

Water

Social Science

Class- VII



0854CH18



DAV Public School, Uppal's Southend, Sector 49, Gurugram
(Affiliated by CBSE)

INDEX

Topic	Page No.
• Preface	5
• Disclaimer	7
• Acknowledgement	8
• Learning Outcomes	9
• Flow Chart	10
• List of Characters	11
• Scene No. 1	13
• Activities for Scene 1	30
• Scene No. 2	34
• Activities for Scene 2	47
• Scene No. 3	50
• Activities for Scene 3	59
• Scene No. 4	63
• Activities for Scene 4	70
• Scene No. 5	73
• Activities for Scene 5	88
• Scene No. 6	91
• Activities for Scene 6	111
• Scene No. 7	113
• Activities for Scene 7	120
• Glossary	121
• Solutions	123
• Recapitulation and Assessment	127
• Overview	129

Scene	Page No.	Topic	Characters Involved
1	13-29	•Introduction of the topic •Importance of water •World Water Day	•Rimjhim •Neer •Sarita Ma'am •Saavan Bhaiya •Sarita Didi
2	34-46	•Rimjhim and Neer at Megha didi's house •Evaporation •Condensation •Precipitation	•Rimjhim •Neer •Megha Didi
3	50-56	•Rimjhim and Neer at Rimjhim's house •Evaporation •Condensation •Precipitation	•Rimjhim •Neer •Barkha (Mother) •Damini (Grandmother)
4	63-69	•Rimjhim and Neer in Dining Room •Evaporation •Condensation •Precipitation	•Rimjhim •Neer •Barkha (Mother) •Damini (Grandmother)
5	73-87	• Rimjhim and Neer in Study Room • Distribution of Water	•Rimjhim •Amber

Scene	Page No.	Topic	Characters Involved
6	91-110	• Rimjhim and Neer meets father after a long time • Waves, Tides and Current	•Rimjhim •Amber •Sagar (Father) •Barkha (Mother)
7	113-119	•Family in Drawing Room •Tsunami	•Rimjhim •Amber •Sagar (Father) •Barkha (Mother) •Damini (Grandmother)



PREFACE

One of the biggest concerns that teachers and parents have is how to encourage students to read and enjoy academic texts. No matter how many interesting books or colourful textbooks are introduced to the students, some will always steer clear of them. Graphic novels use images as well as words to tell a story and instantly catch even an on reader's attention. They are fast paced, and the illustrations reinforce, not replace the language which helps hold the reader's attention. They tend to be particularly captivating, and the combination of text and pictures provides context for content as they may otherwise not completely understand. The novel idea of introducing concepts of Social Sciences to students through graphic presentation was not only challenging but stimulating too. This Graphic Novel is based on the topic water. Water is a life giver, even a life creator. Water means Life. Water is a prime natural resource. It is a basic need for humans and a precious asset that living beings have. Water is equally vital for the survival of plant and animal kingdom. Soil needs water for sustaining plants. The water cycle is essential for ecological balance too. Though a big portion of the Earth is covered with water, only a small portion of it can be used for various human activities.

So, we need to be judicious and rational, regarding the usage of water. Human beings should realize how important and precious water is. At the individual level, one should be more responsible and avoid wasting water so that our future generation can make the best use of this natural resource abundantly.

(NOTE: Kindly refer the glossary for English translation of dialogues written in Hindi.)



DISCLAIMER

This novel is created by DAV Public School, Uppal's Southend, Sector 49, Gurugram. It is designed to give a better comprehension of the concept. It is supplementary to the chapter "Water" given in NCERT textbook (Our Environment). All names, characters and incidents portrayed in this graphic novel are fictitious. Any resemblance to any person is purely coincidental.



ACKNOWLEDGEMENT

"We are, ourselves, creations. And we, in turn, are meant to continue creativity by being creative ourselves."

(Julia Cameron)

Training and Ideation

Mr. Sandeep Sethi, Director Education, M.S.M.S.II Museum Trust

Coordination

Ms. Charu Maini, Principal, DAV Public School Sector 49, Gurugram

Subject Expert

Ms. Kavita Pandey, TGT (Social Science)

Ms. Geetika Khatri, TGT (Geography)

Ms. Nivedita Sharma, TGT (Social Science)

Ms. Alka Kumari, TGT (Social Science)

Ms. Sonika Birhman, TGT (Social Science)

Ms. Poonam Yadav, TGT (Geography)

Ms. Akanksha Chopra, TGT (Social Science)

IT Support

Ms. Geetika Khatri TGT (Geography)

Ms. Gagandeep Kaur TGT (Computer)

Art and Graphic

Ms. Shikha Banerjee, PRT (Art)

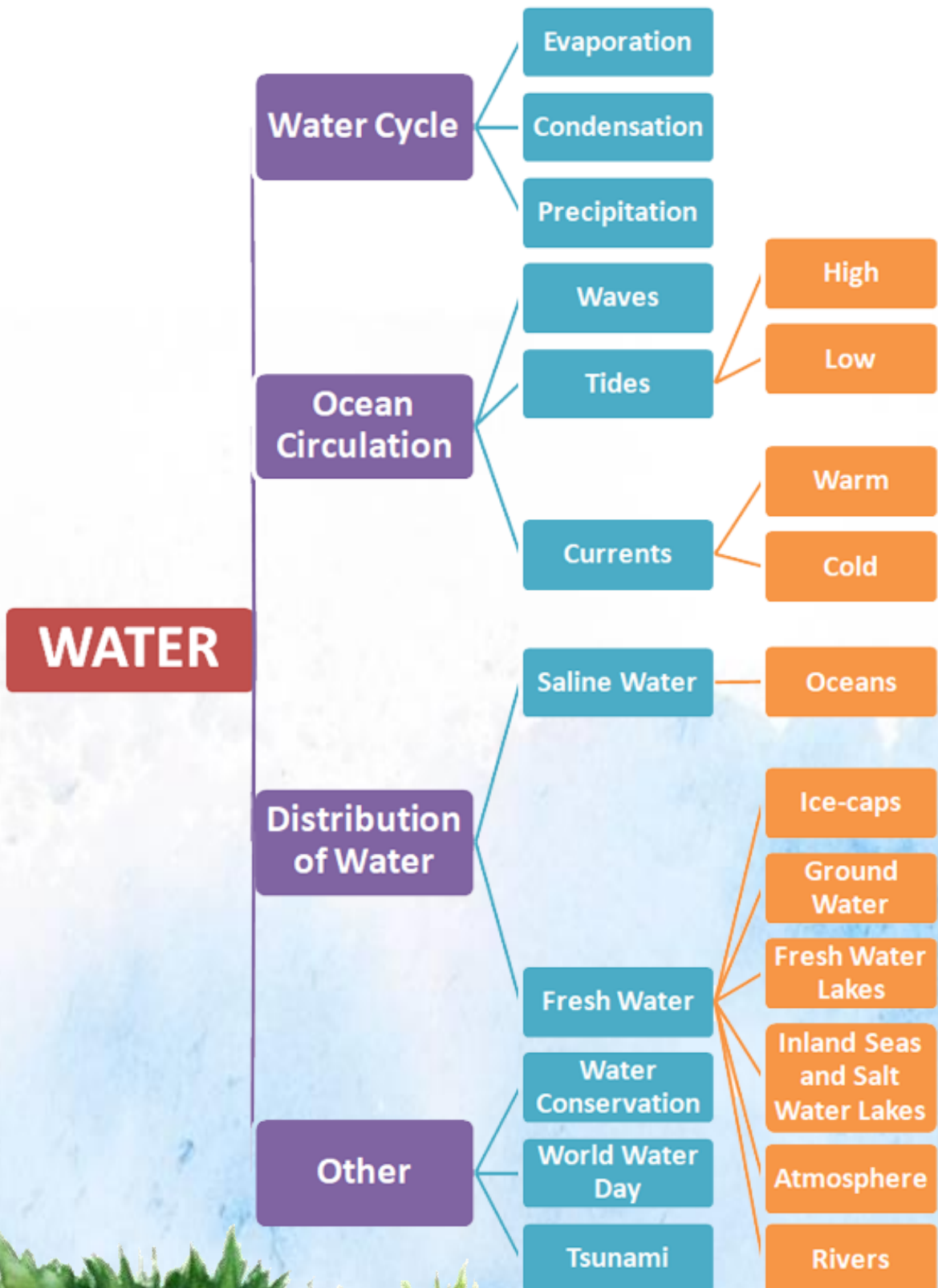
LEARNING OUTCOMES

Students will be able to-

- explicate the classification and distribution of major water bodies.
- expound the cause behind the origin of waves tides ocean currents and their effects.
- explain the continuous circulation of water among the hydrosphere, atmosphere and lithosphere called hydrological cycles.
- infer how waves are formed in the ocean or seas when wind blows across the water surface.
- relate that amount of salt present in the sea water is Salinity.
- comprehend when the rainwater is soaked by ground is called ground water.
- summarize that enormous sea waves caused due to undersea earthquake or volcanic eruption which cause tremendous destruction in coastal areas.
- realize the importance of water conservation.



FLOW CHART



LIST OF CHARACTERS



RIMJHIM

Main
Character

Age- 12-13
years



NEER

Rimjhim's
Friend

Age- 12-13
Years



SARITA MADAM

Social
Science
Teacher

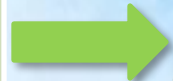
Age- 28-30
Years



VARSHA DIDI

School
Gardner

Age- 25-26
Years



SAAVAN BHAIYA

School
Gardner

Age- 30-32
Years





MEGHA DIDI

Cousin of
Rimjhim

Age- 18-19
Years



SAGAR

Father of
Rimjhim

Age- 36-37
Years



BARKHA

Mother of
Rimjhim

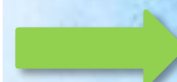
Age- 34-35
Years



AMBAR

Younger
brother of
Rimjhim

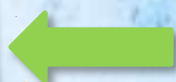
Age- 9-10
Years



DAMINI

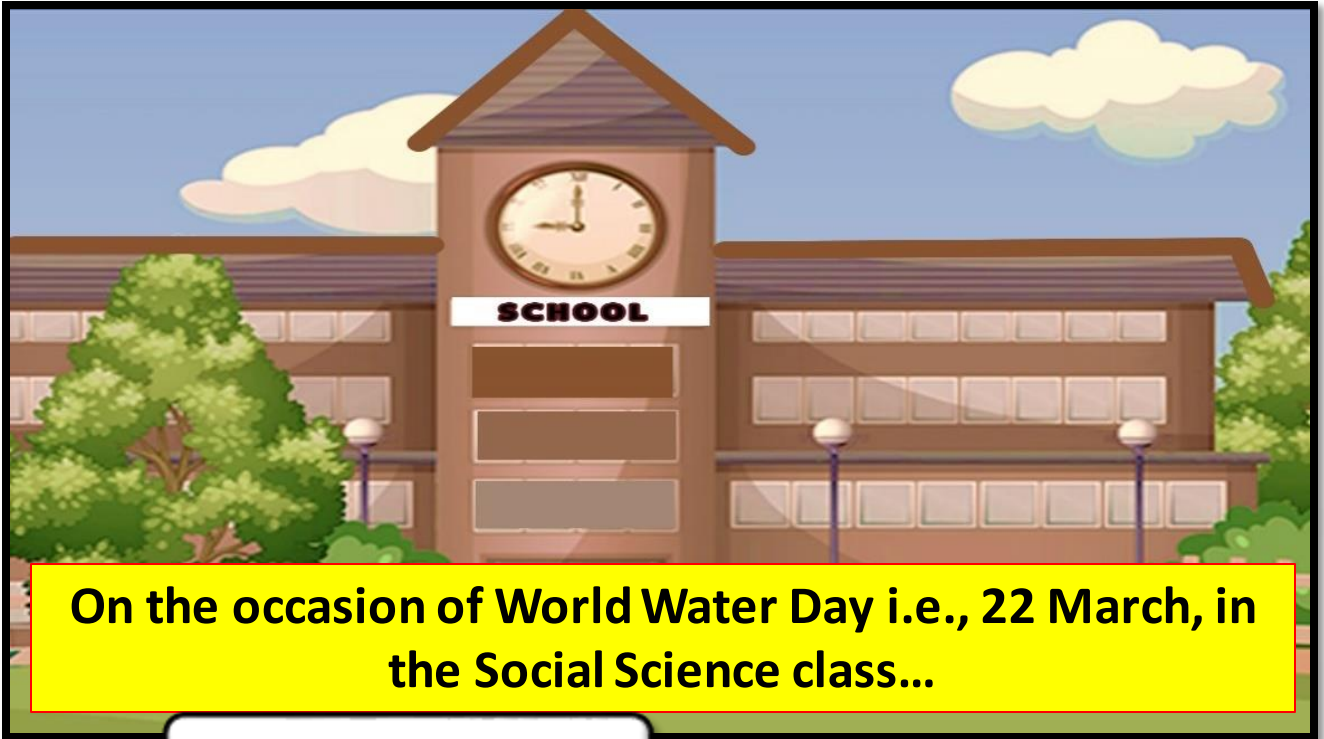
Grandmoth
er of
Rimjhim

Age- 68-70
Years



SCENE 1

School

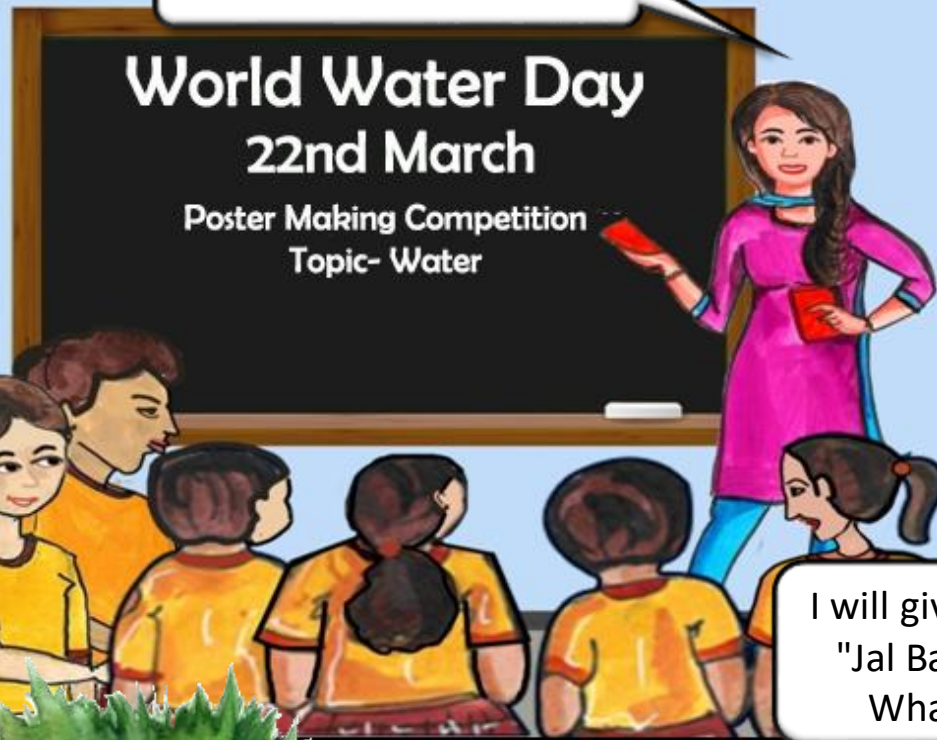


On the occasion of World Water Day i.e., 22 March, in the Social Science class...

Good Morning students

World Water Day
22nd March

Poster Making Competition
Topic- Water



I will give you a statement
"Jal Bachao Kal Bachao"
What does it mean?

