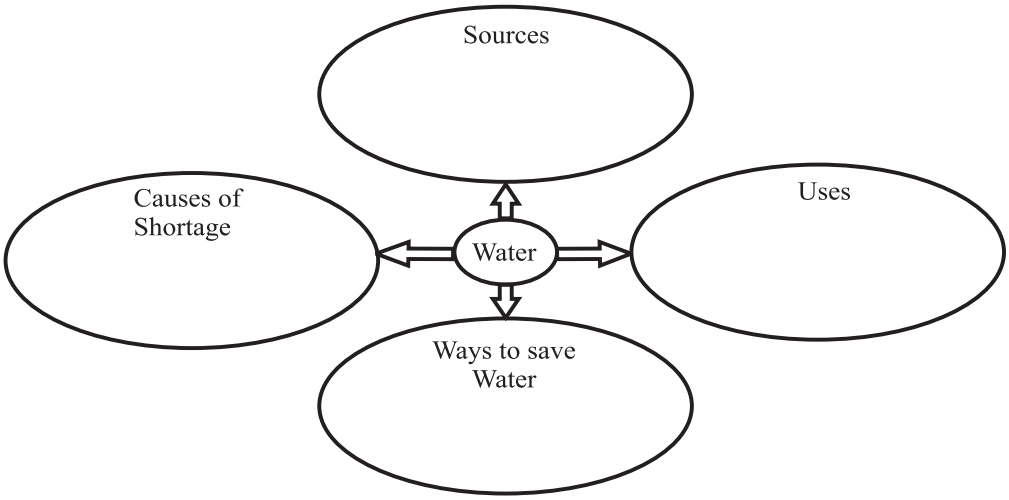
UNIT 9

Pre-task

1. Here is a mind map about water. Work in pairs and fill in the details in the circle :

(wastage of water, shortage of rain, no plan to save water, repair leaking taps, store rain water, recharge wells, rain, rivers, ponds, wells, houses, agriculture, industries)

You can add two more details in each circle :



2. If a gardener waters all the plants in the evening, will it make a difference in saving water? How?

Read 1

WATER- AN ELIXIR OF LIFE

Man has through the ages craved in vain for an imaginary elixir of life, the divine *amrit*. But the true elixir of life lies near our hands. For it is the commonest of all liquids, plain water ! I remember one day standing on the line which separates the Libyan Desert from the Valley of the Nile in Egypt. On one side was visible sea of sand without a patch of green or a single living thing. On the other side lay one of the greatest, most fertile and densely populated areas teeming with life and vegetation. What made this wonderful difference ? Why, it is the water of the river Nile flowing down to the Mediterranean from its source. Geologists tell us that the entire soil of the Nile valley is the creation of the river itself. Egypt, in fact, was made by its river. Its ancient civilization was created and is sustained by the life-giving waters which come down year after year with unfailing regularity. This common substance which we take for granted in our everyday life is the most potent and the most wonderful thing on the face of our earth. It has played a role of vast significance in shaping the course of the earth's history and continues to play the leading role in the drama of life on the surface of our planet.

Water adds much to the beauty of the countryside, be it just a little stream trickling over the rocks or a little pond by the wayside where the cattle satisfy their thirst of an evening. The rainfed tanks are a cheering sight when they are full. These tanks play a vital role in South Indian agriculture. In Mysore, for example,

much of the rice is grown under them. Some of these tanks are surprisingly large and it is a beautiful sight to see the sun rise or set over them. Water in a landscape may be compared to the eyes in a human face. It reflects the mood of the hour, being bright and gay when the sun shines, turning to dark and gloomy when the sky is overcast.

One of the most remarkable facts about water is its power to carry silt . This is the origin of the characteristic colour of the water in rainfed tanks. This colour varies with the nature of the earth in the catchment area. Swiftly flowing water can carry fairly large and heavy particles. The finest particles, however, remain floating within the liquid in spite of their greater density and are carried to great distances. Such particles are, of course, extremely small, but their number is also great and very large amounts of solid matter can be transported in this way. The colour of the water changes successively from the muddy red or brown of silt through varying shades of yellow and green finally to the blue of the deep sea. Such land, consisting as it does of finely divided matter, is usually very fertile.

