I choose

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Mittu ripped open his favourite pack of potato chips, turned on the television, and sat down to work on his school project. He browsed the internet for a while, penned down an idea, but dissatisfied, crumpled the paper, and began again.

Tatha grumbled.

Mittu took no notice and continued his work. In the next thirty minutes, he had eaten two packets of chips, crumpled 15 sheets of paper, and flipped three channels on the television set. Then he used Mom's mobile to call up a friend.

This time Tatha grumbled quite audibly. *"What is wrong, Mittu?"*

"What? I just want to find out what my friend has been doing!" said Mittu disconnecting the phone. *"I am trying to do my homework. Help me, don't grumble".* Mittu pleaded.

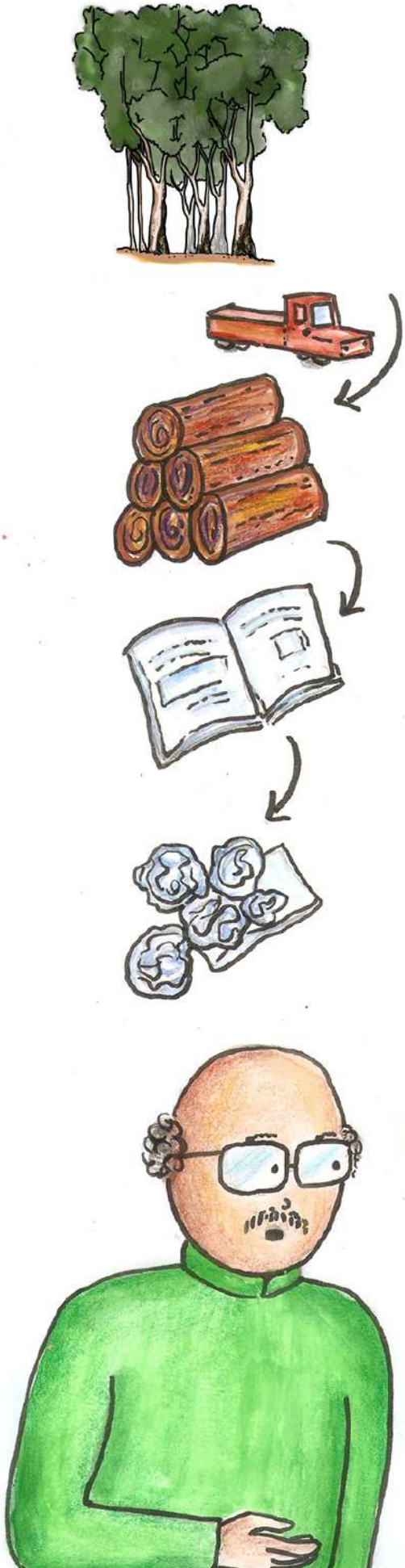
"Why do you have to crumple so many sheets and produce all this waste? Why do you need to turn on the television to work?" Tatha answered crisply. *"You are wasting your time, adding to global warming, and increasing your carbon footprint".*

Mittu opened his mouth to say something, but stopped abruptly.

"What global warming? What black footprints?" he said looking at the floor. *"It looks clean".*

"I said carbon footprint, not black footprint. The amount of carbon dioxide released into the atmosphere with each of your actions becomes your carbon footprint" clarified Tatha.

"I don't understand…" said Mittu perplexed.



"Well, let me explain. Look at those crumpled sheets of paper. Where do they come from?"

"From trees?" Mittu responded.

"Yes. One, cut trees," Tatha continued. *"Or deforestation. Less trees means more carbon dioxide in the atmosphere, because trees are not there to absorb it. Remember photosynthesis?"*

Mittu nodded.

Tatha went on *"Two, transport wood to factory in vehicles. Vehicles use fossil fuels like petrol and diesel for running. The burning of fossil fuels releases carbon dioxide into the atmosphere. Three, process wood into pulp using steam and electricity. Then, transport the pulp and finished paper products in vehicles. Again, carbon dioxide is released."*

"Stop, Tatha!" Mittu said abruptly. *"My head is reeling. What is the big deal with all the carbon dioxide? I send some out with every breath!"*

"Yes," said Tatha, *"we all do that to live. Inhale oxygen and exhale carbon dioxide. I am not talking about that. I am talking about the extra carbon dioxide that all of us may be adding to the atmosphere. It is this carbon dioxide that is harmful."*

"Okay…" said Mittu slowly. *"So making paper releases extra carbon dioxide into the atmosphere?"*

"Yes", Tatha said. *"And by wasting paper, you are releasing some more".*

"But how does my carbon footprint add to global warming?"