World Water Day

22nd March

Poster Making Competition
Topic- Water

It means , we
should save water
for our future.

Good!
We are going to the
playground for poster making
competition.

This competition is to celebrate the
"World Water Day" and to understand
the importance of water...

...the theme is "Water Conservation or
Why Water is Essential for us?"

Overview

Water is a natural resource.

We can't survive without it, that's why we are going to learn and understand about this ultimate resource.

Soon the students of Grade 7 started moving towards the school playground for painting competition.



Rimjhim, Neer, Ms. Sarita and other students in the school playground... students are busy making posters...





Near the water tap gardeners of the school are watering the plants...enjoying and singing...



पानी रे पानी तेरा रंग कैसा
जिसमें मिला दो लगे उस जैसा
पानी रे पानी
ओ पानी पानी रे पानी..





Rimjhim and Neer stayed for a while to watch the activities of the gardeners.



माली भैया आपकी आवाज और
गाना बहुत अच्छा है।

हाँ, मुझे भी यह गाना पसंद आया
और मुझे अपनी पेंटिंग के लिए एक
अच्छा आईडिया मिल गया।



यह जानकर अच्छा
लगा कि आपको
हमसे कुछ जानकारी
मिली...

..लेकिन अब आपको जाना
होगा, आपकी टीचर आपको ढूँढ़
रही होंगी।



Yes..let's go
Neer

Sarita ma'am was a little worried for both the students.

And soon they both arrived.



Where were you? Why did you take so much time to come back?



Sorry ma'am.



Actually ma'am, Varsha didi and Saavan Bhaiya were singing a beautiful song on water..





..and suddenly I
got an idea for
my painting..

..so we observed
them for a while.



Sorry ma'am we will be
careful next time.

Wow! even I got an
idea, they both are from
nearby villages and very
intelligent as well..



... let me call them, they
can ask some riddles
from you all.

Sarita ma'am called both the gardeners.

जी मैडम ।

Welcome!

मैं सोच रही थी कि क्या आप दोनों हमारे छात्रों से कुछ पहेलियां पूछ सकते हैं?

क्योंकि हम नया चैप्टर "पानी" शुरू करने जा रहे हैं।

मैडम, हम यह कैसे कर सकते हैं?

हाँ आप कर सकते हैं। मुझे यकीन है कि छात्र
पहेलियों का भरपूर आनंद लेने वाले हैं।

क्या आप के पास
स्थानीय भाषा
में भी कुछ पहेलियाँ हैं?

Yes madam..

Then Varsha didi
you ask first.

"मैं इंग्लिश का सबसे बड़ा
अक्षर हं, क्योंकि मेरे पास
दुनियाँ में सबसे ज्यादा
पानी है"। मैं कौन हूँ?

Students started looking at each other without any clue.

No Idea ma'am.

? ? ? ?

No Idea didi.



बूझो तो जानें..



...the clue is in the riddle itself. "I contain the most water in the world"





Yes I know ma'am. It's the
alphabet "C" i.e. Sea.



Very good ! applause for
Rimjhim.
Now Saavan bhaiya you ask.



Ok madam.

अब इसे हल करने की कोशिश करें, यदि आप लाल
सागर में एक पीली टोपी गिराते हैं, तो क्या होता है ?



It will become
orange.





We will give you few riddles for homework to think on.





Thanks Varsha didi and
Saavan bhaiya.

Ok Madam
Namaste.

Sarita ma'am told Saavan Bhaiya and Varsha didi to go back to their work and she asked the students to go to the classroom.

In the classroom..



...tomorrow your result will be declared after the submission from all the students.



Ok ma'am.



***The students those who were not able to complete the poster during the class and the absentees will send (on teacher's school mail ID) the PPT/Digital Poster/Padlet on any one topic-**

1. Talk to your grandparents and find out ways to Conserve water. (ancient methods with original pictures)

or

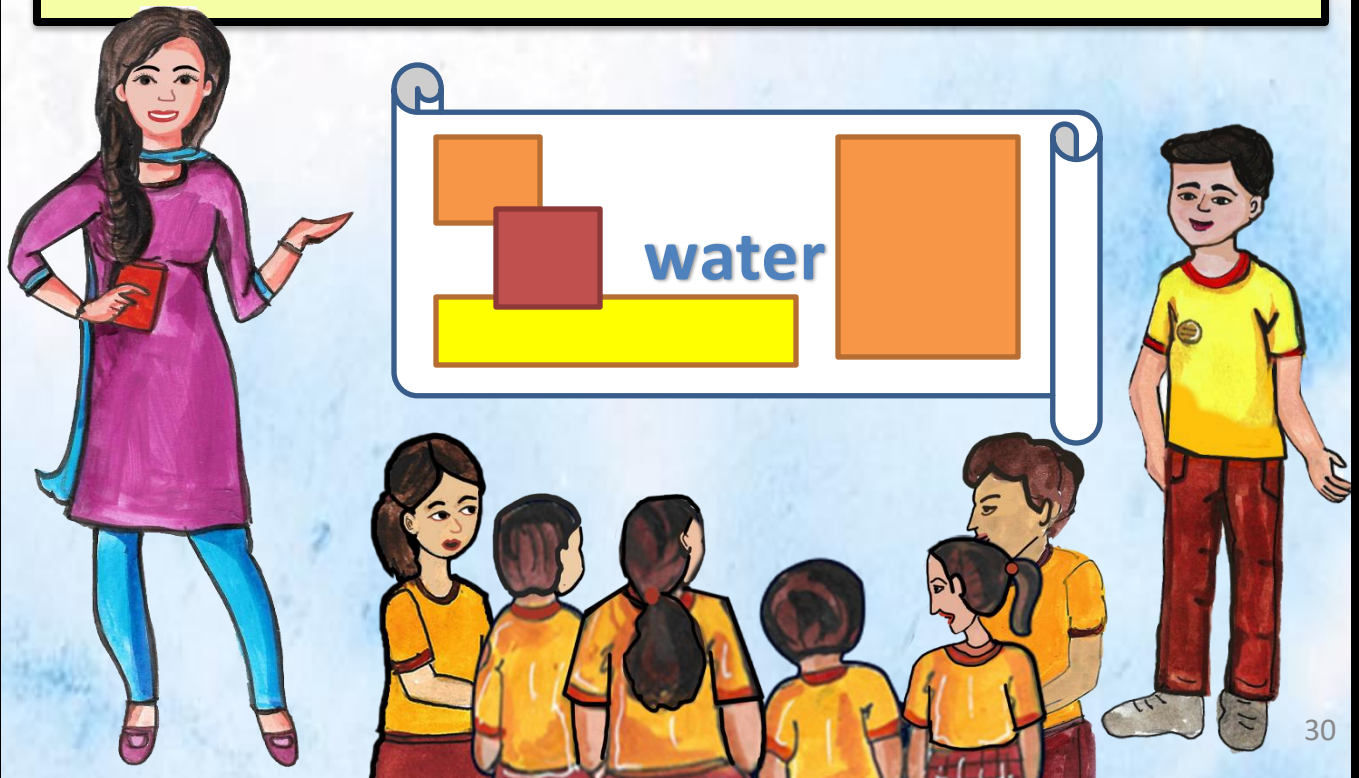
2. How water is essential for other beings as well?

or

3. Make a collage of pictures in which you are taking care of plants. (as a part of sustainable development goal.)

or

4. Write a song/rhyme/jingle on importance of water.



Work Sheet

Tickle Your Brain

1. Wash me and I won't be clean, don't wash me, and I'll be clean. What am I?
2. I'm the child of water, but when you take me back to the water I'll die. Who am I?
3. What always runs, yet doesn't walk, often murmurs but doesn't talk. Has a bed, but doesn't sleep, has a mouth but never eats.
4. I run forever, but do not move at all, I have no lungs or throat but a roaring call.
5. What do the letter "T" and an "Island" have in common?
6. When does a bank have no money?
7. What runs and has no feet, roars but has no mouth?



****Find out the answers from the word search on the next page.**

Tickle your Brain

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



? ?
? ? ?





Rajendra Singh (born 6 August 1959) is an Indian water conservationist and environmentalist from Alwar district, Rajasthan in India. Also known as "Waterman of India", he won the Magsaysay Award in 2001 and Stockholm Water Prize in 2015. He runs an NGO called 'Tarun Bharat Sangh' (TBS), which was founded in 1975. The NGO based in village hori-Bhikampura in Thanagazi tehsil, near Sariska Tiger Reserve.

SCENE 2

After the school Rimjhim and Neer reached Megha Didi's house...



Hi Megha di, How are you? What are you doing?



I am fine Rimjhim. I am preparing some snacks in the kitchen. Come taste it.

Megha didi...why are there water droplets on the lid of the Idli maker?

What is **condensation** didi?

These are due to **condensation**.

Have you ever observed, water when heated in a kettle or a pan? It changes into vapour...?



Yes didi...I have
observed my mother
doing so..



when water changes into
vapour on heating, this
process is called
evaporation





..I remember my mother was boiling eggs in the pan and the water reduced to half, as water changed into vapour.

But, didi what is Condensation?

Condensation is the process by which water vapour in the air changes into droplets of water.



And condensation is crucial for the water cycle.





Water
Cycle??



What is water cycle didi??
A cycle running with water
or on water?

No no Neer....its not that
I remember we read
about it in class VI

**Megha didi started
laughing...**

HA HA HA!

No my dear Neer, the process by
which water continuously
changes its form..





...and circulates between oceans, atmosphere and land is known as the water cycle.



And **precipitation**-is water released from clouds in the form of rain, snow, or hail.



Wow..rain...I love to walk in rain with an umbrella



So precipitation means any form of water that falls on the Earth's surface like rain, hail or snow



Megha didi showed a special water cycle made up of food items.





Megha didi assembled a platter using the food she prepared for lunch, she used-

- Idli
- Coconut chutney
- Turmeric powder
- Salt
- Curry leaves

to explain the concept of evaporation, condensation and precipitation to Rimjhim and Neer

Didi I got some rhyming words
on this topic. May I try ?



Wow! Rimjhim you are so talented.
Please share your rhyme with us.



Water vapour rises up...
forms clouds up above.
Water falls back on the ground...
Flows in river, lakes and
underground



Good Rimjhim..I am glad that you understood the topic well .

Now Rimjhim and Neer quickly go home, it seems it is going to rain soon.



(Rimjhim starts singing...)





Rain, rain go away come again
another day, me and Neer wants
to play rain, rain go away...

Rimjhim don't say that, as rain is good
and significant for our planet.

It gives us fresh water to drink.





Yes, I remember in the morning we made poster on the importance of water.



Yes, kids water is important to grow crops, it keeps everything lush and green and is fun to run around in.

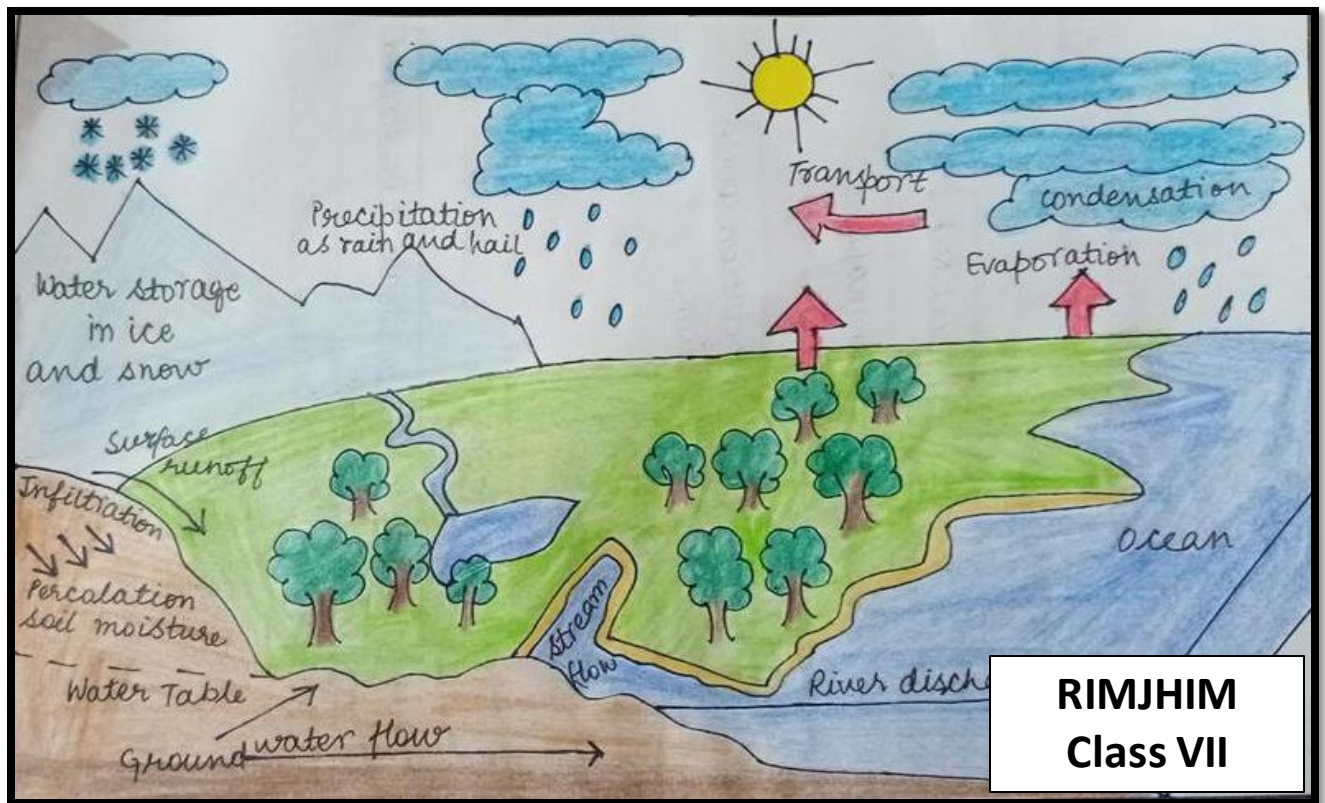


Without rain our planet would be like a desert.

