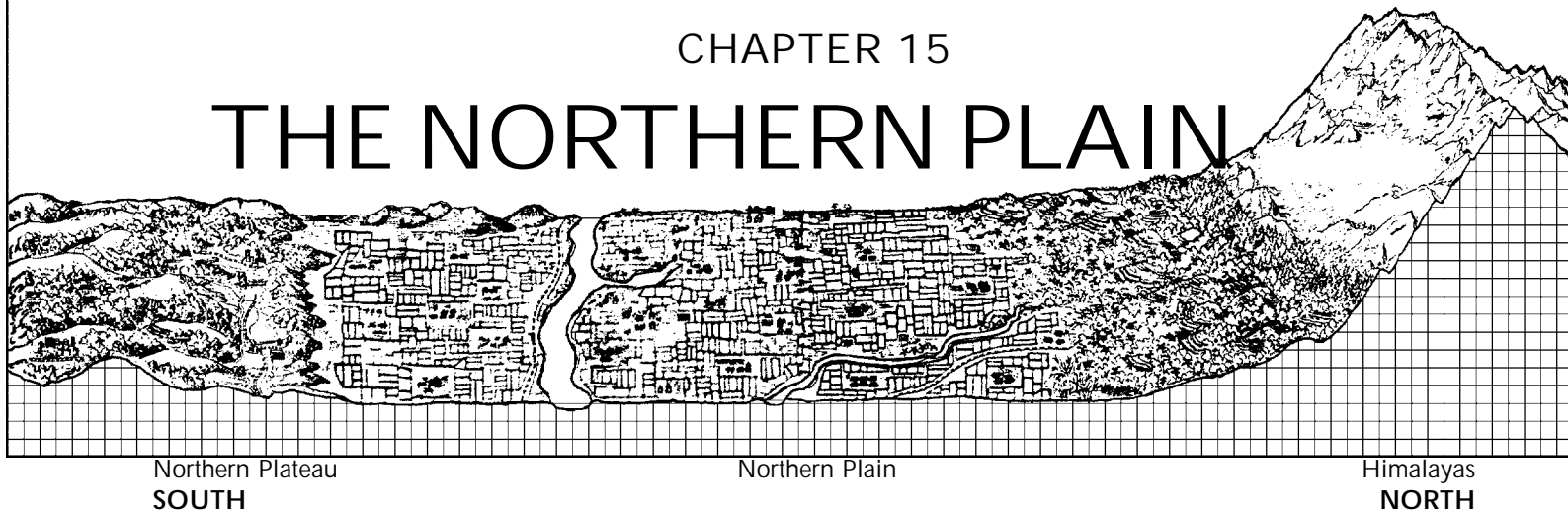


THE NORTHERN PLAIN



Identify the Northern Plain of India on a map of India's natural regions. Also find the Northern Plain on a plastic relief map if you have one. Run your finger across the Northern Plain on these maps to understand the full extent of its location.

A large part of the Northern Plain is also called the Indo-Gangetic Plain. Why is it called this?

What are the natural regions that lie to the north and south of the Northern Plain?

The Northern Plain actually consists of the plains of three mighty rivers. Which are these three main rivers? Into which seas do they flow? Look in your Atlas to find out.

*If you look at a map of rivers in India you will see that all the other rivers flowing in the Northern Plain are **tributaries** of the three main rivers. Name the tributaries of each of these rivers. Can you name any tributaries of tributaries?*

Do any of the three main rivers flow through other countries besides India? Which ones?

