it safely and use it sparingly
 - c. Try to multiply it for use in the present and as long as possible in the future
2. The third worker doubled his coins by growing vegetables. If you were one of the parties to whom the master gave gold coins, how else would you have doubled the coins in alignment with nature and environment?
3. The resources of air, water, earth, flora, and fauna are the gold coins gifted to us by Mother Nature. How would you use them diligently in your school campus/classroom? Suggest any 5 ways.

All of these are open questions and can be answered as per the students' understanding.

Points to Ponder/reflect

- If we use the resources thoughtlessly for our immediate pleasure, we will end up suffering in future ourselves. We will also make the life of our children and grandchildren more difficult
- We need to think of the effect of our actions on the environment and use resources carefully

- Not only should we use them wisely, but we should also think of ways we can replenish and renew our resources. This will improve both our quality of life as well that of our future generations

Climate Change Song - VC_Nature's Gifts.mp4

Climate Change

So what are your thoughts on climate change?
Let's put it across in this song

Climate change is everywhere,
Humans are just being so unfair.
Looting nature with so much greed,
We dig, drill, and seek more than our need.

Let's reduce our carbon footprint,
Else many more species will be extinct.
Generations ahead will bear the brunt
Let's clean the mess, not just repent.

Let's reduce, recycle reuse
Our principle for the welfare of all
Keep consumption to the minimal,
Put mother earth back on the pedestal.

What have we done to the place we live
Nothing much left for our Nature to give.
A fresh new start yes, we must begin
Time to pay back nature and be redeemed.

Source: Poem by Sis Saraswathi

Time to teach	Asset type	Theme	Sub Theme
10 minutes	Value Content	Non-Violence	Constitutional values- - sustainable development

MS_Monsoon and its Friends

Objective: The students will be able to analyse the various factors influencing monsoon in India.

Teaching Aids: PPT

Introduction:

Monsoon climate is found in the zone extending between 5° and 30° latitudes on either side of the equator affecting around 25 countries. A distance of 18,000 kms from east to west and 6,000 kms from south to north comes under the influence of the monsoon winds. The word 'monsoon' is derived from the Arabic word 'mausim' which literally means season. 'Monsoon' refers to the seasonal reversal in the wind direction during a year.

The following factors affect India's climate:

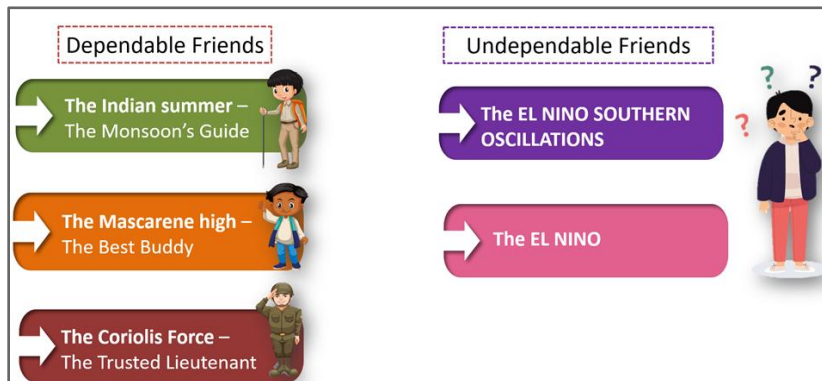
1. **Latitude:** Characteristics of tropical as well as subtropical climate is found in India. The Tropic of Cancer, passes through the middle of the country. The region to the south of Tropic of Cancer lies in the tropical area while the region to the north has subtropical climatic conditions.
2. **Altitude:** The Himalayan mountain ranges with an average height of 6000 metres obstruct cold winds blowing from Central Asia. Due to the presence of the Himalayan ranges, the Indian subcontinent experiences mild winters. These mountain ranges also act as barriers for the rain bearing clouds. Thus India experiences monsoon climatic conditions.

The Indian agrarian economy is directly affected by the southwest monsoon winds and its performance from June to September in turn, decides the state of the economy. Its power and position is as important as the finance minister.

Due to the vagaries in the monsoon climate we can compare it to a game of cricket. No two monsoons are ever similar.

Henry Ford, the founder of Ford Motor Company, once said, "My best friend is the one who brings out the best in me." The performance of the Indian monsoon in reality is determined by its friends who work round the clock to bring out its best performance.

Who are these friends? Let's learn about them.



Boy: [freepik.com/free-vector/boy-with-hiking-gears-white_6822367.htm](https://www.freepik.com/free-vector/boy-with-hiking-gears-white_6822367.htm)

Attribution: brgfx

Boy waving: [freepik.com/free-vector/boy-with-happy-face-four-different-costume_6360212.htm](https://www.freepik.com/free-vector/boy-with-happy-face-four-different-costume_6360212.htm)

Attribution: brgfx

Soldier: [freepik.com/free-vector/letter-s-soldier_23722273.htm](https://www.freepik.com/free-vector/letter-s-soldier_23722273.htm)

Attribution: brgfx

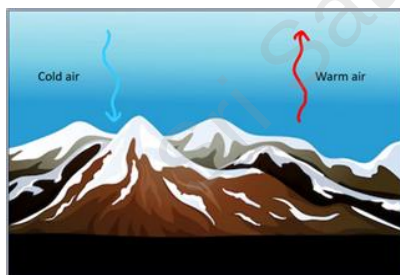
Flat people asking questions: [freepik.com/free-vector/organic-flat-people-asking-questions-illustration_13446882.htm](https://www.freepik.com/free-vector/organic-flat-people-asking-questions-illustration_13446882.htm)

Attribution: freepik

Let's learn about the association between the southwest monsoon and its companions:

- **The Indian summer** - The Monsoon's Guide
- **The Mascarene high** - The Best Buddy
- **The Coriolis Force** - The Trusted Lieutenant

The Indian Summer (The Monsoon's Guide):



Mountains: [freepik.com/free-vector/four-scenes-winter-season_1142103.htm](https://www.freepik.com/free-vector/four-scenes-winter-season_1142103.htm)

Attribution: brgfx

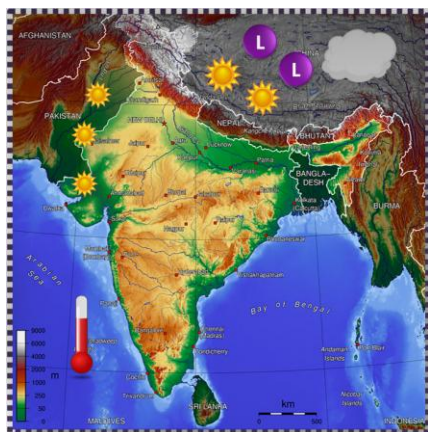
The Himalayan range plays a vital role in summer by restricting the intrusion of cold air from the north and allowing heating to occur. Weather conditions in India are governed by the following atmospheric conditions -

Differential heating and cooling of land and water:

During the summer season Rajasthan and surrounding areas of Gujarat and also Pakistan heat up extensively. This creates a low pressure belt. The seas surrounding the country also see a rise in temperature.

There is a difference in the heating rate and capacity of air over sea and land. The air pressure over north India is lower than that over the southern part of the Arabian Sea and the Bay of Bengal. This attracts the monsoon winds. Winds blow from high pressure to low pressure areas.

The Tibetan plateau also gets intensely heated creating a low pressure area at about 9 km above sea level. Thus, the summer season of India acts as the **monsoon's guide**.