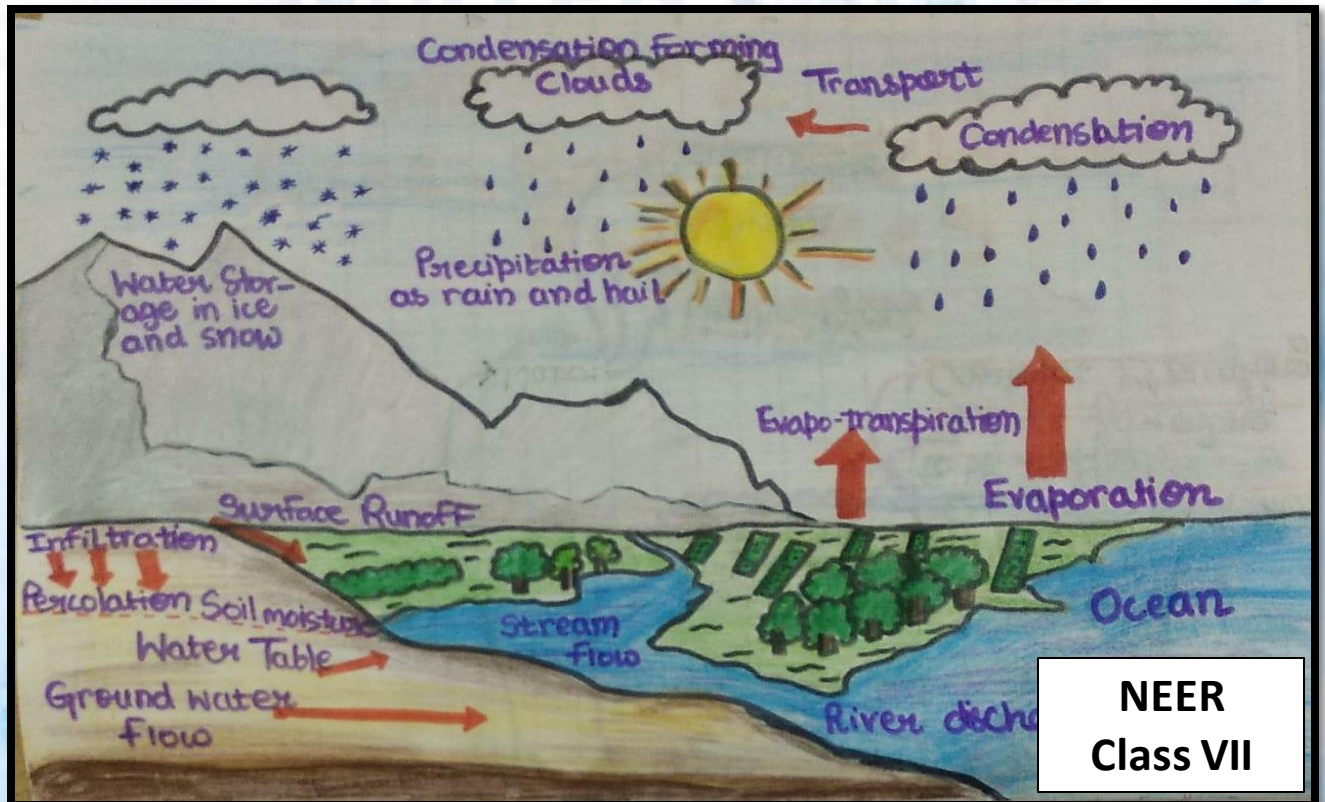


That's a scary thought indeed





WATER CYCLE



ACTIVITY

Draw a colourful picture of water cycle showing the three important processes of-

- Evaporation
- Condensation
- Precipitation



Draw here





Ayyappa Masagi has changed the lives of thousands of people by getting them to practise rainwater harvesting and water conservation. This Karnataka resident purchased six acres of land in a village in Gadag, a dry region, where he started planting rubber and coffee to prove that one can grow these crops irrespective of the amount of rain one gets. However, after failing several times and after years of research, he found that recharging borewells and practising non-irrigational agriculture methods could help more.

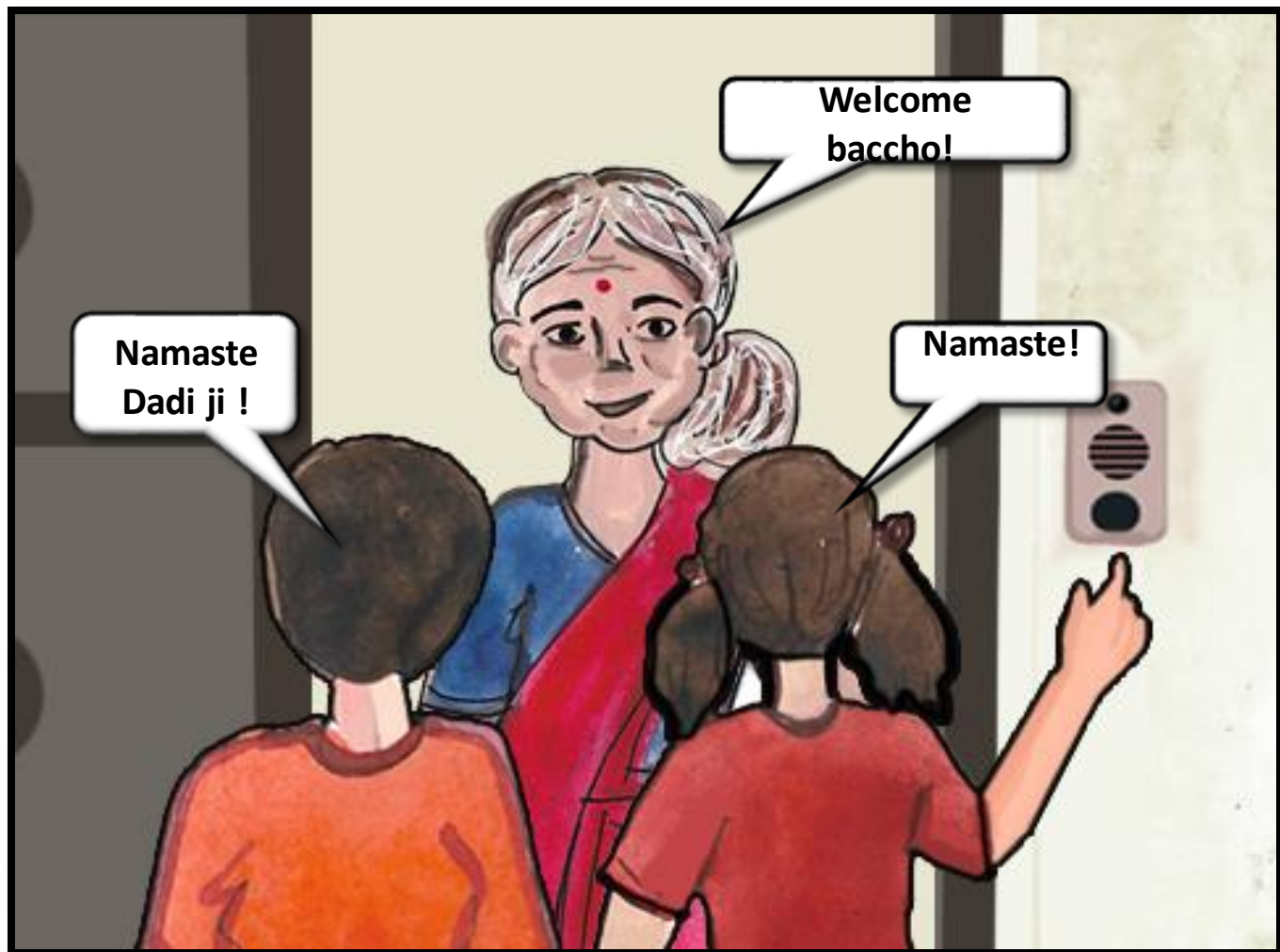
SCENE 3

RIMJHIM and NEER at RIMJHIM'S house.



**RIMJHIM and NEER ringing
the doorbell.**







Barkha collecting clothes in hurry...



Neer and Rimjhim both went upstairs.



Aunty when I was going to the garden to play with Rimjhim...

...at that time you were spreading the wet clothes on the spreader.

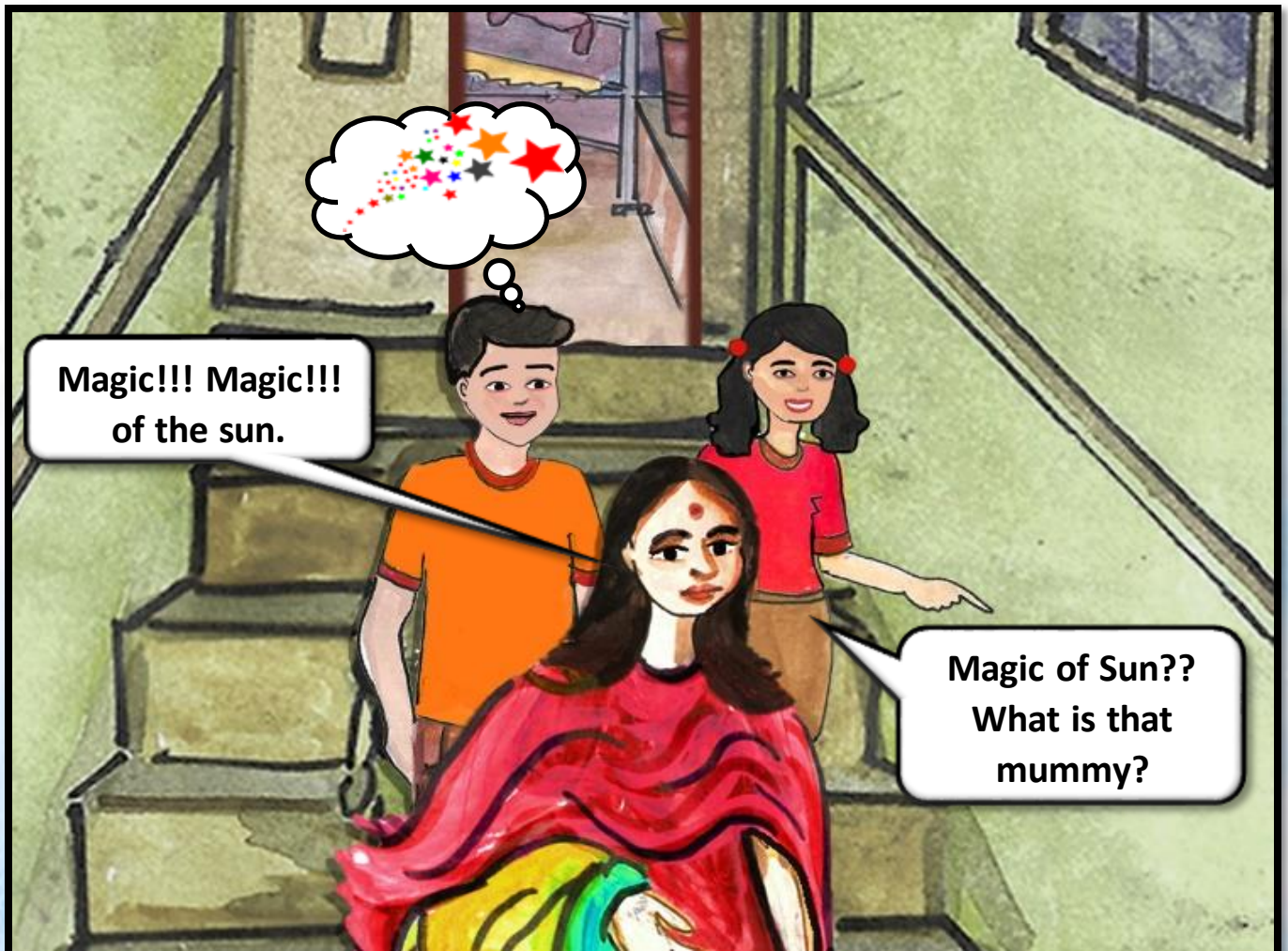


Barkha looking at Neer and smiling.



Now these clothes
have dried?

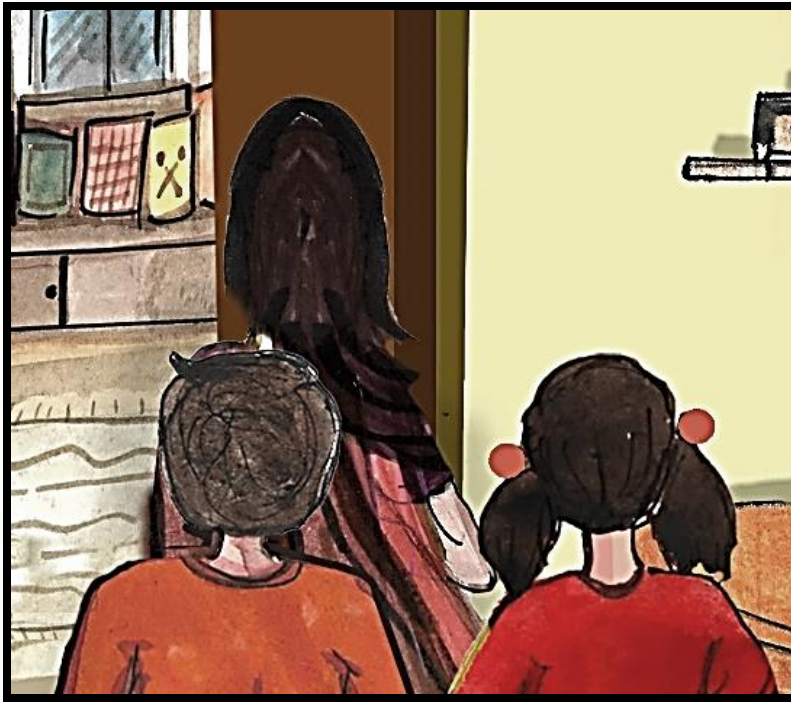
Where has the water
from these clothes
disappeared?



Magic!!! Magic!!!
of the sun.

Magic of Sun??
What is that
mummy?

All three of them moving towards the room.



This magic is known as evaporation.



What do you mean by evaporation mumma?





Both the children are tired and went to the washroom to wash their hands.





Now it's SELFIE time:

- S: Show my work
- E: Explain my answers
- L: Learning the concepts
- F: Found multiple solutions
- I: Innovate
- E: Eliminate careless errors



ACTIVITY 1:

Take two towels of equal size. Make them wet. Fold one towel and keep both of them out in the sun to dry. Observe which one dries faster?



Write down your observation:

ACTIVITY 2:

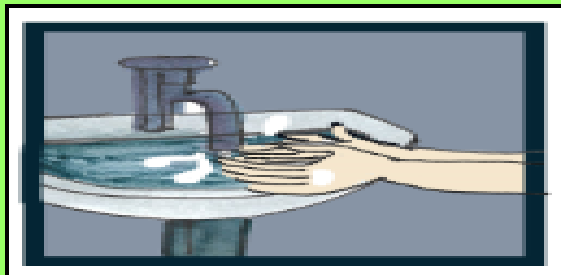
Wash your hands with water and do not wipe them just hold them up under a fan. Note how long it takes to get your hands dry.



Write down your observation:

ACTIVITY 3:

Wash your hands with water and do not wipe them just sit with your palms up but do not sit under a fan, do not sit in the open, sit inside a room. Note how long it takes to get your hands dry?



Write down your observation:

ACTIVITY 4:

When you sweat after being in the sun or after a physical activity you sit under a fan. What happens?



