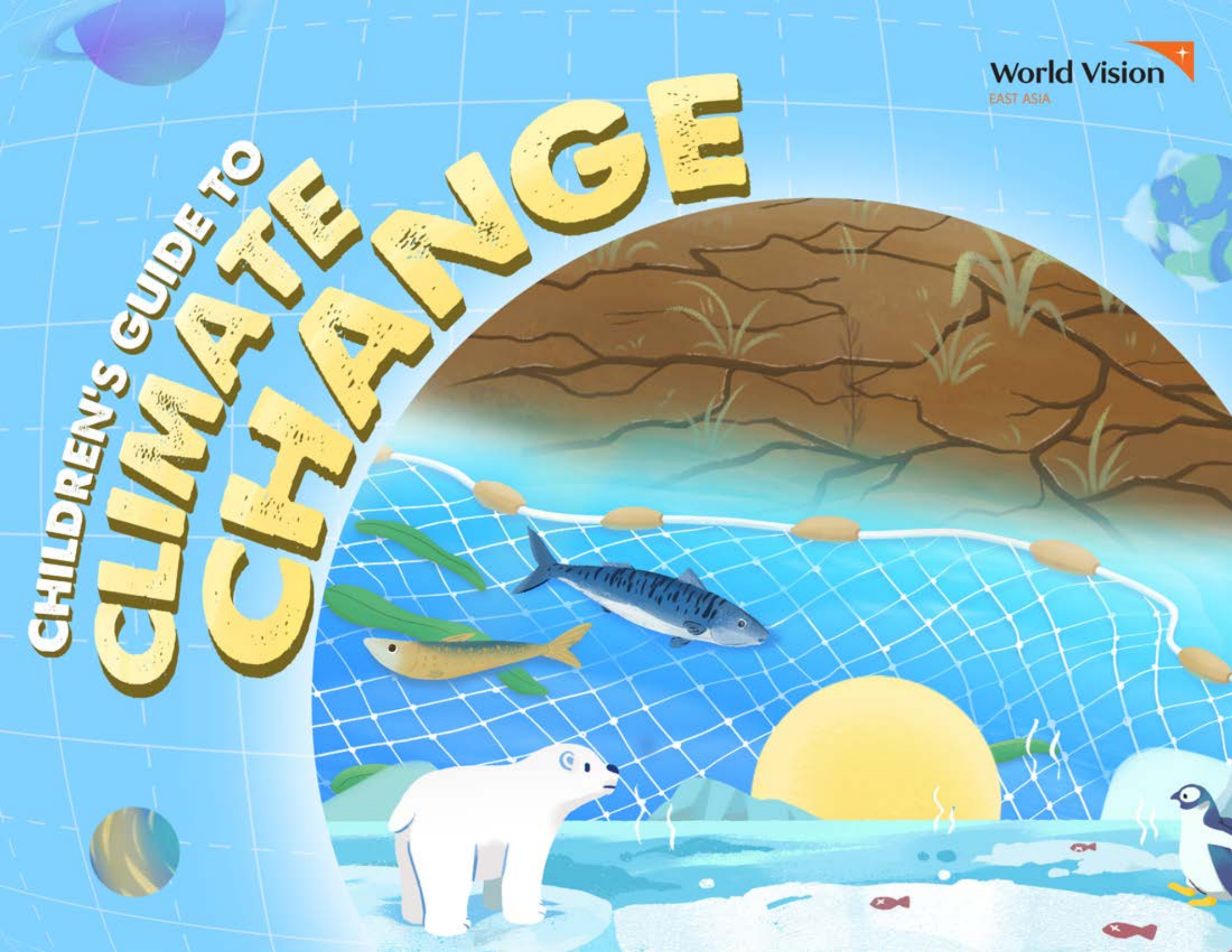


# CHILDREN'S GUIDE TO CLIMATE CHANGE





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*Tim*



*Julie*



*Sunny*



*Rohan*



*Tim's uncle*



*Teacher*

## Climate Change - Curtain Raiser

Julie: Hi Rohan. How's it going? It seems like you're deep in thought. What's wrong?

Rohan: Hey Julie, guess what I heard on TV today? Everyone was eagerly discussing Climate Change and the global negotiations taking place. But, what exactly is this whole Climate Change all about?



Julie: Why don't we head over to discuss this with Tim? He's always up to date with the current stuff.

Rohan: **GOOD IDEA!** Let's go!

Sunny: Hi there! May I join you, too?



Julie: Hey there, Tim! It's great that we found you here. We were on our way to see you. I bet you know a lot about Climate Change, don't you? Can you tell us more about it?