Geographical map of India: flickr.com/photos/nevilzaveri/2909522893

Attribution: map of india - nevil zaveri - geographical map, india

Sun: pixabay.com/vectors/sun-face-sunshine-smiley-ray-34485/

Attribution: Clker-Free-Vector-Images

Thermometer: publicdomainvectors.org/en/free-clipart/Thermometer-tube-red-vector-graphics/18977.html

Attribution: Openclipart

Cloud: freepik.com/free-vector/set-weather-icons-with-face-expression_30514756.htm

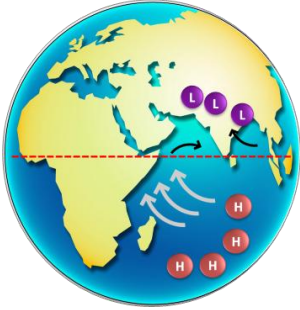
Attribution: brgfx

The shift of the position of the Inter Tropical Convergence Zone (ITCZ):

The Inter Tropical Convergence Zone (ITCZ) is a broad low pressure belt positioned about 5°N of the equator. The north east and south east trade winds converge at this zone. This convergence zone moves north or south with the apparent movement of the sun. In July this convergence zone lies over 20° to 25° N latitude, that is over the Ganga plains. A low pressure area develops over this region and winds blowing over warm oceans bring abundant moisture causing rains in few parts of North India.

Mascarene High (Monsoon's Best Buddy):

The Mascarene Basin is bounded on the west by the island of Madagascar. Winds originate in the high pressure region located between 25°S-35°S and 40°E-90°E near Mascarene High in the southern Indian Ocean. They blow from mid-April and are the most important factor that determines the intensity of monsoon in India. Even a slight delay in the origin of these winds results in the delay of monsoon to the whole country. But these winds that originate are generally very punctual and are therefore considered the best buddies of the Indian monsoon.



Africa globe: publicdomainpictures.net/en/view-image.php?image=70738&picture=africa-globe

Attribution: Dawn Hudson

Arrow: commons.wikimedia.org/wiki/File:Curve_Left_%28259942%29_-_The_Noun_Project.svg

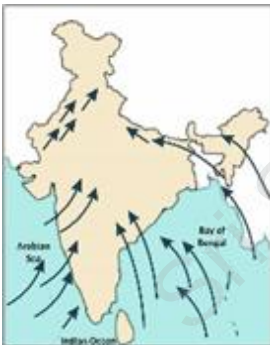
Attribution: Chameleon Design

Coriolis Force (Monsoon's Trusted Lieutenant):

- Coriolis force is an apparent force caused due to the earth's rotation. Due to the Coriolis force, winds get deflected to the right in the northern hemisphere and towards the left in the southern hemisphere. This phenomenon is also known as 'Ferrel's Law'
- The Coriolis force experienced at a particular latitude is consistent due to the earth's constant rotational velocity. It is therefore described as **monsoon's trusted lieutenant**

Southwest Monsoon Winds:

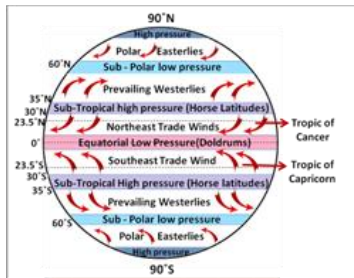
- The monsoon winds get deflected eastwards and now they blow from south-west to the north-east direction
- These gather moisture as they pass over the Indian Ocean, Arabian Sea and Bay of Bengal. These are known as the **southwest monsoon winds**



Southwest monsoon India map: drive.google.com/drive/folders/1qu1YMclEuKwWv6O5UDJkQX-r8awz5uqW

Northeast Monsoon Winds:

- In the northern hemisphere, subtropical high pressure belts give rise to permanent winds which blow towards the equatorial low pressure belt. Due to the Coriolis force they get deflected towards the west. These are known as **trade winds**
- These winds are comparatively dry but as they pass over the Bay of Bengal, Arabian Sea and the Indian Ocean they accumulate moisture and bring rains to India. These are also known as **northeast monsoon winds**



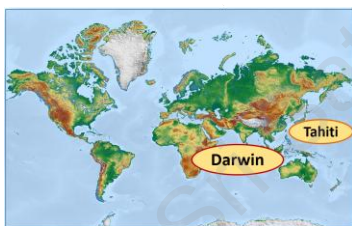
Major Pressure belts : SSSVV Gallery

However, the twist in the story is that some of monsoon's friends are prone to changes. They can even become its enemies in a particular year and bat on behalf of the opponent team.

- Sometimes a peculiar phenomenon takes place in places far from India which create temporary changes in the long term climatic patterns. Indian weather gets affected to a great extent due to phenomenon like: El Nino

El Nino Southern Oscillation - The Undependable Friend:

- Normally tropical eastern Indian Ocean experiences low pressure while tropical eastern south Pacific Ocean experiences high pressure
- However, this condition gets reversed in some years and this periodic change in pressure is described as Southern Oscillation or SO
- Changes in the pressure conditions over southern oceans also affect the intensity of monsoons
- If the pressure differences over Tahiti (Pacific Ocean, 18°S/149°W) and Darwin in northern Australia (Indian Ocean, 12°30'S/131°E) are negative, monsoons would arrive late and rainfall would be below average



World map:pixabay.com/illustrations/world-map-map-of-the-world-earth-2169041/
Attribution: Mapswire

- A feature connected with SO is a phenomenon known as El Nino which determines the duration of monsoon and amount of rainfall received by India
- Every 2 to 5 yrs, atmospheric and oceanic conditions that exist to the west of Peru along the Pacific coast in South America give rise to a warm ocean current that flows past the Peruvian coast in place of cold Peruvian current. As this warm ocean current starts flowing during Christmas, it is named as 'El Nino', a Spanish word which refers to baby Christ/infant Christ



South America map: commons.wikimedia.org/wiki/File:%22Political_South_America%22_CIA_World_Factbook.svg

Attribution: United States w:Central Intelligence Agency

Spinning swirls: freepik.com/free-vector/spinning-swirls-set_9650800.htm

Attribution: pch.vector

- The trade winds weaken and temperatures on the surface of the sea increase due to the presence of El Nino
- Due to its mostly unpredictable nature, ENSO has been a big challenge for forecasters for a long time. Thus, ENSO is monsoon's undependable friend

Conclusion:

Although the performance of the Indian monsoon is determined by its dependable and undependable friends, the monsoonal characteristics of the climate of India remains unaffected.

Source: downtoearth.org.in/blog/the-great-indian-monsoon-and-its-friends-49503

Time to teach	Asset type	Theme	Sub Theme
20 minutes	Main Script	Climate and vegetation	Factors Affecting India's Climate The Indian Monsoon

IA_Naming a Cyclone

Objective: The students will be able to take delight in knowing how cyclones get their names.

Notes to the teacher: The teacher can start the asset by asking the following question.

Q1. Name some of the cyclones that have hit India.

Answer: Some of the cyclones that have hit India are - Sitrang, Asani, Karim, Tauktae, Yaas and Gulab.

The term *cyclone* comes from the Greek word '*Cyclos*' which means 'coiling of a snake'. They are created due to the atmospheric disturbances around a low-pressure area, generally accompanied by violent storms and severe weather conditions.



Cyclone: commons.wikimedia.org/wiki/File:Luban_and_Titli_2018-10-10_0745Z%E2%80%93930926Z.jpg
Attribution: VIIRS composite image captured by NOAA's NOAA-20 satellite

Why are cyclones named?

- To identify the cyclones easily
- To recognise and report individual cyclones
- To avoid confusions if there are multiple cyclones
- To aid disaster management

When are cyclones named?

- A special name is given when the speed of the moving wind is more than 39 nautical miles per hour
- The storm comes under the category of a hurricane/cyclone/typhoon when its speed reaches or crosses 64 nautical miles per hour

Who names the cyclones?