You feel _____ (hot/ cold) , where has the sweat disappeared ? Write down your observation: _____

Now based on your observations match the activity given in column A with the observations given in column B :

COLUMN A	COLUMN B
ACTIVITY 1	Hands dry up fast as the rate of evaporation increases due to flow of air /breeze circulated by the fan
ACTIVITY 2	sweat has evaporated in the air now
ACTIVITY 3	We will see water evaporate faster with a greater exposed surface area.
ACTIVITY 4	The hands dry slower as there is no breeze or air

Activity 5:

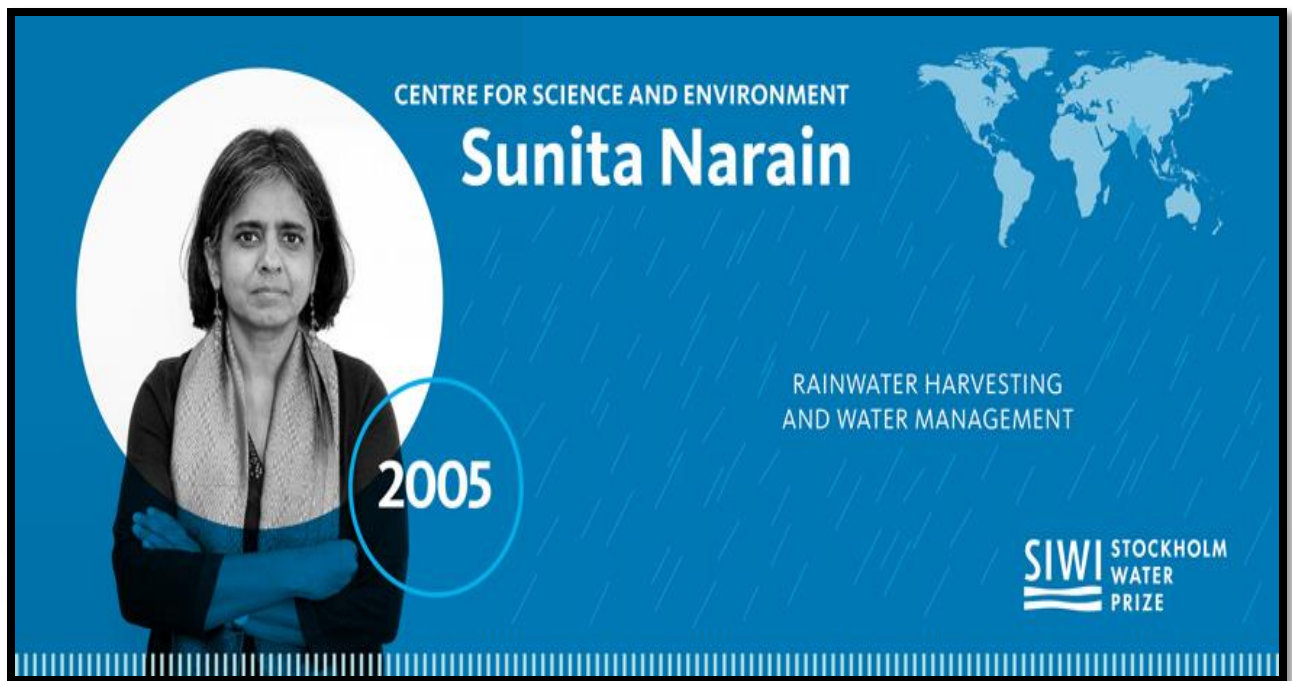
Take an empty glass and place it in the freezer.



After about an hour take the glass out and place it outside at room temperature. Based on your observation arrange the sentences given below:

- _____ encouraging the water vapour molecules to cool down and form tiny droplets of water
- _____ I saw a puddle of water at the bottom of the glass.
- _____ I touched the glass it was wet all over.
- _____ the glass went white and was cooler than the surrounding air.
- _____ Then with time the little droplets got together to make bigger ones.





For 30 years, the world's most prestigious water award, the Stockholm Water Prize, has honoured women, men and organizations for extraordinary water-related achievements.

Sunita Narain has led the Centre for Science and Environment - a prominent non-profit organization in India - for 15 years. She was listed as one of India's 25 most powerful women, but she sees herself as an environmental activist. Through her engagement, she has placed water at the top of the agenda in India and around the globe - not the least through her work in reviving the idea of harvesting rainwater as a way to eliminate poverty in rural areas. For these achievements, she received Stockholm Water Prize in 2005.

SCENE 4

Barkha, Rimjhim and Neer on the dining table.

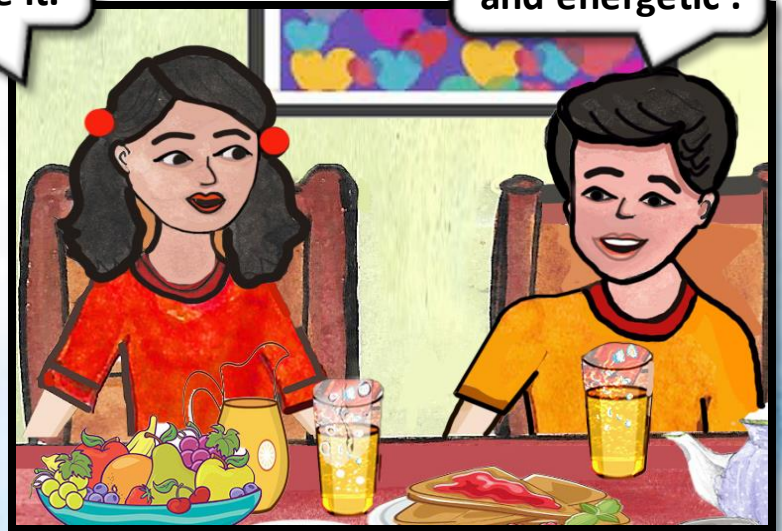


Wow!!! Orange juice I just love it.

So refreshing and energetic .



..and cutlets along with it. Thank you, aunty. So sweet of you .



You are welcome.





Barkha noticed Rimjhim not having the juice.



Barkha looking at the glass and smiling.

Oh, these droplets...this is because of Condensation.



Condensation? Oh yes ma'am also told us about condensation today.



Tea is very hot.



Mumma.., hey..Neer, Neer just look at Dadi maa's spectacles.

Don't tell me aunty that this is also because of evaporation and condensation?

O yes..this is also because of evaporation and condensation.

Oooooo so many examples of condensation..

While drinking a cold glass of orange juice on a hot summer day a person feels water out side of the glass.

Did the water on the outside of the glass most likely come from the orange juice, the ice, the glass surface, or the air?





There is lot of water in the orange juice. I bet that's where the water is coming from..

..or the water comes from the ice, ice is the pure water just in solid form.



I think the water comes from the surface of the glass. I mean that its right there on the surface!

Or from the air ?

When moisture in the atmosphere comes in contact with cold surface of the glass..

..the moisture convert into water droplets again

But why on Dadi maa's spectacles?

When the vapour from the hot tea comes in contact with the lenses of my spectacles...

.. that are cooler than the vapour, thus the vapour condense on the lenses of my spectacles.

Wow , That is great!



Experiment time :

In the following 3 easy experiments you can use a cup of water to show evaporation condensation and precipitation. These may be simple experiments but connecting literature science and hands on discovery often gives a more concrete understanding of the new concepts.. So let's begin..

Material required-

- four cups(disposable transparent cup)
- marker
- shaving cream
- water
- ice cubes
- food colour

1. Let's start with evaporation. Place a full cup of water in front of a sunny window. Use a marker to mark line at the beginning water level .Each hour mark the water level and begin to look for changes. As the sun heats the water it should begin to evaporate.



2. After evaporation we have condensation. When the water vapour reaches the sky it cools to form clouds. Fill a cup approximately two-thirds full of hot water. Take another cup, flip it upside down and place it on top of the cup with hot water. Then place an ice cube on the top of the upside down cup. Condensation will begin to form at the top of the upside down cup just like a cloud.





3. Finally a precipitation experiment. again fill a cup almost full of water. On top spray shaving cream as clouds. Then squirt several drops of food colouring on top of the shaving cream. as the cloud becomes heavy the food colouring will rain into the cup.



Now based on the examples of evaporation, condensation and precipitation given in your book, examples you observe around you and the experiment you conducted complete the given table

	IN THE BOOK	IN MY LIFE	EXPERIMENTS
Evaporation			
Condensation			
Precipitation			

SCENE 5

Rimjhim And Amber In Study Room



Time- Late evening, sun is setting

Come Amber...lets discuss something more about water.



Amber do you know that how much of the earth surface is covered with water?



No didi...How much is it?



Rimjhim shows the table of water distribution



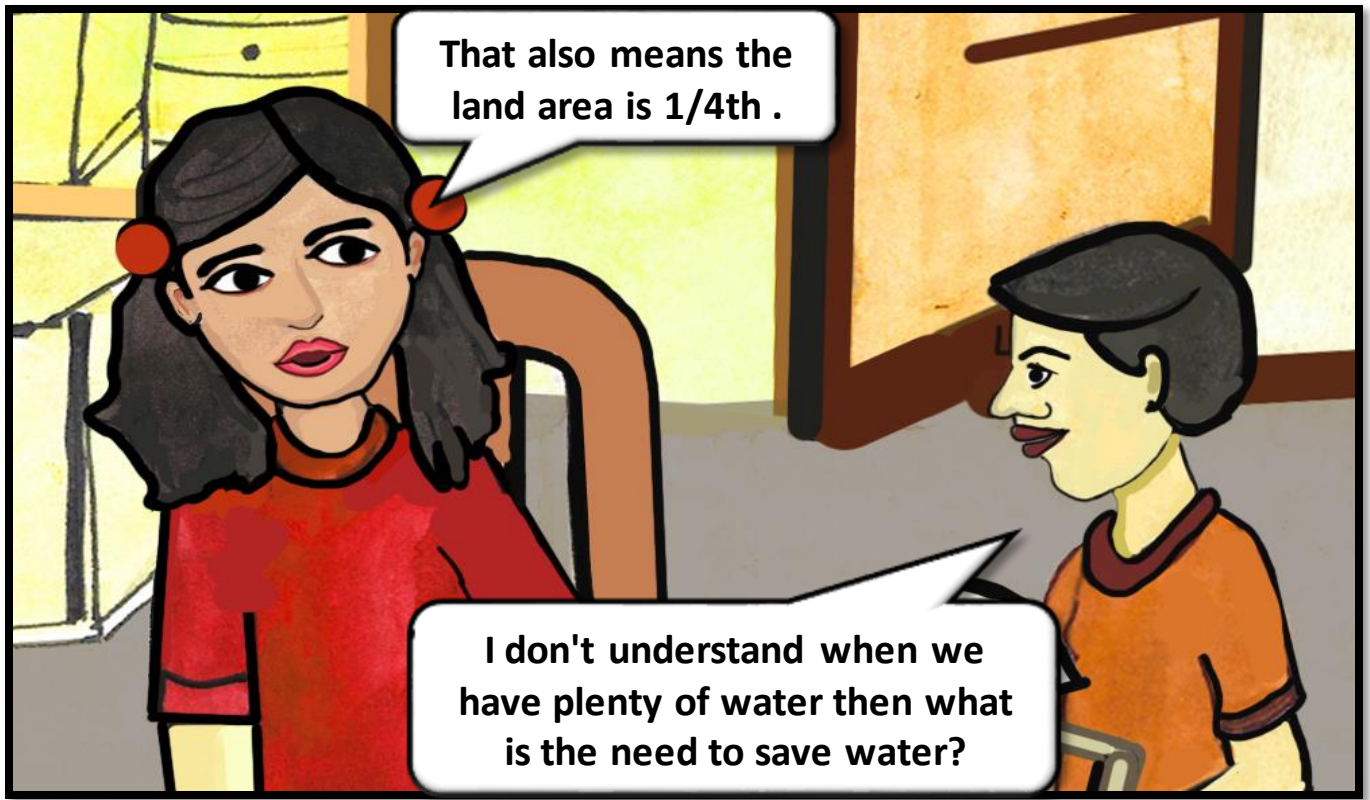
**$\frac{3}{4}$ th of the
earth's surface is
covered with water.**

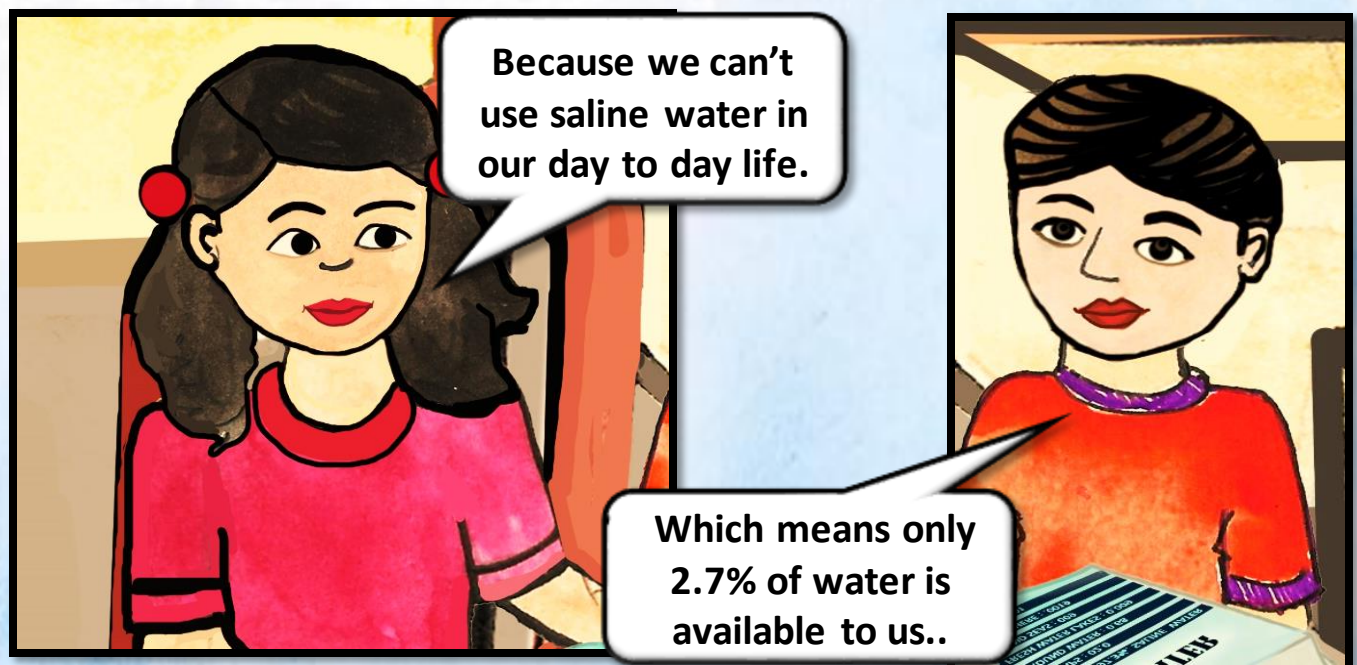
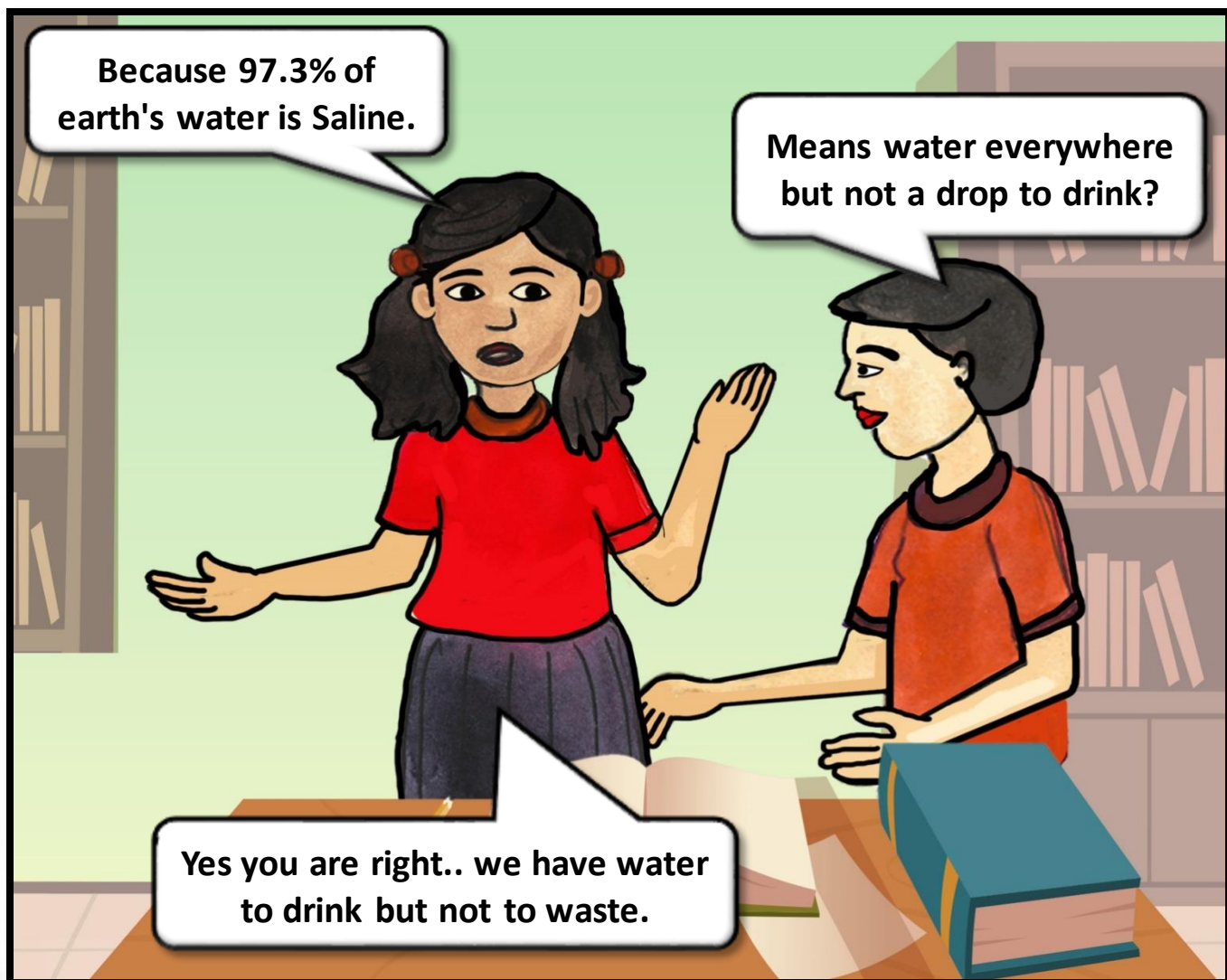
**Balle Balle, that
means we have plenty
of water around us.**

Rimjhim explained the percentage of water with the help of a table...