Tim: Hi guys. I'm glad to hear that you all have an interest in Climate Change, even though it can be a bit complicated. Basically, when temperature, humidity, rainfall and other weather conditions in a certain area change over a long period of time, from what it normally used to be, is called climate change.



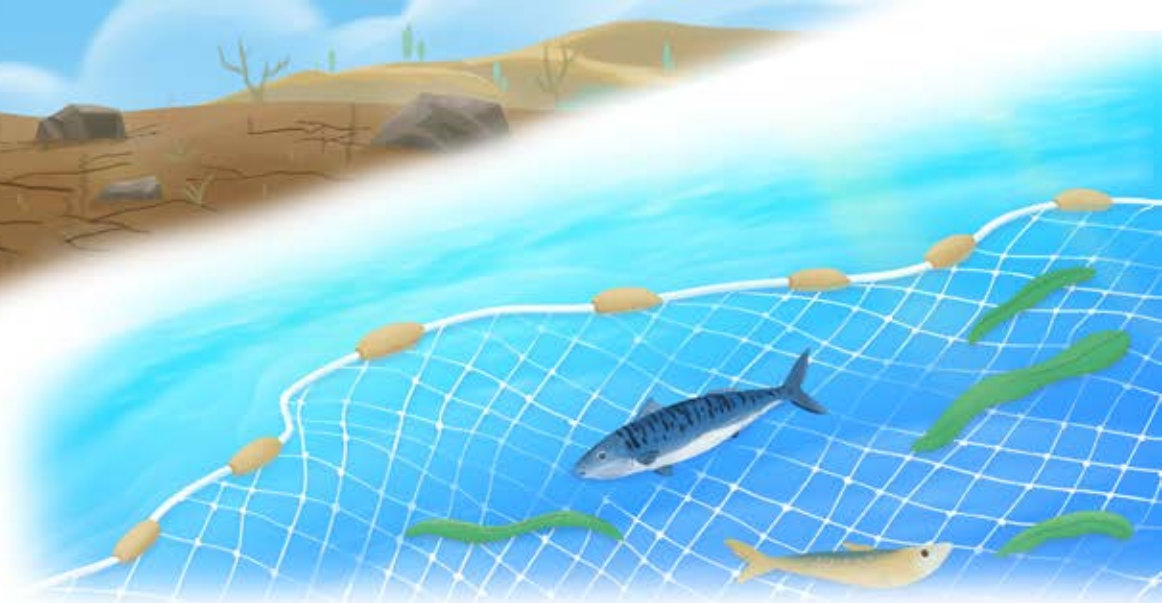


Tim: See! Smoke from various sources like cars, trucks, factories etc. pollute our air. All this polluted air acts like a warm blanket around the earth. Additionally the destruction of trees & forests hinders the natural purification of the air. This results in the earth getting warmer, which is called global warming. This global warming triggers various changes in weather patterns leading to climate change. The weather will get hotter and drier in many countries. In contrast, some places will receive more rains than usual. The intensity of storms and cyclones will increase.





The weather will become more erratic and unpredictable for the common man. Farmers are unhappy because they don't know when it will rain also the pattern of the rainfall that will help in the cultivation of their crops



Fishes migrate to cooler areas of the sea as the surface waters warm up, making it difficult for fishermen and reducing their fish catch.



Plants and animals heavily depend on weather patterns. They dislike the changes, but humans like us will have to face more difficulties.



Julie: Really?

Sunny: Oh, dear!!!





Sunny: Hmm... the pollution from vehicles...

Rohan: Hmm... this causes Climate Change



Oh, I see... So we need to  
protect our trees and forests.



Rohan: Hey, why don't we ask our science teacher about Climate Change?

Julie, Tim, and Sunny: **GOOD IDEA!**



## Why does climate change occur

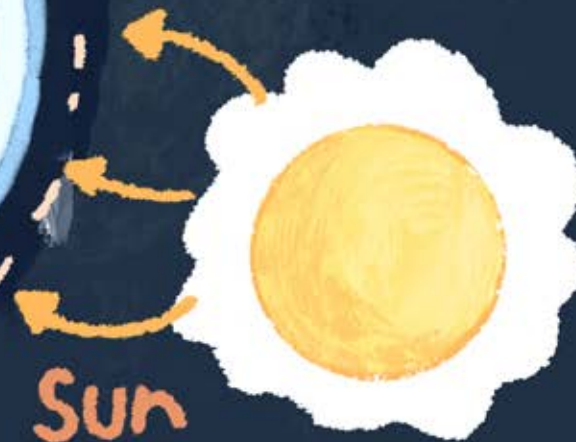
Tim: Teacher, could you please provide us with a scientific explanation of Climate Change?

