

INTRODUCING ELEMENTARY CONCEPTS OF GEOGRAPHY

29.1 Introduction

Familiarizing a young inquisitive mind to its environment is a challenging task. It involves not mere tangible objects, but also abstract ideas such as time and its cyclic nature. The idea of space in terms of distances, directions and map scale brings in a technical element. Introducing concepts of relief features and making distinction between each one of them clear is no less challenging. Ideas about land use and basic occupations of man call for widening of a perspective. Acquainting child with natural resources and sources of energy, their continual use and avoidance of wastage is not easy. Soil being the most precious resource of man, its formation, cultivation and conservation do need special emphasis. So do the factors determining the climate of a place.

All these concepts when introduced carefully and systematically to a tender mind is found to react with awe, wonderment and inquisitiveness, provided the teacher does her or his homework of conceptualization of these ideas well and in advance. His or her first and foremost job is to create that first impression that lingers almost all through the life.

29.2 Objectives

After going through this lesson you would be able to :

- recognise the cyclic nature of time viz day and night, fortnights relating to waxing and waning of the moon seasons and years.
 - explain elements of space in terms of distances, directions and map-scale;
 - identify various relief features and water bodies;
 - infer factors determining the climate of a place;
 - establish inter-relationships between land use and basic occupations of man;
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- conclude the importance of natural resources and the need for their wise and scientific use to minimise wastage;
- appreciate indispensability of soil, their cultivation cropping pattern and conservation;
- select some suitable elementary concepts of Geographic Education for teaching primary school children;
- prepare teaching unit based on illustrations for primary school children.

29.3 Concept of Time and its Cyclic Nature

A wall clock, a calendar and a wrist watch followed now are common house-hold articles used for measuring or finding our time. Children use words such as minutes, hours, days, months and years quite freely. All that the teacher needs to do is to provide the scientific basis according to which different measures of time have been accepted universally.

Day : It is perhaps the most basic and natural unit of time, which in turn has been divided into hours, minutes and seconds. In olden days many of our fore fathers divided a day into *prahar*, *ghati*, *pala* and *Vipala*. They had invented water clock to measure time with a degree of precision. People in other parts of the world had devised sand clock for this purpose.

It is now customary to define the duration of a day as time between two consecutive mid-night.

(a) Day and Night : The most natural divisions of a day are the "day proper" and the night based on the presence/visibility of the sun in the sky. The day proper commences with the sun-rise and ends with the sun-set. The night starts from sunset and completes itself at sun-rise. The day is further divided into smaller divisions such as early hours of night, dawn, morning, noon, afternoon, evening, dusk and mid-night.

What Causes Day and Night ? As we all know the day consists of 24 hours. In fact this coincides exactly with the time taken by the earth to complete one rotation about its axis. The earth being a sphere only half of the earth at a time faces the sun and experiences the day. The other half which remains away from the sun fails to receive Sun's rays and remains in the dark causing night. Let us follow the journey of a fixed point, say Singapore very close to the equator, on the rotating earth, the Globe. When this point is farthest from the sun it is its midnight. i.e. 00.00 hours. After five hours or so there would be some light on the eastern horizon. This is its dawn. At about six O'Clock (06:00 a.m.) the sun would appear on the eastern horizon. It is sun-rise or break of day for the Singaporeans. At that time the shadows of the people would be the largest. After another six hours it would be noon because it would be the nearest to the sun and its rays would fall almost perpendicularly. This is the time when shadows would be the shortest. It would be 12 O'Clock in the noon. After another six hours, the sun would appear on the western horizon and it would again cause longest shadows. It would be 6 O'Clock in the evening (6 p.m. or 18.00). For a little less than an hour, there would be some light on the western horizon. It is its dusk period. Again it would be farthest from the sun at midnight that is 24 hours. Thus, we have discussed the day, its divisions and their correspondence with the rotation of the earth about its axis.

(b) Weeks, Fortnights and Months

The moon in the sky keeps on changing its shape and size. It also keeps on changing the timings of its appearance and disappearance in the sky. On the new moon day it is invisible in the night sky because it is present in the day sky along with the sun. It comes in between the earth and sun and thus presents only the darker side towards the earth. From newmoon day, it keeps on waxing i.e. increasing in its size and hence the brightness, till it reaches its full size on full moon day. This is a period of fourteen to fifteen days. This is called a fortnight or the waxing moon. After the full moon day it begins to wane and continues to do so till the new moon day. This is yet another fortnight but of the waning moon. This fortnight is marked by increasing darkness. Thus the two fortnights -of waxing and waning moon-make a period of 29 to 30 days which we call a month. The month is a word derived from the word moon. It coincides with one revolution of the moon round the earth. Thus a round figure of 30 days makes a month.

The fortnight in turn has been divided into two weeks of seven days each. Thus, another measure of time bigger than the day is the week. We in India have clearly named these days after the heavenly bodies. They are (i) *Raviwar* (named after the sun-head of the solar system); (ii) *Somawar* (named after the moon-the earth's only satellite); (iii) *Mangalwar* (named after the planet Mars); (iv) *Budhawar* named after the planet Mercury; (v) *Brihaspatiwar* (named after the largest planet Jupiter; (vi) *Shukrawar* (named after Venus - the brightest planet) and (vii) *Shaniwar* (named after the planet saturn).