Water Body	Water (%)
Ocean	97.3 % Saline water
Ice caps	02.0 %
Ground water	0.68 %
Fresh water lakes	0.009 %
Inland seas	.009 %
Atmosphere	.0019 %
Rivers	.0001 %









Not exactly...If you analyze the table you will see that 02.0 % is in ice cap...

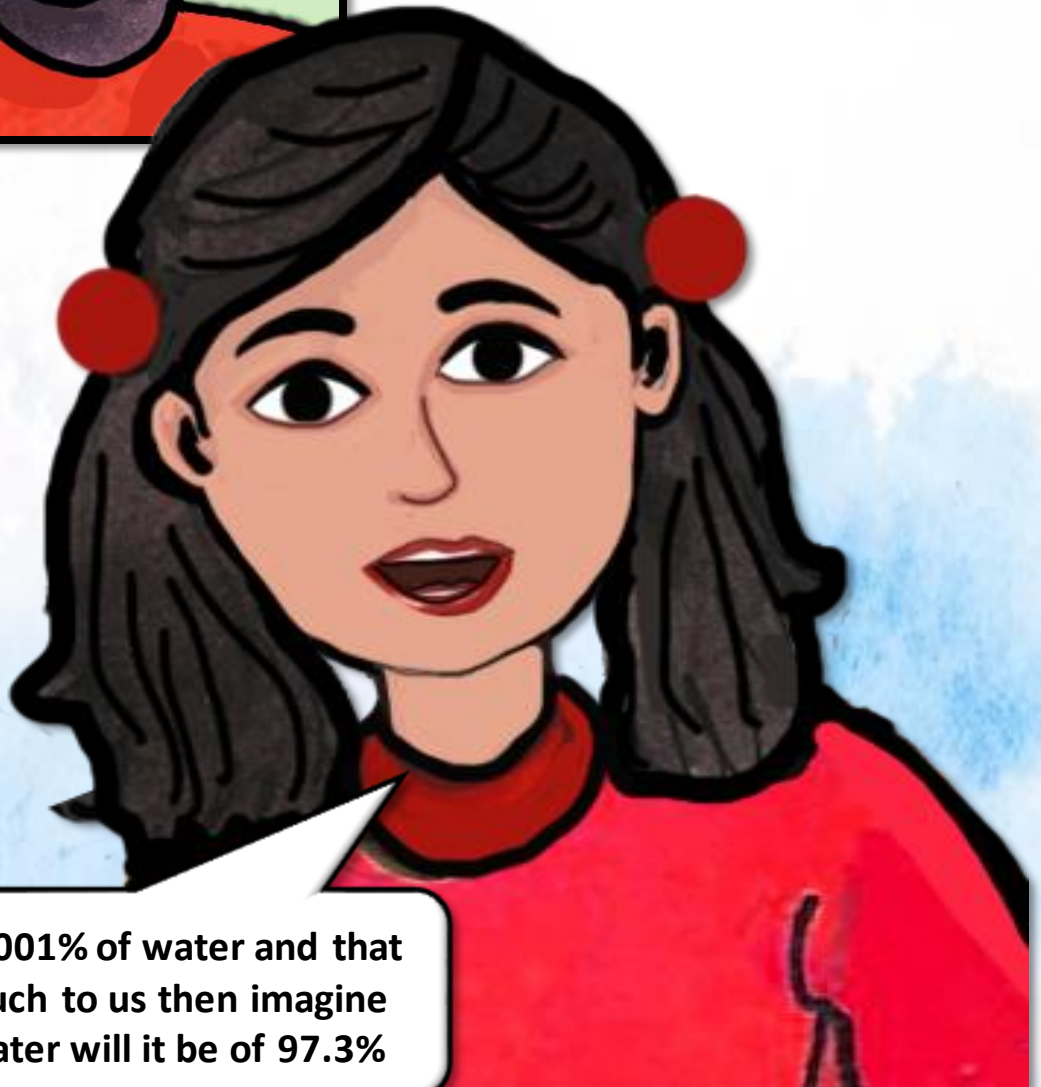
...which means when ice melts it will also reach the sea through the rivers.



I can see only 0.68 % as Underground water which means even that is not easily available to us.



I have seen Mali Bhaiya using underground water in the park.



Rivers have .0001% of water and that seems too much to us then imagine how much water will it be of 97.3%



Only .0001% is available for us.
How will we manage
everything with so less water.

Now I understand why there
is a need to conserve water.



Yes, it is an alarming situation.

50 years from now, if correct
measures are not taken then we
will face acute water shortage.



That means water is the basic unit for survival.

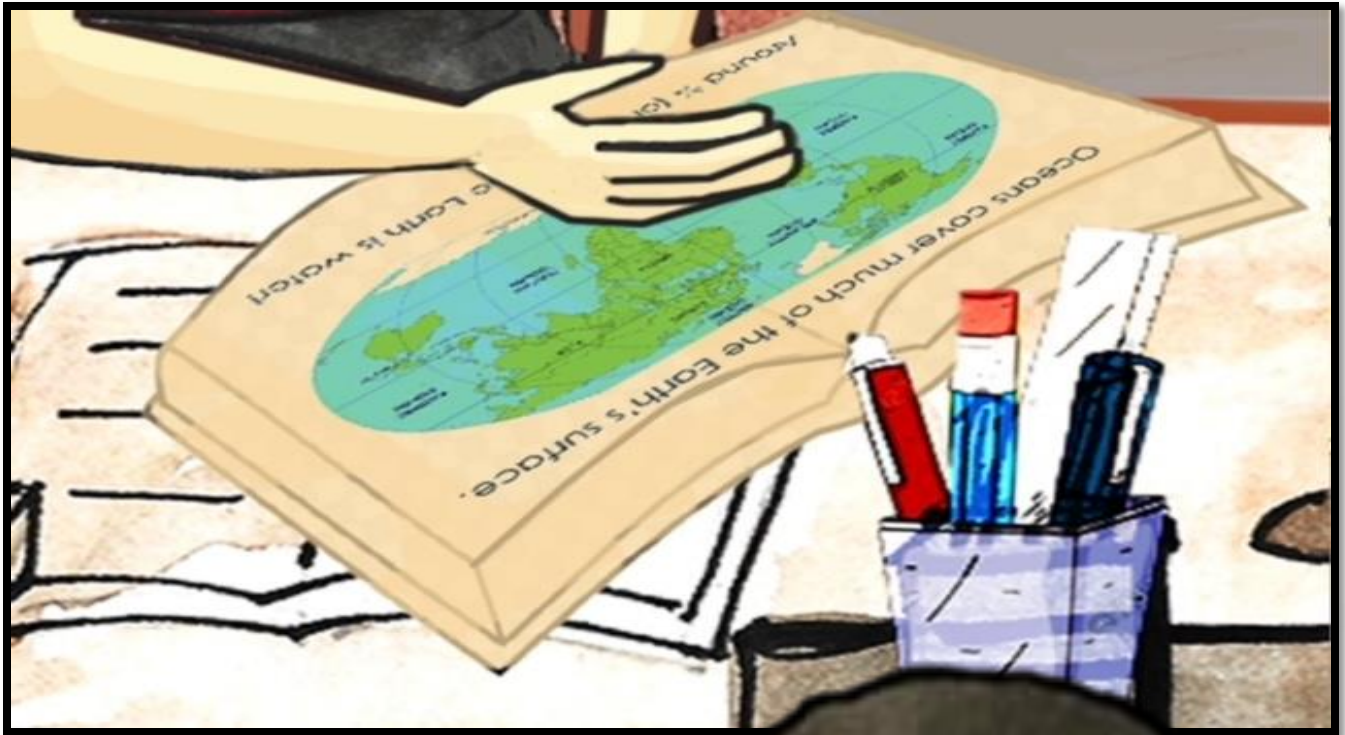


Let's see the distribution of water on the World Map.



Yes..let's see. I can show you five oceans on world map.

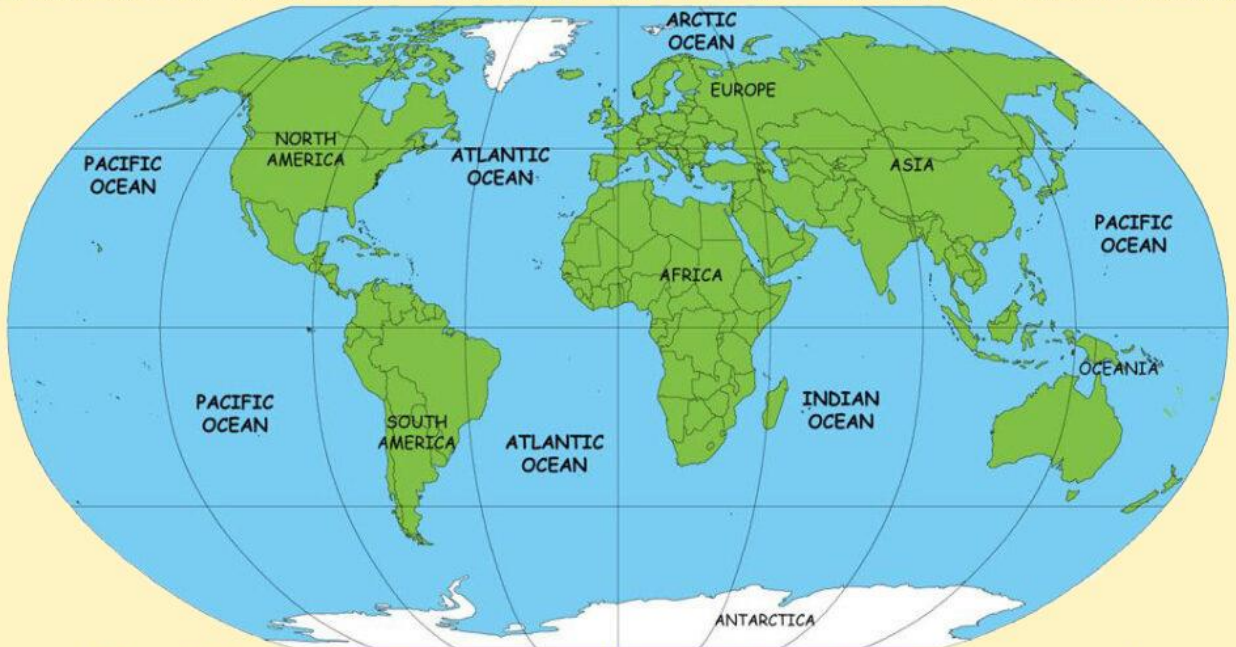
Rimjhim showed the world map from the book.



**They are- Pacific, Atlantic, Indian,
Southern (Antarctic) and
Arctic ocean.**

**I also know the major
rivers in India.**

Oceans Cover Much of the Earth's Surface



About 71 percent of the Earth's surface is water-covered.

Rimjhim pointing on map and says...

see these are Ganga and Brahmaputra rivers in India...

Oh..we have so many rivers across the world. Amazon river in South America...



...river Nile in Egypt, Colorado and Mississippi in North America (USA) and Huang-Ho in China



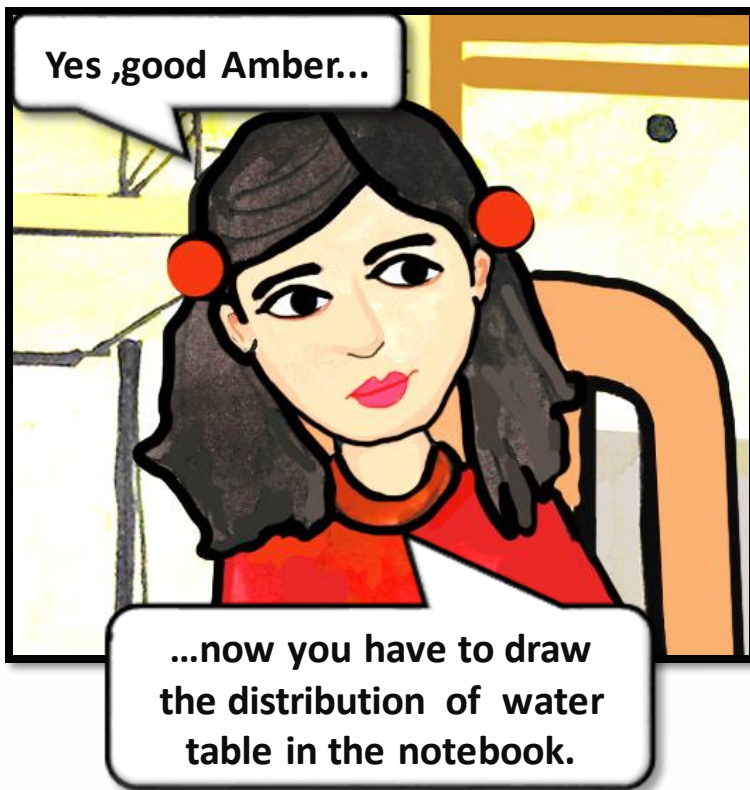
Wow Amber you are very intelligent.

..can you suggest two ways to conserve water at home and in school ?



Mmmm...yes
didi..

Use waste water from RO to water
the plants and washing the clothes.