Soil erosion is a major problem in countries like India. It occurs when the top layer of the soil is washed away in successive steps by the action of water. It is mainly caused by sudden bursts of heavy rainfall, the slope of the land, removal of the natural protective coat of vegetation, the ruts along which water can flow rapidly, and the absence of any checks to prevent the flow of water. It can be checked using various preventive measures like the terracing of land, the construction of bunds (dams) to check the flow of water and the planting of appropriate types of vegetation.

The conservation and utilisation of water is fundamental for human welfare. Much of Indian agriculture depends on seasonal rainfall and is therefore very sensitive to any failure or irregularity of the same. The problems of soil erosion and of inadequate (not enough) or irregular rainfall are closely connected with each other. It is clear that the adoption of techniques preventing soil erosion would also help to conserve and keep the water where it is wanted.

In India an immense quantity of rain water runs off the ground. The collection and utilisation of this water is important. Much of it finds its way to the sea. Incredibly large quantities of the precious fluid are thus lost to the country. The harnessing of our rivers, the waters of which now mostly run to waste, is need of the hour. Vast areas of land which at present are mere scrub jungle could be turned into fertile and prosperous land by courageous and well-planned action. Closely connected with the conservation of water supplies is the problem of afforestation. The systematic planting of suitable trees in every possible or even in impossible areas is one of the most urgent needs of India. Such plantation would directly and indirectly prove a source of hidden wealth to the country. They would check soil erosion, conserve the rainfall of the country from flowing away to waste and it will also supply cheap fuel.

The cheapest form of internal transport in a country is by boats and barges through canals and rivers. We hear much about programmes of rails and road construction, but far too little about the development of waterways in India. Then, again, the harnessing of water supplies makes possible the development of hydroelectric power. This would improve the rural life and economy, and help in tapping the ground water resources to a greater extent.

Water is the basis of all life. Every animal and every plant contains a substantial proportion of free or combined water in its body, and fluid is an essential part in all physiological activities. Moisture in the

soil is equally necessary for the life and growth of plants and trees. Thus, although water is the commonest of liquids, it is the most uncommon of liquids with amazing properties which are responsible for its unique power of maintaining animal and plant life.