- The cyclones that are formed in any ocean basins around the world are named by the Regional Specialised Meteorological Centres (RSMCs) and Tropical Cyclone Warning Centres (TCWCs). There are six RSMCs in the world including the Indian Meteorological Department
- Since 2000, the World Meteorological Organization (WMO) and the United Nations Economic and Social Commission for the Asia Pacific (ESCAP) have been naming cyclonic storms
- The names of cyclones developing over the North Indian Ocean, Bay of Bengal and the

Arabian Sea are named by the India Meteorological Department (IMD) which also issues advisories to 12 other nations in the region on the development of cyclones and storms

Guidelines to name the cyclones:

1. The name should be neutral to politics and political figures, religious beliefs, cultures and genders.
2. It must not hurt the sentiments of any group of people across the world and be rude or cruel in nature.
3. The name must be easy to pronounce, short and must not offend any member.
4. It must have a maximum of eight letters and should have proper pronunciation with voice over.
5. Once used, the names of cyclones will not be repeated.

A few examples are given below:

Name	Year	Named By	Language	Meaning
Ockhi	November 2017	Bangladesh	Bengali	Eye
Vayu	June 2019	India	Sanskrit	Wind
Asani	May 2022	Sri Lanka	Sinhalese	Wrath

Time to teach	Asset type	Theme	Sub Theme
3 minutes	Interesting Asides	Climate and vegetation	Factors Affecting India's Climate

Objective: The students will be able to describe the climatic conditions during the different seasons.

Teaching Aids: PPT

Teaching Learning Material (TLM): Hindu calendar

What do you need?: Hindu calendar

Get Ready: The teacher can get or procure the calendar from one of the students. If the teacher is not able to procure the calendar, she can take a printout of the table given below and prepare a chart and display it in the class.

Notes to the teacher: The teacher can start the asset by asking the students:

Question: What information do you generally find in the Hindu calendar?

The teacher can discuss the information given in the calendar, like - names of seasons, occurrence of festivals and days according to the phases of the moon.

Hot weather season/Summer

A period of the year distinguished by special climatic conditions is known as a season.

Traditionally as per the Hindu calendar, India has 6 seasons namely -

Seasons	Months according to the Indian (Lunar) Calendar	Months according to the Western (Gregorian) Calendar
Vasantha	Chaitra-Vaishakha	March-April
Grishma	Jyeshtha-Ashadha	May-June
Varsha	Shraavana-Bhadrapada	July-August
Sharad	Ashwayuja-Karthika	September-October
Hemantha	Marghashirsha-Pushya	November-December
Shishira	Magha-Phalguna	January-February

The Meteorological Department of India, Delhi divides the climate of India into 4 seasons:

1. **Cold weather season** - December to February
2. **Hot weather season** - March to May
3. **Rainy season** - June to September
4. **Retreating monsoon Season** - October to November

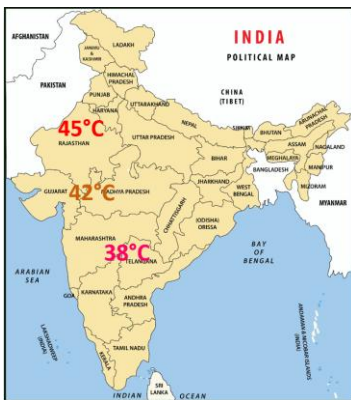
We can see weather conditions change greatly from season to season, especially in the interior parts of the country. Even though there is variation in the rainfall pattern, the coastal areas do

not experience much variation in the temperature.

Hot weather/Summer Season:

Shift in global heat belt - Apparent movement of the sun towards the north - shifting of global heat belt to the north - results in rise in temperature during March-May at various latitudes.

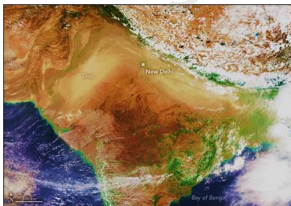
- Summer in India starts from March and lasts up to May
- Highest temperatures recorded: in the months of March, April and May respectively -
38°C - Deccan Plateau
42°C - Gujarat and Madhya Pradesh
45°C - Northwestern parts of the country
- Influence of the oceans - temperature remains lower in the Indian peninsula



Map of India : SSSVV Gallery

Features/Characteristics:

- Loo - During the month of May, strong, gusty, dry and hot winds - blow during the day in the summer season in the north and northwestern parts of India
- These storms bring temporary relief - lower the temperature - bring light rain and cool breeze



Dust storms: commons.wikimedia.org/wiki/File:North_India_dust_vir_2018165.jpg

Attribution: NASA Earth Observatory images by Lauren Dauphin, using VIIRS data from the Suomi National Polar-orbiting Partnership, and air quality data from AirNow (2018). Story by Kasha Patel

- Tropical cyclones - develop over the Bay of Bengal and the Arabian Sea - advance towards the coastal areas - cause devastating effects
- In the middle and latter part of the season - there are localised thunderstorms, accompanied by violent winds, heavy downpours and hail

- Regional names of the storms - 'Kaal Baisakhi' in West Bengal and 'Andhis' in Uttar Pradesh - in Karnataka - known as 'Coffee blossom' or 'Cherry Blossoms' - as they are helpful in the growth of coffee



Cherry blossoms: publicdomainpictures.net/en/view-image.php?image=185743&picture=cherry-blossom-tree
Attribution: Alex Borland

- Mango showers/bursting monsoon - towards the end of the summer season - pre-monsoon showers are common especially in Kerala, Telangana, Andhra Pradesh and Karnataka - help in the early ripening of mangoes
- Coolest summer place in India - Auli, Uttarakhand
- Migration of Birds - every summer, the Eurasian Golden Oriole bird - visits its cousin, the Indian Golden Oriole bird in India

Conclusion: 80% of the annual rainfall in India is received through the summer monsoon. Agriculture, drinking water and energy production largely depends on this thereby making it a lifeline for a large section of its population.

Time to teach	Asset type	Theme	Sub Theme
20 minutes	Main Script	Climate and vegetation	Hot Weather Season or Summer Season Of Retreating Monsoons Or Autumn The Indian Monsoon

IA_Seasonal Festivals

Objective: The students will be able to correlate the festivals celebrated in India to its seasons.

Teaching aids: PPT

Notes to the teacher: The teacher may introduce the asset by asking the following question:

Q1. Name the festivals celebrated in your region during summer, winter and monsoon.
(The teacher can accept all relevant answers)

Let us try and learn about some of the festivals celebrated in other states of India during different seasons.

1. **Jaisalmer Desert Festival (Winter)**: Foreign tourists gather in large numbers to be a part of this four day festival at Jaisalmer. The main attractions include display of Rajasthani folk art, culture and authentic Rajasthani cuisine.
2. **Minjar Festival (Monsoon)**: People of Himachal Pradesh celebrate the Minjar festival for seven days in the month of July - August to express their gratitude to the rain God.
3. **Hareli Festival (Monsoon)**: Tribal farmers of Chattisgarh and parts of Madhya Pradesh worship the bullocks, farm equipment and cows. In some places they have bull races as well.



Pooja: utsav.gov.in/public/uploads/event_cover_image/event_728/166080180212551338.jpeg
Attribution: Ministry of Tourism

4. **Mattu Pongal**: Tamil Nadu too celebrates the day after Pongal/Makar Sankranti as 'Mattu Pongal' where they bathe, decorate and worship cows and bulls.



Cattle: [flickr.com/photos/ilri/17919059840](https://www.flickr.com/photos/ilri/17919059840)

5. **Bail Pola (Monsoon)**: In the month of Saawan (July-August), farmers of Maharashtra express their gratitude to cattle by celebrating Bail Pola.



