

## **Episode-11**

### **Together we stand**

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Shrishti : Mummy, since Manav has won the football match, he is in cloud nine.

Vasudha : Yes Shrishti, he has become arrogant also. I always wanted him to be Friendly and humble and look he is growing into a bully.

Shrishti : Oh mummy! He even makes other children to do his homework. They all think that he is Maradona.

Suryaprakash : What happened? What are you both discussing so early in the morning?

Vasudha : Nothing, I am a bit worried about Manav. He is always delegating his work on others.

Shrishti : Yes daddy, he is has become an idol for his friends and they are ever ready to do his work.

Suryaprakash : (Laughs) Arrey he was the star player in the football match so he has become a hero for them. He'll soon land from cloud nine.

Shrishti : But Daddy, He doesn't do.....he even makes them do his homework.

Suryaprakash :Don't worry. Dr. Islam and his friend Dr. Naresh Sirohi will soon be coming, I'll talk to him, you know how good he is with children and children listen to him too.

Vasudhha :That's true. Manav was so afraid of him and now look he listens and understands him so well.

Shrishti : Oh Mummy, He listens to gain awareness and then he shows off the knowledge in front of his friends and impresses them.

Suryaprakash :(Laughs) Oh Shrishti, The more you share your knowledge with others, the more you learn. But if you become arrogant about your knowledge it is all worthless.

Vasudha : That's what we are saying, Manav is becoming arrogant these days. I don't know about Knowledge but he has enough arrogance in him.

Suryaprakash :Lets see what happens. Where has Vivek gone so early in the morning and where is Manav?

Shrishti : Vivek Bhaiya, has gone to return his library book, he'll be coming soon and Manav is coaching all the boys of the neighborhood. And I don't know when the Coach will be coming.

( Ringing of Door Bell)

Vasudha : I think, Vivek has come.

(sound of the door opening)

Vasudha : Oh Islam Bhaisahab ! Come, please do come. He was waiting for you only.

Islam : Namaste Bhabhi, This is my friend, Dr. Naresh Sirohi.

Naresh : Namaskar Bhabhiji.

Vasudha : Welcome, please do come.

Suryaprakash :Come,come, How are you? Please sit down.

Vasudha : See Vivek has also come.

Vivek : Namaste Uncle.

Islam : Namaste, Namaste. Vivek where are you coming from?

Vivek : Just had gone to the library, Uncle to return some books.

Islam : Vivek, Shrishti, This is Naresh Uncle. He is scientist of oceans. He is always measuring the depth and length of oceans.

(Laughter)

Naresh : (laughs) you also have some fun on my expense Prof. Islam, But without us the work is not going to be done.

Vasudha : I will go and prepare some tea and light snacks.

Islam : Bhai Vivek, Your younger brother, Manav is nowhere to be seen. Is he still sleeping.

Shrishti : No uncle, since coming back after winning the match he eating, drnking and living only football. He is always practicing, in the morning, the whole day and night, he is always practicing.

Islam : (Happily) So ultimately Manav has won against Pintoo's team. This is very good news.

Suryaprakash :Yes Islam Bhaisahab, its good but wining has made him so arrogant I can't tell you how much. And to top it his friends treat him as if he is the President himself.

Vivek : You are absolutely right. Just yesterday I saw Manav coming from school without his bag and bottle and then what I see is that his friend Happy is tagging along with his bag and bottle. When I asked him

what the matter was ,he said ‘leave it Vivek Bhaiya, it is all my fault because of me 2 goals were scored against us, so I have to bear the punishment’.

(Everybody laughs)

Islam : So our Manav has now started passing judgments and giving punishments also.Let him come and then we’ll talk to him

(Ringing of Doorbell)

Shrishti : It seems our local Maradona has come.

(sound of the door opening)

Manav : Happy keep the football inside. Oh Uncle you....Namaste...

Islam : Namaste Manav. Congrats on winning against Pintoo’s team.

Manav : Thankyou, Uncle. Actually Uncle this football is Pintoo’s which we got on winning the match.

Happy : and Uncle now Pintoo even does’nt play football these days. He just quietly watches us play.

(both the children laughs)

Islam : Okay children This is Naresh Uncle and he is an expert on oceans and you can ask him anything about your oceans and seas.

Happy : That’s very good we have got a school assignment on oceans as well. Manav I’ll do your home work too.

Manav : That’s fine with me Happy. Uncle, last time you told us about the delicate balance between oceans, land and the atmosphere. Today you were going to tell us about the movements of the oceans and how they occur.

Islam : Yes Today I’ll tell you all about this only and we’ll take atmosphere the next time. Okay, so you do remember about “Gyre” meaning circular movement.

Manav : Yes Uncle, In the oceans and big seas water flows in big Loops or in big circles Known as gyres.