A River Basin

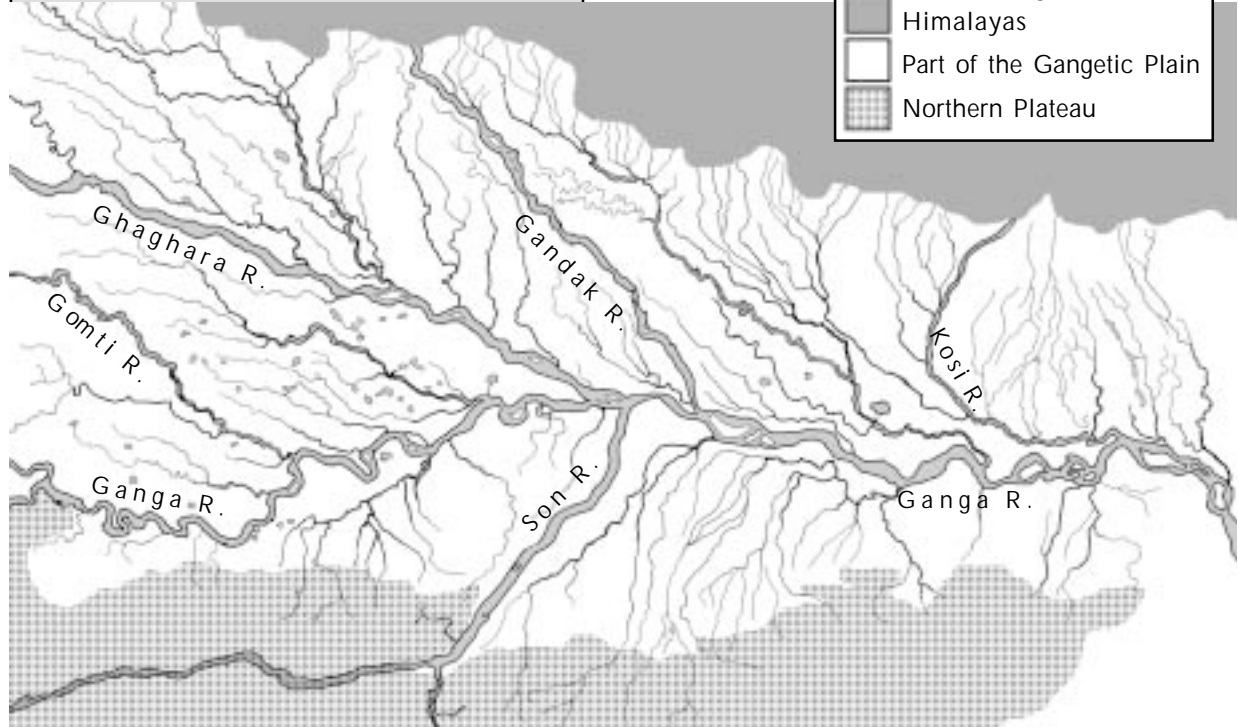
The entire area through which a river and its tributaries flow is known as a **river basin**. The picture below shows part of the Ganga river basin which is flat, with very little slope. Notice how so many rivers and their tributaries make a network that covers the plain. The water comes from the snow on the Himalayas and from rainfall that falls in the basin.

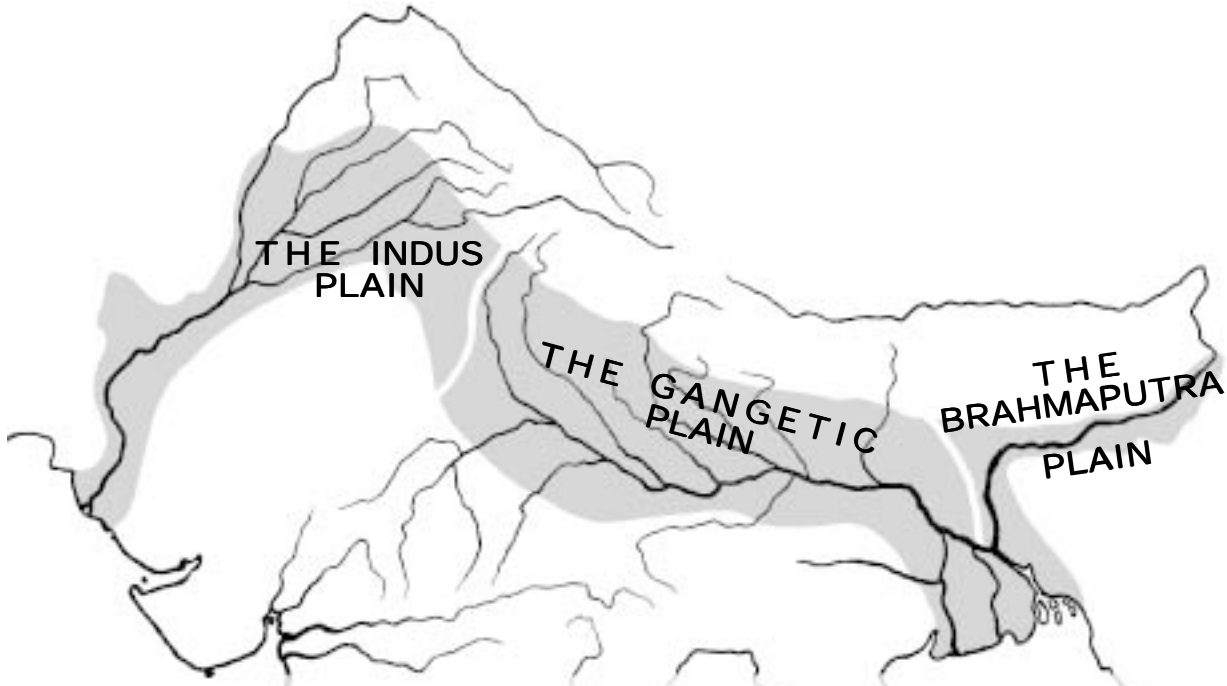
Where does the water go?