Cattle Pooja: <http://maayboli.cc/node/121>
Attribution: maitreyee

6. **Vasant/Basant Panchami (Spring)**: In late January and February, when mustard fields in Punjab are in full bloom, the festival of Vasant Panchami is celebrated on the fifth day in the month of Magha which marks the beginning of spring also known as the 'King of all seasons'. In Punjab it is celebrated by flying kites and holding fairs.



Kite Flying: freepik.com/free-vector/happy-makar-sankranti-holiday-india-festival-background_132092277.htm
Attribution: Harryart

7. **Chapchar Kut (Spring)**: People of Mizoram celebrate a spring festival after the harvest of bamboo. The Cheraw or the traditional bamboo dance is performed by men and women amid the sound of drums.



8. **Harvest festivals:** It is known by different names all over India and is celebrated after the harvest of rabi crops.

- Punjab - Lohri
- Tamil Nadu - Pongal
- Maharashtra/Karnataka/Odisha - Makar Sankranti

Time to teach	Asset type	Theme	Sub Theme
3 minutes	Interesting Asides	Climate and vegetation	The Seasons

QA_Recap - Climate

Objective: The students will be able to analyse the climatic conditions during different seasons in India.

Teaching Aids: PPT/Worksheet

Notes to the teacher: The teacher can give the worksheet as a homework activity.

I. Find the words according to the clues given:

1. The Hindu month when Ganesha festival is celebrated - Bhadrapada
2. This season of the year is also known as Grishma - Summer
3. The local name for the violent thunderstorms occurring in West Bengal - Kaal Baisakhi
4. This state in India has hardly any difference in day and night temperatures in India - Kerala
5. The shift of the position of the Inter Tropical Convergence Zone is also known as - Monsoon Trough
6. The state that does not experience monsoon by the first week of July is - Himachal Pradesh
7. This is important for the cultivation of the rabi crops - Mahawat
8. The Spanish name for the warm ocean current flowing from the Peruvian coast - El Nino
9. The houses in this region are built on stilts - Assam
10. Striking feature of the hot weather season - Loo

A	F	Y	R	S	T	P	R	S	H	K	L	H	P	P
M	N	S	T	O	R	A	P	U	I	L	P	K	I	L
A	A	S	S	A	M	C	C	M	A	E	T	A	N	B
D	F	T	Y	J	K	O	Y	M	M	H	P	A	Z	H
E	L	N	I	N	O	P	B	E	C	B	M	L	Z	A
S	Y	H	T	U	U	K	P	R	L	M	K	B	A	D
G	H	Y	F	M	N	E	N	O	M	J	K	A	Q	R
K	M	L	B	A	H	R	K	T	M	N	K	I	P	A
S	M	O	T	H	O	A	S	T	K	L	R	S	L	P
S	T	O	H	A	A	L	T	S	K	O	O	A	A	A
B	N	X	Z	W	V	A	N	G	L	O	D	K	Y	D
X	V	R	T	A	H	U	T	Y	U	P	P	H	B	A
S	D	G	G	T	J	M	V	M	T	H	Q	I	A	W
M	O	N	S	O	O	N	T	R	O	U	G	H	K	K
H	I	M	A	C	H	A	L	P	R	A	D	E	S	H

A	F	Y	R	S	T	P	R	S	H	K	L	H	P	P
M	N	S	T	O	R	A	P	U	I	L	P	K	I	L
A	A	S	S	A	M	C	C	M	A	E	T	A	N	B
D	F	T	Y	J	K	O	Y	M	M	H	P	A	Z	H
E	L	N	I	N	O	P	B	E	C	B	M	L	Z	A
S	Y	H	T	U	U	K	P	R	L	M	K	B	A	D
G	H	Y	F	M	N	E	N	O	M	J	K	A	Q	R
K	M	L	B	A	H	R	K	T	M	N	K	I	P	A
S	M	O	T	H	O	A	S	T	K	L	R	S	L	P
S	T	O	H	A	A	L	T	S	K	O	O	A	A	A
B	N	X	Z	W	V	A	N	G	L	O	D	K	Y	D
X	V	R	T	A	H	U	T	Y	U	P	P	H	B	A
S	D	G	G	T	J	M	V	M	T	H	Q	I	A	W
M	O	N	S	O	O	N	T	R	O	U	G	H	K	K
H	I	M	A	C	H	A	L	P	R	A	D	E	S	H

II. Give Reasons:

Q1. My cousin from Japan is visiting India during the 2nd week of January, where the entire country is in a festive mood. Can you guess why?

Suggested Answer: The second week of January marks the festival of harvest and the beginning of spring.

Q2. Sopan's grandfather moved from Konkan to Koppal, Karnataka. He purchased an agricultural plot but needs advice on the type of crop that he can grow. Can you advise him?
Hint: (The region receives 60-100 cms of rainfall)

Suggested Answer: Jowar, Bajra, Maize and Groundnut can be grown in these arid and semi-arid areas.

Q3. You are staying in your uncle's house in Meghalaya and it is Diwali, but you are disappointed that the crackers are not bursting.

Suggested Answer: Due to heavy rains and humidity it is difficult to burst crackers in Meghalaya.

Q4. Monsoon has contributed a lot to Indian Culture. Justify.

Suggested Answer: Songs, festivities, clothing, cuisine, harvesting and dwellings mostly revolve around the monsoon of India as it is the lifeline of the climate of India.

III. Name the following:

1. Winds that give maximum rainfall to India. - Southwest Monsoon Winds
2. One of the elements of weather and climate. - Atmospheric Pressure
3. The season in the month of October-November. - Retreating Monsoon
4. It is responsible for deflecting winds towards the right in the northern hemisphere and towards the left in the southern hemisphere. - Coriolis Force

5. Climate of India. - Monsoon
6. The sum total of weather conditions and variations over a large area for a long period of time. - Climate
7. Atmospheric conditions in an area at a given point of time. - Weather

Time to teach	Asset type	Theme	Sub Theme
20 minutes	Questions to Assess	Climate and vegetation	Climatic Controls Factors Affecting India's Climate The Seasons

MS_ Journey of the Monsoon Cloud

Objective: The students will be able to explain how India receives rainfall from south-west monsoon winds.

Teaching Aids: PPT

Notes to the teacher: The teacher can start the asset by asking the students the following question and then continue with the storyboard.

Q1. Which winds play a vital role during monsoon in India?

Answer: Southwest monsoon winds play a vital role during the monsoon in India.

Let's hear from the monsoon cloud about its journey and adventures.

My Origin:



Background- pixabay.com/no/videos/skyer-himmel-himmelen-skyer-natur-16495/
Attribution: max_bbb
Monsoon cloud - freesvg.org/cfry-cloud
Attribution: OpenClipart
Spectacles: PPT icons
Mouth: PPT shape

Hello Friends! Let me introduce myself. Well! Well! Actually, I don't need any introduction as I am a well-known celebrity. Everyone eagerly awaits my arrival year after year, and they become gloomy if I arrive late and don't live up to their expectations. I am sure you know who I am by now - Yes! I am the **monsoon cloud tossed by the blowing winds**. Let me describe my journey to you. I originate in the warm subtropical areas of the southern oceans near Madagascar.

My Journey:



Map: Google maps - Map data © 2022 Google, INEGI
Monsoon cloud: freesvg.org/cfry-cloud
Attribution: OpenClipart
Spectacles: PPT icons
Mouth: PPT shape

My powerhouse and best buddy, the Mascarene High (high-pressure zone), guides my journey from the Mascarene Islands (4000 km away) through the Indian Ocean.

