

APPENDIX 'C' 1

LESSON PLAN

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Class IX

Name of the Unit : The Gangetic Plain

Lesson No.1 : General Introduction

Strategy 1 : Lecturing and Questioning-Answering

Teacher Lecturing : The whole of North India in the South of (T.L.) the Himalayas is an extensive plain. The middle portion (with the exception of some portions in the east and west) is called the Gangetic plain. This plain extends from the western limits of the R. Jamuna to the eastern limit of West Bengal, the length being 1225 kilometers. The average width is from 200 to 400 kilometers and the total area is 3.5 lakh sq.kilometers. (Specifies the extent of the region in the map) and writes down the extent on the blackboard).

Teacher Questioning : Could you tell me why is it called the (T.Q.) Gangetic plain ?

Pupil Answering : As the river Ganges flows through this (P.A.) region.

T.Q. : Why is it said that the region is 'the gift of the Ganges' ?

P.A. : The region is much developed due to the influence of the River Ganges.

T.D. : Yes, 10% of the total area of India falls under this region, while 35% of the total population of the country lives in this region and depend for their means of living on the direct and indirect influences of this river, that is why this region is called 'the gift of the Ganges'.

Teacher shows the map.

- T.Q. : Tell me the direction from which the Ganges is flowing.
- P.A. : It is from the north.
- T.Q. : What is a tributary ?
- P.A. : Confuses with distributary.
- T.L. : Tributaries are the rivers originating from different regions but joining the main stream. Distributaries are the branches of the main stream in the lower stage of the original course when, because of some obstacles of one kind or other, it has to follow different directions.
- T.Q. : Now show me the righthand tributaries of the Ganges.
- P.A. : River Jamuna is the main righthand tributary of the Ganges. Other worth-mentioning righthand tributaries are Son, Damodar, Mayurakshi, Rupnarain etc.
- T.Q. : Tell me now the names of the lefthand tributaries.
- P.A. : Gomati, Gagra, Gandak and Kosi.
- T.Q. : Now tell me the names of the distributaries of the Ganges, from the map itself.
- P.A. : Vidyadhari, Saraswati, Kunti and Behula.
- T.L. : The Gangetic plain has been divided into three regions, upper, middle and lower.
- T.Q. : Could you tell me which one among the regions is having the extreme type of climate ?
- P.A. : Tries to guess the answer
- T.Q. : Well, why is this region having an extreme type of climate ?

- P.A. : Silent
- T.L. : The western region, that is, the upper gangetic plain, which experiences the most extreme type of climate. Maximum temperature is recorded in this region, range of temperature gradually decreases towards east. The rainfall available in the whole Gangetic plain is due to monsoon wind. Highest rainfall is recorded in the lower Gangetic Valley, specially in the foothill regions.
- T.Q. : Could you tell me asto why the highest amount of rainfall is recorded in the lower Gangetic Valley ?
- P.A. : As it is in the south.
- T.L. : Yes, But asto the southwest monsoon wind originates from the Bay of Bengal and passes initially through the lower Gangetic region, much of the moisture condenses and is exhausted in the form of rainfall.
- T.Q. : Could you tell me about the type of natural vegetation here ?
- P.A. : Silent.
- T.L. : The natural vegetation of the whole region has almost exhausted due to human activities and concentration of population occasionally deciduous trees are found. Grasslands are very few and also of inferior type. But the agricultural wealth is incomparable.
- T.Q. : Could you tell me asto why this region is so much developed in agricultural activities ?
- P.A. : Most probably due to the nature of the land.
- T.L. : Ofcourse it is because of the fertility of the soil; but favourable climate and irrigational facilities available here are also factors to be considered.

(continued)..