All the water that flows in a river does not reach the sea. Much of it soaks into the ground, evaporates or is diverted for irrigation or other uses.

Key

- Himalayas
- Part of the Gangetic Plain
- Northern Plateau





The Three Parts of the Northern Plain

The Northern Plain in India is divided into three parts - the Indus River Plain, the Gangetic Plain and the Brahmaputra Plain. Some of the tributaries of these rivers are also included in the Northern Plain. However, note that the Northern Plain does not include the mountainous regions where the rivers begin (although these are also part of the river basins). Nor does it include the higher regions that are part of the Northern Plateau.

Do you live in the Northern Plain or have you ever been there? If so, in which of the three main river basins?

The three parts of the Northern Plain differ in many ways. The biggest difference is the amount of rainfall each part gets.

Look at the rainfall map of India. Among the parts of these three river basins that lie in India, which gets the most rainfall and which gets the least?

Another major difference is the crops grown in each part.

Look at the maps in your Atlas that show major areas of wheat and rice cultivation and also those that show annual rainfall. Is more wheat or more rice grown in the areas with the highest rainfall? Which of these is grown in areas with lower rainfall?

Make a list of the states of the Northern Plain in which more wheat is grown. Then make another list of the Northern Plain states in which more rice is grown.

The Indus River Plain

Look at a map and tell which states of India (or which parts of states) lie in the Indus River Plain.

In most parts of the Indus River Plain farmers cultivate two crops a year and they get very high crop yields. The main crop is wheat.

Besides wheat, what other crops are grown in the Indus River Plain? Use your Atlas to find out.



You can see on the maps that there is less rainfall in the Indus River Plain than in the other two river plains. And yet, this region gets very high crop yields. How is this possible? Through irrigation!

Look at the map of irrigated regions of India and see how widespread the irrigation network is in this region. The major sources of irrigation are canals, wells and tube wells.

The Indus and its tributaries are **perennial** rivers, having water throughout the year.

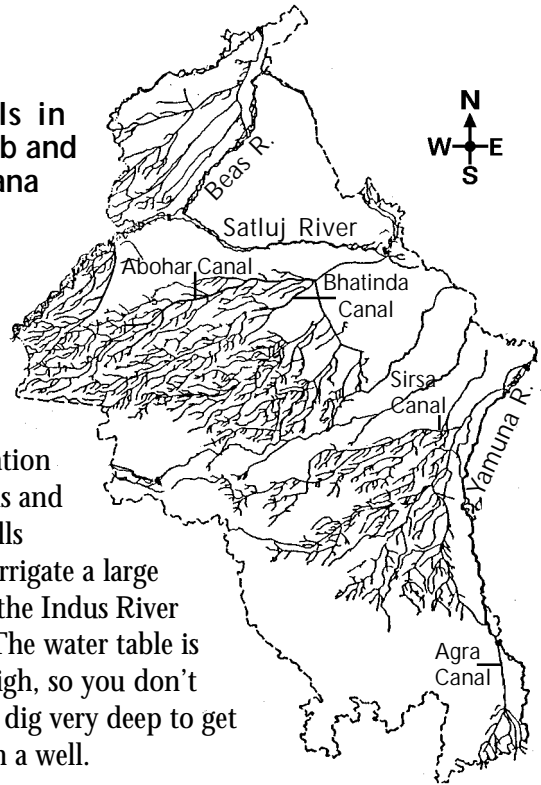
Why do these rivers have water throughout the year, even when the rainfall is low? Can you give some explanation?