My journey starts in mid - April, crossing countries, bridging cultures and associating with people from different lands who speak other languages. I am travelling over the Indian Ocean. What's happening??? Oh yes, I am pulled by the intense low pressure that develops over the northern plains in India, forcing me to change my direction. I cross the equator and now blow in the southwest direction and guess what? I found a new name for myself as the monsoon cloud tossed by the **south-west monsoon winds**. I collect abundant moisture as I pass over the warm oceans. The speed of wind is about 30 km/hr on an average.

I look forward to reach the southern tip of India by the 1st of June. Here I get divided into two branches - the Arabian Sea and the Bay of Bengal branch.

My Stay:



India map: SSSVV gallery (India Political)
Celebration vectors: PPT icons
Cloud vector: PPT icon
Smiley face: PPT icons

I first landed in Kerala and Andaman and Nicobar Islands and my arrival brings great joy and happiness to the people. My presence is felt more on the windward side of the Western Ghats. But as I cross over with little moisture left in me, I create a rain shadow region in the Deccan Plateau.

Please do not blame me for any drought conditions, as relief features on my way play a vital role in determining the amount of rainfall received.

I cannot move around of my free will as I am bound by this friend of mine known as the monsoon trough, who moves northwards or southwards and he determines how I can distribute myself.

The Bay of Bengal branch moves rapidly northwards, bringing the rainy season to West Bengal, Odisha, Bihar, Uttar Pradesh, Madhya Pradesh, Punjab and Haryana.

Another branch moves towards the north-eastern states. Mawsynram is regarded as the 'wettest place on earth.' The Himalayas block me from proceeding further. The entire northern

part of India receives abundant rainfall from July to September. The coastal areas and all of the north receive rainfall by the end of June from the 'Arabian Sea branch' of the monsoon winds.

Sometimes I need a break from my journey too. Hence, there are wet and dry spells.

My stay here is also bound by my other friend, the tropical depressions at the Bay of Bengal who also follows my friend, the monsoon trough. Due to my excitement, I create havoc in one place while I play the game of hide and seek in other parts.

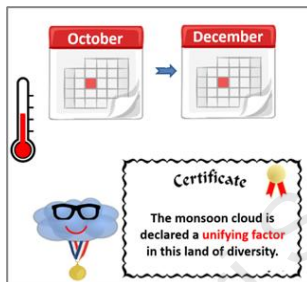
Suddenly I became a celebrity overnight as I provided relief from the scorching heat. There is a significant change in the weather. People welcome me eagerly, dancing, rejoicing and singing songs in praise of me.

Nature is at its best, with greenery all around. Poets compose songs, musicians sing raag Malhar, farmers get busy with agricultural activities and school children are jubilant as they get unexpected holidays.

The Gods have sent me here in response to the prayers of many.

My Farewell:

My arrival and departure are uncertain. It's time to bid adieu now. It is the month of October. With the change in weather conditions, fall in temperature, a high-pressure belt develops and I am forced to retreat. By early December, I withdraw from the rest of the country. With thunder and lightning, I exit.



Medal: pixabay.com/no/vectors/medalje-gull-tildele-295094/

Attribution: Clker-Free-Vector-Images

Badge: pixabay.com/no/vectors/rekkef%c3%b8lge-gull-r%c3%b8d-dekorasjon-1586385/

Attribution: bartekhd

Thermometer: pixabay.com/no/vectors/kald-kul-varmt-ikon-m%c3%a5le-m%c3%a5l-1293305/

Attribution: OpenClipart-Vectors

Certificate: pixabay.com/no/vectors/sertifikat-sertifisering-31872/

Attribution: Clker-Free-Vector-Images

Monsoon cloud- freemove.org/cfry-cloud

Attribution: OpenClipart

Spectacles: PPT icons

Calendar: pixabay.com/no/vectors/kalender-m%c3%a5nedlig-kontor-rute-23684/

Attribution: Clker-Free-Vector-Images

Mouth: PPT shape

Despite my erratic arrival and departure, I influence the lives of millions in India and am one of the unifying factors in this land of diversity. I hope you have enjoyed this journey with me.

Time to teach	Asset type	Theme	Sub Theme
10 minutes	Main Script	Climate and vegetation	South West Monsoon Season Or Rainy Season

Sri Sathya Sai Central Trust

DD_Climate and Lifestyle

Objective: The students will be able to associate the relationship between climate and its impact on the life of the people.

Teaching Aids: PPT

Notes to the teacher: The teacher can give a brief introduction relating to climate and its influence on people's lives.

The climate of a region tends to affect the lifestyle as well as the behavioural patterns of the people inhabiting that particular region.

Let's try and understand the impact of climate on various aspects of human life.

1. Houses in different regions of India: The dwellings of people in various regions vary according to the climatic conditions and the availability of resources.

Example:

- The architecture of havelis has been a direct response to the climate. The havelis of Rajasthan are designed to suit the extreme climatic conditions, which vary from 3°C in winter to 50°C in summer. These havelis are known as bioclimatic buildings



Mud house Kashmir: flickr.com/photos/sandeepachetan/14944124369
Attribution: sandeepachetan.com travel photography - A typical house in Sanasar, Kashmir, India

- The traditional architecture of houses in Jammu and Kashmir were built using wood, stone, bricks and mud having insulating properties to beat the cold. These structures were also earthquake resistant

2. Food habits: *Sushruta Samhita*, an ancient medical text, mentions that different types of food are consumed during different seasons. Example:

Type of season	Type of food consumed
Spring	Pungent

Summer	Sweet and cold
Monsoon	Salty and sour
Autumn	Sweet
Winter	Hot and fatty

The Indian climatic conditions are extremely suitable for the growth of different types of spices. Hence, a variety of spices are included in Indian cuisine.

3. Seasonal fruits and vegetables: Various types of fruits and vegetables are consumed during different seasons.



Bowl of fruits: pixabay.com/photos/bowl-of-fruit-fruit-basket-fruit-1517740/
 Attribution: connie_sf
 Vegetables: pixabay.com/photos/vegetables-nature-green-healthy-140917/
 Attribution: ikon

4. Food crops grown: Due to the diverse physiography, soil and climate, different varieties of food crops are grown in different parts of India like - rice, wheat, jowar, maize, ragi, millets, barley, bajra, tur and pulses.

5. Clothing: Depending on the ethnicity, geography, climate and traditions, clothing in India varies from region to region. Example - People in the eastern, southern and western region wear loose clothing as they are in hot-humid tropics while people living in cold regions use woollen clothing.

6. Industry: Extremely hot, humid or cold climate hampers industrial development. On the other hand, a moderate climatic condition is congenial to the development of industries.

- Example - The states of Maharashtra and Gujarat are situated on the west coast which has a moderate type of climate. About 24% of India's modern industries are concentrated in these states



Indian spinning mill: commons.wikimedia.org/wiki/File:CSIRO_SciencelImage_10736_Manually_decontaminating_cotton_before_processing_at_an_Indian_spinning_mill.jpg
 Attribution: CSIRO

- Hot and humid climate is favourable for the cotton textile industry

Thus, climatic factors have a direct impact on the type of industries found in a region

7. Health: Seasons have their own toll on the health of the people.

Seasons	Illnesses
Summer	Food poisoning, measles and chickenpox
Monsoon	Malaria, gastro-intestinal infections, cold and flu
Winter	Joint pains, ear infection and bronchiolitis

8. Recreation: People visit different places for recreational purposes based on the season - trekking and hiking during summer, adventurous sports like river water rafting during monsoon and skiing and ice hockey during winter.



Trekking: pxhere.com/en/photo/419714
Attribution: pxhere

Variations in climate have brought about cultural diversity.