- : : The staple food crops grows here are wheat in the upper, rice in the lower and both rice and wheat in the middle Gangetic plains. Sugar cane and cotton are the cash crops of the western region and jute is of the eastern region. Cow, Buffalo, goat and sheep are the principal animals found here.
- T.Q. : Could you tell me what should be the nature of industries in this region ?
- P.A. : Silent.
- T.L. : As agriculture is very much developed here many agriculture - based industries have developed here.
- T.Q. : Now tell me the names of agriculture-based industries.
- P.A. : Jute, cotton textile, sugar etc.
- T.L. : Communication is very much developed in this region. Amenities of life are very easily available over here. Density of population is 400-500 persons per sq.km.
- T.Q. : Could you tell me asto how this plain has had developed ?
- P.A. : Most probably due to the alluvium carried by the river and its tributaries.
- T.L. : Right, but the region has a long history of its origin. Even after the orogenesis of the Himalayas there was a deep through in the south of this range. For millions of years (almost 15 lakhs of years) the Ganges and its tributaries have had deposited alluvium and gradually filled in the through, which has later become the great plain of North India. The depth of alluvium is maximum in the north decreasing gradually towards S.E. Sometimes rocks are not found even at the depth of 300 meters. It is an ideal plain, the altitude of which is 300 meters in the northwest, gradually merging into the sea level in the south east.
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APPENDIX 'C' 2

LESSON PLAN

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Class IX

Name of the Unit : The Gangetic Plain

Lesson 1 : General Introduction

Strategy 2 : Lecturing and Questioning-Answering
by using Behavioural Objectives (prior
to Instructions).

Step I : Teacher supplies the Behavioural objectives
in printed form to the pupils as follows.

My dear students, I would expect that at the end of
this lesson you would be in a position to :

1. indicate and write the extent of the Gangetic plain and show it in the map.
2. explain the influence of the Gangetic plain.
3. state and write the names of atleast five tributaries of the region and draw them on the map
4. name the different portions of the Gangetic plain
5. state and explain the fundamental climatic differences of the three subdivisions of the region
6. advance at least a couple of reasons for the differences in natural vegetation of the three subdivisions of the region
7. indicate the name of at least one food-crop and one cash-crop of the region and give reasons for agricultural prosperity.
8. state the reason of the origin of the Gangetic plain
9. present at least three solutions in the context of new situation.

Step II : Teacher allows specified time for going through those objectives and instructs pupils to follow the lesson on the basis of objectives given.

Teacher : The whole of North India in the South of the Himalayas is an extensive plain. The middle portion (with the exception of some portions in the east and west) is called the Gangetic plain. This plain extends from the western limits of the R. Jamuna to the eastern limit of West Bengal the length being 1225 kilometers. The average width is from 200 to 400 km. and the total area is 3.5 lakh sq. km. (Shows the extent of the region in the map and writes down the extent on the blackboard) (Tr. draws the attention to objective no.1.)

T.Q. : Could you tell me why is it called the Gangetic plain ?

P.A. : As the river Ganges flows through this region.

T.Q. : Why is it said that 'the region is' the gift of the Ganges' ? (Tr. draws the attention to objective no.2)

P.A. : The region is much developed due to the influence of the River Ganges.

T.L. : Yes, 10% of the total area of India falls under this region, while 35% of the total population of the country lives in this region and depend for their means of living on the direct and indirect influences of this river, that is why this region is called 'the gift of the Ganges'.

(Tr. develops and establishes objective no.2)

Teacher shows the map.

T.Q. : Tell me the direction from which the Ganges is flowing.

(Tr. reinforces the Obj. No.1)

P.A. : It is from the north

T.Q. : What is a tributary

P.A. : Confuses with distributary

T.L. : Tributaries are the rivers originating from different regions but joining the main stream. Distributaries are the branches of the main stream in the lower stage of the original courses when, because of some obstacles of one kind or other it has to follow different directions.