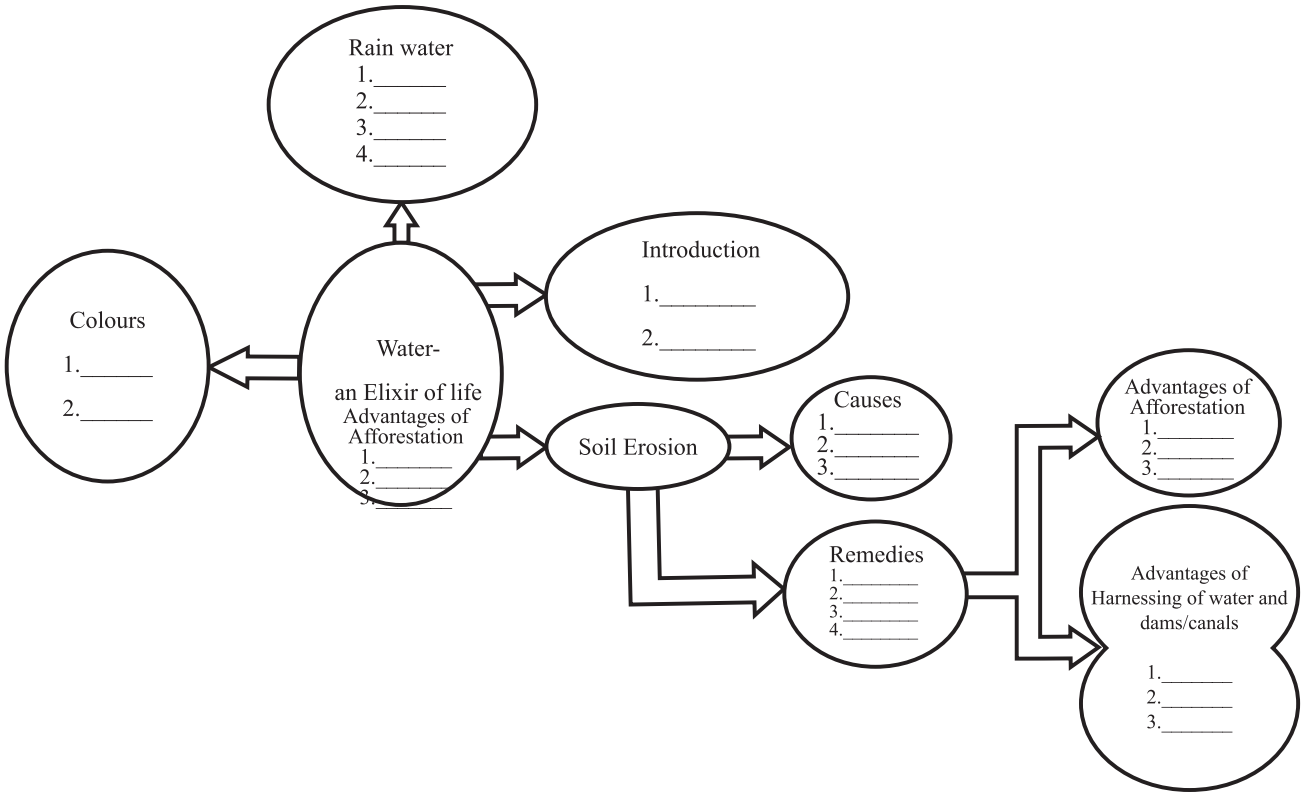
Glossary

craved for *desired, intesely* ***patch*** *small area* ***Mediterranean*** ભૂમધ્ય સમુદ્રના પ્રદેશનું ***Geologists*** ભૂસ્તરશાસ્ત્રી ***potent*** *powerful* ***trickling*** *flowing* ***landscape*** *scenery* ***silt*** *mud,* ***catchment area*** *the area where rain falls and water flows to rivers* ***successively*** *in turn* ***phenomenon*** *happening* ***contour*** *in curve* ***inadequate*** *not enough* ***incredibly*** *unbelievable* ***harnessing*** *controlling* ***afforestation*** *creating new forest* ***barges*** *boats for big transportation* ***substantial*** *large* ***proportion*** *amount*

Comprehension 1

C.1.1 Here are the points of what you have read. Put the letters at their proper places in the given mind map :

A. example of the Nile
B. two sides of the Nile
C. streams
D. tanks
E. landscapes
F. water compared to eyes
G. carry silt
H. colour of water
I. sudden burst of heavy rainfall
J. removal of vegetation
K. absence of check
L. bunds
M. contour cultivation
N. afforestation
O. conservation and utilization
P. check water
Q. fuel
R. hydroelectricity
S. rural economy
T. tapping ground water



C.1.2 The passage has a lot of sentences that are connected to irrigation, beauty and transportation. Go back to the passage and write 'I' for irrigation, 'B' for beauty and 'T' for transportation in the margin.

C.1.3 Underline and number the sentence/group of sentences in the text that mean :

1. We do not give more importance to water but it has done a lot for mankind.
2. The deposits that water carries decide its colour.
3. There are different solutions of soil erosion.
4. Transportation on water has always been neglected in India.
5. Water is everywhere.

C.1.4 Answer these questions in two to four sentences :

1. Why is water considered true elixir of life?
2. Water in a landscape may be compared with the eyes on a human face. Why?
3. What are the measures to check soil erosion?
4. What are the permanent solutions to the problem of shortage of water?
5. Water is the most potent and the most wonderful thing. List the things that prove it potent and wonderful.
6. What are the multiple advantages of harnessing of water, afforestation and bunds?
7. Why is water called common as well as uncommon?