The water of these rivers is distributed over a very large area by canals. Since the land in the Indus River Plain is quite flat, it's easier to lay canals here than in many other areas. The river surface is almost level with the surrounding land. Also, the soil is alluvial, without much rock. Therefore long canals can easily be dug to take water to far off fields.

Canals in Punjab and Haryana

The other sources of irrigation are wells and tubewells which irrigate a large area of the Indus River Plain. The water table is quite high, so you don't have to dig very deep to get water in a well.

Would it be easier to dig a well in the area around Indore or in the area around Patiala? Explain. In order to answer this question, first look on maps to find out the characteristics of the natural regions of these two places.



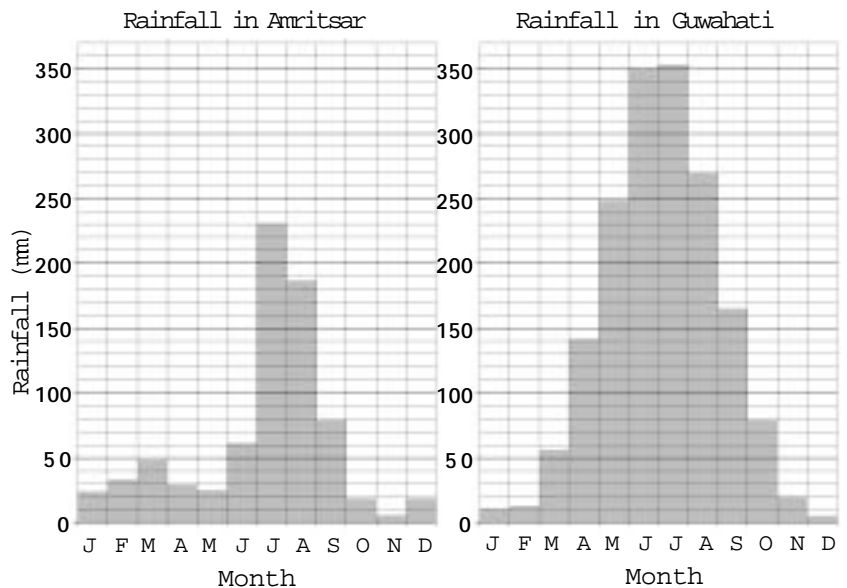
The Brahmaputra Plain

The Brahmaputra River Plain lies in which countries and which states of India? Look on a map to find out.

On the right are rainfall graphs of two places in the Northern Plain. Find their locations on a map and see which one is in the Brahmaputra Plain and which one is in the Indus Plain.

Make a list of the differences between the rainfall in these two places, as shown in the graphs.

In which of these places is more than one crop of paddy grown each year?





Transporting bamboo from Meghalaya down a tributary to the Brahmaputra

We saw how many **tributaries** join to make the Ganga and Brahmaputra such huge rivers. In Bangladesh and West Bengal the waters of the Brahmaputra and the Ganga mix with each other. They divide into a number of **distributaries** and form a delta before flowing into the Bay of Bengal.

In some parts of this delta, water is so abundant that three crops of rice are cultivated every year. Irrigation is not needed. Another major crop in this region is jute, which also requires a lot of water.

The Gangetic Plain

Look at the maps in your Atlas to answer the following questions.

In which states of India is the Gangetic Plain located?