- T.Q. : Now show me the righthand tributaries of the Ganges.
(Tr. draws the attention to objective no.3).
- P.A. : River Jamuna is the main righthand tributary of the Ganges. Other worth-mentioning righthand tributaries are Son, Damodar, Mayurakshi, Rupnarain etc.
- T.Q. : Now tell me the names of the lefthand tributaries.
(Tr. draws the attention to objective No.3)
- P.A. : Gomati, Gagra, Gandak and Kosi.
- T.Q. : Now tell me the names of the distributaries of the Ganges, from the map itself.
- P.A. : Vidyadhari, Saraswati, Kunti and Behula.
- T.L. : The Gangetic plain has been divided into three regions, upper, middle and lower.
(Tr. develops obj. no.4.)
- T.Q. : Could you tell me which one among the regions is having the extreme type of climate.
(Tr. draws attention to obj. no.5.)
- P.A. : Tries to guess the answer.
- T.Q. : Well, why is this region having an extreme type of climate ?
(Tr. draws attention to objective no.5).
- P.A. : Silent.
- T.L. : The western region, that is, the upper Gangetic plain, which experiences the most extreme type of climate. Maximum temperature is recorded in this region, range of temperature gradually decreases towards east. The rainfall available in the whole gangetic plain is due to monsoon wind. Highest rainfall is recorded in the lower Gangetic Valley, specially in the foothill regions. (Tr. draws attention to objective no.5.)
- T.Q. : Could you tell me as to why the highest amount of rainfall is recorded in the lower Gangetic Valley ?
(Tr. draws attention to objective no.5).
- P.A. : As it is in the south.
- T.L. : Yes, But the southwest monsoon wind originates from the Bay of Bengal and passes initially through the lower Gangetic region much of the moisture condenses and is exhausted in the form of rainfall.
(Tr. draws attention to obj. no.5.)

- T.Q. : Could you tell me about the type of natural vegetation here ?
(Tr. draws attention to obj. no.6)
- P.A. : Silent
- T.L. : The natural vegetation of the whole region has almost exhausted due to human activities and concentration of population. Occasionally deciduous trees are found. Grasslands are very few and also of inferior type. But the agricultural wealth is incomparable. (Tr. draws attention to obj. no.6)
- T.Q. : Could you tell me asto why this region is so much developed in agricultural activities ? (Tr. draws attention to obj. No.7)
- P.A. : Most probably due to the nature of the land.
- T. : Of course it is because of the nature of land; but favourable climate and irrigational facilities are also available over here.
The ¹stape food crops grown here are Wheat in the upper, Rice in the lower and both rice and wheat in the middle Gangetic plains. Sugar cane and cotton are the cash crops of the western region and jute is of the eastern region. Cow, buffalo, goat and sheep are the principal animals found here.
(Tr. draws attention to obj. no.7).
- T.Q. : Could you tell me what should be the nature of industries in this region ?
- P.A. : Silent
- T.L. : As agriculture is very much developed here many agriculture based industries have developed here.
- T.Q. : Now tell me the names of agriculture-based industries.
- P.A. : Jute, cotton, textile, sugar etc.
- T.L. : Communication is very much developed in this region. Amenities of life are very easily available over here. Density of population is 400-500 persons per sq.km.
- T.Q. : Could you tell me asto how this plain has had developed ? (Tr. draws attention to obj.no.8)
- P.A. : Most probably due to the alluvium carried by the river and its tributaries.

- T.L. : Right, but the region has a long history of its origin. Even after the orogenesis of the Himalayas there was a deep t~~h~~rough in the south of this range. For millions of years (almost 15 lakhs of years) the Ganges and its tributaries have had deposited alluvium and gradually filled in the t~~h~~rough, which has later become the great plain of North India. The depth of alluvium is maximum in the north decreasing gradually towards S.E. sometimes rocks are not found even at the depth of 300 meters. It is an ideal plain, the altitude of which is 300 meters in the northwest, gradually merging into the sea level in the south east. (Tr. develops obj. no.8).
- T.Q. : Suppose, the alluvium had not deposited in the t~~h~~rough, what might have been the possible consequences?
- P.A. : Silent (Tr. draws attention to obj. no.9)

Teacher instructs to find out ~~the~~ some solutions of this problem on the basis of the objectives clarified already to them.

APPENDIX 'C' 3

LESSON PLAN

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Class IX

Name of the Unit : The Gangetic Plain

Lesson No.1 : General Introduction

Strategy III : Discussion by using Instructional
Materials (Maps, guidelines and
textbook).

Content Overview

General Description : The whole of North India in the South of the Himalayas is an extensive plain. The middle portion (with the exception of some portions in the west and east) is called the Gangetic Plain. This plain extends from the western limit of the River Jamuna to the eastern limit of West Bengal, the extent being 1225 kilometers, the average width between 200 and 400 km. and the total area being 3.5 lakhs sq.km. Though it occupies 10% of the total area of India, 35% of the total population lives here. All of them depend for their living on this plain. This region is the 'Gift of the Ganges' that is why, it is called the Gangetic Plain.