"Have you noticed the greenhouse in our garden?" Tatha asked.

"Yes! The glass room in our garden, right? Where mom grows her green leafy vegetables."

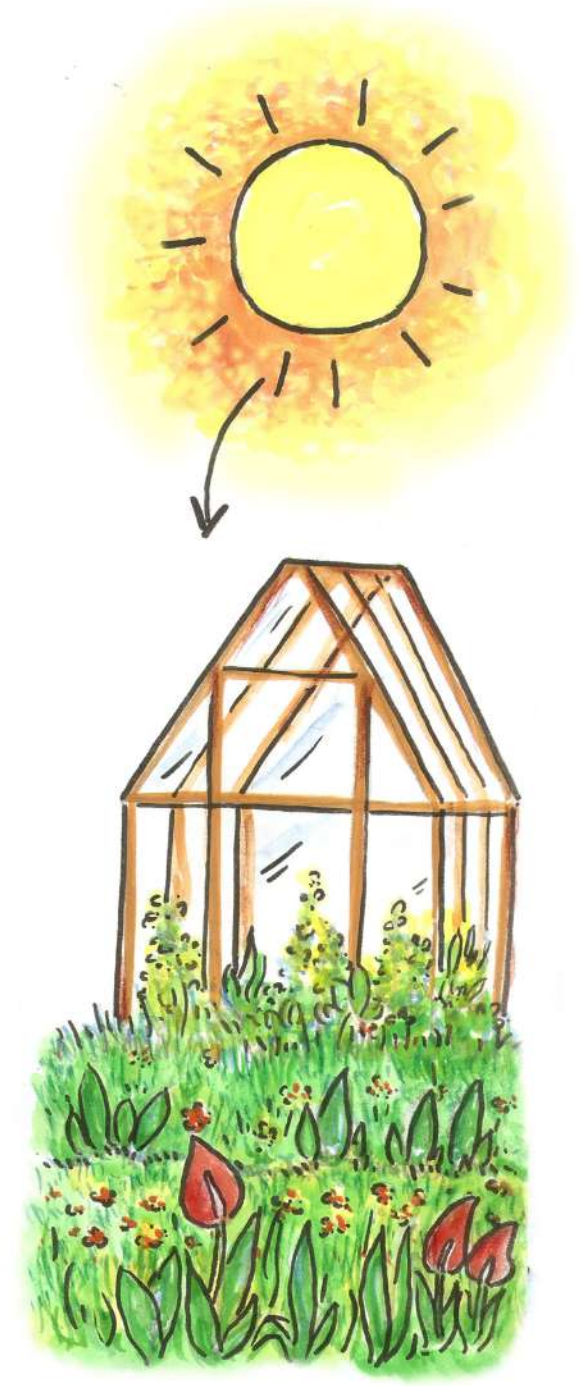
"Yes. But do you know why it has glass walls and a glass roof?"

"Why?"

"Because glass traps heat from the Sun, keeping the room warm."

"What has that got to do with global warming?" Mittu asked, perplexed.

"A greenhouse is like a miniature Earth." Tatha said. *"The Earth absorbs heat from the Sun."*



"I know...!" Mittu stopped Tatha halfway, *"Some of this heat keeps land and our oceans warm. Some of it is reflected back into the atmosphere."* Mittu looked expectantly at Tatha.

Tatha smiled, *"That's right! But the carbon dioxide and water vapour present in the Earth's upper atmosphere form a protective layer, like a blanket. They trap some of the reflected heat, keeping the Earth's surface warm. That is why we call both these gases* ***Green House Gases****."*

"But doesn't this trapped heat help support life on Earth?" asked Mittu.