(c) **Year :** We also commonly talk of a year. We celebrate our birthday once a year. We have annual calendars and diaries. The year consists of 365 days. It consists of 12 months. Days are somewhat unevenly distributed over 12 months. As per international calendar the four months namely April, June September and November have 30 days each. The months of January, March May, July, August, October and December have 31 days each. The month of February has generally 28 days only. But once in four years one day is added to this month making it a months of 29 days. Such a year (once in four years) consists of 366 days. It is called a leap year. The year coincides with yet another revolution. It is the revolution of our earth round the Sun. It consists of 365 days and nearly 6 hours. Hence, every fourth year one day is added to make up the difference of 6 hours per year. From one birthday of yours to the next birthday the earth completes yet another revolution round the Sun. In other words you also go round the sun and complete one *pradakshina* or *parikrama* each year.

(d) **Season :** The year is divided yet in another way. In India we divide it into three seasons-Summer, Rainy and Winter. This is because unlike many other countries of the world we have a distinct rainy season. By and large summer and winter are the two basic seasons. They in turn are further divided into two seasons or subseasons each. Each season consists of early part and later part. Thus summer's early part is spring and then comes the summer proper. So is the case of winter. Its early part is autumn and later part is winter proper. While the earlier half of the main season is somewhat mild and the later part is generally severe.

We in India have been celebrating many festival to suit the seasons. The Basant Panchami and Holi are the festivals of spring. Baisakhi comes at the beginning of

summer. The festivals of Raksha Bandhan and Independence Day are the festivals of the rainy season. So is Onam in Kerala, Dussehra and Diwali are the festivals of autumn and Makar Sankranti/Pongal, Lohri and Republic Day and Christmas are the festivals of winter. In summer we wear light cotton clothes and in winter, in most parts, very heavy woollens are a must. Thus in brief it can be summarised that days and nights follow each other endlessly. The days in week take their turn one by one. So do the fortnights, months and seasons all through the year. The years also come and go endlessly. All these therefore are cyclic in nature and are connected with the rotation of the earth and revolutions of the moon and the earth. Remember that the time on the one hand is unlimited or endless but on the other the time we spend never comes back again. Hence we must be punctual and regular and should always spend time judiciously and gainfully. It is rightly said time and tide (of the sea) wait for none. It follows its routine very strictly - without taking any liberty.

- * The days and nights are caused by the rotation of the earth.
- * The months are caused by the revolution of the moon round the earth.
- * The year is caused by the revolution of the earth round the Sun.
- * We wear clothes and celebrate festivals to suit the season.

INTEXT QUESTIONS 29.1

1. Fill in the blanks correctly from the list of words given at the end:

- i) The days and night are caused by _____ of the earth.
- ii) Christmas is celebrated in Australia in _____.
- iii) Two weeks make one _____.
- iv) The month coincides with the _____ of the _____ round the _____.
- v) The revolution of the earth round the Sun causes a _____.
- vi) The period between the new moon and full moon is called the fortnight of the _____.

(rotation, fortnight, moon, revolution, summer, earth, year, waxing moon)

2. Make correct pairs.

- | | |
|--------------------|--------------------|
| (i) Spring | a) Baisakhi |
| (ii) Summer | b) Diwali |
| (iii) Rainy season | c) Holi |
| (iv) Autumn | d) Pongal |
| (v) Winter | e) Raksha Bandhan. |

29.4 Concepts of Distance, Direction and Scale

Like the concept or sense of time, the sense of space is equally basic and universal. Space too is equally endless and limitless. The humans however have devised units for measuring space and distances. They have identified directions which are universally accepted. They can map the entire world on a small piece of paper with the help of scale. Let us go a little deep into these concepts briefly.

To begin with man used his fingers, hands and steps to measure distances. After a long time he succeeded in devising uniform or standardised measures for measuring distances. The Britishers conceived and standardised measures namely inches, feet, yards, furlongs and miles. We used them before we decided to switch on to more convenient measures used by the French people because it is based on metric system. They are millimeters, centimeters, meters and kilometers etc. The distance between pole and the equator is 10,000km. Thus, there is a relationship between a kilometer and the earth's circumference.

Conceiving long distances is not very easy. It is more convenient to conceive physical distances in terms of time required to cover them either on foot or with the help of a convenient vehicle running at a uniform speed. For instance if one walks fairly fast he or she may take about 10 minutes to cover a distance of 1km. For conceiving longer distance in a town one can use the cycling time. For measuring distances between two cities or towns the time taken by buses or railway trains are much more convenient. The longest distances on the earth can now be covered very quickly with the help of time taken by aeroplanes.

