

# **TURN IT AROUND!**

**An Education Guide to Climate Futures**



This work is licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/> or send a letter to Creative Commons, PO Box 1866, Mountain View, CA 94042, USA.

The artwork included in this report was submitted to “Turn it Around! Flashcards for Education Futures” project and sublicensed to Artists’ Literacies Institute (ALI) for printing and re-use of the images and texts exclusively for project-related work and derivative and related projects on climate, education, and ecology, as long as artists are credited and the work is presented in a context consistent with the project. Artists maintain the full rights to their work in other contexts, and ALI makes no claim to ownership of any images or words.

Supported by grants from the Open Society Foundations.

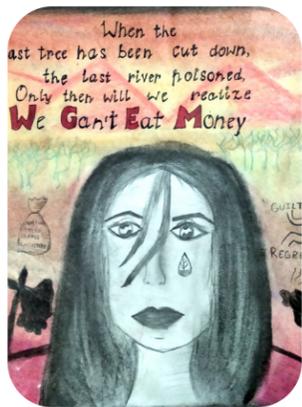
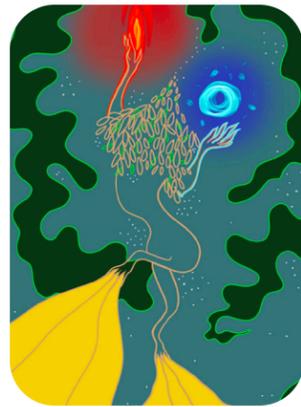
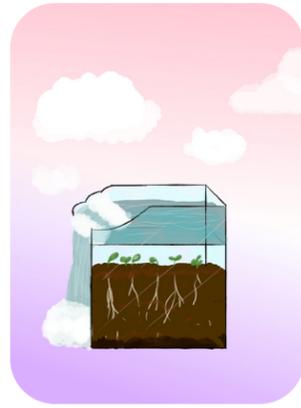
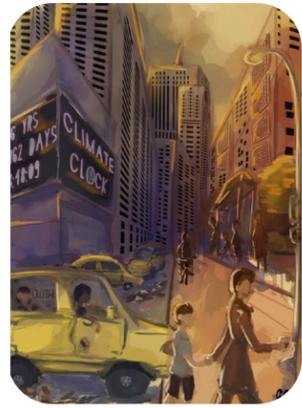
To cite this report:

Anayatova, D., Basu, M., Darira, S., Freiband, A., Glanz, D., Halkiyo, A., Hovsepian, S., Jenik, A., Jiang, J., Komatsu, H., Kwarase, P., Law, L., Nielsen, A., Oneill, J., Palandjian, G., Pretti, E., Rappleye, J., Sanchez, B., Silova, I., Tsojniashvili, K., & CONTRIBUTING ARTISTS (2022, May). *Turn it around! An education guide to climate futures*. Arizona State University and Artists’ Literacies Institute. <https://doi.org/10.14507/OGE-TiA>

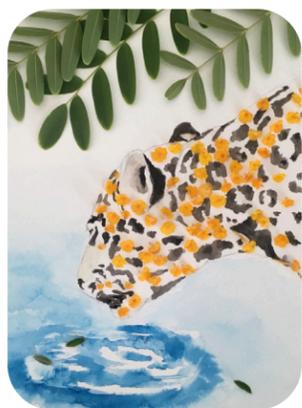
**If our species does not survive the ecological crisis, it will probably be due to our failure to imagine and work out new ways to live with the earth... We will go onwards in a different mode of humanity, or not at all.**

— Val Plumwood, 2007





**Turn it Around! Flashcards for Education Futures** is a learning tool for adults, made by youth, to re-imagine our approach to education, and our relationship with nature and the living world during this time of climate crisis. Usually, flashcards are designed by educators for students and children. This deck of flashcards is designed by youth for education policymakers, politicians, and teachers to challenge them to think, see, and act in new ways. By flipping who teaches who, this project is a reminder that everyone — and everything — must change.



# TABLE OF CONTENTS

## Executive Summary

10 Executive Summary

## Poetic Summary

12 Poetic Summary

## Why We Need to Turn it Around!

17 Mobilizing Youth Visions and Voices  
18 Toward Reimagining Education Futures  
20 Initial Responses, Contributions, and Inspirations

## Turning Toward

28 A Split, Broken World  
28 Structures of Domination, Cultures of Oppression  
32 Exercise 1

## Turning Paradigms

37 Activating Paradigm Turns in Education  
38 Uprooting Dominant Education Metaphors, Concepts, and Assumptions  
52 Turning the Wheel of (Un)Learning  
54 Exercise 2

## Turning Points

60 Resituating the Human Within the Earth's Ecological Community  
61 Redefining Education Purposes in Broader Ecological Terms  
62 Transforming Curriculum for Ecological Literacy  
63 Reconfiguring Pedagogies to Foster Cultures of Interdependence  
64 Opening Up Education to Learning With The World  
65 Creating Learning Spaces of Resistance, Resilience, and Recuperation  
67 Including Youth In The Decision Making About Their Education Futures  
70 Exercise 3

# EXECUTIVE SUMMARY

This is perhaps the only section of a report that most readers will ever read in full. Traditionally, an executive summary provides an abbreviated analysis that highlights the major arguments of the report — complete with numbers and statistics — and a concise conclusion offering policy recommendations. We urge you not to stop here. As you continue reading, you will see that each page of the report is carefully curated not only with the most recent empirical data and detailed descriptions of youth visions of education futures, but also with evocative images, raw emotions, and lived experiences of the climate crisis that have for decades been truncated, abbreviated, or erased in search of generalization and brevity.



**The invitation to Turn it Around! is more than an urgent call to action — it is now the responsibility of every reader to re-imagine education and work out new ways of living with the Earth.**

For more than six decades, scientists have warned us of the catastrophic effects of the escalating climate crisis on the planet and people. The United Nations (UN) member states have met annually since the mid-1990s at the UN Climate Change Conference of the Parties (COP) meetings, setting goals and delivering metrics, making promises and offering hope, but failing to enforce policy action. The recent UN COP 26 in Glasgow fell short of keeping the goal of 1.5°C global heating alive as measured against its own objectives. Despite booming policy declarations and deafening science alarms, we have yet to see the radical change in the existing systems and institutions, lifestyles and behaviors, and mindsets and hearts. Perhaps by their very objectivity, the words and numbers distance us from the searing heat of a wildfire or the smell of fear and despair as animals and humans watch the floods wash away their homes and witness the fires burn their habitats. They also reduce the complexity of intertwined webs of life by fragmenting our common planetary home into isolated 'problems' to be managed and fixed without addressing a much larger challenge of dismantling unjust systems and reconfiguring our relationships with each other and the planet.

Building on the scientific evidence and keeping in focus policy promises made over the decades, this report mobilizes the power of socially engaged art to bring together visions and voices of youth from across the globe in a collective effort to address the root causes of the climate crisis. It starts with the premise that education is directly implicated in the climate crisis and our failure to imagine alternatives. But it can also be the catalyst for radical change.

Aiming to shift and shuffle the dominant knowledge systems and categories with the cards from the **Turn It Around!** deck, this report urges you to turn toward the reality of the climate crisis by capturing its devastating impacts from youth perspectives in a way statistical data might not. It challenges existing education policies, practices, and patterns as no longer possible, tolerable, or even thinkable. With the powerful imagination and creativity of youth, the report activates a series of turning points — intergenerational, decolonial, methodological, and pedagogical — in order to turn around the environmental catastrophe, while reconfiguring the role of education toward ecologically just and sustainable futures. Recognizing that most of the human-induced damages on earth are irreversible, we invite you to follow these turns in order to unlearn harmful patterns and begin *relearning* how to be a part of the Earth's ecological community. The invitation to **Turn it Around!** is more than an urgent call to action — it is now the responsibility of every reader to re-imagine education and work out new ways of living with the Earth.

# POETIC SUMMARY

This poetic summary is an invitation for you to think, feel with, and be moved by the words directly originating from youth contributions to the **Turn it Around!** initiative. All of the lines can be individually found somewhere in the deck telling their own stories, but they are woven together in the form of a 'found poem' in this poetic summary. This 'found' poem serves as a poetic introduction to the main ideas, motivations, emotions, and calls to collective action expressed by youth who are working to reimagine education — and the world — toward more sustainable and just futures.

---

## Turning to the Youth: A Found Poem

*Marina Basu*

A tree leaf once taught me  
Growing seeds from soil,  
Nature does not hurry.  
So walk slowly — the pulse of life  
Is in our being and body,  
Walk the land with light steps.

We too disappear —  
So pay attention:  
Think less about building  
Or developing land.  
Remember that development  
Is an unnecessary evil.

Consequences of our current acts  
Are social and environmental crises  
Including gender-based violence,  
That test the limits of the human ego.  
Yet nature heals,  
And teaches us the art of healing.

In times of hardship and uncertainty  
Nature's creative solutions  
Show intelligence's worth —  
Bees buzz for the good of all  
Plants live and let us live  
Our planet is beautiful.

The challenge before us today  
Is to break toxic cycles.  
Nature communicates with us,  
Respect the habitat of each being;  
The earth is a gift,  
We are guests on this planet.

Climate education is fundamental for survival  
And so our curriculum must teach —  
Care for the land,  
Empathetic worldviews,  
A willingness to question,  
And that the world rests on truth.

There is hope and excitement;  
Teaching is an act of love and care.  
Relationship between nature and education  
Can be re-turned:  
We belong to the Earth,  
And not the other way around.

Decisions of today  
Whisper in the wind.  
We find hope in unity,  
Connection in dreams.  
Love influences everything,  
Earth is all we've got.

Acts of loving kindness  
Can like wildfire engulf a forest.  
Dancing in yellow,  
In the stillness of nature  
Shards of our ancestors  
Light someone's darkness.

Money won't save us  
Our lifestyles must change.  
We have everything we need,  
And a few years to take action.  
It's time to turn to the youth —  
A generation that's open to change.



**WHY WE  
NEED TO  
TURN IT  
AROUND!**

---

## Climate Facts

The Earth is heating faster than previously thought. Its global surface temperature has increased by around 1.1°C compared to pre-industrial levels and is now nearing 1.5°C — a critical threshold to avoid the most catastrophic and long-term effects on people and the planet. If radical changes are not made, it is estimated that global surface warming will cross 1.5°C in the 2030s and reach 3°C by the end of the century.<sup>a</sup>

350 million people living in urban areas will suffer due to water scarcity from severe droughts at 1.5°C of heating — 410 million at 2°C.<sup>b</sup>

Coral reefs will decline up to 90% with 1.5°C heating and die entirely at 2°C. Without coral reefs, 1/4 of all marine fish species will become threatened, devastating the fishing industries, triggering acute food crises in coastal regions, and contributing to rapid erosion of coastlines.<sup>c,d,e</sup>

By 2050, more than 1 billion people living in low-lying coastal zones — from Miami and New York to Osaka and Rio de Janeiro — will be displaced due to floods and sea level rise triggered by global heating.<sup>f</sup>

With the rise of temperatures and sea level, the frequency of high intensity tropical cyclones (categories 4 and 5) will double by the end of the century.<sup>g</sup>

If current greenhouse gas emissions continue, global heating will drive over one third of the Earth's species to extinction by 2050. Today, 1 million species are already threatened with extinction — more than ever before in human history.<sup>h,i</sup>

Wildfires will continue to get worse — even in “best case” climate scenarios — putting more carbon dioxide into the air and threatening humans, wildlife, and the economy. Wildfires are already responsible for 5-8% of the 3.3 million annual premature deaths from poor air quality.<sup>j,k,l</sup>

A child born in 2021 has an increased likelihood of suffering from respiratory illnesses due to decreased air quality related to climate change.<sup>m</sup>

The climate crisis can cause anxiety-related chronic and severe mental health disorders. In the U.S., for example, 48% of people believe the climate crisis is impacting their mental health.<sup>n,o</sup>

To limit heating to 1.5°C, global net greenhouse gas emissions from human activity must decline by nearly half from 2010 levels by 2030, and reach net zero by 2050. In addition, we must recapture at least 33 gigatonnes of carbon dioxide from the atmosphere each year.<sup>p,q</sup>

---

## Mobilizing Youth Visions and Voices

We are living in a planetary emergency. The 2021 report of the Intergovernmental Panel on Climate Change (IPCC) has unequivocally concluded that human activities over the past 250 years have caused a significant increase in the concentration of greenhouse gasses in Earth's atmosphere, heating the planet to dangerous levels.<sup>1</sup> While continental drifts, ocean currents, volcanic eruptions, and the impact of comets and meteorites have historically contributed to changes in temperature, the Earth is heating at unprecedented levels because people are burning fossil fuels, cutting down forests, and industrially farming livestock. Compared to pre-industrial levels, the earth's global surface temperature has increased by around 1.1°C and is now nearing 1.5°C — a critical threshold to avoid the most catastrophic and long-term effects on people and the planet. If radical changes are not made now, it is estimated that global surface heating will cross 1.5°C in the 2030s and likely reach 3°C by the end of the century, setting off cataclysmic and irreversible climate tipping points.<sup>2</sup> This is viewed as a “death sentence” by many youth climate activists, including Patience Nabukalu, Vanessa Nakate, and others.<sup>3</sup>

Since the 1970s, scientists around the world have been issuing multiple warnings, arguing that sustaining human life on Earth requires immediate policy action and drastic transformation of our current lifestyles.<sup>4</sup> Despite global agreements and collective pledges to slow global heating by reducing greenhouse gas emissions — from the first Climate Conference in Geneva in 1979 to the historic 1992 Rio Summit, the 1997 Kyoto Protocol, the 2015 Paris Agreement, and annual UN Conferences of the Parties (COP) — nations have not changed course significantly, and the amount of carbon dioxide in the atmosphere keeps rising, causing arctic ice thaw, steady sea-level rise, record-breaking droughts and floods, more frequent wildfires, and mass species extinction. Overwhelmingly, extreme weather conditions exacerbate societal and systemic inequalities that already run deep in societies worldwide, exposing the existing structures of oppression.<sup>5</sup> In response, multiple social movements are mobilizing to demand change, including youth and women's rights movements, anti-racism and decolonization movements, and anti-nuclear and pro-environment movements.