"It does, Mittu." Tatha said. *"Just like the heat in the greenhouse helps the plants growing in it. But as the concentrations of carbon dioxide and water vapour in the atmosphere increase, more heat gets trapped, and temperatures across the globe increase. When the concentrations of these gases continue to increase beyond what we have known to be their normal limits, they make the Earth's surface very, very warm. So warm that Earth's climate starts changing".*

"Isn't this natural?" Mittu asked. After a pause, he added, *"Climate change is okay with me. I like warm weather."*

"Yes, Mittu, this atmospheric cycle is natural." Tatha smiled, *"But we are hastening this process with the scale of our activities. For example, the plants in the greenhouse like the warmth they are getting now. But imagine what would happen to them if the greenhouse kept getting hotter and hotter? The change in climate that we are seeing now is like that. It is different from the kind of warm we are used to. The average global temperature today is already 4-5 degrees Celsius higher than that during the last ice age. As the climate changes, summers will become unbearably hot. Hotter than in 2016."*

"The hottest year yet", Mittu said, thinking of the newspaper headlines he'd read.

"Yes, Mittu. Remember, nearly 20,000 people from across India died that year due to the heat? That's what will happen. Land will dry up. Water will become scarce" Tatha paused.

Mittu shuddered.

"That's not all, Mithu. Climate change is likely to increase the spread of infectious diseases like ZIKA and COVID-19. Animals that don't move to cooler places may go extinct. Those that move to cooler places are likely to come into contact with pests, predators, and competitors that they would not otherwise encounter."

"*And?*" Mittu asked.

"*And how different species interact with each other will change. For example, it is not unusual for spruce trees to be attacked by bark beetles. But the changing climate has caused the tree's natural defenses to weaken, and helped the bark beetles to multiply and spread faster. The result — these beetles have wiped out nearly four million acres of spruce trees in Alaska!*"

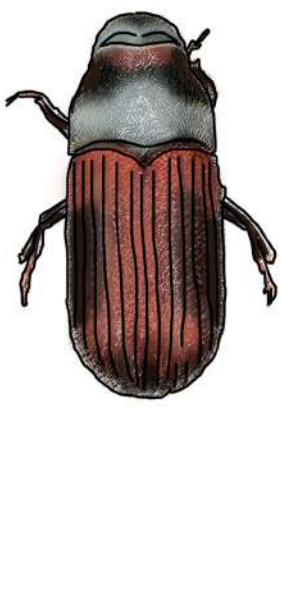
"*Gosh! Less trees means more carbon dioxide in the atmosphere, isn't it?*" Mittu asked.

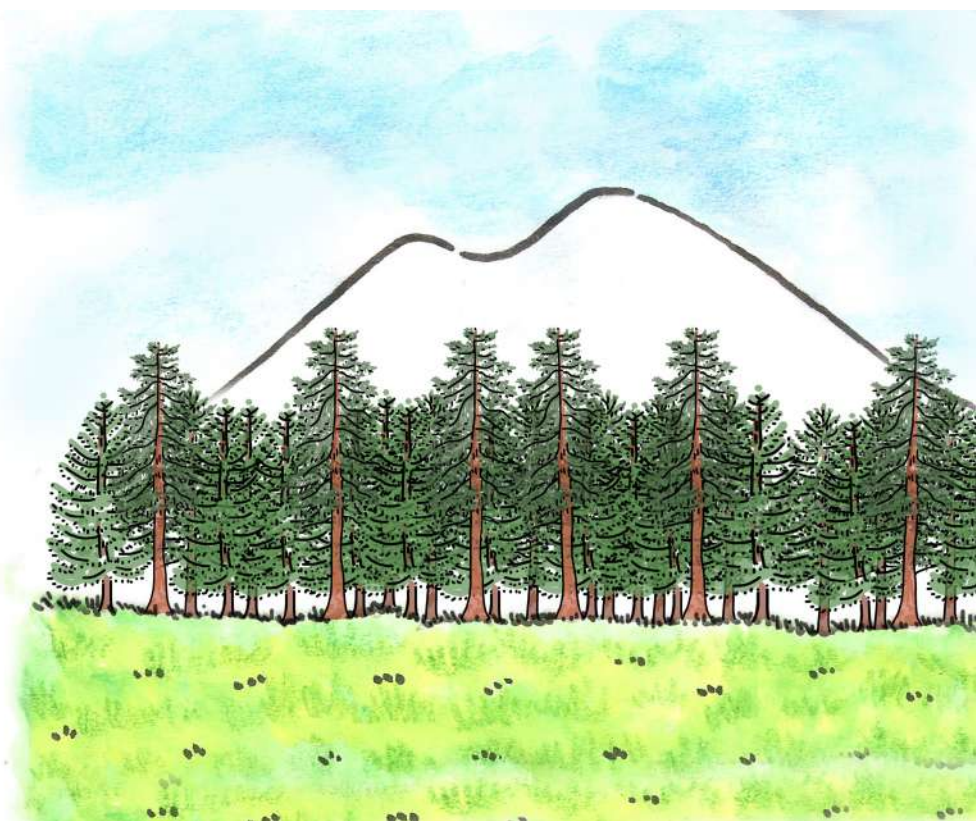
Tatha nodded. "*This will cause a further increase in average global temperatures, and hasten climate change. See? This is a vicious cycle.*"