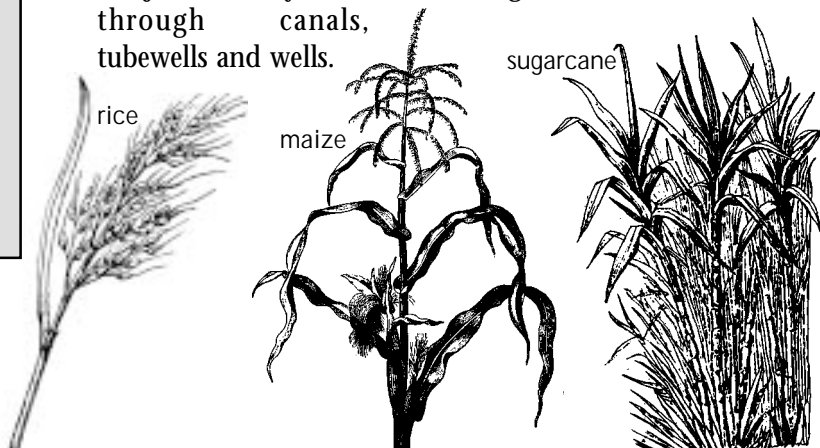
What are the names of some of the distributaries of the Ganga?

Make a list of the crops cultivated in the Gangetic Plain.

Look at a map of annual rainfall and say whether the eastern or western parts of the Gangetic Plain get more rainfall.

What is the difference between the major crops of western and eastern Uttar Pradesh? What is the reason for this difference?

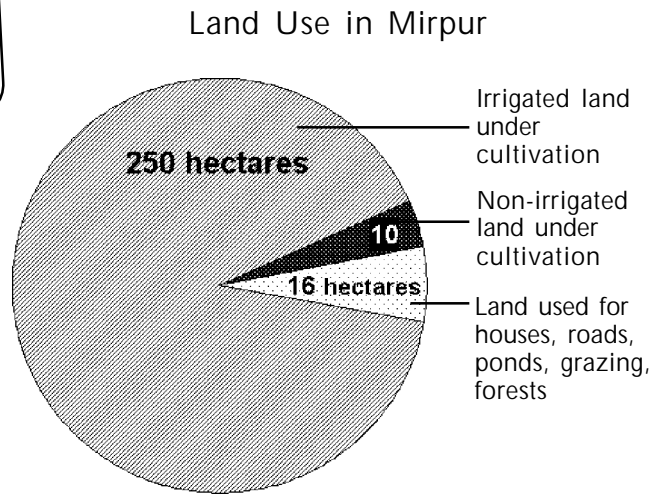
Western Uttar Pradesh is extensively irrigated, like Punjab and Haryana. Here too, irrigation is done through canals, tubewells and wells.



To understand the extent of use of irrigation facilities in western U.P., let's take a look at a village in this area.

Land Use in Village Mirpur, District Bulandshahr, UP

Here is some information about a village called Mirpur in Bulandshahr district. Look in a map to see where Bulandshahr is. The total area of Mirpur village is 276 hectares. The following Pie Chart shows how this land is used.



Look at the Pie Chart and answer the following questions.

How many hectares in Mirpur are used for houses, roads, ponds etc.?

How many hectares are under cultivation?

How many hectares in Mirpur are irrigated?

What percentage of the agricultural land of Mirpur is irrigated?

Now fill in these blanks:

Every nook and corner of the land is _____.

Most of the cultivated land is also _____.



A large number of villages in western Uttar Pradesh make similar use of their land.

Answer the following questions about the village you belong to (or visit a nearby village).

How many hectares of land are cultivated in your village?

Of this total, how many hectares are irrigated? What percentage of the cultivated land is irrigated in your village?

What are the similarities and differences between your village and Mirpur?

What are the reasons for such similarities/differences? Discuss this with your teacher and classmates.