C.1.5 Find out the sentences having almost similar sense. Then divide them into cause and effect.

1. The upper surface of land is washed away due to falling and rushing of water.
2. The colour of water depends on the soil under water.
3. Any change in schedule of rain affects our agriculture a lot.
4. Afforestation will bring hidden wealth.
5. Another advantage of bunds is electricity.

No.	Cause	Effect
1.	**acting of water**	**top soil is washed away**
2.		
3.		
4.		
5.		

C.1.6 Learn more about the noteworthy efforts in Gujarat for long term planning of water harvesting and check dams.

Reference :

http://jalkranti.org/about-trust/

http://www.swadhyay.org/index.htm

http://www.realheroes.com/shamji-bhai.php

Read 2

THE TITLE OF THE POEM :

- May Swenson

In the pond in the park
all things are doubled :
Long buildings hang and
wriggle gently. Chimneys
are bent legs bouncing
on clouds below. A flag
wags like a fishhook
down there in the sky.

The arched stone bridge
is an eye, with underlid
in the water. In its lens
dip crinkled heads with hats
that don't fall off. Dogs go by,
barking on their backs.
A baby, taken to feed the
ducks, dangles upside-down,
a pink balloon for a buoy.

Glossary

wriggle *move about* ***bouncing*** *jumping* ***crinkled*** *wrinkled* ***buoy*** *float* ***splinter*** *fall apart* ***tangle*** *twist* ***virtual*** *unreal*

Comprehension 2

C. 2.1 Read the poem and give appropriate title.

C. 2.2 List living and non-living things from the poem.

Non-living	Living
long buildings	dogs,

C. 2.3 Answer these questions in brief :

1. Why are all things doubled in the park?
2. Which principle of science do you find in the poem?
   (a) refraction (b) reflection (c) gravitation (d) density
3. What are a flag and the arched stone bridge compared to?
4. Imagine two swans in front of each other. Draw them with their reflection in water.

Listen to this poem on :

http://www.poemhunter.com/poems/water/page-/179724/

Read 3

DRIP IRRIGATION

Drip irrigation involves dripping water onto the soil at very low rates (2-20 litres/hour) from a system of small diameter plastic pipes fitted with outlets called emitters. Water is applied close to plants so that only that part of the soil in which the roots grow is wetted, unlike surface and sprinkler irrigation, which involves wetting the whole soil. With drip irrigation water, applications are more frequent (usually every 1-3 days) than with other methods and this provides a very favourable high moisture level in the soil in which plants can flourish.

Drip irrigation is most suitable for row crops (vegetables, soft fruit), and tree and vine orchards where one or more emitters can be provided for each plant. Generally only high value crops are considered because of the high capital costs of installing a drip system.

Normally the crop would be planted along contour lines and the water supply pipes would be laid along the contour also. Drip irrigation is suitable for most soils. On clay soils water must be applied slowly to avoid surface water ponding and runoff. On sandy soils higher emitter discharge rates will be needed to ensure adequate lateral wetting of the soil.

One of the main problems with drip irrigation is blockage of the emitters. All emitters have very small waterways ranging from 0.2-2.0 mm in diameter and these can become blocked if the water is not clean. Thus it is essential for irrigation water to be free of sediments. If this is not so, then filtration of the irrigation water will be needed.

How it works :

The pump unit takes water from the source and provides the right pressure for delivery into the pipe system. The control head consists of valves to control the discharge and pressure in the entire system. Some control head units contain a filter and fertilizer or nutrient tank. These slowly add a measured dose of fertilizer into the water during irrigation. This is one of the major advantages of drip irrigation over other methods.

Mainlines, submains and laterals supply water from the control head into the fields. They are usually made from PVC or polyethylene hose and should be buried below ground because they easily wear out when exposed to direct solar radiation. Lateral pipes are usually 13-32 mm diameter. Emitters or drippers are devices used to control the discharge of water from the lateral to the plants.