Direction and Tributaries of the Ganges : The Ganges has entered into the plain stage near Hardwar and has flown towards Allahabad in south-east direction. Here the most important tributary R. Jamuna has joined the Ganges. After Allahabad it flows directly to the east near Rajmahal. Here Bhagirathi, one branch of the Ganges flows through West Bengal to the south while R. Padma, the other branch (actually the main-stream) with much volume of water is flowing towards southwest through Bangladesh.

The left hand tributaries of the Ganges are Gomati, Gagra, Gandak, Kosi and the righthand tributaries are Jamuna,

Son, Mayurakshi and Rupnarain.

Climate : In summer, the western part becomes very hot while it is somewhat less in the eastern region. Monsoon wind brings rainfall to the whole region, while foothill regions of the Himalayas in the lower Gangetic Valley receive the heaviest amount of rainfall. Amount of rainfall decreases gradually as one proceeds towards west. Winter temperature is higher in the eastern region.

Natural Vegetation : Natural vegetation of the whole region has practically ceased to exist. But deciduous trees are seen here and there. Grassland is not found much, whatever found, is also of inferior quality.

Agriculture : Agricultural resources are many here. Among foodcrops wheat in the west, wheat and maize in the middle and rice in the east are grown; among cash crops, sugarcane and cotton are grown in the west and jute in the east.

Animals : Cow, buffalo, goat and sheep are the useful and principally available animals of this region.

Industry : Agricultural industries like jute, cotton, sugar etc. are very much important. Leather industry also occupies an important position.

Communication : Communication system is quite developed in this region.

Population : As all amenities of life are easily available here density of population is very high being 400 to 600 persons per sq.km.

Origin and Evolution of the Region : Even after the orogenesis of the Himalayas, there was a deep trough in the south of this range. For millions of years (almost 15 lakhs of years) the Ganges and its tributaries have had deposited alluvium and gradually filled in the trough, which has later become the great plain of India. The depth of alluvium is maximum in

north decreasing gradually towards S.E. Sometimes rocks are not found even at the depth of 300 meters. It is an ideal plain, the altitude of which is 300 meters in the west, gradually merging into the sea level towards south-east.

Step I - Teacher distributes cyclostyled maps to each student.

Step II- Teacher provides the following guidelines to the students so that they may prepare themselves for participating in the discussion.

Guidelines of Study

- Point 1. Find out the extent, boundary, area etc., by using wall-map, cyclostyled map and your text book.
- " 2. Find out the direction of flow, tributaries, distributaries and the names of the different parts of the river Ganges.
- " 3. What assumptions could be made about the climate of this region ?
- " 4. On the basis of previous assumptions, what could be said about the agriculture and natural vegetation of the region ?
- " 5. Try to find out the nature of economic activities, communication and density of population.
- " 6. Note down two relevant points regarding the origin of the Gangetic plain.

Step III - Allowing specified time for preparing these points.

Step IV - Dividing class into groups.

Step V - Discussion starts with the following plan

Point 1, Group 1 ; Point 2 Group 2 ; Point 3 Group 1;
Point 4. Group 2 ; Point 5 Group 1 ; Point 6 Group 2.

Teacher Q. : Anybody from Group 1, please try to give an idea about the first point. Members from other group may raise questions if the things are not clear to them. All of you should try to participate in the discussion to make the lesson successful.

P₁G₁ : Gives the area, and boundary of the Gangetic plain.

T.Q. : Are the informations correct ?

P₁G₂ : He did not mention the extent of this region.

P₂G₁ : Mentions the extent of the region.

Teacher : Notes the relevant points on the blackboard
Activity: and instructs to take them down.

T.Q. : Now anybody in group '2', please try to relate the second point. But before giving the names of tributaries and distributaries you should explain these terms.

P₂G₂ : Tries to define, but confused.

T.Q. : Anybody from Group '1', who can do it ?

P₃G₁ : Tries to define, but confused.

Tr.Acty.: Draws the diagram and then asks the students to differentiate.

P₄G₂ : Tributaries are joining the main stream while the branches of the main stream are called distributaries.

T.Q. : Now tell me the names of the tributaries and the distributaries of the Ganges.

P₅G₂ : Names Jamuna, Son, Gomati, Gagra, Gandak, Kosi.