For instance, distance between Delhi and Agra is about 230km. But if we say that the fast bus may take 5 hours and a fast railway train may take 3 hours to reach Agra from Delhi, it carries more sense. For longer distances such as between Delhi and Mumbai and Delhi and Calcutta it is generally 1 hour and 50 minutes by an aeroplane. On the other hand Chennai can be reached from Delhi by air in about two hours and forty minutes. The distance between Delhi and London can be covered in eight hours by a non-stop air flight.

For measuring land area the British used acres as a standard unit. The French use hectares. A square km consists of 10,000 hectares.

Direction is yet another dimension of space. It is not enough to know the physical distance between two given points. We must also know the direction in which they lie from each other. Earlier it was enough if the narrator told whether the given point was his right, left, in front or behind. This varies from person to person and from place to place. This limitation was overcome when man was able to identify and describe direction from a fixed object say the sun during day time and North Star or Pole Star or *Dhruva Tara* during night.

The direction from which the sun rises is identified as east and its opposite is the west. This is very precise and exact only on two days of the year - 21st March and 23rd September. The remaining other two directions are decided with reference to east. If one faces the east to his or her left lies the north and to his or her right is the south.

In the Northern Hemisphere the directions are identified with far greater precision in reference to the Pole Star in the night sky. Its limitations are the non-

visibility of this star during day time and for the entire Southern Hemisphere it is of no avail.

It was the invention of the magnetic compass which provided the greatest break through. The arrow of this compass always pointed to the Magnetic North very slightly away from True North or Geographic North. Look at the following two diagrams. (a) Cardinal directions and (b) Dial of the Magnetic compass.

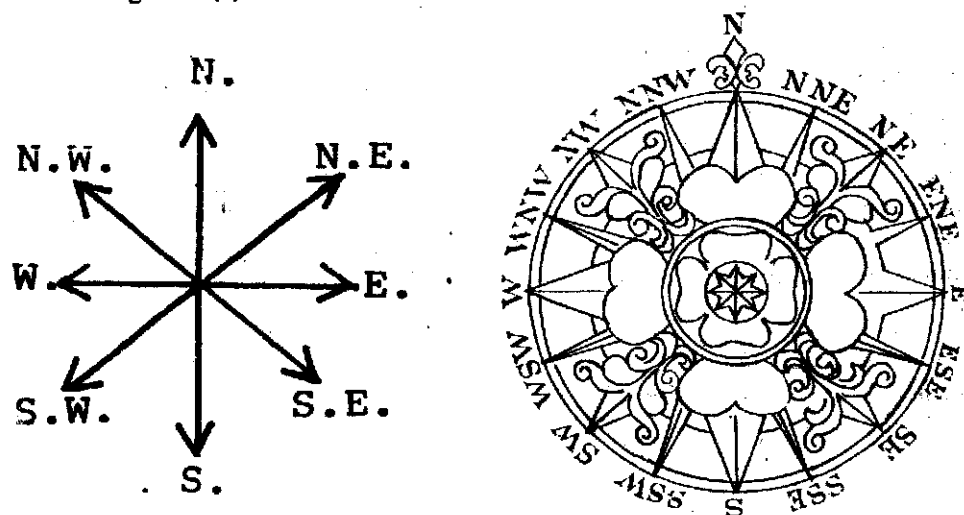


Fig 29.1 (a) Cardinal Directions

(b) Dial of the Magnetic Compass

Directions on a Map are equally important. There is universal acceptance of directions used on a map. This is because maps have a universal language of their own. A map can be placed on the flat surface say on the floor or the surface of a table. It can also be hung on the wall or a black board. In the former case the side which is farthest from the reader is North. The side closest to the map reader is South. To the right hand side of the reader lies the east on the map and to its opposite lies the west.

In the case of a map hung on the wall it is the top of the map that represents North and the bottom the South. To the right hand side of the reader lies east and to the left hand would be the west. Let us take an example to show how directions can be found out on the map. Suppose you are at Jabalpur to your due east would lie Ranchi in Bihar. Bhopal, Ujain and Gandhinagar all the three would be to your due west although at varying distances. Chennai would be to your due south whereas the Nanda Devi peak would be to the due north. From the same place i.e. Jabalpur, Gorakpur would be in due northeast; Lake Chilka to the due south east; Panaji to the due southwest and Jaipur to the due northwest.

Understanding areal hierarchy is yet another dimension of space. More practical example of it can be the hierarchy of administrative units. A village or a town is the lowest areal or administrative unit. Several villages put together makes a tehsil or taluk. A number of tehsils put together constitute a district. Several districts join hands to make a state. Several states (including Union Territories) make a country like India. Several countries like India, China, Maldives put together make a continent. And all the continents put together in turn make our big world.

Maps and Scales : Maps can never be drawn without a scale. A village map can be drawn as big as the black board in class. On the other hand map of the entire world can be drawn on a piece of paper only a 8 to 10 centimetres long and 5 to 6 centimetres wide. How can it be? This is done by choosing a scale. A village map in this case had chosen a large scale i.e. say 100 metres on the ground could be shown by only one centimetres on the map. But in the case of a world map a centimeter on the map may be equal to 5000 km on the ground. The scale is a ratio between the actual distance on the ground and its highly reduced but proportional distance on the map. Remember larger the scale smaller the area shown in the map and smaller the scale larger the area shown on the map.