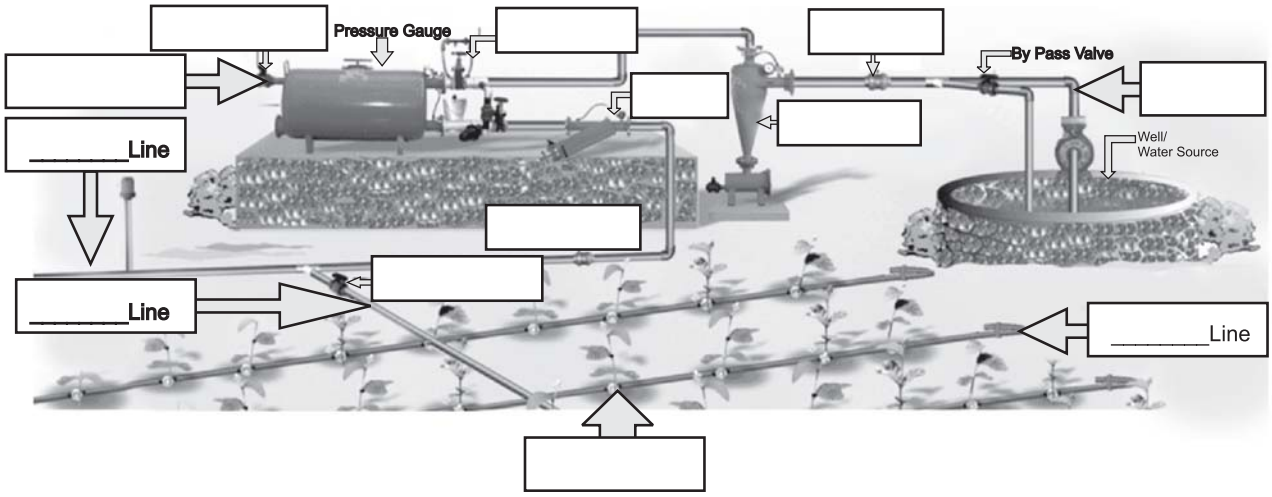
Glossary

dripping *ટપક સિંચાઈ* ***emitters*** *releaser* ***moisture*** *wetness* ***capital*** *money* ***installing*** *fitting* ***contour*** *curve* ***ponding*** *collecting* ***adequate*** *sufficient* ***runoff*** *extra* ***sediments*** *deposits* ***nutrient*** *energy food with* ***hose*** *pipe* ***buried*** *covered* ***radiation*** *rays*

Hydrogen (H) is a highly explosive gas and Oxygen (O_2) is needed for fire to burn. But both together H_2O (water) is used to extinguish fire.

Comprehension 3

C.3.1 Label the components of a drip irrigation plant :



C.3.2 Answer these questions in brief :

1. Why is different volume of water emitted according to the type of land?
2. What is the role of control head in drip irrigation plant?
3. If the water for irrigation is full of sediments, _____ .(Complete the sentence)
4. Which are the most suitable crops and soil for drip irrigation?
5. Why is it necessary to bury PVC pipeline?
6. Complete the table :

Types of Irrigation	Advantages	Limitations
Conventional Irrigation		
Drip Irrigation		

7. Which one would you select for your garden/farm - drip irrigation or conventional watering? Why?

Vocabulary

V. 1 Match the words of column A with their meanings in column B.

Column A	Column B
1. countryside	A. loose earth
2. soil	B. releaser
3. patch	C. twist
4. buoy	D. rural regions
5. potent	E. small area
6. tangle	F. powerful
7. emitter	G. float

V. 2 While reading the passage, you have come across the synonyms of the nine words listed below. Find out the actual words from the first paragraph of the passage.