T.Q. : (To the other Group) Is the list complete ?

P₄G₁ : No, names of Damodar, Mayurakshi, Rupnarain, the right hand tributaries have not been mentioned.

Tr.Acty.: Shows all the tributaries on the map and writes down the names on blackboard and instructs pupils to verify the list.

T.Q. : (To Group G₂) What are the names of the distributaries?

P₅G₂ : Bhagirathi is the distributary of the Ganges and Vidyadhari, Kunti, Behula, Saraswati are the distributaries of Bhagirathi (Hooghly).

- G.Q. (to G₂) : What assumptions have you made regarding the climatic conditions of this regions ?
- P₆G₂ : It is hot and humid.
- T.Q. : (to another P) : What more ?
- P₇G₂ : It belongs to monsoon type of climate.
- T.Q. : (to another P) : If you divide the Gangetic region into upper, middle and lower Gangetic plains, which region will have the maximum temperature and which region will receive the highest rainfall ?
- P₈G₂ : Confused.
- T.Q. to G₁ : Anybody from the other group ?
- P₅G₁ : It is in the western region.
- T.Q. : (to the whole class) - Is it correct ?
- P₆G₁ : It is the lower Gangetic plain.
- T.A. : Both the answers are partly correct, that is, in the upper Gangetic region, temperature is maximum and in the lower Gangetic plain rainfall is maximum, specially in the foothill regions of the Himalayas.
- T.Q. to G₂ : What should be the nature of vegetation here ?
- P₈G₂ : Deciduous trees and some grassland.
- T.Q. to G₂ : 'Natural vegetation has almost been exhausted in this region,' How could you justify this ?
- P₉G₂ : Because of extensive agriculture.
- T.Q. : (to another pupil) : Try to elaborate the point.
- P₁₀G₂ : As climate and physiography allow people to settle here, people have cleared off the trees.
- T.Q. to G₁ : 'Agricultural resources are in plenty in this region' How can you substantiate this statement ?
- P₇G₁ : It is also for climatic and physiographic factor.
- T.Q. : (to another P) : Try to elaborate.
- P₈G₁ : Confused.
- T.A. : As the rainfall, temperature and soil conditions are favourable and the land is quite fertile different types of crops can be grown here.

T.Q. to G₂ : What do you understand by cash crop and staple food crop ?

P₁₁G₂ : Confused.

T.A. : Rice, and wheat are staple food crops while sugarcane, cotton and jute are cash crops of this region. Rice and jute are grown in the lower Gangetic region, wheat, sugarcane and cotton are grown in the upper Gangetic region and wheat maize and rice are grown in the middle of Gangetic plain.

T.Q. to G₂ : Which animals are found here ?

P₉G₂ : Cow, buffalo, goat, sheep etc.

T.Q. to G₁ : Could you give the names of some industries ?

P₉G₁ : Cotton textile, sugar, jute.

T.Q. (to another pupil) : Could you suggest a name for these industries ?

P₁₀G₁ : Silent

T.Q. to G₂ : Same question

P₁₁G₂ : Silent

Teacher : All could be grouped as agricultural or agriculture-based industries because all these are supplied with raw materials from agriculture.

T.Q. G₂ : 'Communication is quite developed in this region' . Could you give some reasons Thereof ?

P₁G₂ : As it is a plain region it is convenient to construct roads and railways.

T.Q. to G₁ : What should be the nature of population here ? Try to answer keeping in view the mountainous region you have already studied.

P₂-G₁ : Density of population will be more as facilities and amenities are much more over here.

T.Q. to G₂ : Could you give an idea about the origin of this region ?

P₁G₂ : Silent.

T.Q. to G₁ : Same question.

P₃G₁ : Silent

T.A. : Even after the orogenesis of the Himalayas there was a deep trough in the south of these mountain ranges. For millions of years (almost 15 lakhs of years) the Ganges and its tributaries have deposited alluvium and gradually filled in the trough which has later become the great plain of India. The depth of alluvium is maximum in the north decreasing gradually towards S.E., Sometimes rocks are not found even at the depth of 300 meters. It is an ideal plain, the altitude of which is 300 meters in the west gradually merging into the sea level towards south east.

Teacher Activity : Gives summary of the whole discussion.