Map have yet another very important quality. It can be highly selective in showing features or themes on the map unlike everything we see actually on the ground. For instance map may show only physical features like mountains, plateaus, plains and rivers. Or it may show the major roads and railway lines etc. These are shown by conventional symbols. This enhances the usefulness of a map.

- * Geography studies man in space.
- * The job of a geography teacher is to help child to conceive space in terms of distances, directions and map scales.
- * We in India use Metric system of measuring distances in millimetres, metres and kilo metres.
- * Directions are identified in relation to the sun, North star and Magnetic North.
- * Scale is a ratio between actual distances on the ground and its representation on the map.

INTEXT QUESTIONS 29.2

1. Fill in the blanks correctly from the list provided at the end:
 - i) We no more use our fingers, hands and steps to measure distances as they can not be _____.
 - ii) A fast walk along the road for about 10 to 12 minutes is enough to cover a distance of one_____.
 - iii) The flying time between Delhi and Mumbai is a little less than_____; whereas it is 8 hours between Delhi and_____.
 - iv) The travellers and navigators in the entire Northern Hemisphere could find the direction very accurately during clear nights with the help of the _____.
 - v) The top of the hanging wall map denotes the_____.

(List of words : kilometre; London; north; standardised; two hours, Pole Star)

2. Rearrange the following in a descending order i.e. from big to small :

(a) Continent, (b) Country, (c) District, (d) Home

(e) Province, (f) Tehsil, (g) Village, (h) World.

3. Write T against statements that are True and F against the False ones :

- i) You cannot and should not draw world map smaller than a village map.
- ii) The bottom of a map hanging on the wall indicates South.
- iii) The magnetic compass shows correctly only the magnetic north and not a true north.
- iv) Jabalpur in Madhya Pradesh lies to the west of Ranchi in Bihar, east of Gandhi Nagar in Gujarat, north of Chennai in Tamil Nadu and south of the Nanda Devi Peak in Uttar Pradesh.
- v) The sun shows the due east very accurately all through the year at all the places on the earth.

29.5 Identifying Relief Features and Water Bodies

Face of the land is not the same every where. It changes from place to place and region to region. At places there are vast stretches of land which are absolutely flat or level. Some large parts of the earth's surface sharply rise above the surrounding areas. At times, it appears as though large parts of plains have been lifted up abruptly from the surrounding areas. Let us therefore identify and describe a few land features.

Plains : There are vast tracts which are perfectly flat and level. Such low lying areas are called plains. Plains are generally made of soil brought down by river over the ages. At places, particularly in desert, plains may be made of sand interspersed with sand dunes i.e. hills of sand. Some times the plain can be rocky made of very old hard rocks. The Northern Plains, parts of Thar Desert and Konkan coastal strip are the example of the three type of plain respectively.

Plateaus are broad and relatively level areas rising rather abruptly from the surrounding areas. They are generally made up of rocks and have some what sharp or steep slopes. The Deccan and Malwa plateaus are examples of plateaus from our country. Plateaus are often enclosed by mountain ranges. Tibetan plateau is an example of such a high plateau.

Mountains are large areas of the earth's surface which rise very sharply far above the surrounding areas. The mountains consist of long ranges, ridges, peaks, passes and river valleys. The Himalayas are the tallest mountains of the earth. Their highest range is about 5000 to 6000 metres in altitude. The highest mountain peak of the world lies in the Himalayas in Nepal. It is nearly 9 km high (8848 metres) and is named Mount Everest. A natural gap in the mountain ranges is called a mountain pass. The Khyber pass in mountains of Pakistan is an example of mountain pass which was the gate way for people who migrated to India from Central Asia.

Water Bodies mountains, plateaus and plains are drained by rivers. The rivers flowing through mountainous areas flow very rapidly and with a great force. Often they cause waterfalls on their way before entering the plains. In the plains they flow leisurely in a some what zigzag manner. They form fertile river plains along their banks. Some rivers form deltas before they fall into the sea. The Ganga, Brahmaputra delta is the largest of its kind lying in India and Bangladesh. Some

rivers form estuaries where they fall in the Sea. The rivers Narmada and Tapi have formed such big estuaries. Some low-lying areas collect water from adjoining areas and they are known as lakes.

River, lakes and seas are the major water bodies on the earth's surface. Rivers are a source of fresh or potable water. Most of the lakes are sweet water lakes. Some lakes are however salt water lakes. Such lakes have no outlet and so they become salt lakes. Wular lake in Kashmir is a sweet water lake. Sambhar in Rajasthan on the other hand is a salt water lake and is used for reclaiming salt. Some lakes partly cut off from the sea are called lagoons. Chilka is a large salt water lake on the Orissa coast.

- * Mountains, Plateaus and plains are the major land features found on the earth.
- * Seas, rivers and lakes are the natural water bodies on the earth's surface.