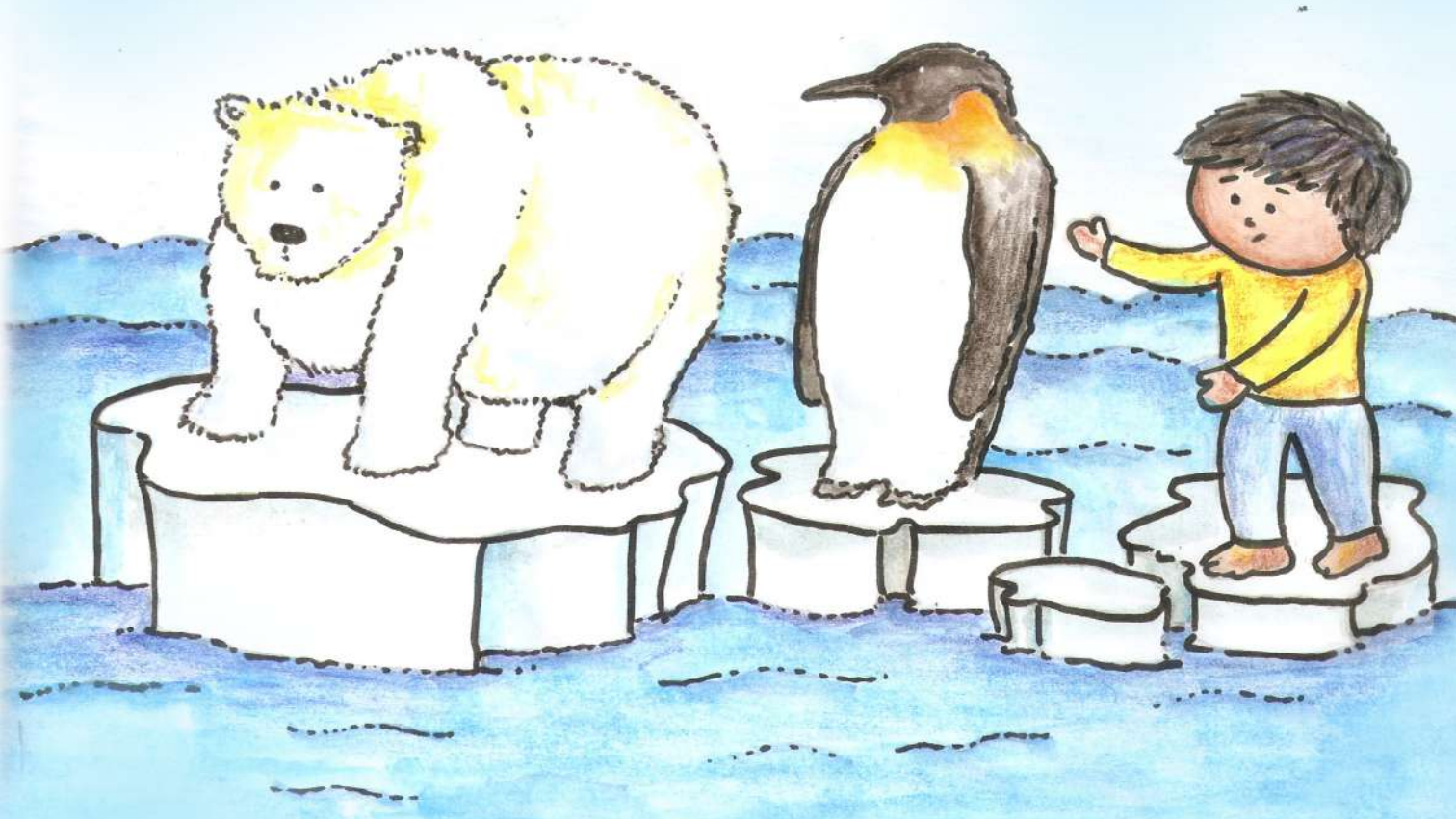
"*Can we not turn on the air conditioners if it gets that hot?*" persisted Mittu.