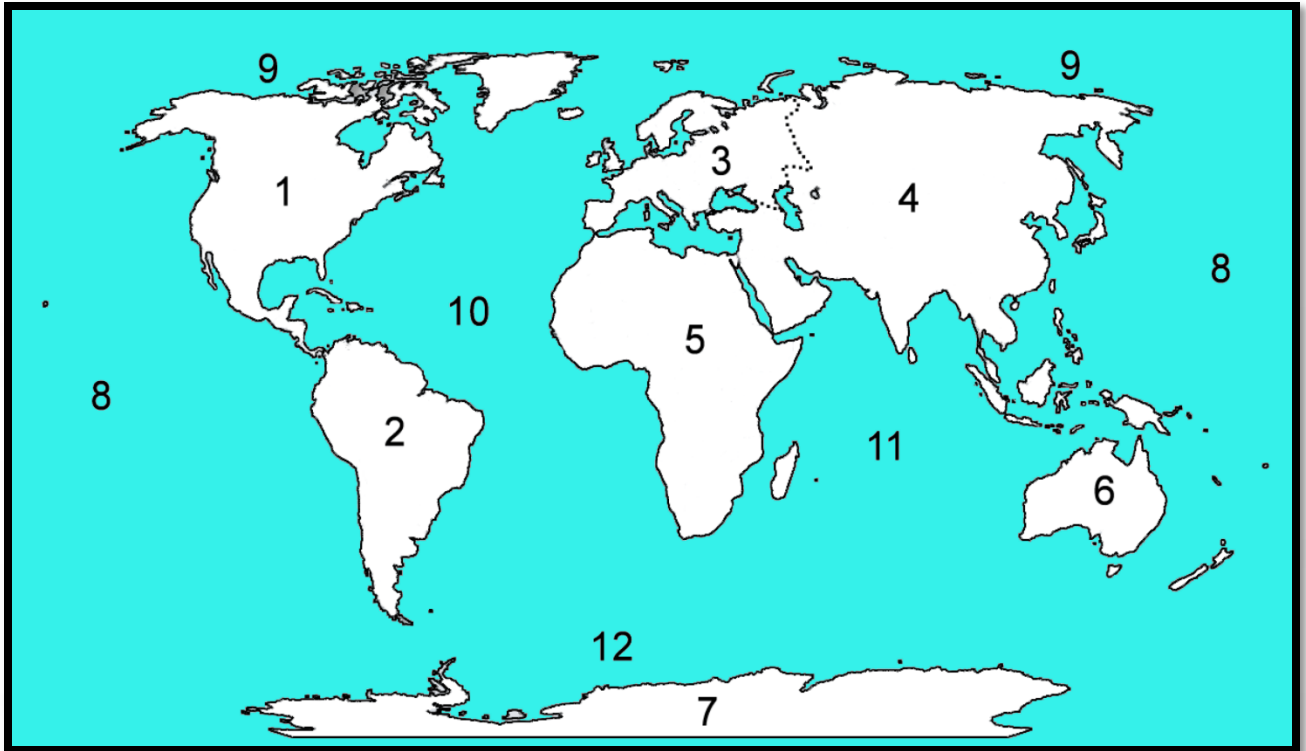


After the discussion Rimjhim told Amber to draw the distribution of water table in his notebook.

WATER BODY	WATER (%)
OCEAN	97.3%, SALINE WATER
ICE CAPS	02.0%
GROUND WATER	0.68%
FRESH WATER LAKES	0.009%
INLAND SEAS	.009%
ATMOSPHERE	.0019%
RIVERS	.0001%

WORLD MAP

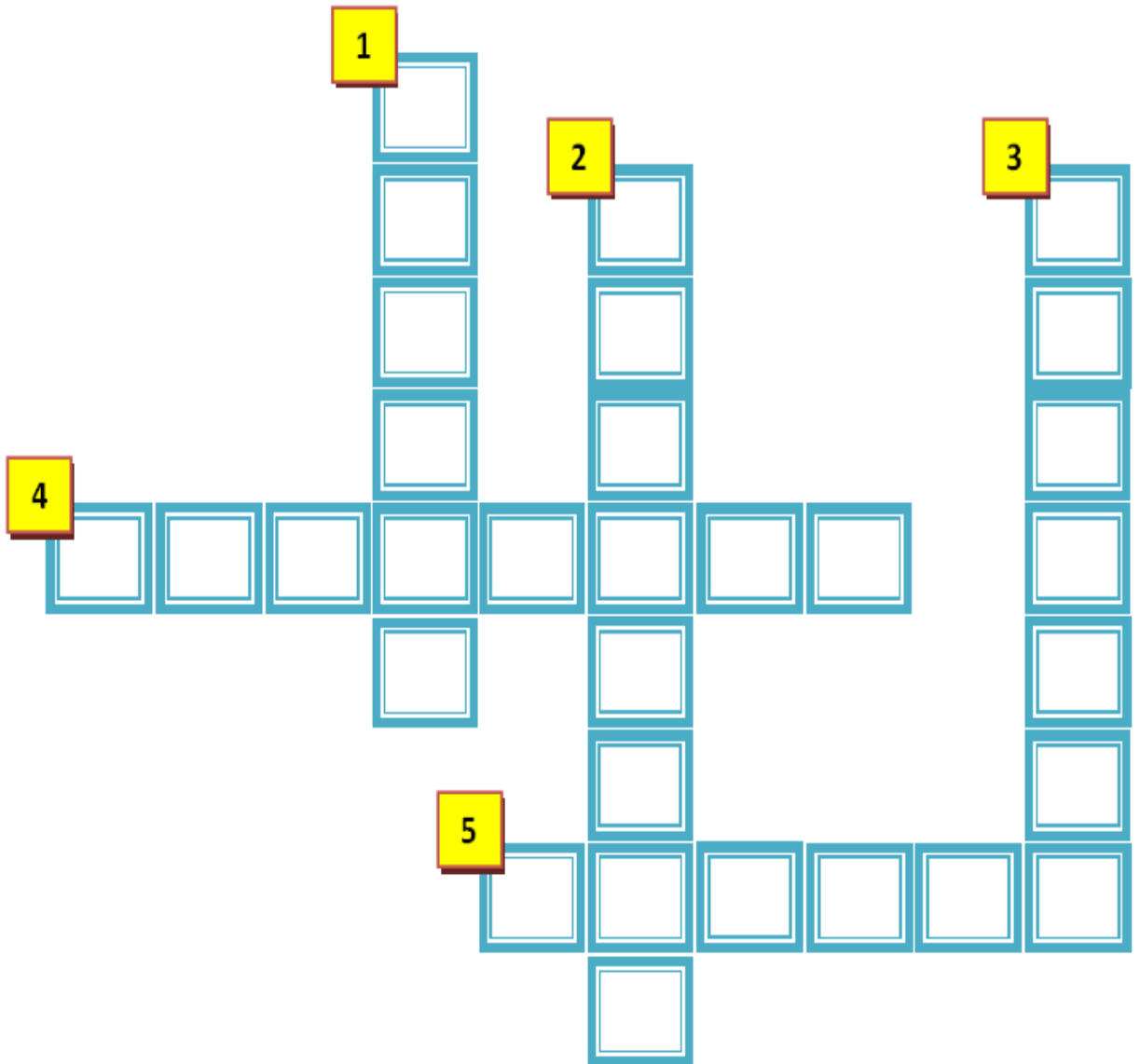
Continents and Oceans



Identify the Continents and Oceans and write in the space given.

1.	5.	9.
2.	6.	10.
3.	7.	11.
4.	8.	12.

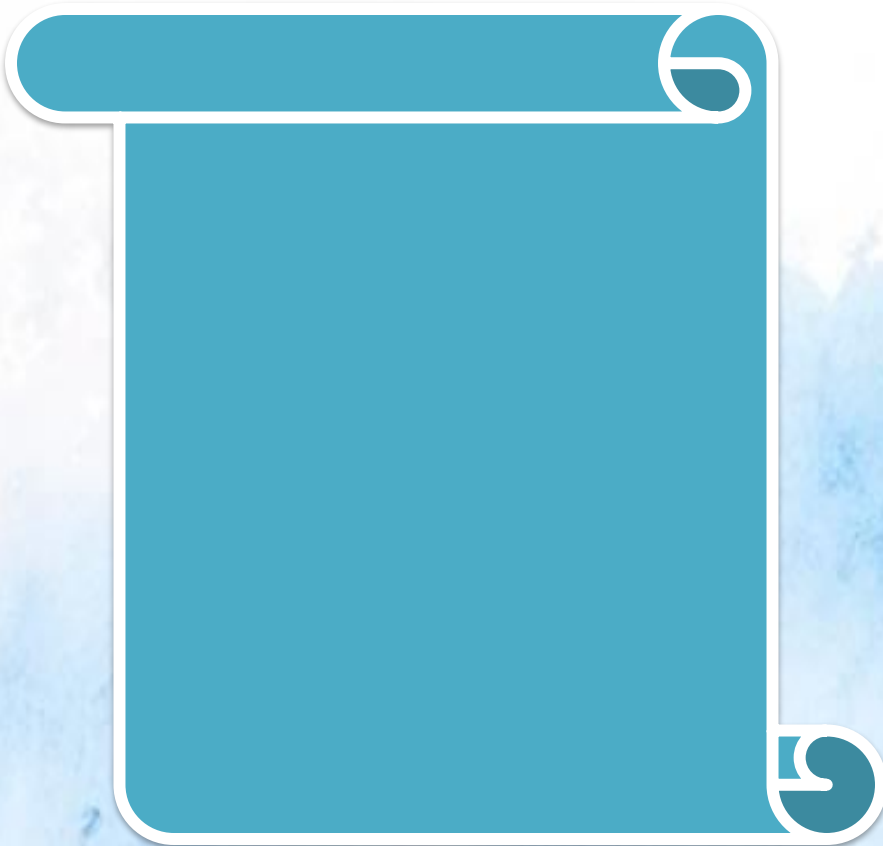
OCEANS OF THE WORLD



1. The 3rd largest ocean in the world
2. The 4th largest ocean in the world
3. The largest ocean in the world
4. The 2nd largest ocean in the world
5. The 5th largest ocean in the world

The Story of Creation

The teacher can tell the children the story of how God created the world including the seas, rivers and lakes which give us water. The children can discuss why we need water and what the world would be like if God did not create the seas, rivers and lakes (There would be no fish, we wouldn't go swimming in the sea, there would be no boats) At the end of the lesson the children can draw a picture of the beautiful world God created or write a prayer to God to thank him for creating the world.



SCENE 6

Next day, In the afternoon when Rimjhim and her brother Amber came back from school they felt surprised that their father (working in the merchant navy) had returned from his journey.



[Rimjhim and Amber Surprised]

Hey! How are you dad?

We are good dad..

I am good, what about you?
How are the studies going on?

(Meanwhile her brother asks)

Papa what is this?
(SURPRISED...)



(Having gift in their hand brought by papa)



**I have brought something for
both of you, see...**

Rimjhim and her brother open the gift



In the evening..



Dad, can we go for an outing tomorrow?
Family time!!



Okay...let's go to the balcony and then we will discuss.

The children went to play in the balcony, and it started raining. Rimjhim observes ripples formed in a puddle due to rainfall.





Hey Amber can you see the ripples formed?

[Rimjhim and Amber curious]



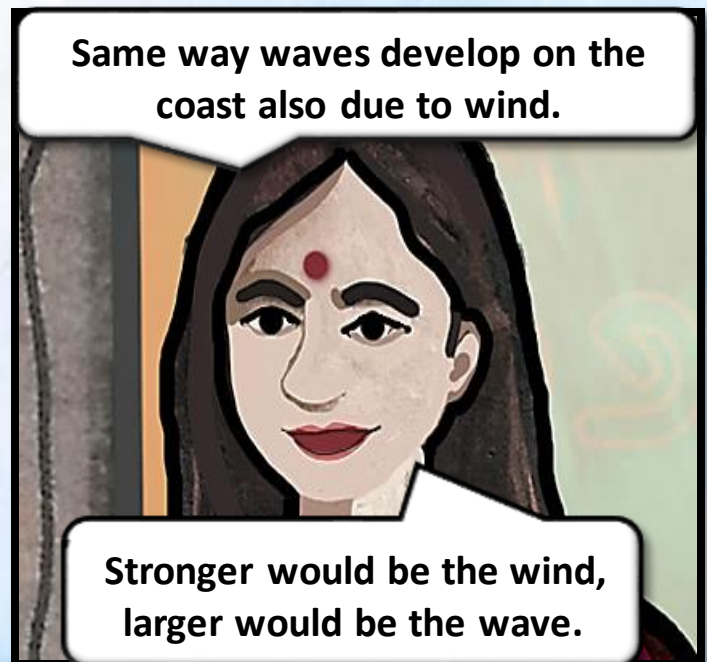
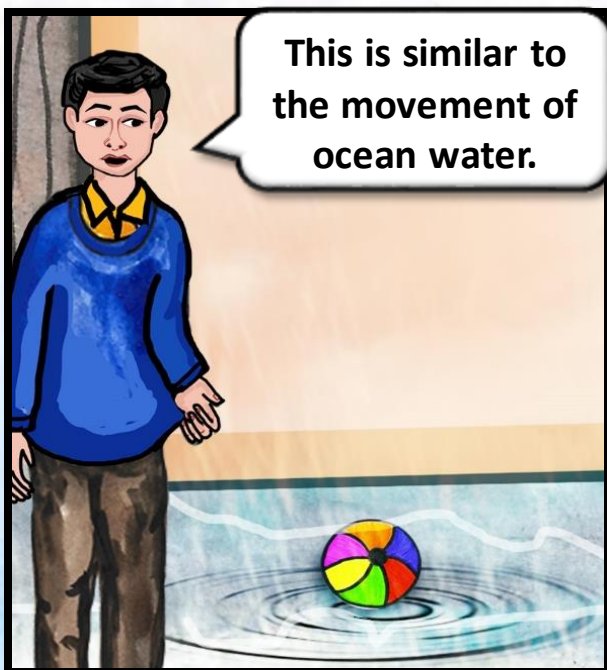
Hey! even I can see that, Woww..

(Father entered saying- Do you know why so?)



These are the small waves which develop in water due to the weight of the raindrops.

(Father was explaining about waves to the kids meanwhile the mother entered)



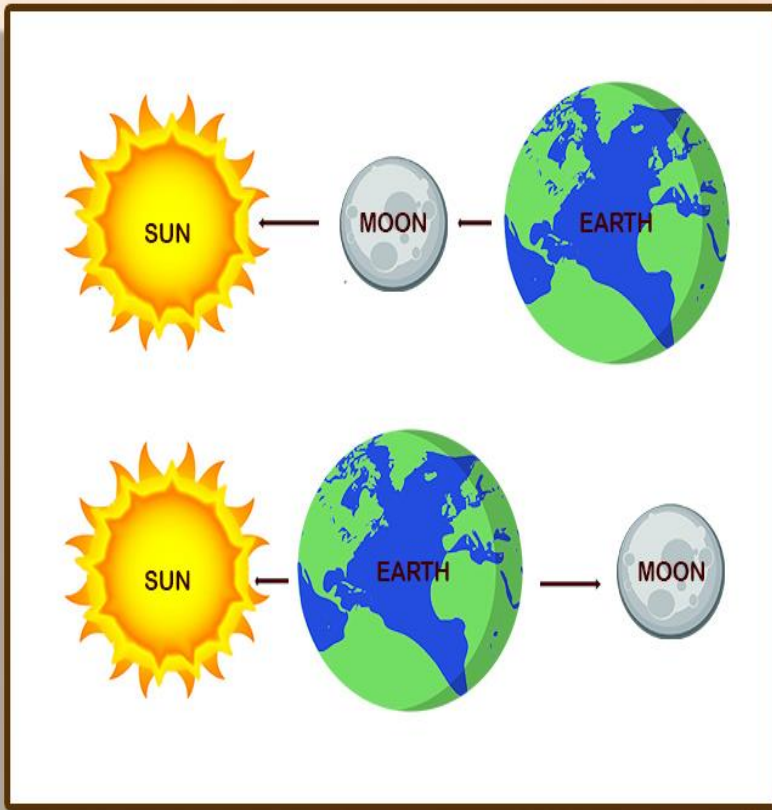
Ambar and Rimjhim (Looking at their parents)

Ok, now tomorrow's programme is fixed...let's have more fun with waves. Let's go to Juhu beach.

I just heard in the news that tomorrow there will be rain and high tide.

Oh no, but tide...?
What is it?

So our programme is cancelled but I have rescheduled it for the day after.