29.6 Factors Determining Climate of a Place

Climate is a topic that calls for somewhat technical treatment. Many of its concepts are not suited to the comprehension level of students at the primary school stage. The present attempt is to provide some non-technical information to the prospective teacher on the one hand and also to provide some guidance to the teacher on how to initiate the topic to the students. For instance children may be posed with a problem of selecting a couple of places to be visited by them either in summer or winter vacation. Accordingly they would be required to choose their clothing and bed etc. Thus the topic can arouse sufficient interest to find out a climate of a place that can be expected just by consulting maps, at the most. The beginning with some explanation or elaboration of the world climate is necessary. Only very broad aspects of climate can be discussed at this stage.

Climate is a very broad term and includes many things. Of them only two things stand out very boldly. Firstly we must know how hot, warm or cold is a place, separately in summer and winter. For such a comparative study we use temperature figures expressed in degrees of Celsius. Secondly, we need to know how wet or dry the place is. In other words we want to know its rainfall expressed say in centimetres. We also have to know its rainy and dry months. Thus amount of rainfall and duration of rainy season are important for us to know.

Likewise, we have to confine ourselves to only major factors that determine the climate of a place. They are: (a) distance from the equator (b) distance from the sea; (c) height of a place above sea level as (d) winds and their direction.

(a) Distance from the equator : At the equator the rays of the sun strike the earth's surface perpendicularly during noon for the greater part of the year. Such perpendicular rays of the sun give greater amount of heat per unit area, as against places farther away from the equator, where the rays touch the surface obliquely. Therefore, a broad general rule is nearer the place to the equator the hotter it is likely to be. On the map, the distance of a place from the equator is easily found out from the degrees of latitude. For instance Madurai (10°N) in Tamil Nadu is likely to be hotter than Haridwar (30°N) in Uttar Pradesh all through the year.

(b) Distance from the Sea : The sea has a 'moderating' influence on the climate of the places closer to it. Closer the place to the sea more equable would be its climate and vice versa. The places with equable climates have moderate summers and mild winters. An equable climate is one where people can use the same

type of clothes all the year round. Farther away, the place from the sea more extreme would be its climate as they tend to be cut off from the moderating influence of the sea. They have very hot summers and equally very cold winters. Therefore the difference between summer and winters temperature would be marked. It is such an extreme type of climate people have to wear different types of clothes in summer and winter. For instance Surat (21°N) and Nagpur (20°N) are almost at the same distance from the equator. While Surat being on the sea shore experiences equable climate. Nagpur has an extreme type of climate where both winter and summer are extreme. People in Nagpur, unlike those in Surat, require cotton wears in summer and woollens in winter.

(c) Height above the Sea Level : The height of a place above the sea level has a profound effect on the climate. For instance Calicut (Kozhikode) and Ooty (Udagamandalam) are at the same distance from the equator. Even the distance between the two places is not much. However, Calicut enjoys equable climate throughout the year, whereas Ooty has become the most popular hill resort of the south as it has very cool summers and cold winters. This is because the latter is 2500 metres above sea level. In North India, Ferozepur and Shimla are also equidistant from the equator. But Ferozepur is very hot in summer whereas Shimla is cool and people from the plains rush there to spend summers in cool climate. In autumn and winter, very often it snows in Shimla. This is because Shimla is nearly 2500 metres above sea level. But in Ferozepur it never snows.

(d) Winds and Their Direction : The rainfall of a place often depends on the winds and their direction. The winds originating from sea carry considerable moisture with them. Places lying on the way of such moist winds receive fair amount of rainfall. If such places are in the hills and mountains and have high altitude, they receive very heavy rainfall. In India, the southwest monsoon are such rain bearing winds. They flow from the sea to the land for varying durations. That is why the duration of the rainy season in India varies from region to region. In Thiruvananthapuram they bring rains for seven months from June to December. In Chennai the southwest monsoons are less effective, as they have little moisture left by the time they reach Chennai. But during October and November, the winds blowing from the Bay of Bengal bring very heavy rains. Thus Chennai has heavy rains when most parts of India have little rainfall. In India, during the winter season in most parts the winds are land bearing and hence without moisture. This is why in India winters are generally fine and dry.

- * While describing the climate of a place in India the two most significant factors to be taken into account are : (a) temperatures and their annual range; (b) rainfall, its amount and distribution over a year.
- * (i) Distance from the equator, (ii) Distance from the sea; (iii) Height above sea level; and (iv) Winds along with their direction are the most significant factors determining the climate of a place.
- * Other things being equal, nearer the place to the equator, the hotter it is likely to be.
- * Farther away the place from the sea more extreme would be its climate.
- * The higher the altitude of a place the colder it is likely to be.
- * The rainfall of most places in India depends upon the direction of the moisture laden winds.

INTEXT QUESTION 29.3

1. Give one word for each of the following :

- i) Broad and relatively level areas rising rather abruptly from surrounding areas.
- ii) Large areas of the earth's surface rising very sharply far above the surrounding areas.
- iii) Featureless, vast low-lying level areas.