Naresh : Very good Manav, you know a lot.

Happy : That’s true Uncle, Manav knows a lot, He is a genius.

- Islam : Okay Manav do you know in direction in which these “Gyres” flow in the Northern Hemisphere and the Southern Hemisphere.
- Manav : (hesitating)...Unc.....No, Uncle I am not aware about it.
- Happy : Really....You don’t know.
- Vivek : Manav, In the Northern Hemisphere that is, above the equator- the water in a gyre flows in a clock-wise direction, which is same as the direction as the moving hands of a clock. and Below the equator that Southern Hemisphere it flows in the direction opposite to the movements of the hand of a clock that is ant-clockwise direction.
- Shrishti : Do you understand Manav.
- Manav : Yest....But why does this happen.
- Naresh : Bhai Vivek knows a lot I’ll tell you why this happens. Actually on the there is pattern in movement air on surface of the Earth. The flow of ocean currents is governed by the air movement above it which is also responsible for thermal circulation of the earth.
- Manav : Thermal circulation...means what?
- Vivek : Meaning distribution of heat on the earth so that there are no sudden changes in the temperature-that’s why there is life on the earth.
- Islam : Excellent Vivek. So now Manav, you know that air and water moves from equator towards the poles. So these powerful ocean currents move with help of strong winds towards the poles. But do you know that the earth rotates on its axis.....do you?
- Manav : Off course Uncle.
- Naresh : So this very movement of the earth on its axis is accountable for the uniqueness of the ocean and air currents, above the equator that is northern hemisphere the flow is towards right namely in clockwise direction.
- Islam : And in the southern hemisphere due to the rotation of the earth on its axis the ocean current is in the left direction that is anticlockwise. Although there is minor difference in direction at the small coastal areas in hemisphere but overall it remains the same.

- Vivek : Uncle when these ocean currents collide with the coastal areas of the continents they become “Boundary currents” Don’t they.
- Naresh : That’s true Vivek; apart from this different oceans have different water quality which gives rise to “Ocean fronts”. These ‘ocean fronts’ are identified on basis of color, temperature and salinity. In the eastern boundary the currents are slower and at the western boundary they are faster.
- Islam : And this is all due to the cordial relationship between oceans, atmosphere and land. This “boundary current” is very important for transfer of heat from equator to the Polar Regions
- Naresh : For example “Gulf Streams” moves in the north direction which takes warm water to cold areas. When the water from the northern hemisphere flows towards South, we can see it is cold water which comes to the equator to again become warm. This is a small but great example of thermal circulation.
- Shrishti : This is similar to “Samundra Manthan” which is responsible for equal distribution of heat.
- Vivek : And same is the case with the atmosphere.
- Islam : And due to this Manthan or churning of ocean and atmosphere optimum temperature on seas and land is maintained for sustenance of life.
- Vasudha : Please do have the tea and Chocolate Chip cookies.
- Suryaprakash : Very nice. We needed it.
- Islam : Are you able to understand Manav
- Manav : Yes Uncle, little bit
- Happy : Uncle are there rivers in the sea too?
- Manav : (laughs) Ha....Ha.... Oh rivers in sea? Really Happy,the rivers flows into the seas but not in the sea. Ha.....Ha.....
- Happy : (worried)But.....My Chachaji told me.
- Manav : (laughs more) Ha...Ha... must have told you wrong.Ha....HA..

Islam : But Manav how do you no it is wrong?

Manav : (embarrassed) meaning?

Naresh : Meaning that all rivers don't end in the seas and secondly that there are rivers in the sea.

Manav : (surprised) But Uncle the rivers flows into the sea.

Islam : Yes, but not all. Some rivers dry up before reaching the sea like the rivers flowing through Tassily Mountains in North Africa. The heat and dry climate of the Sahara desert dry up these rivers and these rivers can't reach the sea.

Shrishti : Uncle Nowadays due to the construction of some big dams and canals on rivers, they don't reach the sea, do they?

Naresh : Absolutely right shrishti very good. This is all happening due to interference of Manav meaning humans.

Manav : What? What is happening? Drying of rivers before reaching the sea or you are explaining the question I asked.

Shrishti : (laughs) Oh Manav Both the things are happening, that is damage of the environment due to Manav or human activities and all this knowledgeable talk too by Manav.  
(Everybody laughs)

Happy : (in fear) Uncle so, there are rivers in the sea, are there?

Islam : Yes Happy, there are. Arrey beta, When we talk about rivers on land we mean flow of water on land but when we talk about rivers in the sea we mean the flow of water in the sea blown by the winds. Actually these are ocean currents and flow around the earth and help to heat and cool the earth.

Naresh : The biggest current is the West Wind Drift around Antartica and do you know it carries two thousand times more water than the largest river that is the Amazon river.