On the frontlines of global protests are millions of children and youth activists, organizing in powerful and creative ways to demand policy response from their government officials. Often joined by their teachers and other adults in collective solidarity, they urge immediate action to mitigate the climate crisis by making individual statements, participating in mass demonstrations, staging artistic performances, or suing governments and companies over their failure to address the global climate crisis. Since 2018, a wave of climate strikes has swept the globe, bringing millions of youth to the streets as part of a growing movement for climate action. On March 19, 2019, 1.6 million youth activists from 300 cities around the world walked out of schools to demand change. Seven months later, on September 19, 2019, 4 million people from 185 countries turned out for what is considered to be the largest climate protest in history.<sup>6</sup> Although the media has chosen to spotlight high-profile actions by youth activists from the Global North, thousands of Indigenous and non-Western climate activists have been tackling the climate crisis for years yet remain unrecognized or deliberately ignored by the media.<sup>7</sup> Furthermore, millions of other youth have been engaged in ‘everyday’ environmental activism in contexts where the effects of the climate crisis are felt in the most immediate ways and where young people have been responding to the devastating impacts of the climate crisis for decades without much media attention.<sup>8</sup>

Whether engaging in mass protests or everyday activism, these youth are challenging the status quo and demanding policy action — from clean energy practices to climate education policies. Unlike political leaders who debate the science of our current climate crisis or profit from corporate investments in fossil fuels, the youth demand real and immediate action in their local communities, as well as policy change at the national and global levels, to address the climate crisis. Addressing a group of climate activists in Berlin on September 24, 2021 Greta Thunberg echoed the determination shared by millions of others:

**"There's no going back now, we can still turn this around, people are ready for change, we want change, we demand change and we are the change!"**

## Toward Reimagining Education Futures

Addressing the climate crisis is a complex, multifaceted effort that requires collaboration across academic disciplines, national borders, political interests, and generations. This report focuses specifically on the role education must play in turning around the environmental catastrophe. It starts with the premise that education is directly implicated in the climate crisis and our failure to imagine alternatives.<sup>9</sup> Despite efforts to promote education as key to achieving sustainable lives (e.g., Sustainable Development Goal 4 or UN's Education for Sustainable Development initiative), education systems continue to perpetuate the logic of human exceptionalism and emphasize education's impact on economic growth over other areas of impact such as environmental sustainability. We know that fossil-fuel dependent, profit-driven activities have escalated global warming and are exacerbating the climate crisis. Scientists have warned us that the planet's systems are dangerously close to irreversible tipping points. Children and youth are generally well aware that we live in environmentally precarious times and that we face an uncertain future. Yet, schools and universities continue to maintain the status quo, reproducing the hierarchical 'man over nature' relationship, promoting the idea that humans are separate from and above nature, and thus further exacerbating the climate crisis.<sup>10</sup>

This policy report brings together the visions and voices of youth artists and leaders from across the world in a collective effort to radically reimagine education in order to address the root causes of the climate crisis. Refusing to accept human exceptionalism and (neo) liberal individualism as a single vision for surviving on a damaged earth, we center these voices to re-articulate education as a part of the solution to the climate crisis. In this process, our goal is to mobilize the power of socially engaged art and science facts in order to 'move' policymakers into immediate policy action. This will also create the foundation for long-term policy planning that acknowledges intergenerational, cross-cultural, and multispecies interdependence and justice.

At the center of our initiative is one of the most basic learning tools — a deck of educational flashcards called **Turn It Around!** Flashcards for Education Futures — displaying climate crisis inspired artwork created by youth on one side, and motives, actions, and facts for

policymakers to guide their decisions about our climate futures, on the other side. In addition to the cards developed by youth, the deck includes a number of flashcards developed by our organizational partners, providing frameworks and lessons from some of the most essential and experienced voices working toward more sustainable and just global futures.

Much like flashcards for literacy and numeracy, the cards featured in the collection introduce learners — policymakers, educators, and community members — to new vocabulary and perspectives generously shared by global youth. Unlike the traditional flashcards, the cards in this collection are designed not only to introduce new ideas, but also to shift and shuffle existing knowledge and practice, which may have been forgotten, ignored, or even erased from the map of modern knowledge production. As such, the deck is designed to activate a series of 'turns' by shifting the old categories, structures, and systems that can no longer be thought as possible, tolerable, or ethical.

**The deck is designed to activate a series of 'turns' by shifting the old categories, structures, and systems that can no longer be thought as possible, tolerable, or ethical.**

### Intergenerational 'Turn'

First and foremost, the cards activate an intergenerational 'turn' by bringing into dialogue the vision and wisdom of global youth as future holders,<sup>12</sup> thus offering a powerful alternative to the existing asymmetry in power-relations between policymakers and children and youth whose futures are directly affected by their decisions.

### Decolonial 'Turn'

Second, the deck activates a decolonial 'turn' by cutting across the established hierarchies of Western knowledge, while opening up the policy space for multiple perspectives — from Indigenous and land-based knowledge(s) to non-Western philosophies and ecoactivist movements — that recognize the interdependence of all beings, including humans and non-humans.

### Methodological 'Turn'

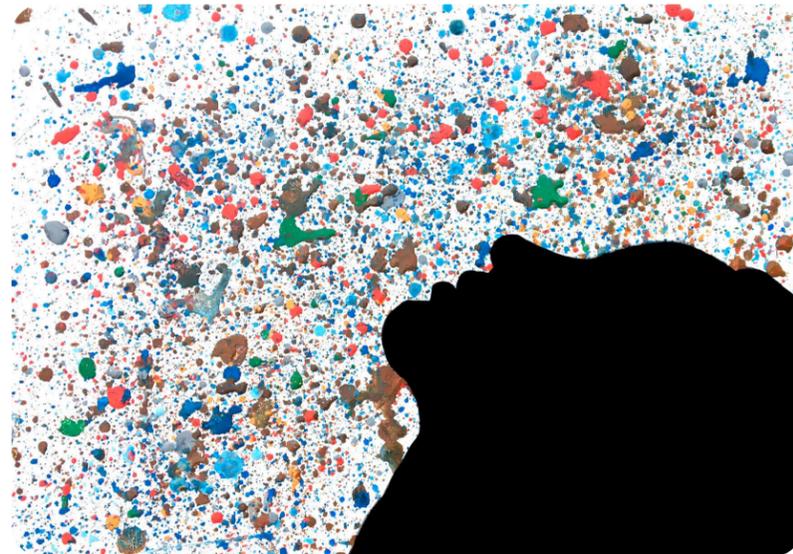
Third, the deck activates a methodological turn by weaving together the aesthetic and imaginative lenses of art and poetry with ecological, experiential, and empirical knowledges. It invites us to engage differently with the changing world, while fostering new conversations to emerge.

### Pedagogical 'Turn'

Finally, the deck activates a pedagogical 'turn' by envisioning a radical transformation of education systems around the principles of interdependence and interconnectedness that make everyone and everything a part of the Earth's ecological community.

## Initial Responses, Contributions, and Inspirations

This policy report builds on powerful contributions by young artists and leaders who responded to an open call, inviting youth globally to share their vision and wisdom about the role of education in turning around the climate crisis. The call for contributions was shared through social media networks with the goal of crowd sourcing art and text responses to several prompts such as asking youth to imagine ideal learning environments, share their everyday actions that contribute to a livable future on Earth, tell why climate education is critical for their learning, or share where they find hope and resilience in facing the uncertain future.



Artwork by Marley Pemberton, 25, Arizona

### Art prompts

- Create a Mandala from natural or refuse materials drawn from where you live and take a picture of it.
- Draw or paint a picture that expresses your connection with the earth.
- Share your photographs from “Climate Strike” or other youth-led climate actions.
- Imagine your ideal learning environment. Where do you learn? What are you learning? With whom do you learn?
- Make an artwork about what it means to live in this time and space.
- Picture a step or action you could take today to contribute to a livable future on Earth.

### Text prompts

- What do we need to learn to ensure we and our planet survive and thrive?
- Tell leaders what you want them to know (or remember) when they make decisions about your future.
- Tell leaders why climate education should be included in your curriculum today.
- Describe what you can learn from nature that you cannot learn in school.
- Share a lesson you have learned from your ancestors you want to pass on to future generations.
- Tell policy makers about your non-human teachers (i.e. animals, plants, nature, ancestors, technology, etc.). What do they teach you and how?
- Let other youth know where you find hope and resilience as you face the uncertain future. What moves you to act?

With less than a month open for submissions, we received an overwhelming response from youth across the world, spanning different ages, geographies, climate crisis contexts, educational spaces, and emotional places. Most of the contributors to the **Turn it Around!** Initiative are generally neither visible in global media spotlights on climate strikes nor invited to international climate conferences such as the UN Climate Change Conferences of the Parties and other high profile events. Yet, these young leaders have been working tirelessly in their own communities, as well as at the regional, national, and global levels, engaging in ‘everyday’ environmental activism to address the persisting root causes and devastating impacts of the climate crisis. Their visions and wisdoms form the foundations of the **Turn it Around!** deck, website, and this policy report.<sup>13</sup>

These flashcards represent only a sliver of the climate change experiences and insights from young people around the world. Many marginalized and excluded young people — by way of poverty, racism, habitat destruction, or by lack of absence to computers and internet connection — could not contribute to this initiative but they surely have much to say. Reflecting on the challenging insights and images from the deck is one way to honor and engage with these young people, their experiences of living through the climate crisis, and their visions for the climate futures.

Of the 449 submissions from children as young as six to adults over 70 years old, most contributors were youth under 30 years old (n=372), with more than half of the submissions (56%) being from school-aged children, including primary school (n=60), middle school (n=40), and secondary school (n=109). Geographically, submissions came from 44 different countries and five continents, including Asia (180), North America (110), South America (74), Africa (22), and Europe (22). The percentage of submissions from the Global South (66%) was disproportionate to the responsibility for climate breakdown for these countries (8%), based on the estimates of historical CO2 emission data.<sup>14</sup> This suggests that those people and communities with least responsibility for the climate crisis do not only suffer the most from the consequences of global heating. They also contribute the most to addressing the climate crisis challenges in many ways, including by participating in this initiative.

Importantly, some contributors chose not to identify themselves with nation-states and their borders, instead naming their hometowns and villages, Indigenous and Aboriginal lands, coastal areas and mountain ranges as places of their dwelling and belonging. Honoring these perspectives, we have intentionally left the names of these places unchanged in the **Turn it Around!** deck of flashcards and the accompanying policy report, because they illuminate intimate connections and deep interdependence among the contributors, as well as between the contributors and the land, despite existing geopolitical borders and persisting divisions.

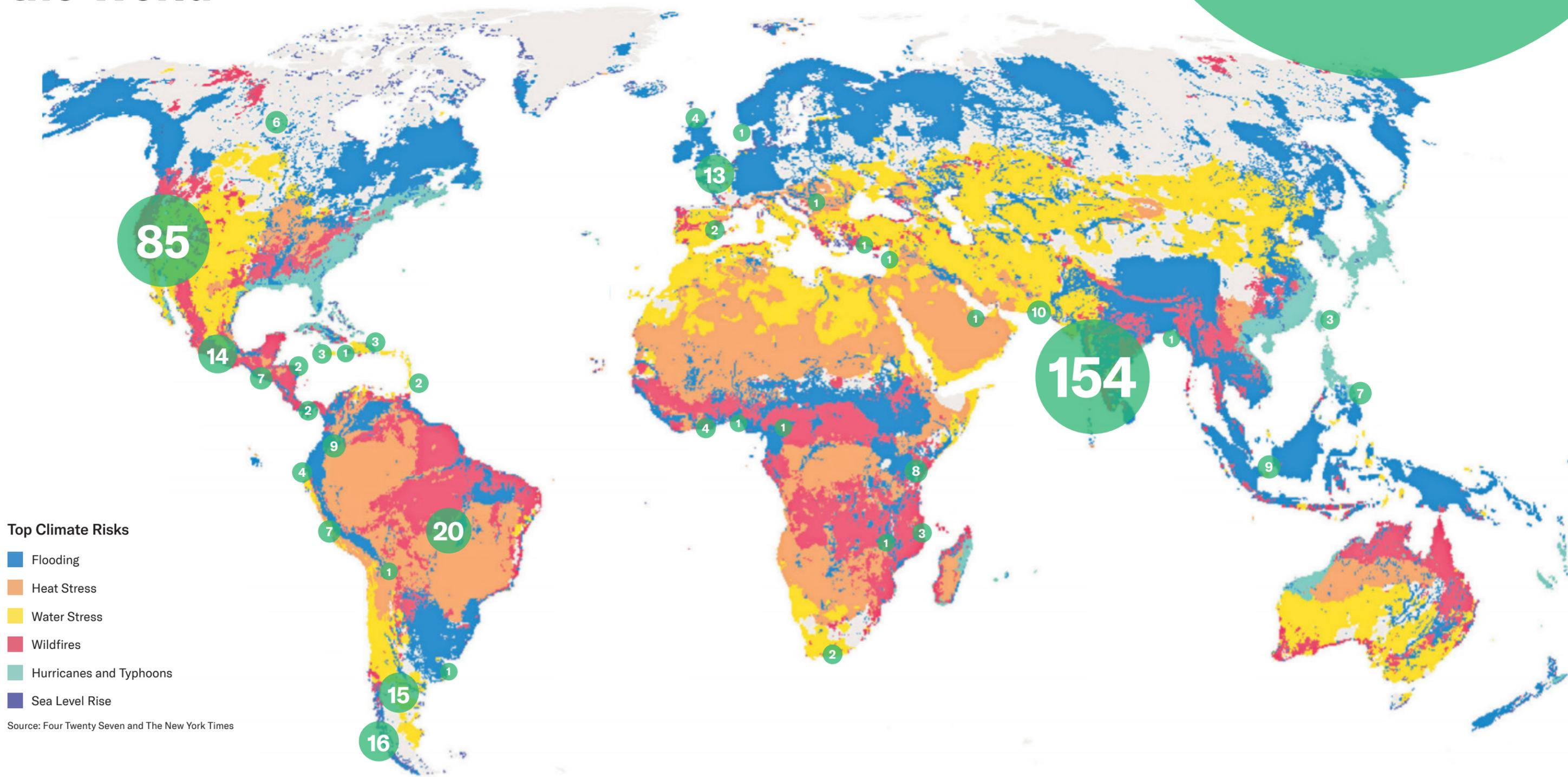
**...we have intentionally left the names of these places unchanged in the Turn it Around! deck of flashcards and the accompanying policy report, because they illuminate intimate connections and deep interdependence among the contributors, as well as between the contributors and the land, despite existing geopolitical borders and persisting divisions.**