"*Oh, Mittu!*" said Tatha sympathetically "*There will be nothing left to turn on. The rising temperatures will cause glaciers to melt rapidly. This quickened melting will will first cause overflow of fresh water sources, but as less of the glaciers remain, the fresh-water levels each year will keep reducing till they dry up. Millions of people depend upon this water. Their depletion will mean no drinking water for many people. And no electricity for those who depend on hydroelectric power from rivers.*"

"*If there is no water, we will not have a greenhouse or garden. And our own gardener will not have a job!*" Mittu exclaimed.







"If things continue like this, we may also have to leave our homes. Even our country" Tatha said.

"But can't we get electricity by burning coal?"

"Yes, we can." Tatha said. *"But when we produce electricity by burning coal, more carbon dioxide is released into the atmosphere. If the global temperature increases by even just a couple of degrees more, the polar ice caps will melt. There will be no Arctic and Antarctic!"*

"What? But that would mean no polar bears. And, no penguins!" Mittu said in consternation, thinking of a wildlife programme he'd watched on television a couple of days ago.

"No polar bears, no penguins, no us!" Tatha said.

"No us?" Mittu shuddered.

"No us". Tatha said sadly. He let Mittu grasp this idea before continuing, *"Because all the ice that melts will enter our oceans. Sea levels will rise and flood coastal areas, just like a bucket overflows when you leave a tap open. The only difference is that we live in those spilled over areas. Floods destroy plants, animals, property, fields and also people".*

"Okay," said Mittu bravely, *"I will not waste paper anymore. Will this stop climate change?"*

"Paper wastage and fossil fuel usage for transport of paper and paper products are just a few examples of activities that hasten climate change, Mittu" Tatha said. *"Large-scale activities like generation of electricity, industrial and vehicular pollution, and deforestation for agriculture contribute much more to this change."*

"How can we reduce our carbon footprints, Tatha?" Mittu asked. *"What can I do to make a difference?"*

"Simple things. For example, cut down on television time, turn off the air conditioner for a day, browse books instead of the internet, go off your phone for a day, carpool, use LED lamps, recycle paper and organic waste…" Tatha paused before he added, *"Think of all that you can do, Mittu. Being more responsible starts with our personal choices".*

Mittu sensed that the ball was in his court. *"Then, I choose!"* he said enthusiastically *"I choose to save the environment. I choose to save the Earth. I choose to save us".*

"How?" Tatha questioned.

"I will bicycle to school, Tatha" Mittu said. *"And I'll go gadget free for a couple of days a week. No television on one day, no mobile on the other!"*

"That's a good place to start, Mitthu." Tatha looked at Mittu unsmilingly *"But do you know what you will leave then?"* he asked.

"What?" Mittu asked, looking terrified.

"A positive effect on our environment. Your ***carbon handprint****!"* Tatha smiled.

Mittu beamed. He immediately turned off the television, picked up the crumpled sheets of paper, and smoothened out the creases with his hands. He kept some aside for future use, and jotted down ideas on one of them. After he'd finished his project, he sat down beside Tatha, and happily browsed through a book on penguins.

About the Author

Rohini Chintha is an Assistant Professor (C) at the Department of Genetics and Biotechnology, University College for Women, Hyderabad. She is passionate about writing for children, and believes that 'A Happy Childhood builds a Happy Society'. About 85 of her stories for children have been published in various magazines. To view her work, check out her website: www.popscicles.com.

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