(1) small area _____ (2) barren land_____ (3) powerful_____
(4) fluid_____ (5) dale_____ (6) fruitful _____
(7) origin _____ (8) generated _____
(9) a specialist on the earth's crust _____

V. 3 Antonyms are words with opposite meaning. They are often formed by using prefixes like in-, im-, il-, ir- etc. as shown in the table. Underline the prefixes and write antonyms in the blanks :

Example :

Prefix	Word	Antonym
in	adequate	Inadequate
	credible	Incredible
im	possible	Impossible
	mature	Immature
il	legal	Illegal
	logical	Illogical
ir	regular	Irregular
	responsible	Irresponsible

Prefix	Word	Antonym
_____	literate	_____
_____	active	_____
_____	partial	_____
_____	relevant	_____
_____	sufficient	_____
_____	legible	_____
_____	correct	_____
_____	moral	_____
_____	liberal	_____
_____	rational	_____
_____	polite	_____
_____	religious	_____

V. 4 Find out the suitable words from the box and add them to the series of the words.

craved, landscape, lateral, proportion, potent, phenomenon, substantial, bouncing, splinter, emitters

1. mighty, influential, powerful, _____
2. wanted, desired, longed, _____
3. panorama, scenery, environ, _____
4. fact, happening, incident, _____
5. considerable, sizable, large, _____
6. relation, balance, percentage, _____
7. rebounding, jumping, leaping, _____
8. fall apart, fragment, piece, _____
9. marginal, skirting, sideways, _____
10. releasers, expellers, dispensers, _____

V. 5 Frame a sentence using all the words given in the group.

1. farmers – large trees – to stop – soil erosion.
2. water – useful – beautiful – countryside.
3. the rain water – wash out – land – unfertile.
4. the reflection – in the pond –tangled images.
5. drip irrigation – dripping – emitters.

Function

F. 1 Study the way the underlined conjunctions are used :

a. We should grow more trees in order to stop soil erosion.

b. We should grow more trees with a view to stopping soil erosion.

c. We should grow more trees so that we can stop soil erosion.

d. We should grow more trees in order that we can stop soil erosion.

F. 2 Read the following sentences. Underline connectors with a straight line and expression of purpose with a zigzag line :

1. I went to market in order to buy some books.
2. My teacher called my papa so that they could discuss my result.
3. He came to my house with a view to meeting my papa.
4. I always use bicycle in order that I can save money.
5. The people of our mohalla got together in order that they could resolve the issue.

Now find purpose, action and connector from these sentences :

Sentence no.	Purpose	Action	Connector
1.	buy some books	I went to market	in order to
2.			
3.			
4.			
5.			

F. 3 Identify the phrases as purpose (P), action (A) and connector (C). Put the letter in the blank and frame 15 sentences using P, A and C in proper order. you can use any P, A, C not more than three times.

___ people move to urban areas, ____ in order to, ____ click some photographs, ____ he took out his camera, ___buy good saries,____we should celebrate all festivals in the school, ___ so that, ____ with a view to, ____ go for walk, ___ students know the traditions, ___ they went to Surat, ___ in order that, ___ I have started waking up early, _____ earn livelihood

Ex : They went to Surat in order to buy good saries.

F. 4 Read these questions and its answers :

1. Why should we get minimum hardcopies?

   We should get minimum hardcopies to save paper.

   This question can be answered these ways also :

   (i) We should get minimum hardcopies in order to save paper.

   (ii) We should get minimum hardcopies so that we can save paper.

   (iii) We should get minimum hardcopies in order that we can save paper.

   (iv) We should get minimum hardcopies with a view to saving paper.

Now complete these sentences :

2. Why should we recharge wells and construct check dams?
   We should recharge wells and construct check dams to solve problem of water permanently.

   a. We should recharge wells and construct check dams in order to _____.

   b. We should recharge wells and construct check dams with a view to _____ problem of water permanently.

   c. We should recharge wells and construct check dams so that we can_____ problem of water permanently..

   d. We should recharge wells and construct check dams in order that we can solve _____.