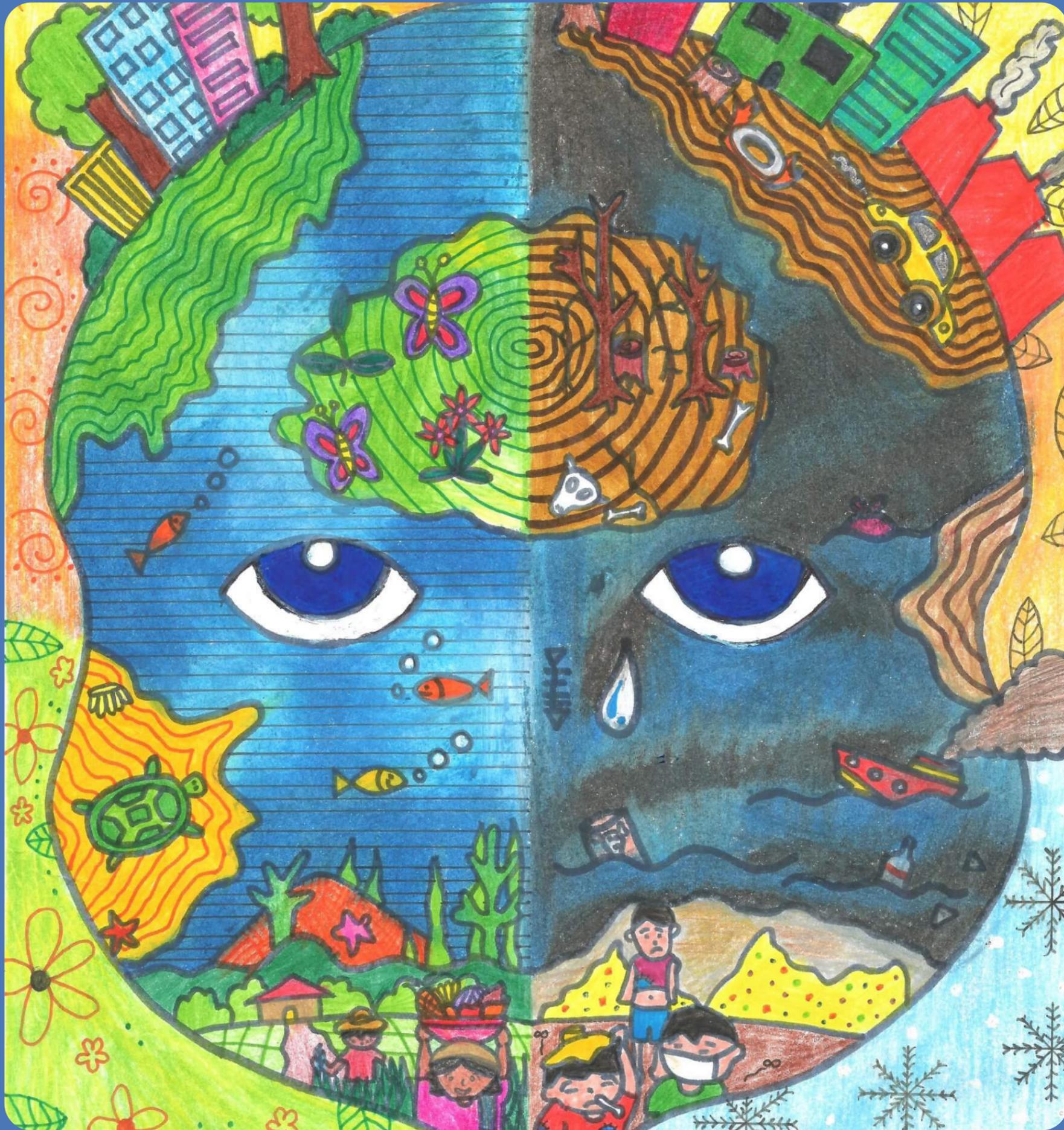
Connected across damaged landscapes and united by a common cause, we are joining these young artists and leaders in their places of intense emotions and strong determination. Collectively, we are writing from places of anger, grief, and fear, but also from places of hope, courage, and determination. We are writing from places that are burning, flooding, and suffocating, but also from places that are beautiful, inspiring, and artistic. We are writing full of concern and realization that we are all in this crisis together and we are responsible for making radical changes necessary for shifting humanity off our environmental catastrophe trajectory. Today more than ever, we must **Turn it Around!**

Figure 1

# Artwork Submissions and Climate Risks Across the World

449 submissions received from 44 countries





# TURNING TOWARD

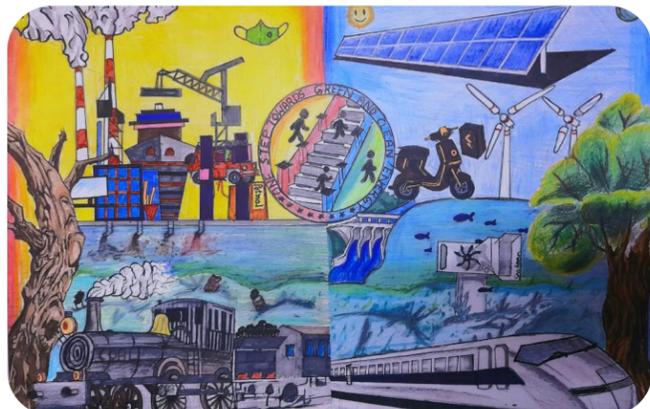
# A SPLIT WORLD



Artwork by Prapti Kedia, 10, West Bengal, India



Artwork by Nisha Dhir, 9, West Bengal, India



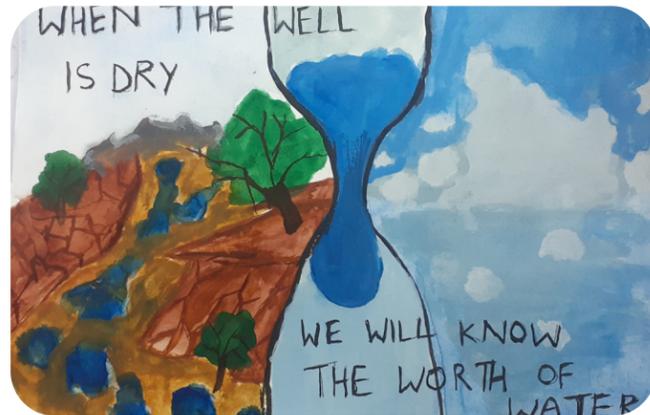
Artwork by Abhilash Pradhan, 13, Delhi, India



Artwork by Guada Molinari, Argentina



Artwork by Awantika Sharma, 14, Himachel Pradesh, India



Artwork by Ustha Ayarwal, 14, West Bengal, India



Artwork by Anand Gupta, 10, West Bengal, India

## Living in a Split World

By Julia O'Neill

Binaries seem simple to teach  
Good v. Evil  
Day v. Night  
Wrong v. Right

But the Earth self-destructs on the "split"  
Capitalism v. Nature  
Today v. Tomorrow  
Now v. Never

Self-destruction is inaccurate portrayal  
It's not the Earth's fault  
It's the people's economy  
And their narcissism

Fire red fury races over the land  
People live in the smog  
While the forests burn  
The water rises

Water is life giving  
Water is life taking  
The water is rising  
And with it our sense of control

It's not black or white  
It's not grayscale or finite  
We live in infinite color  
And need infinite possibilities  
To protect the Earth

If only they cared.

Warnings of urgency  
NOW OR NEVER  
reverberate off skyscrapers  
into a dark taunting sky

Where is the pedagogy of love?  
How do we learn to care,  
When our leaders are out of touch?

We are resting on a balance beam  
between the binaries.  
I suppose what goes up must come down.  
It really is now or never.

Youth artwork in the **Turn it Around!** deck contains vivid and breathtaking depictions of the world as it is now, and as we imagine our future worlds to be. We ask you to pause and pay attention to the images that depict the hurt and the pain, the destruction and disparity, the violence and the injustice. Roxanne Morris from Hanover, Jamaica reminds us, “it is mankind’s deficiency in empathy and the inability to listen to and feel the world around us that shall ultimately be our downfall.” Her words resonate with the ideas of many other young people, contemporary scholars, and philosophers. For example, Anna Tsing writes about the importance of the “arts of noticing” in navigating uncertain futures and seeing afresh the possibilities of life in the midst of ruins.<sup>15</sup> It entails “the capacity to look around rather than look ahead, to dwell-with and think-with, to ponder and attend to, to follow and to listen to.”<sup>16</sup> With this in mind, we urge you to turn toward the difficult reality of today’s world, face the environmental catastrophe unfolding in front of our eyes, and acknowledge our own complicity in it.<sup>17</sup> Instead of turning away, we ask you to “stay with the trouble.”<sup>18</sup>

## A Split, Broken World

Looking at the climate-inspired art created by youth, one theme stands out in stark contrast to many others. It is a theme that portrays humans living in a split, broken world (Figure 2). On one side of the split images, we see the idyllic pictures of green forests, blue skies, clean waters, grazing animals, and happy people. However, the idyllic image abruptly ends with a split that introduces the mirror image of a polluted Earth — raging fires, withering droughts, devastating floods, dying animals, and suffering humans. Images of a split Earth appear in youth artwork across the world — India, Philippines, United Kingdom, Argentina, United States, Mexico, and other countries — resonating strongly with the images featured in other climate art initiatives, including the Global Gallery. We see images after images “splitting faces, trees, and landscapes into vibrant/lifeless dichotomies, imprinting this binary onto the halves of an hourglass or visioning it onto the lenses of eyeglasses, halving the bodies of animals into part-skeleton, part-flesh.”<sup>19</sup> It is as if young people worldwide are living a double reality, simultaneously experiencing the beauty and the destruction of the world.

Some of the images of the split Earth introduce the temporal divides, reflecting the dominance of linear and

dualistic thought that sets apart our present lives from the future. The binary may imply a warning by depicting the planet’s decline from health into devastation — or alternatively, a gradual recovery should the necessary changes be made. The two opposite halves may also represent two possible futures, implying a concrete choice the humans can make through their actions today. In each case, “a solid line divides the halves, clearly separating two possibilities: devastation or rehabilitation,” conveying both a warning and an urgent impetus to act.<sup>20</sup> Several images portray the temporal split through the two halves of an hourglass — the top half capturing the vanishing forests and the bottom half portraying the suffocating exhaust from the smokestacks — suggesting that we are running out of time and thus amplifying the urgency to act. The accompanying text by Sara Ohana Vieira Alves from Brazil warns that if we don’t act now, “we too will disappear.” Her words resonate with many others across the world, including Shaivi Kumar from West Bengal who cries out, “It is now or never.”

The images of a split world appear in different shapes and forms, further revealing the multiple fractures in our institutions, cultures, and relationships that reinforce the hierarchical structure of dominance created by the established binaries in Western culture — developed/developing, male/female, self/other, culture/nature, and more.