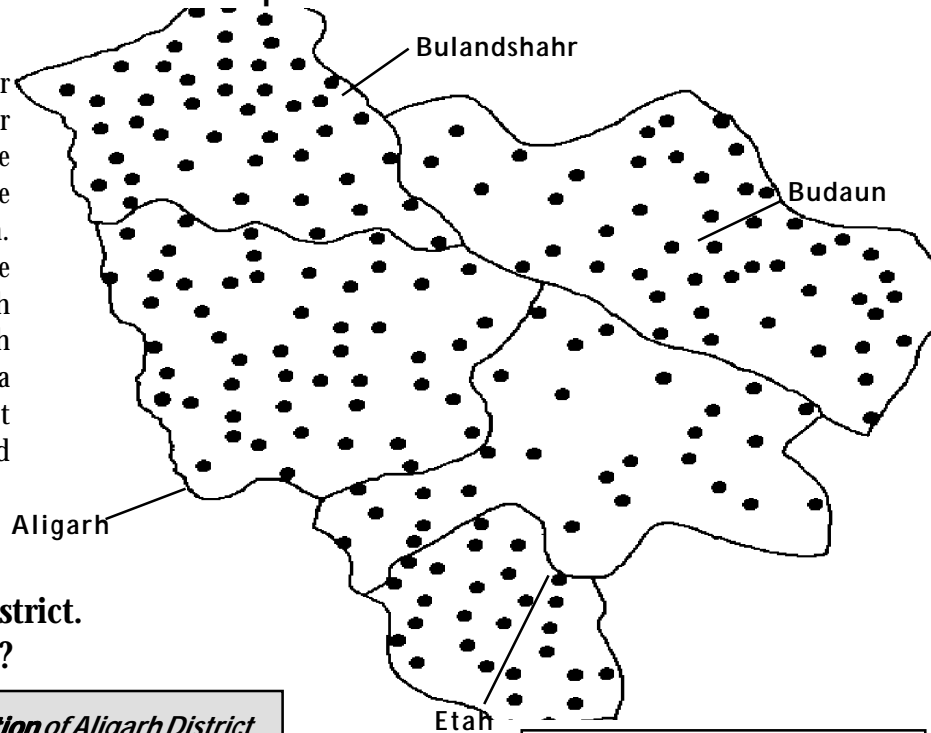
This photograph of a village in the Gangetic Basin was taken from an aeroplane. Trace the course of the tributary of the Ganga from the top left to the bottom right and find the following things in the photo: a dam on the river; the reservoir of water behind the dam, and canals that bring water to the fields.

Population Density in the Northern Plain

You have analysed and compared different areas in the Northern Plain. Now, work in groups of 4 or 5 to help each other learn about the population. Try to read this section, answering each question as it comes.

The Rural Population in Four Districts of UP

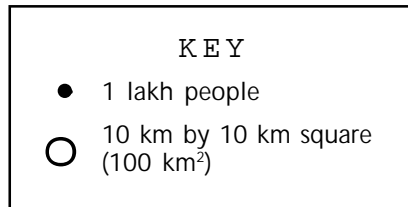
Here is a map of four districts in western Uttar Pradesh. They lie in the Northern Plain along the Yamuna and the Ganga. The dots on this map are not villages or towns. Each dot represents 1 lakh people who live in a number of different villages in the area around the dot.



**Look at Aligarh District.
How populous is it?**

*Calculate the **population** of Aligarh District (how many lakhs of people live there).*

Compare it with the population of the other three districts. Which district is the most and which is the least populous?



How big is it?

How many squares are there in Aligarh District? _____ (Put your heads together to figure out a way to approximate.)

Each square on the map is 10 km long by 10 km wide. Then, each square is 100 square kilometres (which can be written: 100 km²).

*How many hundred square kilometres does Aligarh District have? _____ hundred square kilometres = _____ × 100 km². In other words, this is its **area**.*

How crowded is it?

Explain what you mean by crowded. Is it the same as how populous a district is? Is a large room of 10 people just as crowded as a small room of 10 people? Discuss different opinions in your group.

It isn't easy to tell which district is most crowded just by looking. However, by following the procedure on the next page, you can calculate how crowded a district is.



In some places the Ganga River is more than 4 km wide. Can you imagine how useful so much water is?

How dense is the population?

You can find out how crowded Aligarh District is by calculating how many people live in an average square in the map - that is, the number of people in each 100 square kilometres (in other words, people /100 km², which can also be read as people per 100 km²).