2. Make correct pairs columns.

- | | |
|-------------------|---------------------|
| i) Chotanagpur | a) Coastal Plain. |
| ii) Chilka | b) Delta |
| iii) Himalayas | c) Estuary |
| iv) Khyber | d) Lagoon |
| v) Malabar | e) Mountain |
| vi) Mount Everest | f) Mountain Pass |
| vii) Narmada | g) Mountain Peak |
| viii) Sambhar | h) plateau |
| ix) Sundarbans | i) Salt Water Lake. |

3. In the first column are given places with certain climatic contrasts and in the other are named the significant factors determining climatic characteristic. Make out correct pairs from the two:

- | | |
|--------------------------|-----------------------------|
| a) Haridwar - Madurai - | (i) Height above sea level |
| (b) Chennai - Mumbai | (ii) distance from the sea |
| (c) Ferozepur - Shimla - | (iii) Distance from equator |
| (d) Surat - Nagpur - | (iv) Wind direction |

29.7 Land Use and Occupations of Man

Peoples all over the world put their lands to different uses. Many countries of the world are fortunate enough to leave a very large proportion of their total land area under forests. For instance, Russian Siberia, Canada, Scandinavian countries of Europe, Brazil and the Congo (Zaire), Eastern Malaysia, Japan and Northern Territory of Australia, New Guinea etc have large forest land. The land under forests in Canada is equal to the total area of India. In India now only 12% of the area is really under forests, although 19% of the land is owned by forest departments.

Some countries have still very large part of their lands under pastures. Countries like Australia, South Africa, East African countries, Argentina, Brazil, the U.S.A., West European countries, Ukraine, Russia and central Asia have large parts under

pastures where animals are reared for their meat, milk, wool etc.

The third and most significant use of land is to put it under cultivation. India was once a land of forests. Today a little more than half of its land is put under the plough. It is called land under cultivation. With growing population land under forests and pastures is being brought under the plough disturbing ecological balance. Some marginal cultivable land is periodically left fallow to restore its moisture and fertility. In addition there is some areas that can be brought under cultivation. It is called cultivable wastes.

Then there is a large area which is called built up area. It includes areas meant for residential purpose and those areas put under roads, factories, airports etc. Lastly there are vast areas which are wasteland being deserts - hot and cold.

Occupation of Man : Human occupation can broadly be divided into primary, secondary and tertiary occupation.

Primary Occupation : *Collecting, gathering, fishing and hunting* have all been the oldest occupations of human beings. Since most land was under natural forests, collecting and gathering forest products, fuel wood, timber have been in vogue for centuries. It included collection of gum, resin asaffoetida etc. as minor forest produce.

Now a days *forestry and lumbering* have become highly scientific and also mechanised industries. Very large forest areas are cleared each year. In some parts, their re-afforestation is being undertaken. Rubber plantation is an example of highly scientific and a large scale commercial undertaking.

Fisheries too have now been highly modernised. This is particularly so in deep sea fishing. The whaling ships catch whales and process them for marketing in their floating factories thousand of kilometres away from home. The old hunting activity is no more economic today as little wild life is left.

Animal breeding, grazing and rearing is yet another basic human occupation. This started naturally in areas dominated by pastures. Taming of animals like poultry, cattle, buffaloes, sheep, goats, horses, camels, yaks, reindeer and alpaca or llama was a turning point in man's progress or civilization. Now animal breeding for meat, milk, other milk products, wool, hides etc has become a highly scientific pursuit. Through cross fertilisation, improved strain are developed for different specific purpose. Certain cattle breeds are developed to have higher yield of meat per animal. Other are bred to increase yield of milk per milch animal.

The invention agriculture was the greatest break through for the humans. It made settled life possible for man by raising crops again and again in the same piece of land. Today agriculture is a highly diversified activity. It is being pursued more vigorously on commercial and scientific lines making best possible use of land. Cereals, pulses, vegetables, fruits, beverages like tea and coffee, fibres, like cotton and jute, tobacco and rubber are produced on a very large scale and by constantly improving yield per unit land. New high yielding varieties or hybrids are being developed on a continuing basis. More and more land is being brought made irrigation, increasing there gross area under cultivation. Manures and fertilisers are used on a large scale. Pesticides are also used widely. Very often there are bad side effects of these new technologies and need our constant attention to

overcome them.

Yet another basic or primary occupation of man has been mining and drilling. Prospecting minerals, their mining and drilling, smelting and refining have today become highly technical activities. Mining mineral ores led to the use of copper and iron on a big scale. They helped to make tools, and utensils. Mining coal, drilling mineral oil and refining petroleum's products have all changed our life ushering in a new industrial era.

So far we discussed all the primary occupation of man. Now we come to secondary occupations, where primary products like minerals are turned into metals, tools, implements and huge and highly efficient machines. So all the manufacturing industries fall in this category similarly, agricultural primary products are now being converted into secondary products on a large scale e.g. cotton turned into cloth or garments, sugarcane into sugar, animal fibres into fine silks and woollens.