## Structures of Domination, Cultures of Oppression

The analysis of youth artwork makes visible the geopolitical divides, which are deepening as the climate crisis escalates. The images powerfully mirror research findings, collectively confirming that the parts of the world that contribute the least to the climate crisis suffer the most from its effects as temperatures climb. In particular, the wealthiest countries in the West and North consume more energy through more established industrial activities and contribute more to global emissions, including emission of pollutants and of greenhouse gasses.<sup>21</sup> However, the impacts of the climate crisis already have and will continue to bear a disproportionately negative impact on the Global South, where people and communities are more vulnerable to the devastating impacts of the climate crisis, ranging from increased floods and droughts to the negative

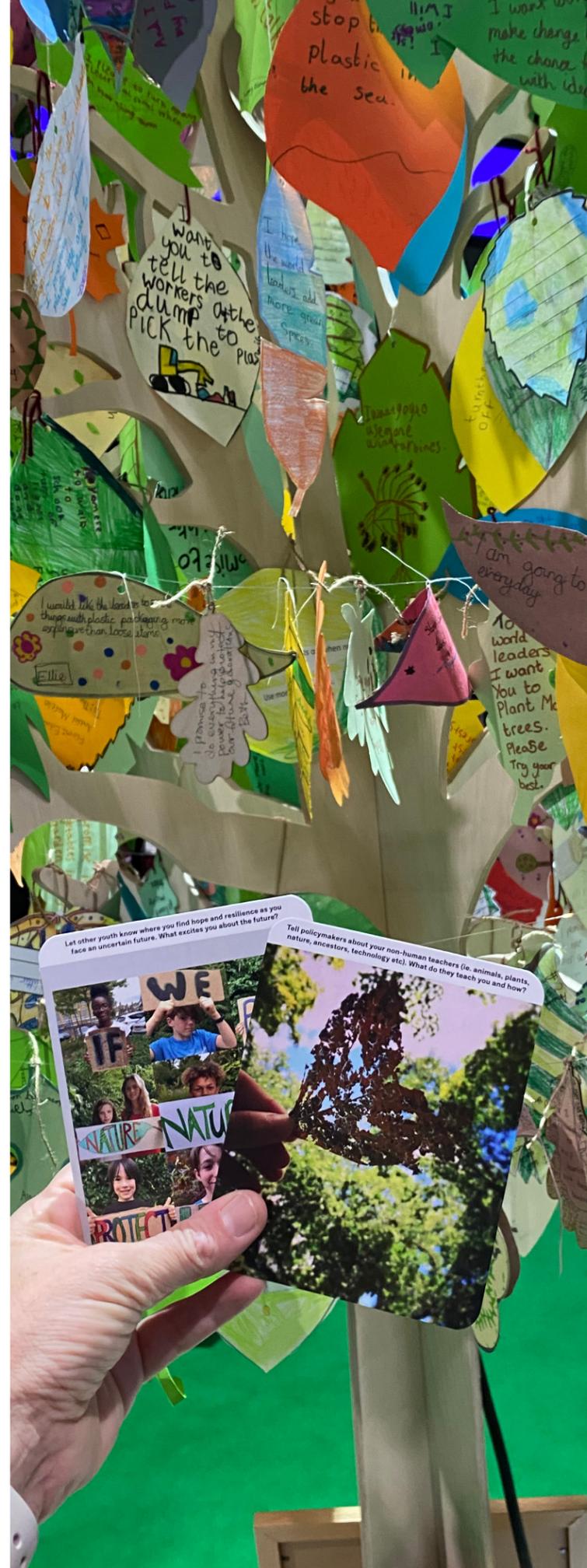


Photo by Ann Nielsen

effects on their economies.<sup>22</sup> Reflecting on the climate injustice, young artists and activists trace it to the colonial roots and link it to the broader system of power and profit, while challenging the very logic of infinite capital accumulation, profit-maximization, growth, and development, or the so-called Capitalocene.<sup>23</sup> They gravely note that while promising to make human lives luxurious and easy, the Capitalocene destroys communities and ecosystems. For example, fifteen year old Medhansh Kumar from New Delhi implores us to “remember that development is unnecessary evil.”

**“Eliminate the capitalist protocol that has us tired and stressed, that has other species endangered and extinct.”**

Sahory Dayana Silva Gil, Perú

Youth artwork clearly conveys that the same structure of domination also maps onto the divides along the racial, gender, age, class, and other lines, further exacerbating systemic injustices that already run deep in our societies. The images tell many stories about the disproportionate impact of the climate crisis on those people who are already experiencing multiple intersecting vulnerabilities — especially women, children, people living in poverty, and Black, Indigenous, and People of Color (BIPOC). Even within the wealthiest countries in the West, environmental racism means that BIPOC, being subject to inequitable living conditions, have unequal access to clean, healthy environments and basic resources needed to survive. In many Indigenous communities, environmental injustice undermines the very ecological conditions required for exercising their cultures, economies, and political self-determination.<sup>24</sup>

Drawing our attention to gender divides, Georgina Mukwirimba from Zimbabwe makes us ponder: Will the woman walking with her children find water for their use, for their survival? How many miles do they have to walk daily to collect water? Are the privileged aware of the water scarcity in large parts of the world when we waste water heedlessly? (see Figure 2).

Picking up these threads, Marley Pemberton from Arizona asks policymakers to remember the different forms of injustice experienced by women as a result of the climate crisis — from gender-based violence and sexual assaults, to vulnerability due to the increased frequency in floods and droughts, to suffering from poor sanitation and the arsenic contamination of groundwater, among other threats. Marley's relentless refrain to "remember" along with Georgina's artwork brings us face-to-face with the stark inequity when it comes to water scarcity and related climate issues, pleading policymakers to pause, pay attention, and remember all this when making decisions about our climate futures.

The logic of bifurcation and domination that sets some humans apart from others gets also translated into human superiority over non-human beings — the culture/nature divide — justifying the exploitation of nature by humans and thus threatening the survival of both people and planet. Australian ecofeminist philosopher Val Plumwood called this split a 'hyper-separation,' a form of separation based on the structure of domination and superiority of humans over all other beings and the natural world.<sup>25</sup> While justifying the logic of human exceptionalism, this split simultaneously marginalizes the Other — whether human or more-than-human — as both radically separate and inferior. Fueled by imperial and ecological violence, it destroys the Earth and its inhabitants in the relentless pursuit of capital accumulation to benefit (some) humans.

Bringing attention to the devastating effects of the culture-nature divide, the youth challenge the deep-seated assumption that the earth is a resource to satisfy human needs to the exclusion of the needs of other species and the ecology. Eleven year-old Uvika Bagaria from West Bengal writes that "human ego tends to think of things in nature as being useful for us or useless in general." It is an incredible conceit, she convincingly argues. Also writing from West Bengal, Kashri Saraogi states: "To satisfy our own needs we have destroyed the only home that can house us in this universe." Adding further to these points, nineteen



Artwork by Malia Hulleman, 26, Hawaii

year-old Ashley Hacking from the US reminds us that we have not been good stewards on Earth. "By living like tourists, we have forgotten the fact that our only home has no home insurance." Ashley also implicitly alerts us to the economic and environmental disparities that have intensified as a result of the climate crisis, leaving millions of people without homes, increasingly unsure of the future threatened with environmental disasters, including floods, fires, and landslides.

Refusing to accept the logic of human exceptionalism and negotiate the injustices of capitalism and white supremacy, youth artists and activists worldwide are calling to dismantle the current systems of oppression. Having intimately witnessed and experienced the multiple divides in their everyday lives, the youth call "to end the cycles of abuse that humans inflict on the environment and each other" (Quyncc Johnson from Colorado, USA). They remind us that "capitalism is incompatible with the planet's biological processes" (Mariana Mastache Maldonado from Mexico City). Collectively, they insist that it is more urgent than ever to begin dismantling the existing systems of oppression — and the policies, practices, and institutions that they support and sustain — including those that underpin education.

Dear Leaders,  
Remember the women who are victims of gender-based violence due to climate crisis when you make decisions about their future. Remember the women who are being sold off into marriage because of a shortage of food in their house or during extreme droughts in exchange for cattle. Remember the minors who are being married against their will to help their families survive climate disasters. Remember the women who fetch water daily and are being forced to walk farther due to droughts, increasing their risk of sexual assault. Remember the women who are being sexually exploited by fishermen as fish become scarcer. Remember the women who face violence from their own families and the dramatic effect on their social and family standing when harvests are threatened or wiped out altogether. Remember the women who barricade themselves in their huts, often washed away by the floods.

## REMEMBER.



Figure 2: Water Scarcity

Artwork by Georgina Mukwirimba, 25, Zimbabwe  
Story by Marley Pemberton, 25, Arizona, USA

## Exercise 1

# TURNING TOWARD

Turning toward the difficult reality of the climate crisis is a first step on the path of turning it around. On this page, we invite you to begin with a set of short activities that are designed to ground yourself in your own environment. You may find this exercise easy. Or you may find it surprisingly difficult. Push yourself to do it anyway. Choose any or all of these activities.

### What You'll Need:

- **Turn it Around!** deck of cards
- Pen or pencil

### Instructions:

#### 1. STEP OUTSIDE

Find a spot to sit still for at least fifteen minutes — longer is better. What can you observe in this spot that can tell you about its past history, and how it might have changed over time? What can you observe that tells you something about the future of this place? What is your role in that ecosystem?

#### 2. SHUFFLE THE DECK

Pick a card with a split image of the world that stood out to you the most. Why did you choose this card and how does it resonate with you? How do you interpret the divide portrayed in the card or observed in your own environment?

#### 3. TIME TRAVEL

Think of something that you experienced or loved as a child but that is disappearing from earth right now. Pick a card that reminds you of that experience. Why is it so meaningful? How does it connect to your memory?

#### 4. COMPLETE THE FOLLOWING THOUGHTS

- What concerns me the most about the world today is...
- When I think of the world we will leave future generations, it looks like...
- Turning toward the reality of the climate crisis, my role is...

Use the space below for notes and reflections.

---

---

---

---

---

---

---

---

# TURNING PARADIGMS



Turning toward the reality of the climate crisis entails acknowledging that our current policies and institutions, including those in the area of education, have been failing both people and the planet. In particular, a 2021 report by Education International points out that most efforts to address the climate crisis so far have focused on “closing the emissions gap — the difference between the projected level of greenhouse gas emissions under ‘business as usual’ and the level of emissions needed to keep global temperature rise to 1.5°C.” However, little attention is given to “closing the education gap — the difference between the level of our knowledge about, skills for, and attitudes toward climate change, climate action, and climate justice under ‘education as usual’ and the level we need to achieve society-wide transformations for a sustainable, just, and equitable world.”<sup>27</sup>

---

## The fact that the world is the most ‘educated’ it has ever been and yet the nearest to environmental breakdown suggests that that the modern education system itself is deeply implicated in the environmental crisis.

---

Unfortunately, it appears that we have been massively failing on both fronts — closing the emissions gap and closing the education gap — despite all efforts. According to UNEP 2021 Emissions Gap report, the concerted global efforts to curb the carbon dioxide emissions are nowhere near the established targets, with the new and updated national pledges on emissions reducing projected 2030 emissions only by 7.5%, whereas 30% is needed to limit warming to 2°C and 55% is needed for 1.5°C.<sup>28</sup> Under the current targets, the world will continue to warm to 2.7°C by the end of the century, resulting in devastating impacts on the planet’s ecosystems and consequently on human survival.<sup>29</sup>

Meanwhile, education has been generally overlooked in policy discussions on how to turn around the climate crisis. If referenced in policy documents, it is usually discussed in terms of increasing education access and quality, assuming that more and better education would automatically translate into changes in environmental

attitudes and behaviors, ultimately leading to more sustainable life.<sup>30</sup> Research shows, however, that broader access to quality education, along with improved cognitive knowledge in environmental sciences, does not automatically translate into higher awareness of global climate crisis or into behavior change.<sup>31</sup> And even when education contributes to higher awareness of environmental problems, this awareness does not necessarily translate into climate action. For example, research shows that countries with the highest student academic achievement and school enrollment rates tend to have the largest ecological footprint (e.g., most of the countries in Europe and Northern America).<sup>32</sup> Similarly, countries that have experienced rapid increases in education and living standards have seen their ecological footprint nearly double as domestic consumption expands (e.g., South Korea and Singapore).<sup>33</sup> In these countries, people are “more likely to lead lifestyles that leave a harmful footprint on global ecosystems — from increased food waste to higher levels of carbon dioxide from car and airplane use.”<sup>34</sup> Without question, access to education alone is insufficient to help address the environmental sustainability crisis.

Despite expanding educational access and opportunity over the past decades, we are facing both a rapidly escalating environmental crisis and deepening inequalities worldwide. The fact that “the world is the most ‘educated’ it has ever been and yet the nearest to environmental breakdown” suggests that the modern education system itself is deeply implicated in the environmental crisis.<sup>35</sup> This proposition succinctly sums up the concerns expressed by many scholars and philosophers for decades — and amplified by youth climate activists more recently — who have argued that the dominant model of modern schooling increasingly functions as an obstacle, rather than a solution to environmental sustainability.<sup>36</sup> Collectively, they problematize the role of schools in reproducing the status quo — from prioritizing education for workforce supply and economic growth over environmental sustainability, to reproducing degenerative economies instead of regenerative and distributive ones, to instilling the logic of human exceptionalism and liberal individualism at the cost of a more interdependent way of life. As David Orr powerfully argued three decades ago, “More of the same kind of education would only compound our problems.” He further explained that “it is not education that will save us, but education of a certain kind.”<sup>37</sup>



Artwork by Elena Goddard, 26, Santiago, Chile

---

**“We can’t achieve the change necessary for our survival by using the same systems that got us here in the first place. We must transform the unjust and unsustainable systems that continue to endanger our survival, well-being, dignity, and our chance at a good future.”**

**Joesfa Tauli, Philippines**

These words reverberate across thousands of youth climate activists globally who are mobilizing to demand radical change. Writing from Baguio City in the Philippines, Josefa Tauli reminds world leaders that incremental change is simply not enough any longer: “We can’t achieve the change necessary for our survival by using the same systems that got us here in the first place. We must transform the unjust and unsustainable systems that continue to endanger our survival, well-being, dignity, and our chance at a good future.” Some world leaders and politicians agree. In his recent address at the launch of the UNESCO’s report ‘Reimagining our Futures Together,’ the UN Secretary-General António Guterres similarly acknowledged that schools “reproduce and perpetuate the very conditions that threaten our shared futures — whether discrimination and exclusion or unsustainable lifestyles.” Reflecting on the promise of education to resolve many of the world’s social, political, economic, and environmental challenges, he concluded that “there is a growing consensus that today’s education systems are no longer fit for purpose.”<sup>38</sup>

---

## Activating Paradigm Turns in Education

Education too is at a turning point. A radical change is not only desirable, but vital for the survival and recuperation of the planet and people. It is no wonder that so many artistic visions of education futures in the **Turn it Around!** deck capture the process of transformation through images of spirals, wheels, and circles, symbolizing the process of ‘turning’ in motion — a turning windmill, a turning planet, a turning color wheel, a turning leaf, a turning season, a turning page, or a turning body. The artwork resonates deeply with important symbols central to many knowledge traditions, ranging from ecofeminism and quantum physics to Indigenous ontologies, Buddhism, and non-Western traditions.