Time to teach	Asset type	Theme	Sub Theme
4 minutes	Day-to-day Relevance	Climate and vegetation	Climatic Controls

MS_Monsoon - A Unifying Bond

Objective: The students will be able to justify how the Indian monsoon is a unifying factor in spite of variations in the distribution of rainfall.

Teaching Aids: PPT

Notes to the teacher: The teacher can discuss the points related to the distribution of rainfall by displaying the map of India depicting the average annual rainfall and ask a few questions based on the map.

Q1. Which parts of India receive more than 400 cm of rainfall?

Answer: The western coast and northeastern parts of India receive rainfall more than 400 cm.

Q2. How much rainfall does the western part of Rajasthan receive?

Answer: The western part of Rajasthan receives rainfall less than 60 cm.

Q3. How much rainfall does the northern parts of Tamil Nadu receive?

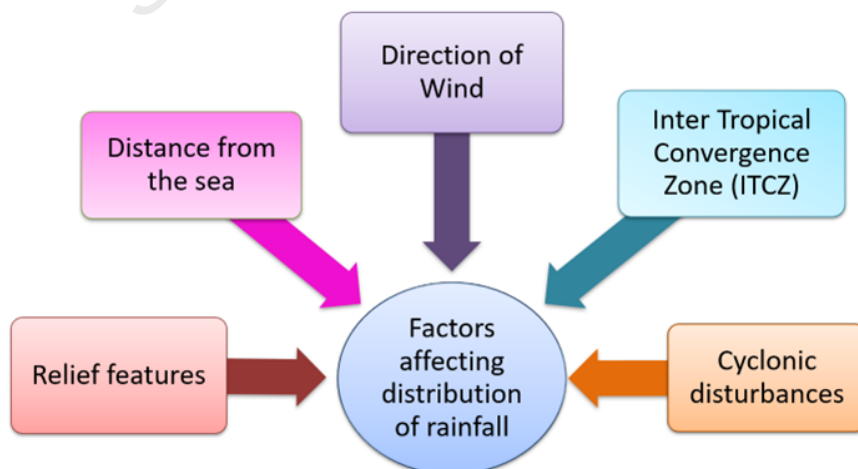
Answer: The northern parts of Tamil Nadu receive around 100-200 cms of rainfall.

Q4. What kind of natural disasters can be caused due to variations in rainfall?

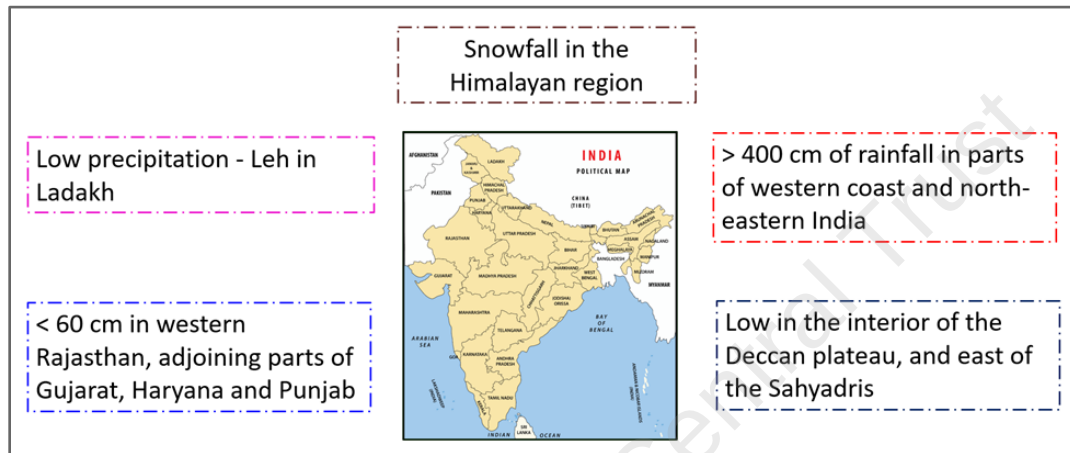
Answer: Heavy rainfall leads to floods while low rainfall leads to droughts and famine.

Distribution of rainfall:

- The distribution of rainfall in India is uneven. Some regions receive heavy rainfall while others receive moderate and scanty rainfall
- Various factors that affect the distribution of rainfall in India are - the relief features, distance from the sea, direction of the wind, Inter Tropical Convergence Zone (ITCZ) and the disturbances caused by cyclones

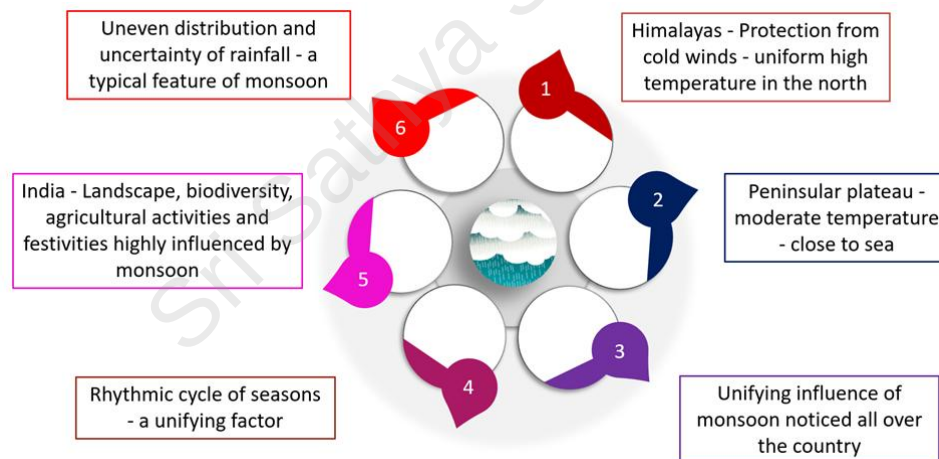


Annual rainfall distribution:



Map of India: SSSVV Gallery

Monsoon as a unifying bond:



Clouds: pixabay.com/vectors/clouds-rain-weather-raining-storm-149344/
Attribution: OpenClipart-Vectors

The annual rainfall varies from year to year due to the nature of the monsoons. Every year, people all over the country eagerly await the arrival of the monsoon. The whole country is set in motion and bound by the monsoon winds as they provide water to initiate agricultural activities.

Time to teach	Asset type	Theme	Sub Theme
7 minutes	Main Script	Climate and vegetation	Distribution Of Rainfall

SA_Climate in our Lives

Objective: The students will be able to analyse the factors affecting the climatic conditions in different regions of India.

Teaching Aids: NA

Notes to the teacher:

Preparation of Activity: The teacher will divide the class into 4-5 groups and each group can be asked to select a region/topic. The groups can be given a week's time to collect relevant information related to the climate of that region, they can creatively present the collected information. Maps and images can be used to make the presentation more effective. Example: Climate in -

1. Deserts of India
2. Indian islands
3. Coastal regions
4. Mountainous regions of Leh or Ladakh

The students can present information about how the climate of the region has influenced human life in that region/area like crops grown, festivals, occupations, dwellings...

Aim: To have a better understanding of the factors that affect the climate of a region.

Resources Required: Physical and Political map of India

Setting for the Activity: Indoor

Type of Activity: Presentation

Role of the Teacher: Facilitator

Procedure:

Total presentation time: Each group gets 5-6 minutes to present their information.

Example: Name of Region - Leh/Ladakh

Temperature-

Rainfall -

Best time to visit that place -

Festivals -

Any unique features related to climate -

Effect of climate on human life - A small paragraph of 5 -7 sentences.

Observation: The students will note that although India falls under the monsoon region, the climatic conditions are not the same in the different parts of the country.