Tides are the rise and fall of water level in the sea and oceans due to the gravitational pull of the Sun, the Moon and the Earth. .



Dad, what is high and low tide?

When the sea level rises to its highest point, it is high tide.



When it falls to its lowest point, that's called low tide.



Today there was a class discussion on spring tide.



Spring is a season, how can it be a tide?

Yes you are correct...spring is a season but it is also a form of tide.



What is Spring tide then???



During the full moon and new moon days, the Sun, the Moon and the Earth are in the straight line

**..and the tides are the highest.
These tides are called spring tides.**



**Dad, so what happens when the Sun,
the Moon and the Earth are at right
angles???**



The tides are at their lowest and are called neap tides.



Why should we know about tides?

High tides help us in navigation as they raise the water level close to the shores.



This helps the ships to enter the harbour easily.



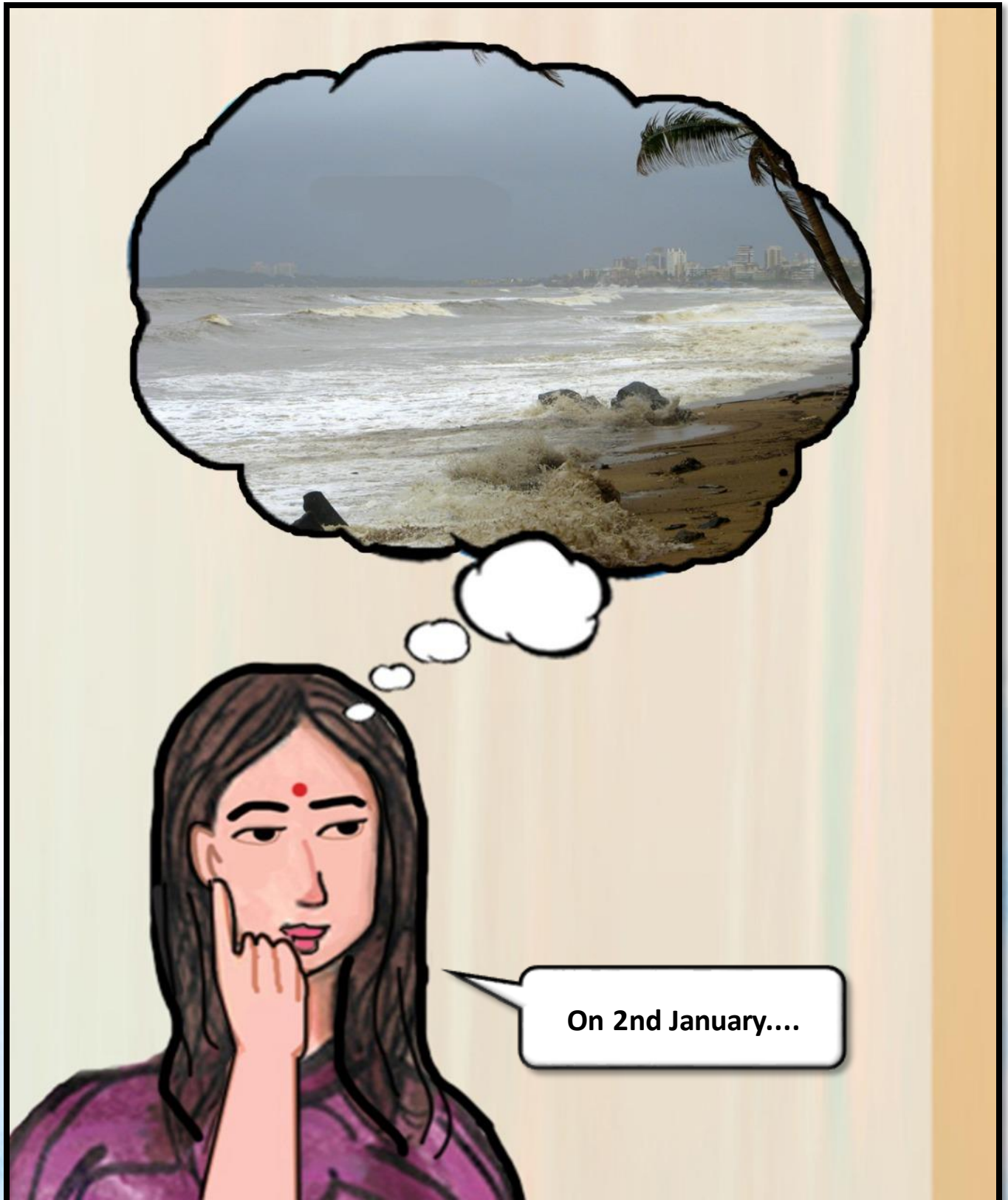
So then, are high tides always helpful?

This was the reason for rescheduling the trip to Juhu Beach.



High tides can also be dangerous. Do you remember Barkha (Mother) our trip to Juhu Beach?

Barkha remembering, Juhu Beach





Yes, 2nd January was a king tide day.

A King Tide refers to the highest predicted ocean tides that take place in one calendar year.



Since Juhu Beach is lashed by the waves of the Arabian Sea during high tide, one can visit the beach only when the tide is low.

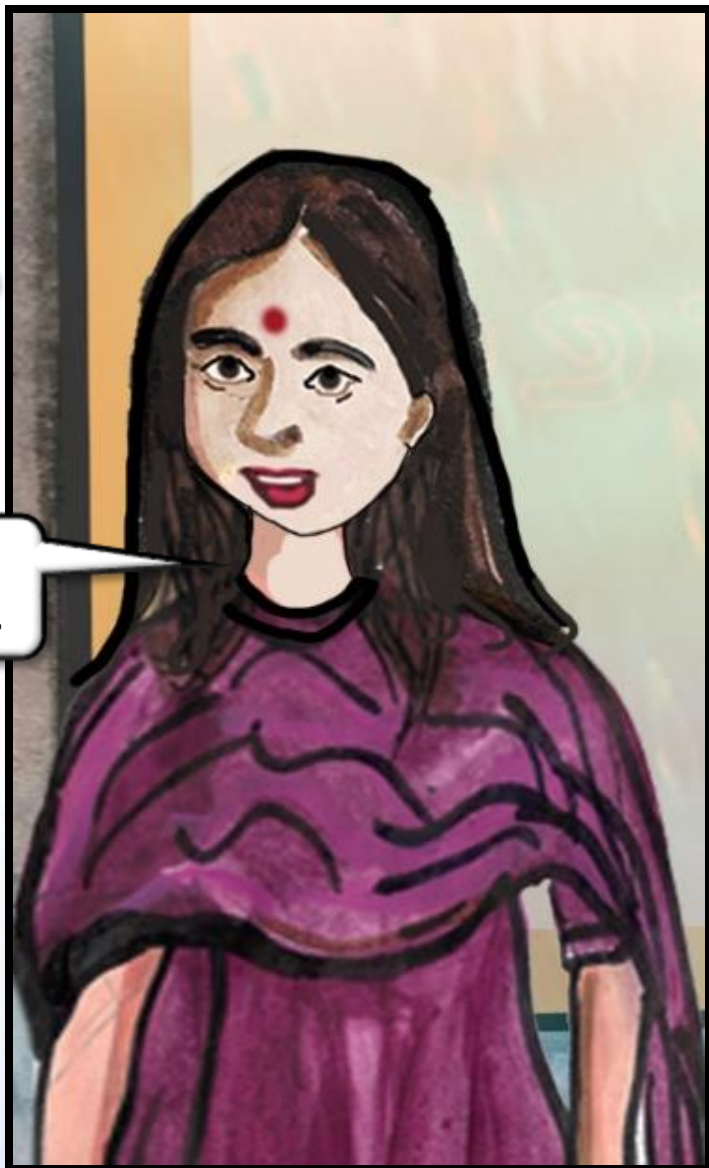
So, what happens during King tide?





The ocean water is always moving...Is it because of tides?

No.. not only tides, there is presence of ocean currents also.



What are these ocean currents?

An ocean current is a continuous, directed movement of sea water generated by a number of forces acting upon the water

Yes I know ocean water moves as waves and tides

Ocean water is constantly moving, not only in the form of waves and tides.

Ocean currents flow like vast rivers, sweeping along predictable paths.



Oh....is it....?

Is it....OK

Yes, in fact Some ocean currents flow at the surface and others flow deep within water.



Come on ..let's see the World map to understand the ocean currents better

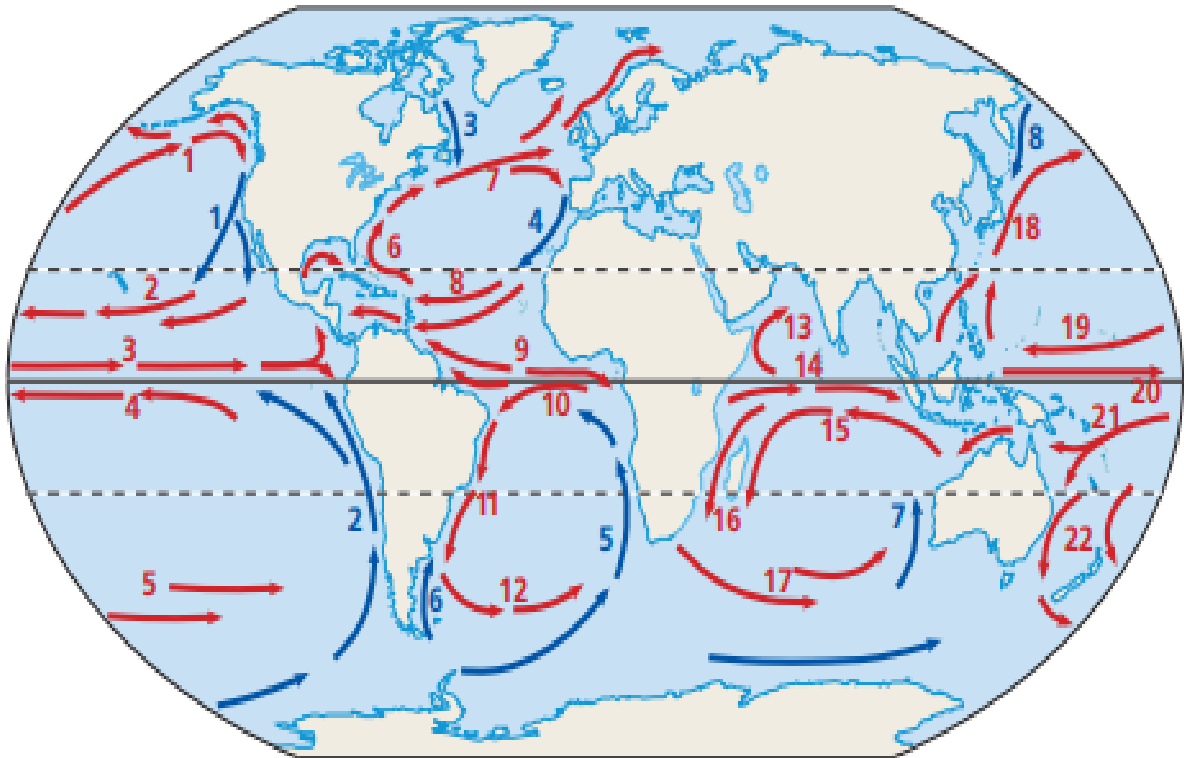
Sagar showed the ocean currents on the world map to Ambar and Rimjhim



See kids this is the distribution of ocean currents.

The red arrows are warm currents and the blue arrows are showing cold currents.

Major Cold and Warm Global Ocean Currents



Cold currents

1. California Current
2. Humboldt Current
3. Labrador Current
4. Canaries Current
5. Benguela Current
6. Falkland Current
7. West Australian Current
8. Okhotsk Current



Warm currents

- | | |
|------------------------------|-------------------------------|
| 1. North Pacific Drift | 12. West Wind Drift |
| 2. North Equatorial Current | 13. Monsoon Current |
| 3. Equatorial Countercurrent | 14. Equatorial Countercurrent |
| 4. South Equatorial Current | 15. South Equatorial Current |
| 5. West Wind Drift | 16. Mozambique Current |
| 6. Gulf Stream | 17. West Wind Drift |
| 7. North Atlantic Drift | 18. Japan Current |
| 8. North Equatorial Current | 19. North Equatorial Current |
| 9. Equatorial Countercurrent | 20. Equatorial Countercurrent |
| 10. South Equatorial Current | 21. South Equatorial Current |
| 11. Brazil Current | 22. East Australian Current |

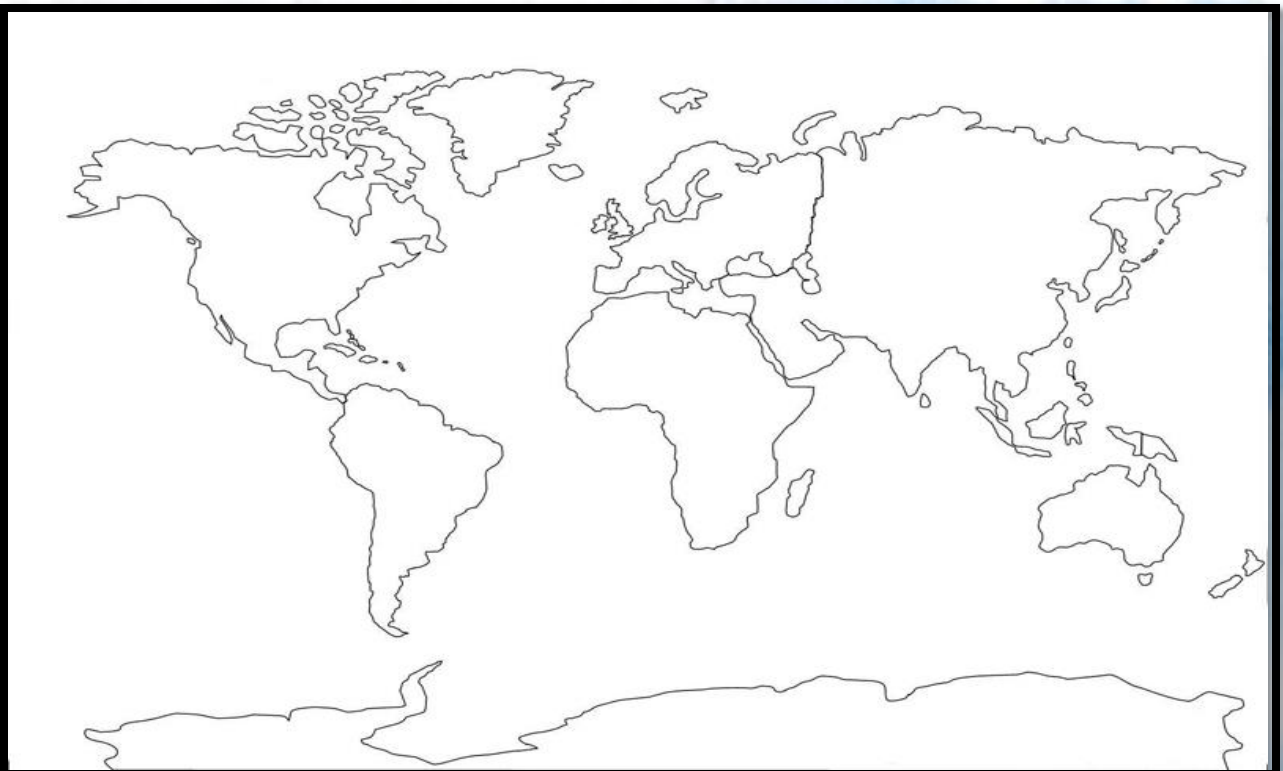
Great to know that there are
so many ocean currents