Whether implicitly or explicitly, some images evoke the idea of the “Great Turning”<sup>39</sup> as articulated by ecofeminist philosopher, Earth elder, and spiritual activist Joanna Macy who has been working to foster a global transition from “the Industrial Growth Society to a Life-Sustaining Society” or, what she calls a transition from the “Great Unravelling” to the “Great Turning.” In her work, Macy calls for a revolutionary ‘turn,’ while noting its great urgency. She explains that “while the agricultural revolution took centuries, and the industrial revolution

took generations, this ecological revolution has to happen within a matter of years.” This sense of urgency is distinctly imprinted onto each card in the **Turn it Around!** deck and amplified through the power of stunning images and texts that activate the process of ‘turning.’

The symbol of a ‘turning’ wheel is also at the core of the wisdom and artwork shared by the Indigenous youth and deeply inspired by Indigenous elders. Robin Wall Kimmerer, a member of the Citizen Potawatomi Nation, a professor, and a botanist, writes about the importance of “the circle of reciprocity” with the land, which is necessary for making a turn toward a life-sustaining society.<sup>40</sup> Weaving the teachings of native traditions into the philosophy of sustainable living and ways of knowing the natural world, she explains that “restoration of land and relationship pushes that turning wheel.”<sup>41</sup> Her words are reflected in youth artwork across the world. Writing from Mendoza in Argentina, Valentina Renda Vitale says that it is “a great capacity to find a connection with the land and all others” that gives her hope and resilience to face an uncertain future. Lindsey Millerd from Hawai’i draws on ancestral wisdom to teach about the importance of mālama ‘āina — care for the land. Sharing a lesson of reciprocity she has learned from nature, she writes: “If we care for the land, the land will care for us.” And, Rodrigo Tremembé from Itarema, Ceará in Brazil reminds us to always listen to the Original peoples and take care of the land as we would take care of your mother: “do not take anything from it without giving back.”

Throughout the collection of youth artwork, the wheel seems to be spinning and turning across time and space, finding its way into many colorful images of mandalas shared by youth in response to the art prompts: a mandala made in the sand with the delicate wooden sticks washed on the shore of the Pacific Ocean (by anonymous artist from Chile), a mandala created on a sidewalk from pinecones, rocks, and leaves found in the nearby park (by Asmi Haldar in New Jersey, USA), or a mandala assembled on the roadside from broken glass and discarded materials found in the Mojave desert (Adriene Jenik, Twentynine Palms, USA). As one of the oldest symbols in Buddhism and Hinduism, a mandala represents the Wheel of Life, illustrating that everything in life is interconnected and that everyone and everything — both living and nonliving — are a part of nature, the world, and the universe. More importantly, the “turning wheel” in Buddhism is a metaphor for the setting in motion of new teachings. Likewise, mandalas and other

images of the turning wheels in the **Turn it Around!** deck — in various shapes, forms, and colors — symbolize the setting in motion of radical education change.

## Uprooting Dominant Education Metaphors, Concepts, and Assumptions

From an education policy perspective, making a turn toward ecologically just and more sustainable futures entails a collective effort “to disrupt, interrupt, intervene in, or otherwise upset” the rationalized and taken-for-granted status quo of modern(ist) schooling and its intersecting mechanisms of oppression based on gender, race, class, ability, or human superiority.<sup>42</sup> Amplifying many ongoing efforts to disrupt the status quo, the artwork in the **Turn It Around!** deck intervenes by uprooting some of the key metaphors associated with the dominant model of modern(ist) schooling. Because these metaphors are so deeply embedded in our language and culture, they often remain unquestioned and become internalized, encoding our thought patterns and framing the ways in which we perceive, relate to, and act in the world.<sup>43</sup> ‘Root metaphors’ make domination appear to be “just the way the world is,”<sup>44</sup> incapacitating resistance to and change of the status quo. The youth artwork not only brings these ‘root metaphors’ into focus, but critically interrogates them, revealing how these metaphors run counter to the principles of ecological interdependence, justice and environmental sustainability. Uprooting these metaphors contributes to shifting the dominant ways of thinking and being, laying the groundwork for imagining radically different education futures.

While ‘root metaphors’ have been the subject of theoretical discussions among education scholars and philosophers for decades,<sup>45</sup> the artwork shared by youth visualizes these metaphors in new and compelling ways. The imagery and accompanying texts explain the nature and implications of the dominant ‘root’ metaphors in ways that are accessible and easy to understand for anyone not familiar with philosophical texts — politicians and policymakers included. The examples below bring together insights from the existing scholarship<sup>46</sup> and youth artwork to illuminate the gravity of the implications of these metaphors for education. Collectively, they contribute to turning the education paradigm wheel, bringing into focus radically different ways of thinking about education and our futures.



Artwork by NVMK, 23, Chile



Artwork by Antonio Herrera, 17, Lampa



Artwork by Triana Gupta, 12, New Delhi



Artwork by Faizaan Sarwar Khan, 9, New Delhi



Artwork by Debshata Choudhury, 17, New Delhi



Artwork by Asmi Haldar, 9, USA



Artwork by Swikriti Agarwal, 11, India



Artwork by Antonia Herrera, 17, Lampa



Artwork by Nivedita Er, 20, Bengaluru Kamataku



Artwork by Sarah Assina, USA



Artwork by Armaan Ahmad, 14, Uttar Pradesh, India

---

## Machine

**Machine** is one of the core 'root metaphors' that assumes that the world works like a machine — “a system of dead, inert particles moved by external, rather than inherent forces”<sup>47</sup> — rather than a living organism. The Scientific Revolution in the sixteenth and seventeenth centuries rationalized the “nature as a machine” worldview, reducing nature to its exploitable value to benefit humans in the name of progress and development. Some of the most striking artwork in the **Turn it Around!** deck extends this metaphor to its logical (dead) end, portraying the human as a machine too — with the smokestacks coming out of a person's head, while they suffocate in gray smoke. The images vividly convey that the implications of viewing the world as a 'machine' are fatal, leading to sickness and death not only of nature but also of the human species. Emphasizing that humans and nature are interconnected and inseparable, the artwork shows that the death of one means the death of the other. “If planet Earth and its resources disappear, we too disappear,” notes Sara Ohana Vieira Alves from Brazil. The artwork effectively destabilizes and uproots the “world as machine” metaphor, attempting to remove it from our vocabulary altogether as no longer acceptable.



Artwork by Ishita Maurya, 17, Uttar Pradesh, India

---

## Progress

**Progress** assumes that social change is linear and always associated with improvement and enrichment for everyone. In youth artwork, the linearity of progress is warped through the metaphors about progress as death and destruction as experienced by the majority of the world, including both human and more-than-human beings. An image by Ishita Maurya from Uttar Pradesh in India portrays progress as a meat grinder, which is operated by a few (white) men who are putting nature — plants, animals, water — through the meat grinder to make profit and ‘build’ the Western world. Angela Zhong from Texas, USA reminds politicians and policymakers who are operating (and profiting from) the meat grinder of Western modernity: “Do not choose your political livelihood over the millions of lives that are affected by environmental degradation every day.” Antonia Herrera from Lampa in Chile sends another chilling reminder: “No matter how much money polluting industries have made, when wildfires consume the last forest, when the last city is flooded, when we are unable to produce any food and are severely dehydrated because of the extremely high heat and no water to drink: money won’t save us.”



Artwork by Diva Shah, Uttar Pradesh, 11

---

## Arrow of Time

**Arrow of Time** is a metaphor used to describe a unidirectional movement of time from past to the future. It is based on the long-established assumption of a linear, universal, and constant progression of events unfolding in an abstracted, infinite time-space continuum. It implies that the future is fundamentally different (and always better) from what has gone before and assumes a continuity towards an inevitable future that was set in motion by past actions. In this way, it disables the possibility of deliberate action for change, while dismissing the ideas that the future may act upon the present with multiple possibilities.<sup>48</sup> The metaphor of the arrow of time also ignores the cyclical temporalities of biological processes, as well as the slow and oscillating expressions of time in and across different species, including humans. Inevitably, it may cause nihilism — whether experienced individually or collectively — leading to overconsumption, various addictions, social and psychological trauma, mental health issues, and even suicide.<sup>49</sup> In youth artwork, the arrow of time is broken, depicting pasts, presents, and futures simultaneously moving and influencing one another, drawing attention to the consequences of human actions — or inactions — across time and space. Affirming the existence of multiple co-constituted and deeply interconnected temporalities, youth depict connections across generations, species, and time spaces in stark contrast — and often in direct opposition — to the accelerated and future-oriented Western idea of time. “Humans are the only beings on this planet who wear a watch. There is no one who can rush the flowers, nor the rain,” says Ana Michelle Tellez Ferrer from Colombia. Youth artwork reminds us that all life occurs through cycles and inspires us to recall the Taoist philosophical teaching that “nature does not hurry, but gets everything accomplished” (Tamaalika Dutta, West Bengal, Kolkata).



Artwork by Diego Ruiz-Acosta, 24, Andalusia, Spain

---

## Individualism

**Individualism** is a cornerstone of Western cultural identity, which is based on the assumption that the individual, and not the group, is the primary constituent of society. Each human is seen as an autonomous and independent individual whose self-interest takes precedence over the collective good. Rather than finding ways to connect and collaborate, individualism urges people to pursue personal freedom and individual gains, which creates competition among people. From this perspective, the individual is viewed as an isolated entity that is separate from its own environment, unable (and often unwilling) to make kin with each other and other Earth's beings. Education is implicated in reproducing this worldview by teaching humans to "think in an anthropocentric way, considering only what is best for an individual human, in a given moment..." (Quyncc Johnson from Colorado, USA). While most Western cultures valorize the individual (e.g., especially in Europe and North America), the youth artwork portrays the culture of individualism as "a real threat" to human existence and one of the core factors that has led us to "the brink of planetary disaster." The ongoing global pandemic (COVID-19) is just one example of such tragic consequences.<sup>94</sup> Echoing the voices of youth across the world, Roxanne Morris from Hanover, Jamaica concludes: "It is mankind's deficiency in empathy and the inability to listen to and feel the world around us that shall ultimately be our downfall."



Artwork by Mariana Mastache Maldonado, 22, Mexico City

---

## Human Exceptionalism

**Human exceptionalism** is an understanding that all beings (within and across species) are organized hierarchically, and that humans are separate from and superior to other beings in nature. Historically, this assumption has been used to justify exploitation of the natural world for human benefit. This is the ontological standpoint from which most sustainability education practices and environmental policies have been created. Youth artwork exposes the incompatibility of a human exceptionalism logic with sustainability goals, while demonstrating the destructive consequences of capitalist systems for the human and more-than-human world. Ashley Hocking from Pennsylvania, USA reflects on what happens when humans embrace the logic of human exceptionalism, failing to acknowledge that they too are part of nature: "we humans have attacked nature — alas, we now are experiencing a counter-attack since nature is our very selves." Mariana Mastache Maldonado from Mexico City similarly reminds us that humans are also animals, offering a collage where humans, animals, knowledge, systems, and environments are co-constitutive of each other. The artwork illustrates that humans and more-than-humans are inseparable and they are experiencing the consequences of exploitative systems and relations that damage everyone and everything on Earth.



Artwork by Punit Khanapure, 24, Karnataka, India

---

## Universality

**Universality** assumes that Western modern(ist) knowledge and ways of knowing – such as human exceptionalism and liberal individualism – are universal truths that are applicable to all humans across time and space. From the perspective of universality, the West constitutes the universal point of reference in relation to which others recognize themselves as particularities.<sup>50</sup> Universality thus deems inferior, subsumes, and sometimes actively erases non-Western and non-dominant knowledges and ways of life that cultivate reciprocal relationships with the natural world, including those of Black, Indigenous, and People of Color, women, children, and others. Josefa Tauli from the Philippines encourages us to question the universal meaning of “good life.” She describes her frustration with the Western universal standard of a good life based on Western capitalist values that prioritize “how much they can buy, how lavishly they can live, how many things they can own.” She argues instead for ways of life that value “health, relations, and ability to help others or contribute to their community.” Michelle Marín from Jalisco, Mexico reminds us of the illusion of universality and standardization with concise but powerful words, “diversity and change are the only constant.”