Happy : (happily) Such a big river in the sea. I was right Manav.

Manav : (embarrassed) ok...ay...okay. Uncle you were saying movement in the oceans were due to density.

- Islam : Yes Manav, but density is not the only reason for the movements. In a broader perspective the movement of the ocean water is due to two main reasons, firstly- the interaction with the winds blowing on the surface of the oceans and secondly due to difference in the density of the oceans.
- Naresh : Due to these factors or we may say due to these forces there is movement in the ocean. And these movements bend depending upon the shape of ocean beds and also because of rotation of the earth on its axis.
- Shristhi : And this deflection caused by the rotation of the earth on its axis is called the “Correulis Effect”. This effect is named after its discoverer a French scientist J.J Correulis.
- Islam : Very Good Shristhi, How did you come to know?
- Shristhi : Vivek Bhaiya told it to me.
- Islam : Arrey Manav when you have such a knowledgeable Bhaiya you don’t need us.Keep it up Vivek.
- Vivek : Uncle, Manav doesn’t understand my importance he is always busy in his very own thing and is not bothered about anyone or anything.
- Manav : Its not true, I am always asking you a lot of questions. Am I not
- Shristhi : Arrey, you ask only when you want a favour from Vivek Bhaiya.  
(Everybody laughs)
- Naresh : ok....ok....So now we all know there are four main factors which influence the ocean movements. The first factor being winds and the current flow depends on which kind of wind system is present. This includes the “Easterly winds” which blow on both sides of the equator and is related to “Trade Winds”
- Manav : Uncle what are these “Easterly” and “Trade Winds”
- Islam : Patience Manav we will tell you everything including what are “westerly”. But we will tell it along with the atmospheric circulation. For the time first understand about the water circulation.

- Naresh : The winds blowing horizontally on the surface of the ocean have some vertical movement also and this vertical movement leaves its effect about ten meters deep inside the ocean. This movement carries heat and gases from the surface to ten meters inside the ocean. This circulation of heat from surface to the depth of ocean due to winds is known as “Langmyor circulation”.
- Islam : Now the second factor for ocean movement is ‘diversity in density’ which depends on the water temperature, salinity. For example high temperature and low salinity means....
- Shrishti : Less.....density and low temperature and high salinity meaning.....
- Happy : More density!
- Vivek : Very good Happy
- Naresh : Now the next factor is the shape of the ocean bed. This influences the water movement because not only it spreads the surface current to boundary current but also influences the circulation in deep waters.
- Islam : The last but not the least is the rotation of the earth on its axis.
- Shrishti : Okay Uncle this much we have understood
- Naresh : Apart from these there are lots of other factors but for now you understand these four factors only.
- Happy : Uncle my Chachaji says that currents which are underwater are very dangerous.
- Manav : Oh! When they are in water how can they be dangerous.(laughs)
- Islam : You are right Happy! Underwater currents are very dangerous and many deaths are reported due to them every year. The surface of the ocean appears calm and swimmers thinking that everything is calm get trapped by the strong underwater currents which either pull them down or take them far away from the beach that the swimmer drowns due to shear tiredness.
- Vivek : Bhai Happy, You have become very intelligent and its very good that you keep on asking your Chachaji lots of questions. Keep it up.
- Happy : Thankyou, Vivek Bhaiya.

Naresh : Arrey Manav Did you understand anything

Manav : Sure Uncle, definitely Uncle.

Islam : So Manav you came to know that all the cyclic circulation of oceans, atmosphere and land are totally dependent on each other but still perform their individual functions as well.

Shristi : And they don't hand over there work to others.

Naresh : True, For example the soil brought by the rivers make the ocean salty which results in diversity in density which is responsible for circulation of heat.

Vivek : And the ocean humbly accepts the generosity of the land and without any show of arrogance return the act of kindness with the sweet spells of rain making the land green and fresh.

Shrishti : Meaning nothing is taken, snatched or given. Only duty is being performed for the betterment of oneself and everyone's uniqueness.

Vasudha : Did you understand Manav?.

Manav : Yes, I have realized. (gap) Happy, I will do my homework on my own, if you have any problem ask me. Okay.

Suryaprakash : Very Good Manav has really understood. Come on freshen up and come for lunch. Islam Bhai sahab. Dr Naresh Please do come

Vasudha : Come vivek...Shrishti...wash your hands

Vivek-Shrishti : yes Mummy

Suryaprakash : Arrey Manav where are you running to. (loudly)  
Manav....Manav.....

Manav : (loudly) Papa you go ahead start the lunch I am going to return  
Pintoo's football  
(laughter)

Islam : Bhabhi Can you see Manavata that is Humanity is still alive and kicking  
(Laughter)

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