Conclusion: As the climatic conditions are not the same there is variation in the lifestyle of people living in different regions.

Follow-up activity:

Name of Place	Details
Location (North, South, East or West)	
Factors affecting the climate of the region	
Temperature (Highest, lowest and average)	
Rainfall (Duration and amount of rainfall received)	
Unique features related to climate	
Influence of climate on lifestyle	

Precautions: The teacher can see to it that each group selects different regions/places.

Troubleshooting:

If they are unable to complete the presentation in the classroom they can submit the same as project work.

Time to teach	Asset type	Theme	Sub Theme
20 minutes	Suggested Activity	Climate and vegetation	Climatic Controls Factors Affecting India's Climate

MS_Cold Weather Season

Objective: The students will be able to discuss the features of the winter season in India.

Teaching Aids: PPT

Notes to the teacher: The teacher can start the asset by asking the following question:

Q1. Why do the birds of Siberia migrate to Chilika during winter?

Possible Answer: As the winters especially in south India are not severe, the birds from Siberia migrate to the Chilika lake in search of warm climate and food.

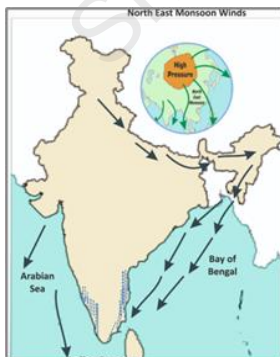


Birds in Chilika Lake: commons.wikimedia.org/wiki/File:Chilika_Bhubaneswar.me.jpg
Attribution: Government of Odisha

Cold weather: From mid-November to February
Coldest months: December-January
Warm days and cold nights

Northeast trade winds:

- Dry and cold
- blow from Central Asia
- blow from land to sea
- Collects moisture from Bay of Bengal
- Results in rainfall in eastern coast of Tamil Nadu and the state of Kerala



High Pressure Map: drive.google.com/drive/folders/1HdE_DOdCMg6UcMAP4KLIKU8C2szCwR_x
Map: drive.google.com/drive/folders/1qulYMclEuKwWv6O5UDJkQX-r8awz5uqW

Average temperatures:
Extreme North: Severe
Northern Plains: 10°C - 15°C
Coastal: Moderate
South India: 24°C - 25°C



Map: SSSVV Gallery

Cyclonic disturbance -

- Experienced in the northern plains
- Development of high and low pressure regions
- North-westerly winds blow towards the Ganges valley and Indus
- Westerlies originate over the Mediterranean Sea and western Asia and move into India

Winter rainfall - locally known as 'mahawat' - important for cultivation of the 'rabi' crops

Destruction of cotton crops due to frost



India Tibet Himalayas map: pixabay.com/de/photos/karte-himalaya-tibet-geographie-2613858/
Attribution: Eliane-Images
Mountains: pixabay.com/vectors/icon-landscape-mountains-snow-1294942/
Attribution: OpenClipart-Vectors

India is protected from severe winters due to obstruction of cold winds blowing from Central Asia by the Himalayas.

Time to teach	Asset type	Theme	Sub Theme
7 minutes	Main Script	Climate and vegetation	Cold Weather Season or Winter

Sri Sathya Sai Central Trust

QA_Review - Climate

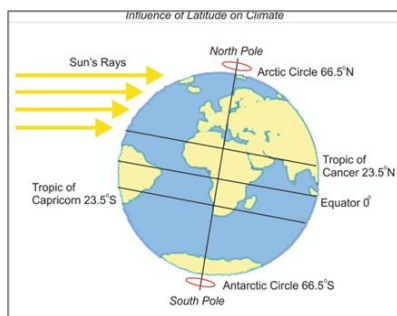
Objective: The students will be able to revise the factors leading to the monsoon climatic conditions of India.

Teaching Aids: NA

Brief Introduction of the activity: Flow Model Technique

Prior Preparation for the Assessment: The teacher can ask the students to read the chapter thoroughly.

Notes to the teacher: The teacher can use the flow model to assess the understanding of the students. The teacher can display the map of India depicting - Rainfall in India. She can take out the print out of the images given below to help the children to go ahead with the discussion.



Earth: drive.google.com/drive/folders/1quLYMclEuKwWv6O5UDJkQX-r8awz5uqW



Google maps – Map data © 2022 Google, INEGI



Google maps – Map data © 2022 Google, INEGI

Compass and Splash - PPT Icons

Monsoon cloud- freesvg.org/cfry-cloud

Attribution: OpenClipart

Spectacles – PPT icons

Mouth- PPT shape



Google maps – Map data © 2022 Google, INEGI
 Monsoon cloud- freesvg.org/cfry-cloud
 Attribution: OpenClipart
 Spectacles – PPT icons
 Mouth- PPT shape



India map- SSSVV gallery (India Political)
 Rain - pixabay.com/no/vectors/dr%3a5per-regn-regnfullt-v%3a5t-v%3a6r-160354/
 Attribution: OpenClipart-Vectors
 Locators and Rain Clouds - PPT Icons

Benefits of the Flow Model:

- Assessment of a wide range of topics
- Involvement of the entire class
- Interactive session
- Facilitates higher order thinking

Procedure: The teacher can instruct the students to keep their textbooks open so that they can connect with the idea given by the previous student. The teacher can intervene as and when required to build a string of questions.

1. The teacher can ask a factual question that elicits a descriptive or a simple explanation from a student.
2. The teacher can call out another student's name and ask that student to develop (or stick to the concept the first student has started) further details or an appropriate example.
3. The third student can now be asked to give their opinion on the first two answers and add on another relevant point. This could be an alternative approach or asking if they agree.
4. The final stage of the chain is to ask a fourth student (or one of the first three) any sort of question that begins with why, where, which, how or what if.
5. As each subsequent question in the chain builds on the previous answer, it means that the whole class has to be engaged and attentive.

Sample for the model:

Q1. (To be asked by the teacher): Define weather.

Student 1 - Answer: Change in the atmospheric conditions over an area at any point of time.

Student 2 - Example: It is windy today.

Student 3 - Weather and climate are used synonymously, but in reality, they are two different terms.

Student 4 - Climate refers to a long term weather pattern lasting in an area for 30 or more years.

Student 5 - Elements of weather and climate are similar.

Student 6 - Temperature, atmospheric pressure, wind, humidity and precipitation are the elements of weather.

Student 7 - On the basis of these factors which prevail over a long period of time we can conclude about the climatic regions.

Student 8 - Some climatic regions are equatorial region, desert region, tundra region and monsoon region.

Student 9 - India lies in the monsoon region and the climate of India is described as the 'monsoon climate'.

Student 10 - This type of climate is found mainly in South and Southeast Asia.

Student 11 - Two important elements of climate and weather: temperature and precipitation influence different climatic conditions in different regions of the country.

Student 12 - Example (Temperature) - In summer, the temperature reaches 50°C in some parts of the Rajasthan desert whereas on a winter night, the temperature in Drass in Jammu and Kashmir may reach -45°C.

Student 13 - Example (Precipitation) - Meghalaya receives more than 400 cm of rain, while Ladakh and western parts of Rajasthan receive less than 10 cm of rain.

Notes to the teacher: The teacher can intervene and ask a few higher order questions based on the points covered.

Example:

Q1. Why do the houses in Rajasthan have thick walls and flat roofs?

Q2. Why is it that the houses in the Tarai region, Goa and Mangalore have sloping roofs?

Q3. Why are houses in Assam built on stilts?

After a particular set of concepts of the subtopic is clear, the teacher can ask another set of questions relating to the next topic or subtopic.

All subtopics for the given chapter can be covered effectively using the flow model technique.