## Turning the Wheel of (Un)Learning

Making the education paradigm wheel 'turn' requires not only critically interrogating the established root metaphors, but also unlearning the deep-seated assumptions about the dominant models of education. 'Unlearning' is based on a basic principle of delinking our ways of thinking and being from the Western worldview as a single vision for surviving on the damaged earth. It is "driven by the survival of the fittest in a society created by a handful of people, who constructed a world for the fittest and defined fitness according to their own will to power."<sup>51</sup> In education, unlearning entails cultivating the capacity "to forget what we have been taught, to break free from the thinking programs imposed on us by education, culture, and social environment, always marked by the Western imperial reason."<sup>52</sup> In the words of one of the young artists from South Africa, we can shift off the environmental catastrophe trajectory "if we all work together to unlearn and undo harmful patterns that have been woven into our mindsets and our ways of life" (Somebody Tall from Johannesburg). 'Learning to unlearn'



Photo by Sylvia Kind, atelierista

is thus a pedagogical challenge for everyone — scholars, intellectuals, students, professors, government officials, policymakers, international development experts, and corporate officers — to begin the process of delinking from the hegemonic vision of modern(ist) education and society, while making space for multiple ways of knowing and being.

'Unlearning' is critical to moving beyond the ubiquitous notions about knowledge production, accumulation, and mastery. Instead, it requires questioning what knowledge matters and interrogating our specific material relations to knowledge. 'Unlearning' destabilizes the structure of formal education by disrupting the hierarchies of knowledge, power, and privilege between teachers and students, humans and non-humans "in order to co-create knowledge and learn from each other."<sup>53</sup> Thus, unlearning intervenes in the politics of knowledge production and dissemination, moving education towards a collective process of understanding the world that is built with/ from multiple relational agencies, including humans and more-than-human ways of knowing and being. Unlearning Western educational patterns and hierarchies allows for material and political multispecies encounters that inscribe humans back into "part of that nature that we seek to understand."<sup>54</sup>

'Unlearning' is a recurrent theme in many cultures, especially in non-Western and decolonial education contexts. Writing from a decolonial perspective, Madina Tlostanova and Walter Mignolo argue that 'learning to unlearn' is one of the most fundamental ways of deconstructing the modern architecture of knowledge and schooling.<sup>55</sup> For example, "learning to unlearn in order to relearn" is a central principle in the curriculum of Amawtay Wasi and the Intercultural University of the People and Nations of Ecuador, which aims to develop reflective and intuitive practices based on Andean ancestral knowledge. It approaches learning as a community practice and "an ongoing and never-ending open process, based on complexity and relationism, complementarity and reciprocity, the shift from the subject-object relations to the subject-subject model instead of the dominant fragmentation, to the learning-unlearning-relearning path, and from accumulating knowledge to its critical and creative understanding and integration in wisdom."<sup>56</sup> In Japan, Zen philosophical practice has shaped a particular view of learning based on a constant "movement from the acquisition to unlearning of skills," followed by creative reemergence.<sup>57</sup> This type of 'unlearning' requires a "release, surrendering,



Artwork by Kanishka Baranwal, 17, Uttar Pradesh, India

or 'putting down' of what one had previously worked so diligently to acquire" — a process gesturing toward a view that is beyond knowledge dichotomies but instead striving for a state of seeing "unities in opposites."<sup>58</sup> In China, a Taoist view of 'unlearning' refers to "a non-individualistic and non-anthropocentric form of study" that draws upon correlative cosmology and entails "suspending or temporarily forgetting those ready-made conceptual frameworks to encounter things or events anew."<sup>59</sup> The theme of 'unlearning' resonates deeply with other pedagogical practices in both Western and non-Western contexts such as double-loop learning,<sup>60</sup> discontinuity in learning,<sup>61</sup> or negative education, among others.<sup>62</sup>

Common to these different forms of 'unlearning' are the principles of reciprocal, relational, and non-hierarchical ways of knowing and being. Rather than viewing education as an accumulation and mastery of static knowledge, the process of 'unlearning' and 'relearning' becomes a transformative act of opening ourselves up to many possible views and worldviews, while simultaneously making ourselves "vulnerable to other lives, other life forms, and other 'things' that we

have not yet accounted for or that appear only marginally related to us."<sup>63</sup> It re-animates our capacity to learn not only about the world, but to learn with the world — facing the contradictions and responding to our troubling and violent inheritances such as human-induced mass displacements and extinctions of all kinds.<sup>65</sup> Ultimately, learning with the world means "learning how to 'world'", joining the process of responsibly (re)making worlds together where everyone and everything is a part of the Earth's ecological community.<sup>66</sup> Today more than ever, "our future hinges on a critical unlearning and relearning"<sup>67</sup> as we begin to (re)make worlds together.

## Exercise 2

# FINDING YOUR TURNING POINTS

In this set of exercises, we challenge you to better understand where and how you — as an educator or policymaker — are implicated in the climate crisis. Choose any or all of these exercises to complete. We invite you to modify the suggested exercises to engage others and/or to adapt these to your context.

### What You'll Need:

- **Turn it Around!** deck of cards
- Pen or pencil

### Instructions:

#### 1. STEP OUTSIDE

Go to a climate strike or find a youth group working on climate action in your community. Use the opportunity to listen to youth. How do your opinions, policies, or practices intersect with the concerns of youth? How can you support your local youth?

#### 2. SHUFFLE THE DECK

Choose a root metaphor that caught your attention. Follow it into your own environment. Reflect on how your perception(s) of this metaphor has changed or not, throughout your life.

#### 3. TIME TRAVEL

Write a letter to our future generations. What might you share with them about the turning points in the climate crisis we are facing? What message will you leave future generations and how do you want them to remember you and this time in history?

#### 4. COMPLETE THE FOLLOWING THOUGHTS

- One thing I need to *unlearn* is...
- One way I am currently contributing to the climate crisis is...
- Turning toward the reality of the climate crisis, my role is...

Use the space below for notes and reflections.

---

---

---

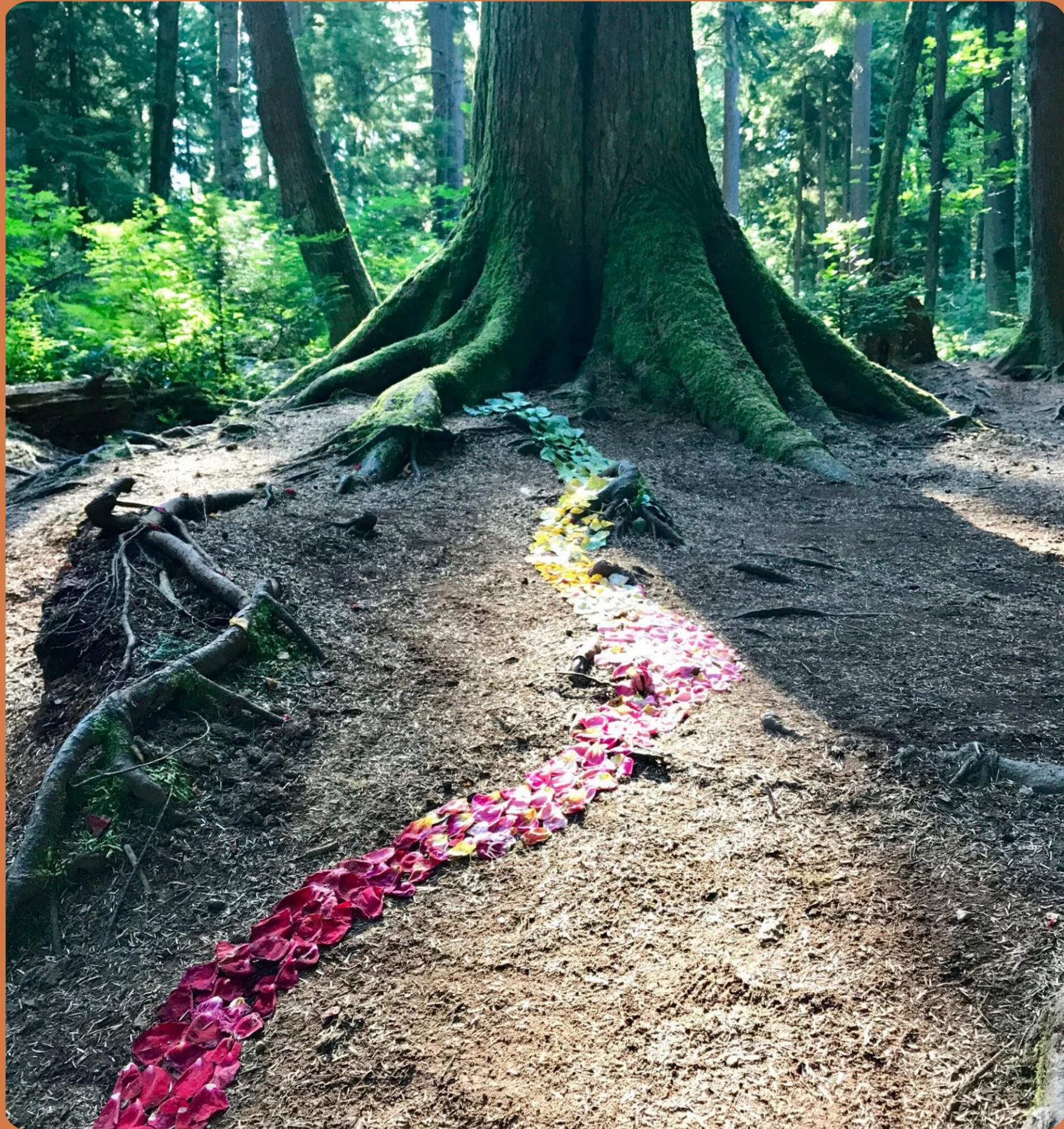
---

---

---

---

03



# TURNING POINTS

While (un)learning, we can now begin to re-articulate education policy and practice in ways that would contribute toward more ecologically just and sustainable futures. So far, most international efforts have focused on expanding access to education for all, while at the same time elevating the urgency of introducing climate education into compulsory school curriculum. In April, 2021, for example, Education International has released a Manifesto on Quality Climate Change Education for All, calling on “every government in the world to deliver on their commitments to climate change education and education for sustainable development in the Paris Agreement (article 12) and the 2030 Agenda for Sustainable Development (targets 4.7, 12.8 and 13.3)” by introducing changes in education policy, curriculum, school infrastructure and environment, as well as teacher education and support.<sup>68</sup> In its recent publication *Re-imagining Our Futures Together*, UNESCO (2021) has called for a new social contract in education — based on the broad principles that underpin human rights such as inclusion and equity, cooperation, and solidarity, as well as collective responsibility and interconnectedness — to repair existing injustices, while transforming the futures toward more socially inclusive, economically just, and environmentally sustainable goals.<sup>69</sup> Meanwhile, a growing number of social movements led by youth climate activists and NGO representatives — including some of our organizational partners — have been working to demand climate education to be a part of the required curriculum across all schools and universities. These calls for global

commitment to climate education were brought forth at the UN’s 2021 Convening of the Parties (COP26) in Glasgow, where Ministers of Education and Environment came together in an inaugural summit to publicly pledge to integrate climate and sustainability education into policy and practice.<sup>70</sup>

**Just like the 2021 Glasgow Climate Pact, these pro-forma policy pledges promise incremental change but they do not commit to the cultural transformation needed to curb the worst impacts of the climate crisis.**

While setting the wheel of education transformation in motion, these and similar efforts have had minimal effects on policy and practice so far. On the one hand, national initiatives to introduce climate education remain limited to a small number of nation-states. According to Education International, as of September 2021, only 21% of Nationally Determined Contributions (NDCs) mention climate education and none are calling for compulsory climate education as a climate strategy.<sup>71</sup> Similarly, only 22 governments made a pledge at the COP26 event to integrate climate change and sustainability agenda into education policy.<sup>72</sup> On the other hand, while the existing policy pledges mark a first step toward climate action, they rarely include youth voices or envision and fund the radical turns necessary to transform education and the climate catastrophe trajectory. Introducing climate education into the systems built on the logic of human exceptionalism, liberal individualism, technocratic determinism, and infinite economic growth will ultimately fall short of making the critical shifts in mindset, shifts in practice, and shifts in action we will all need to survive on this planet. Just like the 2021 Glasgow Climate Pact, these pro-forma policy pledges promise incremental change but they do not commit to the cultural transformation needed to curb the worst impacts of the climate crisis.