Lastly we come to the third type of occupations. They include providing services like health, education, transport, communication, banking, insurance, entertainment and the like. They are called tertiary sector of human activity or tertiary occupation.

- * Land use is generally classified under the heads of forestland, pastures, farmland, fallowland, cultivable waste, built up area and wasteland.
- * Gathering, hunting, fishing, lumbering, animal rearing, farming and mining are the basic human occupation and come under primary industries.
- * Manufacturing goods from agricultural and mineral raw materials come under secondary industries or secondary occupation.
- * Rendering services like health, education, transport communication, trade and commerce, insurance and entertainment fall under tertiary occupation.

INTEXT QUESTIONS 29.4

1. Fill in the blanks from the alternatives provided :

- i) India has about——% of land under forests.(12%/33%).
 - ii) India has very little land under———. (cultivation/pasture)
 - iii) Land under cultivation in India is about———% (50%/25%).
 - iv) Bringing forestland and pastures under the plough——— ecological balance.(promotes/disturb)
 - v) Irrigation in India largely adds to——— cultivable area.(gross/net)
-

2. Name the three types of occupation of man :

1 _____ 2 _____ 3 _____

29.8 Natural Resources-Their Development and Conservation

Natural resources are gifts of nature. They include soil, water, natural vegetation, wildlife including fish, livestock and minerals. Man uses them either directly or by turning them into utilities i.e. articles of daily use. Even inexpensive things like stone, pebbles, gravel or sand become natural resources when they are used for building houses, roads or dams etc. By doing so man adds to their value, and thus he produces wealth. New or additional uses of resources enhance their demand and so their price or value. More scarce a resource becomes, the greater becomes its value. Natural resources also gain in value, when viable technologies are developed to make their optimum use. Solar and atomic energy are the examples.

Some natural resources are renewable. For instance, potable water, fish, natural vegetation and livestock are renewable resources. On the other hand all minerals and mineral fuel are exhaustible. Once they are mined or used, drilled and used they are lost for ever. This is why tremendous increase in use of coal, mineral oil and natural gas are fraught with danger. Hence, they need to be used with great care avoiding their wastage. On the other hand, water power, solar and wind energy are not only inexhaustible but also free from pollution.

29.9 Soils Our Prime Resource

Soil is the prime resource of man. The human civilization grew only when man learnt to cultivate soils and grow crops. For several centuries in India, crops after crops have been raised year in and year out. In some places two or even three crops are grown from the same field in a single year. In the process soils get exhausted as their nutrients are depleted. They, therefore, need to be fed continually with green manures and bio-fertilisers. The large scale use of chemical fertilisers and insecticides have reached a dangerous proportion. They have been affecting soils and polluting surface and ground water.

Soils take long time to develop and mature. A layer of soils of about 2 centimetres deep, under ideal conditions may take a thousand years or so to develop. But such a fertile soil can be washed away even in a couple of years time. Therefore, proper bunding, plantation of grasses and shrubs particularly on slopes is necessary. Soil conservation also promotes conservation of water. Therefore, fields in undulating lands should not be ploughed up or down to slope; but they need to be ploughed across the slopes, i.e. along the contour lines. More than one crop may be grown in a single field. Leguminous crops should be grown to restore nitrogen in soil. Crops need to be grown in rotation over the same field.

In India there are two main agricultural seasons. They are *kharif* and *rabi*. The crops of the *Kharif* season are sown soon after the onset of southwest monsoon i.e. in the months of June and July. These *kharif* crops are ready for harvest by late September or October. This is followed by *rabi* season in which sowing operation is completed in November. April and May are the harvesting months. *Holi* and *Baisakhi* coincide with the harvesting of *rabi* crops.

Kharif crops mainly include rice, millets or coarse grains like jawar (sorgum), bajra (pearl millet) and ragi (finger millet), groundnut, sugarcane, cotton, jute and pulses. Rabi crops are mainly wheat, mustard and rapeseed, gram and in some parts even rice is also grown in this season.

In India, cultivable land being scarce and pressure of population has been continuously on increase, the gross sown area is increased by bringing more land under irrigation. In kharif season irrigation water supplements rains to save crops and increase their yield. Crops like sugarcane are grown only under irrigation because they require abundant water. Even crops like cotton when grown under irrigation waters their yield increases handsomely. Too much of irrigation also turns soils saline and unproductive. The old method of flooding fields with irrigation water is wasteful and often counterproductive. Hence new methods based on experiments have shown that much more land can be gainfully brought under irrigation throughout the year by savings of water. These new methods are known as sprinkle irrigation and drip irrigation. Water in India has become a scarce commodity. Its wise use is imperative and in our own interest.

- * Natural resources are gifts of nature which the man uses to earn his living.
- * Man adds to the value of a natural resource by converting it into an article of utility (e.g. wood turned into a chair) and in the process he creates wealth.
- * While natural resources like water, forests and livestock are renewable, the others, particularly the mineral and mineral fuels are exhaustible.
- * Soil is our prime resource and needs to be properly conserved.
- * Water becoming scarce, it needs to be used with utmost care.