Teacher: Of course, Tim! I'll be happy to explain it to everyone. Why don't you take a seat?



# Earth

Did you know that the Earth is wrapped in a blanket of air called the atmosphere? The atmosphere is composed of several layers of gases, playing vital functions critical to sustain life on earth.



SUN

When the sun beams its light and heat onto the Earth, certain gases in the atmosphere, known as greenhouse gases, have the special task of trapping the sun's warmth around our planet like a light blanket.

This process is called the 'Greenhouse Effect' because it functions similarly to a greenhouse we see on farms. This effect is essential for maintaining a conducive temperature on the earth that enables life to sustain and thrive on Earth.



Here is a botanical garden at our school where you can explore and discover the interesting world of plants, ecology, and environmental science. Glass walls or polythene sheets of the greenhouse let the sun's heat in but prevent it from escaping, so the interior stays warm.




Let's imagine the earth as if it were inside a massive greenhouse. The gases behave similarly to the glass walls of a greenhouse. They help to trap heat within the atmosphere, ensuring that the earth maintains a warm temperature conducive for life to sustain. Otherwise, it would be freezing at  $-18$  degrees Celsius.



Julie: Oh, so are greenhouse gases bad for the environment?

Teacher: Yes and no Julie. Greenhouse gases are essential and plays a vital role to maintain conducive atmospheric conditions favourable for life. However, too much of these gases in terms of their excess concentrations are bad for the environment.





Teacher: Over the past 150 years, greenhouse gas emissions have increased in our atmosphere. One of the primary causes is the burning of coal, natural gas, oil, and petrol, known as fossil fuels. We use these fuels to generate electricity, power vehicles, run factories, and produce various goods for human use. The excess concentrations of greenhouse gases like carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>), function as additional blankets that trap heat and lead to the earth becoming warmer than it should be. The rise in global temperatures leads to Climate Change.

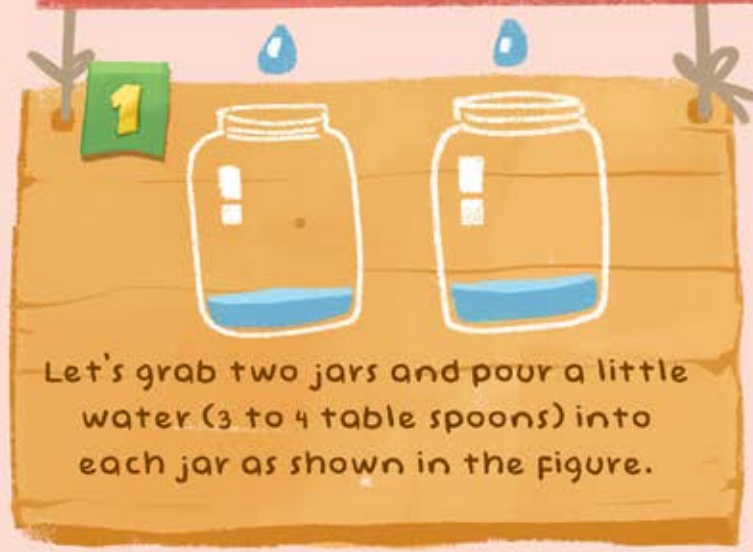
Children: Thank you so much, teacher!







# Try this experiment



Check on the jars after a few hours.



The closed jar becomes steamy and hot on the inside, while the open jar stays the same. What happened? When the sun heated the water, it turned into vapour that couldn't get out of the closed jar. The lid represents the excess greenhouse gas which traps the heat.

## ARE WE ALSO CONTRIBUTING TO CLIMATE CHANGE?

OUR DAILY ACTIVITIES RELEASE MANY GREENHOUSE GASES INTO THE AIR, EITHER DIRECTLY OR INDIRECTLY. FOR INSTANCE:

### Burning fossil fuels or other materials:

When we use gasoline or diesel to power motorcycles, cars, tractors, trucks, or water pumps;



When we burn crop waste in fields after harvest



When we burn wood or coal for energy needs at home

### Cutting down trees:

Trees clean the air by taking in carbon dioxide (CO<sub>2</sub>). But when we cut down a tree, it can no longer do that. That is why cutting down trees also contributes to global warming.