By mobilizing youth visions of education futures and bringing them into conversation with multiple knowledge traditions in both Western and non-Western contexts, this report challenges policymakers and educators to consider a series of more radical ‘turns.’ Carefully



Artwork by Franco Mosco

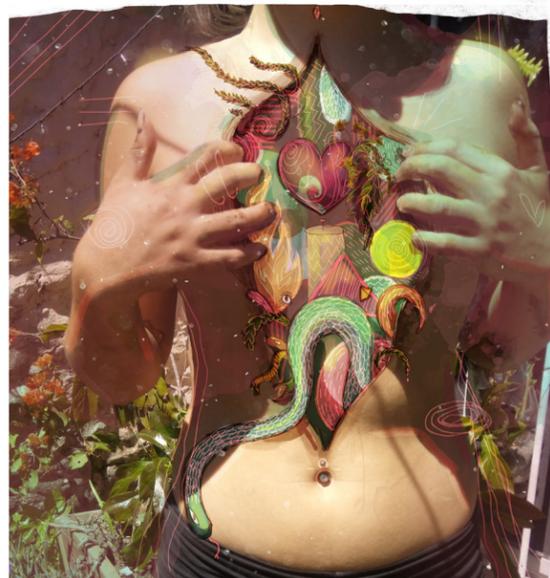
threading different perspectives through one another, we begin to imagine these ‘turns’ as ‘re-turns,’<sup>75</sup> i.e., turning to the ideas proposed in this report over and over again, diffracting anew with them, and turning them into new paradigms for education. Using an organic metaphor, these iterative turns look like “a multiplicity of processes, such as the kinds earthworms revel in while helping to make compost or otherwise being busy at work and at play: turning the soil over and over-ingesting and excreting it, tunneling through it, burrowing, all means of aerating the soil, allowing oxygen in, opening it up and breathing new life into it.” The metaphor of worms involved in composting brings with it the idea of transformation, of turning residues of former useful matter into fertile soil once again. It seems to be especially productive for (re)imagining education futures.<sup>74</sup> First, it acknowledges that more generative paradigms can be built from the educational structures that are in place since “there is no moving beyond, no leaving the ‘old’ behind,”<sup>75</sup> but there are ways of (re)configuring existing modern(ist) schooling structures into new patterns. Second, it invites us into a material labor similar to that of earthworms, a labor of fundamentally transforming the ‘old scraps’ of Western formal education into nourishing matter through the collective practices of ‘turning’ towards an ethics of care and attention that

honor more-than-humans.<sup>76</sup> And finally, it offers an opportunity for exploring the possibilities for change from inside the dominant systems, while opening the space up for imagining, or “breathing in” different education futures.

With this in mind, it is more urgent than ever to make the following ‘turns’:

- Re-situating the human within the Earth’s ecological community
- Redefining education purposes in broader ecological terms
- Transforming curriculum for ecological literacy
- Reconfiguring pedagogies to foster cultures of interdependence
- Opening up education to learning with the world
- Creating learning spaces of resistance, resilience, and recuperation
- Engaging youth in the decision making about their education futures

Although each of these ‘turns’ is discussed individually below, they do not appear in a hierarchical or sequential order. More importantly, these ‘turns’ may activate many other systemic, curricular, and pedagogical ‘turns’ as the wheel of unlearning and relearning begins to move across space and time, setting in motion educational, cultural, and ecological change.



Artwork by Florcita Maure, 20, Buenos Aires, Argentina



Artwork by Samruddhi Ramesh Duratkar, 20, Maharashtra, India

## Resituating the Human Within the Earth's Ecological Community

One of the most basic lessons of modern(ist) schooling is the teaching of human exceptionalism and superiority, which are defined by “attitudes, values or practices which promote human interests at the expense of the interests or well-being of other species or the environment.”<sup>77</sup> This ultimately results in human ‘hyper-separation’ from nature as a strategy to justify the structure of domination based on binaries. In this structure, binaries accord value to one side of the binary and relegating the other side to a position of oppositional subordination (e.g., nature/culture, self/other, or matter/mind).<sup>78</sup> Ultimately, the same logic gets translated into the superiority of some humans over others, reproducing the structures of bifurcation and domination based on gender, race, class, and other racism, sexism, classism, ableism, and all other forms of oppression.

Youth visions of education futures decisively depart from this logic, erasing the line separating humans and nature. They call for education policies and practices that encompass a “more-than-human”<sup>79</sup> perspective, while centering multispecies relationships and our interdependence. From this perspective, nature is part of living (human) bodies and humans are part of a

living nature. As the youth artwork powerfully portrays, natural elements grow both directly into, out of, and within human bodies as well as human bodies growing into natural elements. Minds, trees, human bodies, animals, and Earth's elements are all interconnected and constitutive of each other. Eliza Colin Hodges from Mexico reminds us that the connection between humans and nature is fundamental to our survival and well-being: “from Nature you can learn to feel the pulse of your life in your being, in your body.” A group of young people from Students Organizing for Sustainability (S.O.S.)<sup>80</sup> in New Hampshire, USA adds, “If we protect nature, nature will protect us back.” Youth visions of education futures open up an opportunity to fundamentally redefine what it means to be human and resituate the human as part of Earth's ecological community. This should be the first and most important lesson taught in our school.



Artwork by Valentina Renda Vitale, 20, Mendoza, Argentina

**“From Nature you can learn to feel the pulse of your life in your being, in your body.”**

Elizabeth Colin Hodges, Mexico

## Redefining Education Purposes in Broader Ecological Terms

To ensure survival of the people and the planet, education purposes must be radically redefined. We can begin by deliberately delinking education from the short-term economic gains and the illusion of infinite growth and development, while rearticulating it toward the broader, long-term goals of ecological justice and environmental sustainability. As Josefa Tauli from Baguio City, Philippines reminds us, “we can't achieve the change necessary for our survival by using the same systems that got us here in the first place.” And this includes educational systems that were designed first and foremost to benefit (some) humans at the expense of all others — humans and non-humans — in pursuit of economic growth and development. The first step in redefining education purposes is thus acknowledging that the dominant models of education are directly implicated in the climate crisis and must be radically transformed in order “to unlearn and undo harmful patterns that have been woven into our mindsets and our ways of life,” as stated by the artist from Johannesburg, Somebody Tall.

Rearticulating education purposes in broader ecological terms thus entails cultivating a culture that enables us to engage with each other, and with the more-than-human world, in more relational and interdependent ways. One element holding us back is the lingering conceptual binaries that divide and separate all beings, perpetuating prejudice and injustice. Deborah Bird Rose (2017) noted that “to act as if the world beyond humans is composed of ‘things’ for human use is a catastrophic assault on the diversity, complexity, abundance and beauty of life.”<sup>81</sup> Re-articulating education purposes in terms of the values of interdependence would encourage humans to see their fellow humans and non-humans as neighbors, fellow beings that exist with humans, not for humans. In this culture of interdependence, coexisting with other beings breaks the artificial boundaries between hierarchical categories and enables more meaningful connections with each other. Lady Edith Alcívar Zambrano compares interdependence to teamwork in the collective work of bees, “each one is predisposed to do their job. Each one gives their best and not necessarily on their own, but they buzz for the good of all.” Non-humans have so much to teach about coexistence and survival in our common worlds. It is now our turn to “quiet our human

cleverness,” to observe, to ask questions, to listen, — and then to learn.<sup>82</sup> According to the Biomimicry Institute — one of our institutional partners — “our planet-mates, the fantastic meshwork of plants, animals, and microbes, have done billions of years of research and development. The time is now to collaborate with nature to design this world for the future of all species.” If we can learn to engage with the world differently, we may have an opportunity to shift off from the catastrophe trajectory that we are currently on.

**“The first step in redefining education purposes is thus acknowledging that the dominant models of education are directly implicated in the climate crisis and must be radically transformed in order to unlearn and undo harmful patterns that have been woven into our mindsets and our ways of life.”**

Somebody Tall, Johannesburg



Artwork by Somebody Tall, 23, Johannesburg

---

## Transforming Curriculum For Ecological Literacy

Expanding access to quality education is important but insufficient to prepare for and face the climate emergency. It is critical to expand school and university curricula beyond the narrow focus on literacy and numeracy and prioritize climate, sustainability, and environmental education by mainstreaming it throughout all subject areas and extracurricular activities. From this perspective, youth's call to action resonates with Education International's Manifesto on Quality Climate Change Education for All, mobilizing governments to deliver on their commitments to education for sustainable development. Youth activists see climate, sustainability, and environmental education as one of the most critical parts of the curriculum, which should be mandatory at all levels of the education system. Julienne Cafino from Negros Oriental in Brazil further emphasizes the importance of mainstreaming climate education across the entire curriculum — rather than simply an add-on elective subject — noting that “we study history to learn and understand our past. We must learn about the climate crisis, too, for us to understand what will happen in the future if we don't act now.” As Patrica Kombo from Nairobi, Kenya explains, sustainability education is critical for mentoring the next generation and “equipping them with ecological knowledge so that they will have something to inherit.”

However, youth's call to action entails more than including climate education in the curriculum. Youth globally are calling for a more radical transformation of school curriculum beyond literacy and numeracy to embrace ecological literacy and ecological justice. This entails learning to be ecologically literate, i.e. a more demanding capability to observe and learn with the living world — “a merger of landscape and mindscape” — driven not only by the search for knowledge, but also “by the sense of wonder, the sheer delight in being alive in a beautiful, mysterious, bountiful world.”<sup>83</sup> Its goal is not just to understand how the world works, but, in the light of that knowledge, to change how we live and relate to each other and other species, which means also changing our own selves. Rodrigo da Silva Pastorello from São Paulo, Brazil calls this type of education “fundamental for our species' survival.” He further explains, “It is necessary for the evolution of our society. The world has

progressed in an enormous way in the last two centuries, but now we need another revolution: the environmental revolution. If we learn and study climate education in schools, in a systematic way, we will be able to open our eyes and see the importance of the preservation of all species.” In addition to learning how to survive and coexist with all species on a damaged earth, “including climate education in today's educational curriculum will bring the urgency of climate action, discouraging activities that lead to global heating and encouraging our collective healing” (Owudogu Kettley from Bayelsa State, Nigeria).

---

**...The call to action entails more than including climate education in the curriculum. Youth globally are calling for a more radical transformation of school curriculum beyond literacy and numeracy to embrace ecological literacy and ecological justice.**

---



Artwork by Samridha Roy, 23, Maharashtra, India

---

## Reconfiguring Pedagogies to Foster Cultures of Interdependence

The logic of human-centeredness is embedded not only in school curriculum but also in pedagogies across schools and universities. For example, although student-centered learning has emerged as a magic bullet to address a wide range of policy issues across the world — from increasing student retention and achievement, to improving education quality and access, to promoting democracy and market economies, and more recently, education for sustainable development — it simultaneously reproduces ontological individualism and competitiveness, which are among the causes of the unsustainability of societies.<sup>84</sup> Even though youth internationally are aware of the cultural causes and injustices of the climate crisis, nearly all of the ideas for how to address the climate crisis are structured by individualist, consumer-driven responses, rather than collective and cultural reconfigurations.<sup>85</sup> Youth artwork is a bold invitation to move beyond the logic of (neo) liberal individualism by emphasizing the importance of interdependence and collective action. As a nine-year old Tanishka Panchamia from West Bengal stated, “The more united we get, the easier it would be to address any problems we face. Many hands, many brains together can make a lot of difference and create change.”

While refusing to accept the logic of (neo)liberal individualism, youth visions of education futures also reject the logic of human exceptionalism and human-centeredness. Instead, they emphasize the importance of common worlding pedagogies, i.e. ecologically attuned and recuperative pedagogical approaches that take an ecological worldview and stress the interconnection of all earthly beings, entities, and forces.<sup>86</sup> Such an approach acknowledges “the intrinsic value of non-human species, including all living organisms, and that these do not have less importance over other living elements.”<sup>87</sup> For example, Diana Díaz Verástegui from Lima, Peru argues that instead of teaching competition, pedagogies should teach empathy — “a quality that we must develop as much as possible to understand other human and non-human beings.” Quyncc Johnson from Colorado, USA echoes this idea: “our public education systems and cultural institutions need to underscore the importance of a more empathetic, compassionate worldview. Radical empathy, love, self-acceptance, and trust are necessary to end cycles of abuse that humans inflict on the environment and each other.”



Artwork by Eliza Colin Hodges, 25, Estado de Mexico

Youth artwork also mentions the pedagogies of “vulnerable listening,” offering numerous examples of different pedagogical approaches that support our ability to learn and grow with each other and with all species. Whether learning to listen to the rain, communicate with ancestors, or asking nature how to solve problems, pedagogies must seek grounded, collaborative, interconnected, and relational modes of learning and living with the world. Moving beyond the limits of humanism, we can reconfigure pedagogies to “learn with a more-than-human world rather than about it,” pursuing more-than-human collective modes of thought, action, and being.<sup>88</sup> In the process, we can embark upon the collective task of learning to coexist with all earth beings, while repairing and remaking damaged worlds together.

---

**Moving beyond the limits of humanism, we can reconfigure pedagogies to “learn with a more-than-human world rather than about it,” pursuing more-than-human collective modes of thought, action, and being.**

---

---

## Opening Up Education For Learning With The World

Education must not be confined to the walls of school buildings, but rather extend beyond its physical boundaries and take place everywhere, across time and space. Instead of learning about the world (out there, disconnected from their daily lives), youth artwork points to a wide range of education opportunities with the world — in and with nature (landscapes, animals, plants), natural elements (water, air, fire, land), as well as, difficult lessons from man-made, yet still non-human teachers (greenhouse gas emissions, pollution, and deforestation). Maria Diaz Faldetta suggests that while learning may happen everywhere, we must learn to notice and engage with the multitude of learning opportunities around us: “Every living being teaches us something, we just have to pay attention and interpret it properly.” Roxanne Morris from Hanover, Jamaica agrees by adding, “nature communicates with us. We only need to observe it and have the patience to listen and hear.” By breaking down barriers between schools and the living world, we can (re)learn to engage with multiple ways of knowing (both human and more-human) and create opportunities to connect with and learn in, from, and with the living world.