F. 5 Answer these questions using the connectors given in the bracket :

1. Why are you buying this English book? (with a view to)
2. What should we do to learn computer skills? (so that)
3. Why do we keep our food in fridge? (in order to)
4. What do you do to keep your body fit? (in order that)
5. Why are you borrowing money from me? (so that)

F. 6 Now answer the following questions using the words in the bracket :

1. Why do we eat? (to live)

1. We eat _____.
2. We eat so that we _____.
3. We eat with a view to _____.

2. Why do we use navigator while travelling? (find destination)

1. We use navigator while travelling _____.
2. We use navigator while travelling with a view to _____.
3. We use navigator while travelling in order that _____ easy way to an unknown destination.

F. 7 Ask questions using 'why' (One has been done for you) :

1. You should sleep well so that you can write your exam very well.
   Question : Why should you sleep well?
2. He was extra polite to his superiors to avoid adverse comments into his records.
3. He was invited to the function in order to show leave how wonderfully this function has been organized.
4. Let us leave now so that we can catch the train.
5. He drew the sword so that he could defend himself.
6. Come here so that I could bless you.

F. 8 Prepare multiple choice blanks for the underlined parts :

1. Sarah went to the computer lab to print out her research report.
   Sarah went to the computer lab _____her research report.
   (with a view to printing out, to print out, she can print out)
2. The company conducted a detailed survey in order to know its clients' views.
3. Dr Chan adjusted the overhead projector so that the students would be able to see the chart more clearly.
4. The lecturer finished his lecture five minutes early so that the students could ask him questions.
5. The Board introduced language laboratory with a view to enhancing students' proficiency in the language.

F. 9 Here is a list of some foreigners either rulers or travellers, who came to India. The column at right shows their intention. Match them properly and frame sentences showing their purpose for coming in India. Frame your answers in four different ways :

The Dutch East India Company	to settle
Xuanzang	to find new sea routes
The East India Company	to reside and build factories in Surat and other areas
The Parsis	to exchange with the spices they traded in the East Indies.
Vasco da Gama	to get complete interpretation of the Buddhist texts

F. 10 Answer the questions using in order to/ with a view to/ so that/ in order that :

1. Why do you read?_____
2. Why do you go on tour?_____
3. Why did Gazni come to Somnath?_____
4. Why should we do exercise? _____
5. Why should we drink boiled water? _____

Writing

W. 1 Imagine that you are travelling by a public vehicle. There are a few passengers in it. It's rainy season. There are showers of rain. It's about 11 pm. Suddenly, your vehicle stops. After repeated attempts of the driver, it does not start. What will be your feelings? What will you do? How will you reach your destination? How will you help your fellow passengers and driver? Write about your feelings and experience.

W. 2 Collect and fill in the following forms : (opening of bank account, deposit of money, DD form, railway reservation , online application form)

W. 3 You are going out of station for 10 days. There is nobody to water your plants. Find out the ways to do so. Here is one example :

W. 4 Write an email to your friend about this technique without sending this picture. Tell him/her what to do and how will it help the plant.

Activity

A. 1 A town is facing an acute shortage of water. The government authorities have sanctioned building of a pond for meeting their needs. The only location available for such construction is the garden. Therefore the sarpanch decides to use it. The women of the village welcome the decision. But the children and the senior citizens disagree. This playground is the only place they have for recreation. If they do not come to a decision, the government will cancel the plan. A town meeting is called to solve the issue. Form groups of 7 each. Take up the roles of women, children, senior citizen and sarpanch and come to a decision. You have 20 minutes. The 'Sarpanch' in each group shares the group's decisions to the class at the end.

A. 2 List words related to water. (Think of different areas and variety.) e.g. fish, tap, evaporation, lotus, Sarita

A. 3 Run a 'Save Water' campaign. Divide into groups of equal number. Discuss what activities for community can be done. Discuss what people and government can do and resolution for yourself. Record them in the table below :

Suggestions to the Government	Suggestions to the People	Suggestions for (myself)

Report your discussion to the class.

- Play word association game with your friends, family and teachers. Say 'water' and ask them to give the word that comes to their mind immediately.