### Using resources inefficiently:

Unnecessary use of air conditioners, refrigerators, hair dryers, light bulbs, or other electrical appliances, which directly or indirectly add CO<sub>2</sub> and other greenhouse gases to the air. This is because, electricity in most places is produced by burning coal and other fossil fuels.





Tim: Hey folks, I have a great idea! Let's go meet my uncle, who used to work in disaster management. He may share some valuable information.

Sunny: Hello uncle. Can you tell us what will happen due to Climate Change?



## Consequences of Climate Change

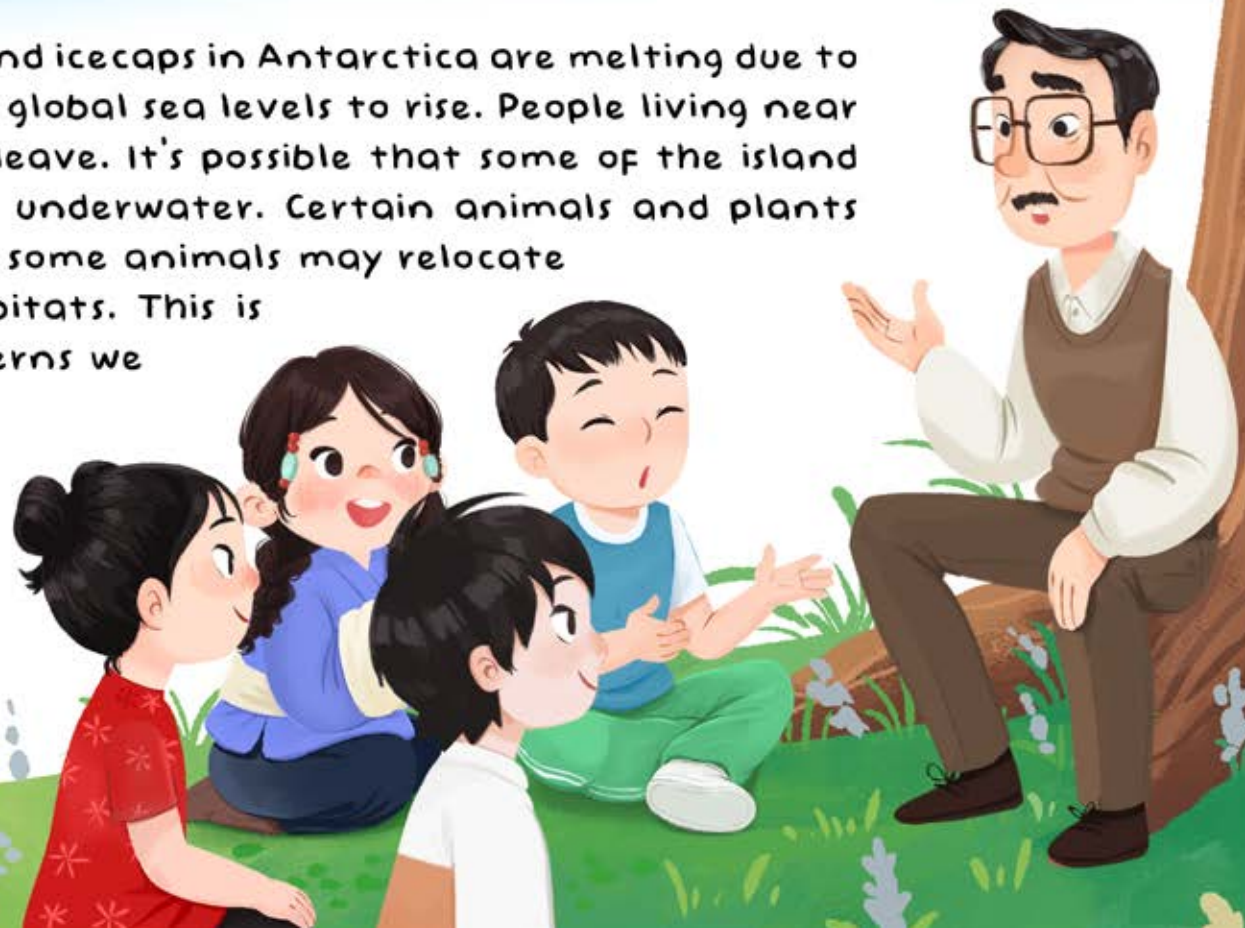
Hi kids, I'm glad you want to know more about this important subject. Climate change leads to unpredictable weather patterns, such as untimely and erratic rains, causing floods, droughts, heatwaves, cyclones, etc., resulting in devastating consequences with significant losses of human life, property, and wildlife. Surplus water or water scarcity issues damage crops in the field. It also affects water availability for human consumption and other development purposes





Elderly Uncle: Glaciers and icecaps in Antarctica are melting due to increased heat, causing global sea levels to rise. People living near the coast will have to leave. It's possible that some of the island countries could end up underwater. Certain animals and plants can become extinct or some animals may relocate from their original habitats. This is one of the major concerns we face right now.