This technique can also be used to cover questions related to map work wherein each student adds on related information.

Time to teach	Asset type	Theme	Sub Theme
---------------	------------	-------	-----------

20 minutes	Questions to Assess	Climate and vegetation	Climatic Controls Distribution Of Rainfall Factors Affecting India's Climate
------------	---------------------	------------------------	--

Sri Sathya Sai Central Trust

MS_Summary - Climate

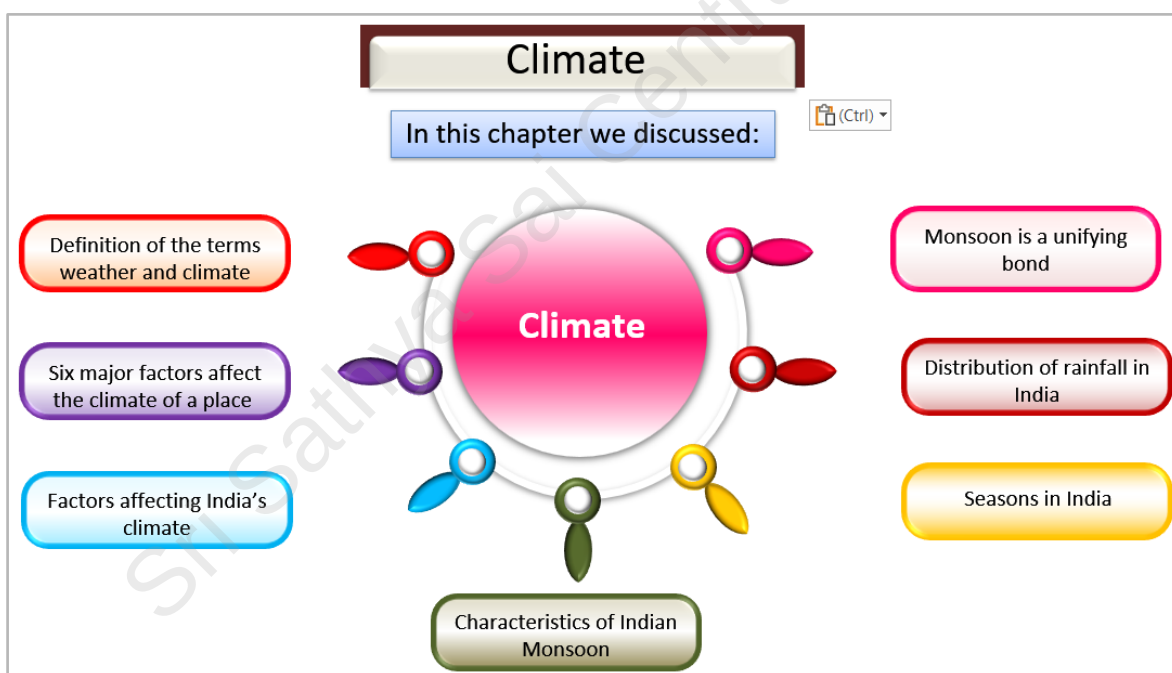
Objective: The students will be able to summarise the characteristic features of the climate of India in the chapter - Climate.

Teaching Aids: PPT

Notes to the teacher: The teacher can draw the mind map or write the main points of the summary on the blackboard.

The teacher can introduce the asset by saying, "Let us summarise what we have learnt from this topic".

Summary - In this chapter we discussed:





Sri Sathya Sai
VIDYA VAHINI
श्री सत्यसाई विद्या वाहिनी

Sri Sathya Sai Central Trust

Annexure to Master Lesson Plan

What is the purpose of this Master lesson Plan?	This Master Lesson Plan (MLP) prepared by Sri Sathya Sai Vidya Vahini (SSSVV), covers the entire chapter for the given board. The MLP for the chapter given in the textbook is broken down into smaller modules known as assets. Any chapter can be taught using the 7 asset types in SSSVV methodology. Several different assets together complete the entire chapter. Depending on the requirement, each asset is supported by teaching aids such as animated presentation, audio, video, and learning aids such as worksheets. The MLP is for the teacher's preparation and the teaching aids are for use in the classroom.
How to use it?	You can prepare for your class with this MLP by following 3 simple steps: 1. Read your textbook; 2. Go through the information given in the assets (document & multimedia); 3. Prepare your teaching notes. Great! Now you are ready to transact the chapter.
Duration	Kindly note the duration given for each asset. Due care has been taken in planning the assets, to ensure the chapter is completed within the time specified by the Board. Note: Preparation time is not included in the asset duration. The teaching time depends on the duration of the teaching aids and is not impacted by the length of the MLP.
What is a 'Main Script' (MS) Asset?	The Main Script asset is there for explaining the main concepts of the chapter clearly. The information given in the textbook is simplified, organised and structured to give more clarity. Additionally, you may find a video or mnemonics or a graphic organiser to deepen the understanding of the concept.
How to teach using the MS asset?	Please use the blackboard, slides and interaction to develop the concept.
What is an 'Inquisitive Questions' (IQ) asset?	The Inquisitive Questions asset uses questions to promote higher order thinking like the n th why, what-if, new perspectives, cause-effect, and others, creating curiosity.
How to teach using the IQ asset?	You may use the questions to connect with the students, encourage exploration to engage them in the learning process. You may allow multiple responses and instead of rejecting any of the responses, ask why, before revealing the suggested answer or hints.
What is a 'Day to day Relevance' (DD) Asset?	The Day to Day Relevance asset helps students understand the practical relevance of every topic, making them eager participants in the classroom. If students connect the concepts to their environment, they would learn meaningfully without dislike or simply memorizing for exams.
How to teach using the DD	You may use the asset by asking questions about their experience and use it to establish why they are learning the topic. If necessary you may substitute with a

asset?	recent or local example.
What is an 'Interesting Aside' (IA) asset?	The Interesting Aside asset uses attention grabbing tidbits or anecdotes to bring joy and satisfy the child's hunger to know more. This is a quick/short asset intended to bring attention back to the main concept being taught.
How to teach using the IA asset?	You may use this asset to give a piece of interesting information relevant to the topic, without prolonged explanation/discussion. You may suggest appropriate books for further reading.
What is a 'Suggested Activity' (SA) Asset?	The Suggested Activity asset provides a detailed step by step procedure for the teacher to conduct a hands-on activity. This promotes Activity Based Learning.
How to teach using the SA asset?	You may use this asset to energise your students to learn by doing simple, fun-filled activities based on the topic. The asset includes - preparation, activity, and follow-up. You may engage the students in the preparation and follow-up stages to develop collaboration and responsibility. You could try it once, yourself, before the actual delivery to be more comfortable with it. Note: The duration mentioned in the asset is usually for the activity part only.
What is a 'Value Content' (VC) Asset?	The Value Content asset integrates Universal Human Values (such as empathy, inclusivity, respect for nature that translates into responsible behaviour) seamlessly into the curriculum, as the "End of education is character".
How to teach using the VC asset?	You may use this asset to engage with the students to bring out their innate values and connect with the intrinsic values in the topic/concept. The asset includes pointers on the specific pedagogical technique followed.
What is a 'Questions to Assess' (QA) asset?	The Questions to Assess asset uses an interactive approach to check learning of different types of learners, and provides feedback to the teacher for appropriate action. The questions cater to all the levels of Bloom's Taxonomy. Questions from 'Apply' level and above enable students to reflect on their learning.
How to teach using the QA asset?	You may go through the slides to understand its flow and know when to click for the answer (slides include suggested answers). While presenting in the class, you may display the question and encourage multiple responses, before revealing the answer. In some cases, this asset may include extra questions/worksheet that can be given as homework.