Thank you Dad for
enlightening us

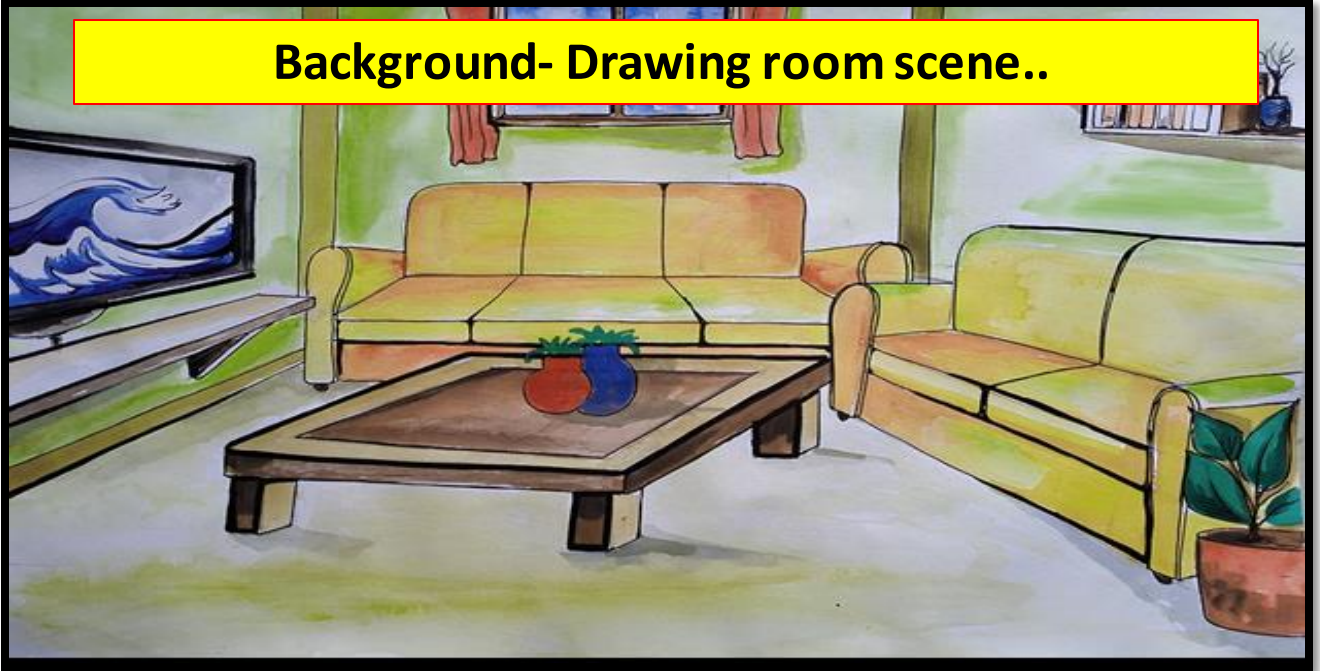
Activity:

On an outline map of the world, draw Gulf Stream (warm current) and Labrador (cold current). Mark warm current in red and cold current in blue.



SCENE 7

Background- Drawing room scene..



All are sitting in the drawing room and talking to each other and Sagar switches on the Television, on the TV movie scene is flashing...



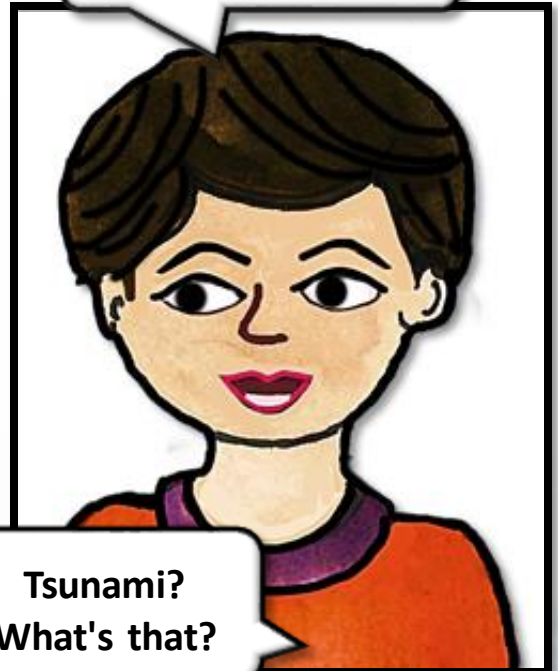
What are you watching on Television?

I guess it is the movie "The Impossible".



What's that? I have never seen anything like this before!

Yes even I haven't!



Tsunami?
What's that?

Beta its Tsunami

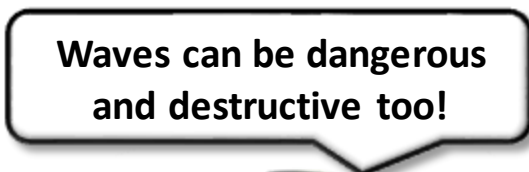


Tsunami is a japanese word that means "Harbour waves"

...as the harbour gets destroyed whenever there is tsunami.



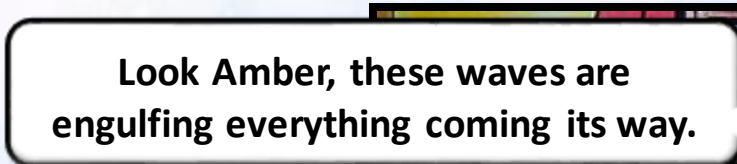
Is it dangerous dad?



Waves can be dangerous and destructive too!



Yes it's quite destructive beta.



Look Amber, these waves are engulfing everything coming its way.





It seems like a monster,
I am sure a sea
monster is doing it.

No...No Amber it's not a
sea monster



Not a sea monster!
Then?

Can I tell??

Yes Dadi
please tell

Children ,an earthquake, a
volcanic eruption or underwater
landslide causes these gigantic
waves .

Has a tsunami occurred
in real life? please tell



It was the largest tsunami ever measured and affected people across 14 countries.



Tsunami or the harbour wave struck havoc in the Indian Ocean on the 26 December 2004



These waves affected India as well?



Yes beta, tsunami of 2004 caused widespread destruction in the coastal areas of India.



Which areas?

Many regions of India
namely....

..Tamil Nadu, Kerala,
Andhra Pradesh,
Puducherry and Andaman
and Nicobar islands.



Unbelievable! From now I
will be scared to go on a
holiday to coastal areas.

Don't worry Amber
Tsunami can be predicted
well in advance



Activity

A Natural disaster is a major adverse event resulting from the natural processes of the Earth, for example earthquake, volcanic eruption, tsunami, storm, flood etc. A natural disaster can cause loss of life or damage property, so the preparedness for the natural disaster is imperative. Discuss more on tsunami in class, with your parents and friends and prepare a flip book or comic book on preparedness for Tsunami for the people living near coastal areas.

- It will be teamwork
- Ensure that the book covers the topics-Awareness about Tsunami, Emergency Plan, Disaster supply Kit, Staying safe after Tsunami .



GLOSSARY

1. **Essential**- A thing that is absolutely necessary.
2. **Saline**- Saline water is water that contains a high concentration of dissolved salts.
3. **Conserve**-Water conservation includes all the policies, strategies and activities to sustainably manage the natural resource of fresh water, to protect the hydrosphere, and to meet the current and future human demand.
4. **Waves**- Waves are a disturbance on the surface of the sea or ocean in the form of a moving ridge or swell.
5. **Tides**- The rhythmic rise and fall of ocean water twice a day is called a tide.
6. **Current**- Ocean currents are the continuous, predictable, directional movement of seawater driven by gravity, wind , and water density.

*Page No.- 17

- **Saavan Bhaiya**- water o water,
what is your color?
Just like the one in which you mix,
water o water.

*Page No.- 19

- **Neer**- Mali Bhaiya your voice and song is very nice.
- **Rimjhim**- Yes, I also liked this song and got a good idea for my painting.
- **Varsha Didi**- Nice to know that you got some information from us but now you have to go, your teacher would be looking for you.

***Page No.- 22**

- **Saavan Bhaiya-** Ji Madam.
- **Sarita Ma'am-** Welcome! I was wondering if you two could ask some riddles from our students?
Because we are going to start new chapter "Water".
- **Varsha Didi-** Madam, how can we do this?

***Page No.- 23**

- **Sarita Ma'am-** Yes you can. I am sure the students are going to enjoy the riddles very much.
Do you have some riddles in regional language too?
- **Varsha Didi-** "I Am The Biggest Alphabet, As I Contain The Most Water In The World." Who Am I?

***Page No.- 24**

- **Sarita Ma'am-** Try to guess.

***Page No.- 25**

- **Saavan Bhaiya-** Now try to guess this, "If you drop a yellow hat in the Red Sea, what does it become?"



SOLUTIONS

Scene 1

QUESTION NO.	ANSWERS
1	Water
2	Ice
3	River
4	Waterfall
5	They Both are in the Middle of Water
6	Riverbank
7	Sea

Tickle Your Brain



Scene 3

ACTIVITY 1

COLUMN A	COLUMN B
ACTIVITY 1	We will see water evaporate faster with a greater exposed surface area.
ACTIVITY 2	Hands dry up fast as the rate of evaporation increases due to flow of air /breeze circulated by the fan.
ACTIVITY 3	The hands dry slower as there is no breeze or air.
ACTIVITY 4	Sweat has evaporated in the air now.

ACTIVITY 2

After about an hour take the glass out and place it outside at room temperature. Based on your observation arrange the sentences given below:

- 1.The glass went white and was cooler than the surrounding air.
2. Encouraging the water vapour molecules to cool down and form tiny droplets of water
3. I touched the glass ,it was wet all over.
4. Then with time the little droplets got together to make bigger ones.
5. I saw a puddle of water at the bottom of the glass.

Scene 5

World Map

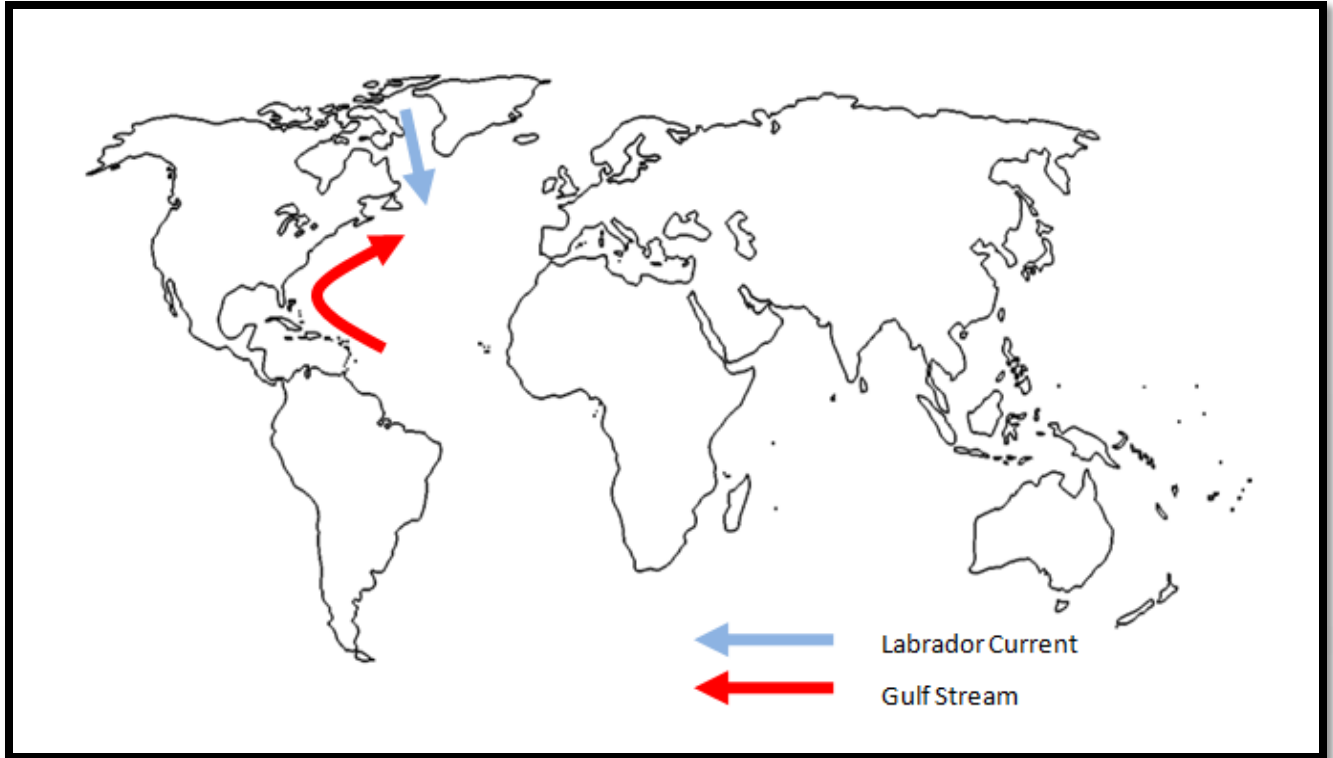
Question No.	Answers	Question No.	Answers
1	North America	7	Antarctic
2	South America	8	Pacific Ocean
3	Europe	9	Arctic Ocean
4	Asia	10	Atlantic Ocean
5	Africa	11	Indian Ocean
6	Australia	12	Southern ocean

Oceans of the World

Question No.	Answers
1	Indian
2	Southern
3	Pacific
4	Atlantic
5	Arctic



Scene 6



Recapitulation and Assessment

Fill in the blanks-

1. World water day is celebrated on _____. (1)
2. Shortage of _____ has become a matter of concern. (1)
3. _____ % of the Earth's surface is covered with water. (1)
4. _____, _____, and _____ are the main components of water cycle. (1)

True and False-

1. Storage of rainwater is known as rainwater harvesting. _____ (1)
2. We can use sea water for drinking purpose. _____ (1)
3. Salt can be made from river water. _____ (1)
4. Amazon river is in Africa. _____ (1)

Choose the correct option-

1. Which one of the following is the source of drinking water? (1)
 - a) Sea water
 - b) Ground Water
 - c) Glacier
 - d) River Water
2. During the water cycle, the water moves up in the form of- (1)

2. a) Water Vapours (1)
b) Condensation
c) Evaporation
d) Rain
3. The rise and fall of oceanic water is called- (1)
a) Tides
b) Waves
c) Currents
d) Tsunami
4. What is drizzling ? (1)
a) Type of current
b) Type of tide
c) Type of precipitation
d) Type of wind

Match the following-

- | |
|----------------|
| a) River Nile |
| b) Colorado |
| c) Mississippi |
| d) Huang-Ho |

- | |
|------------|
| i) USA |
| ii) Egypt |
| iii) China |
| iv) USA |

(4)

Answer the following-

1. What is meant by water table? (2)
2. Explain water cycle. (3)

Overview

Water is one of the most important resource, and life on earth isn't possible without it. Water cycle is the continuous movement of water on, above and below the surface of earth. Some of the major sources of fresh water are glaciers, river, springs, ponds and lakes. About 97% of all the water on earth is saline (salty), and only about 3% is fresh (potable). Ocean water move continuously, unlike the stagnant water of ponds or lakes, and it is known as ocean circulation. Some of the major ocean movements are waves, tides and currents.

Water sustains life. It is important to learn how vital is water to our environment and life on earth. To give full understanding of water we represented chapter no. 5 of NCERT, Geography in form of a graphic novel.



असतो मा सद्गमय ।

**“If there is magic on this
planet, it is contained in
water.”**





0762CH05

QR CODE AT DIKSHA

**“WATER IS THE DRIVING
FORCE OF ALL NATURE” -
LEONARDO DA VINCI.**