Tim: Thank you for sharing, Uncle!



## Should I be worried of Climate Change?

Sunny: Julie, I'm curious about the impact of Climate Change on me and my family.

Julie: Hmm. I believe this will affect not only your family but all families, including adults and children like us.





Tim: As the temperature rises, it becomes increasingly challenging for older individuals, such as our grandparents, those who are ill, and us, the children. Because of the effects of climate change and various disasters, our parents will have to pay more for food and vegetables. As a result, they will spend less money on our toys candies and chocolates. We may have to walk or travel long distances to fetch potable water as our drinking water sources like wells, reservoirs, tube wells etc. may dry up.

Sunny: Oh, no! I see.

Julie: That's not all, Sunny. There's more.







Julie: Tim's uncle said, disasters such as droughts, floods and issues like erratic rainfall patterns due to climate change, make it hard for the farmers to produce crops.

This means that we either have trouble getting the food we need or can't afford it, so we have to depend on other people to stay alive.

Then we may have to migrate to other places, as our parents may not have any source of income for us to survive in our current locations / villages.



## Children too can help solve the crisis

Sunny: So, what can children do to address the issue of climate change?

Tim: According to the researchers, human actions and activities are the main causes of climate change. So, it is we the people including children, who need to contribute towards addressing this issue, by changing our conventional ways of development and our day to day habits. I think we can do a lot. Let's brainstorm a list of activities to do in our villages and towns.



Let's talk to our parents, teachers, and friends about Climate Change. Then let's find out what issues our community has been facing and raise our collective voice against such systems and practices that contaminate our natural environment.



Use energy-saving devices like LED bulbs to light up homes and buildings, or opt for renewable energy sources like solar and bioenergy for all your energy needs. Switch off electrical appliances like lights, fans, air conditioners etc. when not required, to save electricity. This will help reduce the consumption of electricity produced from conventional, polluting sources like coal.

Advocate for switching from traditional firewood stoves in homes to fuel efficient wood stoves and cleaner cooking energy sources like LPG, CNG, Biogas, electric etc. in our homes to reduce pollution.

Conserve water and avoid wasting water at all costs, at all places.

Promote and support water harvesting practices in drought prone and dry areas to improve water management

Speak to farmers to stop burning of crop waste on agricultural lands to reduce pollution and also to help maintain soil quality



Plant more tree saplings wherever possible and ensure they grow into large trees. Also, let's protect our forests so the trees can continue helping us clean our polluted air. Encourage walking, cycling, using public transport, or carpooling whenever possible instead of using private vehicles to reduce pollution.

Avoid single use plastics like carry bags that cause serious harm to our natural environment and switch to cloth bags for your day to day shopping requirements.

Let's encourage the elders from our community / village to develop a disaster preparedness and management plan, so that we all can overcome any possible climate related or other disasters.

Sunny: That's great, Tim. Let's do it.



## Planet Earth is my home


A common message:

When we look up at night, we can see the moon and many other stars shining. Have you ever tried to count them?

Yes. There are too many stars and planets to count with your fingers. Scientific studies have so far not found any birds, animals, trees, or people living on them, because there is no water and no conducive atmosphere on them that supports life.

So, earth is the sole living planet. It is our only home, so we must care for it.





Now is the time to tell everyone  
about Climate Change. Let's save  
our planet. Our home is on fire.

# Exciting task for you

Display media reports about climate change for the past month on chart paper



Create last week's weather calendar and predict for the following week.

- o Take a chart paper
- o Check the local newspaper for weather information
- o Draw a table indicating dates, weather status, and a brief description using graphics or symbols.



Conduct a research on the climate and natural environment in your village/area by interviewing seniors aged 60-65 to compare changes over the last 25-30 years. For example:

- o Rainfall patterns and temperatures during summer and winter.
- o Occurrence of floods and droughts in the past
- o Status of the forests in the area
- o Presence of wild animals and birds in the area
- o Agricultural produce then and now.
- o Land lost in soil erosion
- o Any other historical facts about the climate conditions.

Make a plan to protect and conserve the environment.

Present all your activities and findings in the form of a poster presentation after discussing them with the school teachers.



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