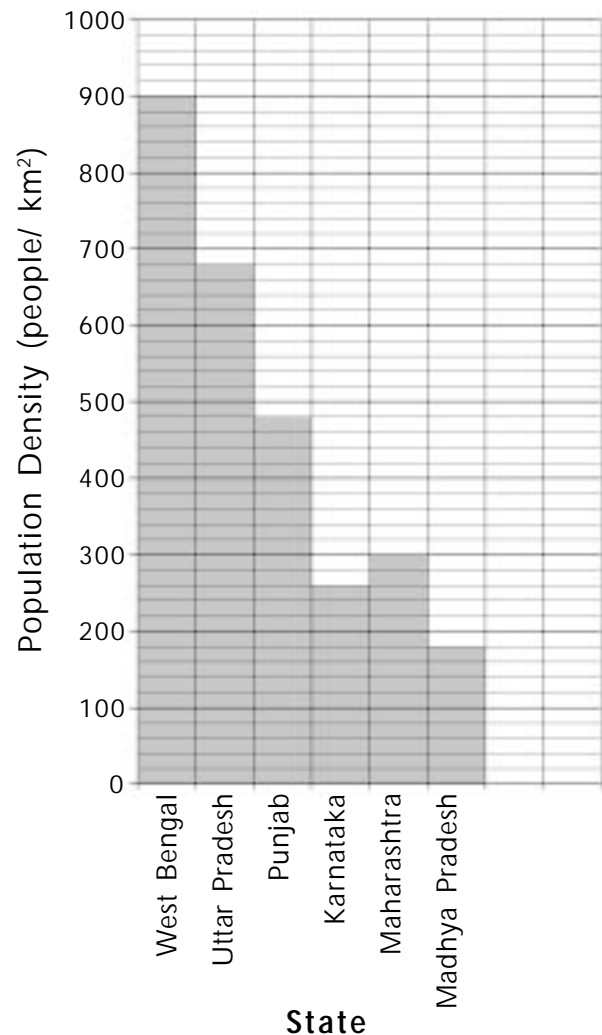
You already found the total number of people in the district and the total number of hundred square kilometres. So, just divide these two numbers to find out the number of people/100 km². (Hint: since there are 1 or 2 dots in most of the squares in the map, your answer should be somewhere around 1 lakh people / 100 km² or 2 lakh people / 100 km².) Check to see if everyone in your group gets the same answer.

If you divide this number by 100 you will get the number of people per one square kilometre. The number of people per square kilometre is the population density of the district. Calculate the population density of Aligarh district.

Look at a population map of India to see which natural region has the densest population. How can you tell whether the population is dense when you look at this map?

In 2001 the population density of Jammu & Kashmir was 99 people per square kilometre. For Rajasthan it was 165 people/km². Add these states to the graph and think of some reasons why these population densities are different from those of the other states shown here.

Population Density of Various States in India (2001)



Look at the graph showing the population density in different states of India.

Which of the states in the graph has the most dense population and which has the least dense population?

Which of these states are mainly in the Northern Plain and which are mainly in the Peninsular Plateau?

Are the states in the Northern Plateau less densely populated than the states in the Peninsular Plateau?

What do you think are the reasons for the differences in population density between the Northern Plain and the Peninsular Plateau?

How did the population density increase in a village of UP?

To understand why there is dense population in the Northern Plain, let's take a look again at Mirpur village. Mirpur is a very old village and its changing nature can be seen with the help of the figures given below.

Population and Land Use in Mirpur, UP

Year	Population	Agricultural land (hectares)	Total land (hectares)	Irrigated land (hectares)	Percent of land irrigated
1861	451	228	276	59	21%
1921	731	260	276	131	47%
1961	1227	260	276	192	70%
1981	1848	260	276	250	91%

Answer the following questions about Mirpur.

Did the amount of land in Mirpur that was used for farming increase, decrease or remain the same since 1861?

Did the total land that belonged to the village change in this period?

Did the amount of land that was being irrigated change over these years?

Make a graph to show how the amount of land under irrigation changed.

Did irrigation increase more rapidly between 1861 and 1921 or between 1921 and 1981?

By 1861, most of Mirpur was already being cultivated. Virtually all of the original forest had been cut by 1921. Since then the amount of agricultural land has not increased.

You must have already read about how agriculture spread throughout most parts of the Northern Plain several centuries ago. With irrigation, 2 or 3 crops a year like wheat, sugarcane, gram, arhar etc. can be taken and the production also increases.

Why is cultivation easy in the Northern Plain, compared to other parts of the country? Give five reasons.

The production of crops in Mirpur had been increased in two ways. Can you identify these from the left table. What is the difference between them?

Do you think number of people living in an area is somehow connected to production of crops in that area?