INTEXT QUESTIONS 29.5

1. Write T against statements that are True and F against the False ones.:

- i) Natural resources can be used both directly and indirectly i.e. after transforming them into a utility.
 - ii) Atomic minerals became valuable only when the technology to split atom under controlled conditions was developed.
 - iii) A natural resource when becomes scarce it loses its value automatically.
 - iv) Water used for city supply, irrigation and hydro- electricity is exhausted forever.
 - v) Flooding fields with irrigation water is a time-tested practice needing no modification in order to increase yield per hectare.
 - vi) While all pulses are kharif crops, the oilseeds invariably belong to the rabi season.
 - vii) Inadequate supply of irrigation water tends to turn soils saline and unproductive.
-

WHAT YOU HAVE LEARNT

After going through the lesson you must have learnt now elementary concepts of geography need to be introduced carefully and systematically to young learners bit by bit, provided you the teachers themselves are clear about them. You must have seen how various physical phenomena keep themselves repeating endlessly in a cyclic fashion-be it day and night, fortnights and months or seasons and years not including your birthday anniversaries. These physical phenomena help us in measuring or recording time. You must have seen how children can be helped to comprehend and imagine long distances, identify directions and use map scales. You may also now be able to help children to distinguish between various physical or relief features on the earth's surface. You must have learnt to describe very briefly climate of different places and the factors determining the same. You have also studied the distinction among the primary secondary and tertiary human occupations along with their examples. You may be able to define natural resources and state their importance, use and the need for their conservation. You must have also learnt how important is soil for all of us, the ways of its cultivation and the need for their conservation.

TERMINAL QUESTIONS

1. Describe how day and night are caused; and name different parts of the day in sequence starting from and ending with mid-night.
 2. What causes a month? Which are its two major components?
 3. Divide a year into seasons and name a few Indian seasonal festivals.
 4. How would you help child to comprehend very long distances? Give suitable examples.
 5. State three different ways in which directions can be identified.
 6. Draw a dial of a magnetic compass; Name and label eight directions correctly.
 7. Explain the term scale and its usefulness in preparing maps.
 8. Distinguish between plain, plateaus and mountains as relief features.
 9. Which are the two very important components of climate? With their help compare very briefly climates of Trivandrum and Delhi.
 10. Elaborate on four factors determining the climate of a place by taking concrete examples.
 11. Summarise inter-relationships between use and the basic occupations of man.
 12. What makes agriculture the most significant human occupation?
 13. Define natural resources and explain how man converts them into wealth.
 14. Compare renewable and non-renewable sources of energy.
 15. Why is soil called the prime resource of man? Focussing on how to do it.
-

elaborate the following statement. "Soils need to be tendered carefully and conserved scrupulously."

16. Select some elementary concepts of Geography and name the methods that you would follow in teaching those concepts to primary school children.
17. Prepare a teaching unit based on illustrations used in a primary school textbook (in social studies) to explain some basic concepts to children you may use the accompanying sample teaching unit (Appendix - I page 67 to 70) for guidance.

CHECK YOUR ANSWERS

INTEXT QUESTIONS

29.1

- (i) rotation (ii) summer; (iii) fortnight; (iv) revolution; moon; earth. (v) year (vi) waxing moon.
- (i) -c; (ii) -a; (iii) -e; (iv) -b; (v) -d;

29.2

- (i) standardised; (ii) kilometre; (iii) two hours; (iv) London. (v) North.
- (h) - (a) - (b) - (e) - (c) - (f) - (g) - (d)
- (i) F; (ii) T; (iii) T; (iv) T; (v) F.

29.3

- (i) Plateau; (ii) Mountain; (iii) Plain.
- (i) -h; (ii) -d; (iii) -e; (iv) -f; (v) -a; (vi) -g; (vii) -c; (viii) -i; (ix) -(b).
- (a) - (iii); (b) -(iv); (c) -(i); (d) -(ii).

29.4

- (i) 12%; (ii) Pastures; (iii) 50%; (iv) disturbs; (v) gross.
- (i) Primary (ii) Secondary (iii) Tertiary

29.5

- (i) T; (ii) T; (iii) F; (iv) F; (v) F; (vi) F; (vii) F.

TERMINAL QUESTIONS

- See 29.3 Para 4 and 5.
- See 29.3 Paragraph heading-weeks, Fortnights and Month
- See 29.3 Last but one and two paragraphs.
- See 29.4 Para 3 and 4.
- See 29.4 Under the Head Directions Para 1 to 4.
- See 29.4 Last Para under Directions.
- See 29.4 Para Head maps and scales.
- See 29.5 Para 2,3 and 4.
- See 29.6 Para 2.
- See 29.6 Paras (a), (b), (c) and (d)
- See 29.7 Para 1,2, and 3.
- See 29.7 Para under "Invention of Agriculture".
- See 29.8 para 1
- See 29.8 Para 2
- See 29.9 para 1 and 2.
- See lesson 28 & 29.
- See (Appendix 1 pages 67 to 70)