Migration and Industry in the Northern Plain

A large number of people from this area have been going out in search of employment. You read about the workers in the Parasia mines. They also came from the Northern Plain. Many of the people settled in Madhya Pradesh were originally from the Northern Plain. Large numbers of people migrate to urban centres such as Mumbai, Kolkata and Delhi as well as to the fields of Punjab.

What problems did the mine workers face in Uttar Pradesh because of which they came and settled in Parasia?

The Northern Plain has many industrial areas, such as Kanpur and Kolkata. During British rule Kolkata became a major city and a busy harbour. It has been a convenient place to set up factories.

In the densely populated Northern Plain there are many small and medium sized towns. Hence, there are a lot of people to buy the kinds of things made by industries.

Since transport is widely available, there is little difficulty in carrying raw materials to the factories. Steel and many minerals are brought from the Peninsular Plateau. Many kinds of agricultural raw materials, such as sugarcane, cotton and jute are produced on the Northern Plain itself.

Some Important Industries of India

Look at the map showing where minerals are found in India. Where are more minerals found - in the Northern Plain or in the Deccan Plateau?

Fill in the blanks in the following table to show which raw materials are needed by the given industries to produce which products. Also write the main places where these things are found and produced. Get help from your Atlas.

Add more industries to the Table if you can.

Raw materials	Sources of raw materials	Industry	Location of industry	Products
Sand	U.P.	Glass Industry	Ghaziabad, U.P.	glass
Bauxite		Aluminium Industry		utensils
	U.P. and neighbouring states	Leather Industry	Kanpur	
Steel, Plastics, Electrical components	Peninsular Plateau etc.	Electrical Goods Industry	Punjab	
		Cotton Mills	U.P.	cotton yarn and cloth
Steel (from coal, iron ore)	Peninsular Plateau	Cycle making Industry	Haryana and Punjab	
	W. Bengal	Rubber Industry	W. Bengal	tyres
		Sugar Mills	U.P. and Punjab	sugar
		Lumber Mills	Haryana and Punjab	plywood
		Paper Mills	Guwahati and Assam	paper
	Haryana	Food Processing	Haryana	jam



Jute, which is used to make rope, sacks and cloth

Exercises

1. Refer to maps and state whether each of the following is true or false:
 - a) The Indo-Gangetic Plain is entirely in India.
 - b) The Indus River flows through three different countries.
 - c) The Yamuna does not get water from the Malwa Plateau.
 - d) Allahabad is at the confluence of the Ganga and the Yamuna.
 - e) The sources of the Indus and the Brahmaputra are very close to each other.
 - f) Even though it is farther north, the far western part of the Northern Plain gets hotter than the far eastern part.
 - g) The western part of the Gangetic Plain gets more rainfall than the eastern part.
 - h) The Brahmaputra River Plain is wider than the Ganga River Plain.
 - i) Black soil, which is good for growing cotton is common in the Northern Plain.
 - j) The total population of a district is the same as the population density of that district.
 - k) Fewer minerals are mined in the Northern Plain than on the Peninsular Plateau.
 - l) Sugarcane is grown mainly in the wetter eastern part of the Gangetic Plain.
 - m) The population is generally more in those parts of the Gangetic Plain that have high rainfall.
 - n) If District A has more population than District B, then District A must have higher population density than District B.
2. Why is irrigation necessary in the plains of Punjab and Haryana? How has irrigation benefited the people there?
3. Why is it easy to make canals in the Indus Plain and the western regions of Uttar Pradesh?
4. What are the main differences between the Indus Plain and the Brahmaputra Plain?
5. In what way is the western part of the Ganga Plain different from the eastern part?
6. Look at the map showing irrigation facilities and compare the Northern Plain with the Deccan Plateau.
7. Look at the map showing forests in India and find out whether the Deccan Plateau or the Northern Plain has more forested land. Give reasons for the difference.
8. Why is the population density greater on the Northern Plain than on the Deccan Plateau?
9. Can you tell which of two areas is more densely populated merely by looking at a table that shows the populations of the two areas? Explain.
10. Refer to the map on page 174. Can you guess which of the four districts is the least crowded and which is the most crowded? To check your answer calculate the population densities of the four districts.