Although most formal education systems unquestionably reserve the role of teachers to human (usually female) beings,<sup>89</sup> the **Turn it Around!** deck highlights many non-human teachers that are not currently recognized as educators in formal educational systems — ancestors, bees, trees, wind, and even stones — who teach important lessons of cooperation, interdependence, empathy, resilience, or technological innovation. Remembering lessons passed down by our ancestors — from human ancestors to spirits flowing in rivers and forces growing within old forests — some artwork reminds us about centuries-old lessons about sustainable food practices, multispecies coexistence, and the capacity to heal. Eva Figueroa from Guadalajara tells about learning resilience from nature: “Nature shows us the ability to recover after being damaged or destroyed. We always see how it strives to survive: the small plants and flowers that emerge after devastating floods, the forests that regrow after fires, the trees that lift the pavement with their enormous roots. That is life and the ability to adapt and survive.” Jieyu Jiang’s story, “A Tree Leaf Once Taught Me,” is a beautiful example of how we can learn to love others and become



Artwork by Jieyu Jiang, 27, China

more aware of patterns in life from an interaction she had with a leaf. Bringing together insights from many other youth artists and activists, Lady Edith Alcivar Zambrono from Guayas, Ecuador simply states, “nature has taught me something that I was never taught at school — that I too am part of nature.”

---

**By breaking down barriers between schools and the living world, we can (re)learn to engage with multiple ways of knowing (both human and more-human) and create opportunities to connect with and learn in, from, and with the living world.**

---

---

## Creating Learning Spaces of Resistance, Resilience, and Recuperation

One of the youth activists at COP26, Isaias Hernandez, stated: “I refuse to fall into climate doomism that is being pushed by Western countries. The resistance in movements have existed for decades and hold so much community power to create a regenerative just world.”<sup>90</sup> When addressing the climate crisis, we envision education (and other learning spaces beyond the educational realm) as a vehicle for learning to overcome climate doomism and instead center narratives around resistance, resilience, and recuperation. As the climate crisis escalates and the resistance movements gain strength, we call for education to cultivate opportunities that encourage rebuilding and recuperation of human and more-than-human communities (even if only partial recuperation is possible), inspire generations of new ideas and practices for more sustainable coexistence of people and planet, and strengthen the global impact of the environmental movement. We call for learning spaces to weave in the stories and wisdoms of our ancestors, and of Indigenous and Global South communities into curricula and pedagogies, while learning the collaborative, collective, mutually recuperative lessons we urgently need for future survival on this planet.

We also encourage spaces to promote inner sustainability with outer sustainability by introducing ways people can sustain themselves as they work to sustain the world. These tools of recuperation can include practices around mindfulness, spaces where people can share their eco-anxiety, and spaces where humans and more-than-humans can heal. It is essential that these learning spaces empower people to approach our planet with climate resilience instead of climate nihilism. Rodrigo Tremembé writes about encountering and experiencing such spaces in his everyday life, “Through dreams I feel the energy of Mother Earth. When I observe nature, it brings me a sense of rhythm, gives me firmness with the pecking of the woodpecker, transmits to me longevity through the lifespan of a tortoise. Every observation of nature brings energy to our lives.” When humans learn to attune to the living world around them — learning resilience from observing the sun rising or seasons changing — they can continue to work towards a more environmentally just, sound, and sustainable world.



Photo by Global Student Forum

---

**“Through dreams I feel the energy of Mother Earth. When I observe nature, it brings me a sense of rhythm, gives me firmness with the pecking of the woodpecker, transmits to me longevity through the lifespan of a tortoise. Every observation of nature brings energy to our lives.”**

Rodrigo Tremembé, Brazil

---

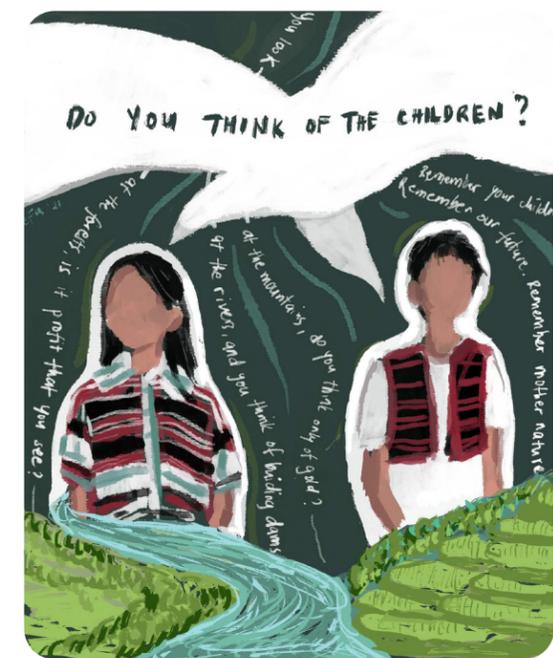


Artwork by S.O.S from the Kids, Hampshire, USA

## Including Youth in the Decision Making Processes About Their Education Futures

Given the colossal failure of the past and current adult generations to take the necessary action to address the climate catastrophe, it is imperative to include youth in envisioning more sustainable and ecologically just futures. As the generation least influenced by the highly problematic dominant lifestyles and systems, including education systems, children and youth have much more clarity about the immediate actions and the long-term cultural changes necessary to turn around the climate crisis. They also feel the urgency to act. Given the wisdom and depth of insights shared by youth and their stake in climate futures, we ask policymakers and politicians to stop “protecting and sheltering youth from the reality of the climate crisis” (Mercedes Dalles-Steffen from South Dakota). It is time to include youth in all of the decision making processes about their futures, while ensuring that age, gender, race, class, and ability considerations meaningfully inform policy action.

Engaging youth as active and strategic members of educational decision making bodies will take strategic efforts and planning to ensure that they are treated as allies and experts.<sup>91</sup> This is a critical component of developing a more meaningful approach to climate education and climate action. Youth inclusion in the design and development of their educational futures will not only provide authentic opportunities for youth to engage in leadership skill development, civic engagement, and policy analysis, but will also help to ensure that educational systems will be positioned from the vantage point of those who will inhabit the future.<sup>92</sup> More importantly, youth voices will bring into focus a much needed long-term thinking “[a]s not something we leave but something we grow throughout our lives.”<sup>93</sup> This is a critical perspective, which is glaringly missing in current policy efforts that continue to pursue short-term interests. Directly addressing politicians and policymakers, Rodrigo da Silva Pastorello from São Paulo, Brazil concludes, “Remember that after you, many generations will follow. Remember that responsibility is in your hands now, but soon it will be in ours. We need to work together for a more sustainable and just future. Today more than ever, you need to remember this when you make decisions about our futures.”

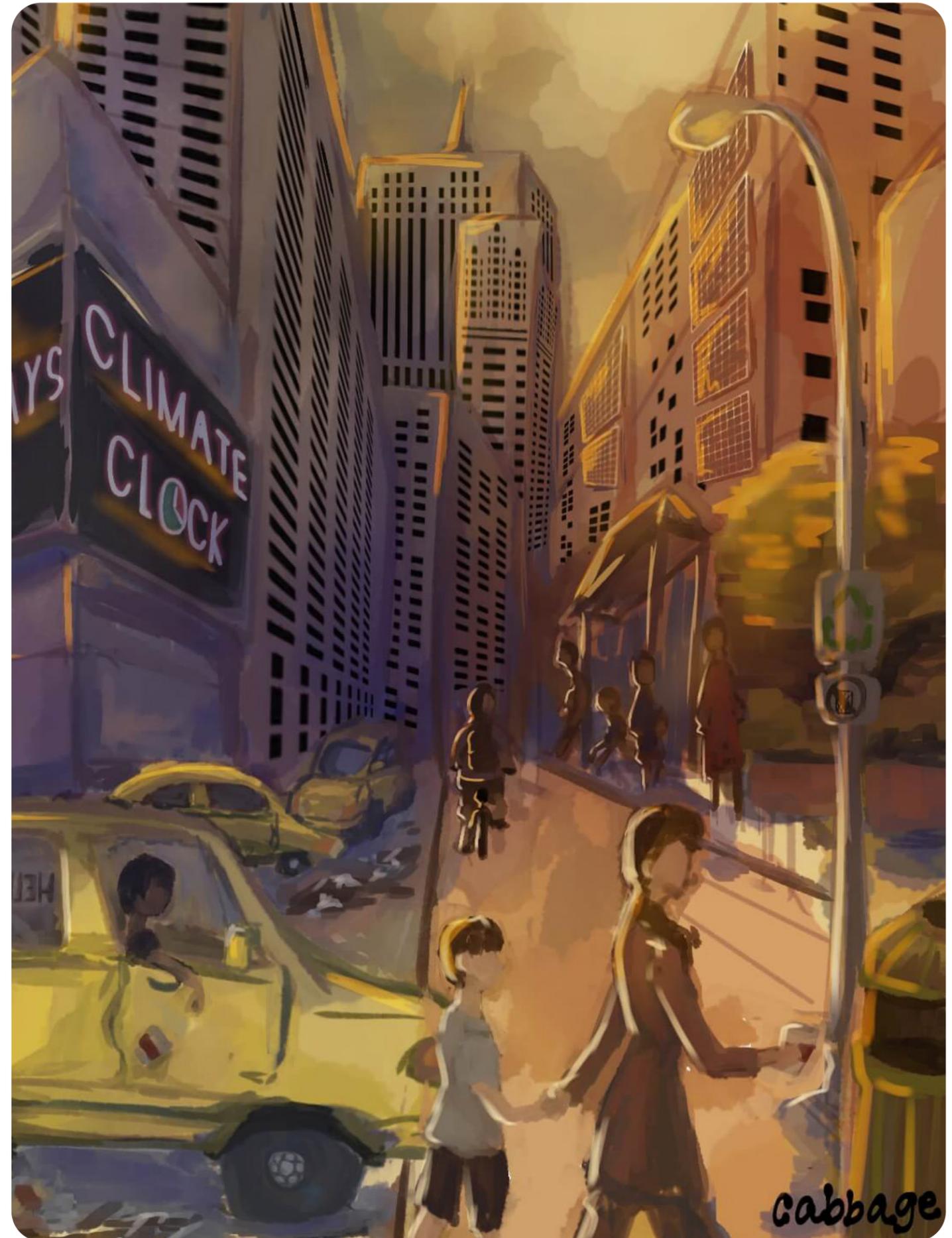


Artwork by Josefa Tauli, 26, Baguio City, Philippines

**“Remember that after you, many generations will follow. Remember that responsibility is in your hands now, but soon it will be in ours. We need to work together for a more sustainable and just future. Today more than ever, you need to remember this when you make decisions about our futures.”**

Rodrigo da Silva Pastorello, São Paulo

**THE CARDS ARE  
IN YOUR HANDS.  
NOW IT'S  
YOUR TURN.**



Artwork by Tuyen Nguyen, 15, Florida, USA

## Exercise 3

# TURNING TOWARD

Turning toward more sustainable and just futures requires action. The ideas in the final section of the report aim to inspire and support you in your leadership role to begin mobilizing different education stakeholders, including youth, around re-imagining education and transforming curriculum and pedagogies toward more sustainable and ecologically just futures.

### What You'll Need:

- **Turn it Around!** deck of cards
- Pen or pencil

### Instructions:

#### COMPLETE THE FOLLOWING THOUGHTS

- What will you do to **Turn it Around!** — today, next week, next year, next decade?
- How can you regularly open yourself to ideas, actions and collaborations with youth leaders?
- How can you mobilize others?

Use the space below for notes and reflections.

---

---

---

---

---

---

---

---

## Implementing Partners

Arizona State University

School of Art

Mary Lou Fulton Teachers College

Julie Ann Wrigley Global Futures Laboratory

Artists' Literacies Institute

## Supporting Partners

Open Society Foundations

ASU Julie Ann Wrigley Global Futures Laboratory

ASU Seize the Moment, a joint initiative of Leonardo, Humanities Lab, and Global Futures Laboratory

## Our Allies

Students Organizing for Sustainability (SOS)

Global Student Forum

NDN Collective

Global Youth Biodiversity Network

Common Worlds Research Collective

Unesco: Futures of Education Initiative

Biomimicry Institute

LOAM: A Fertile Soil that Nurtures Growth

Doughnut Economics Action Lab

The Grandmothers' Stitching Collaboratory

Edith Cowan University

The Art Gallery of Western Australia

## Authors

Dilraba Anayatova, Marina Basu, Saiarchana Darira, Andrew Freiband, Devynn Glanz, Atota Halkiyo, Setrag Hovsepian, Adrienne Jenik, Jieyu Jiang, Hikaru Komatsu, Prince Kwarase, Lara Law, Ann Nielsen, Julia Oneill, Garine Palandjian, Esther Pretti, Jeremy Rappleye, Belen Sanchez, Iveta Silova, Keti Tsotniashvili

## Reviewers

Euan Auld, Mindy Blaise, Hailey Campbell, David Carlson, Camilla Crosso, Janna Goebel, Alex Haraus, Carrie Karsgaard, Jesse LeVesconte, Hugh McLean, Elizabeth Quigley, Sebastian Scott, Shagun Singha, Affrica Taylor, Angela Zhong

## Contributors

*Name, Location, Age*

Aadya Gupta, West Bengal, 12

Aaliyah A, New York, 15

Aanya Dhawan, New Delhi, 11

Aarav Dhir, West Bengal, 9

Aariv Saini, New Delhi, 9

Aashray Mittal, New Delhi, 16

Abhilash Pradhan, New Delhi, 13

Abigail, Maryland, 14

Abigail Spitta Ansah, Greater Accra, 31

Adona Mary Martin, New Delhi, 9

Adriana Carmen Rocio Girón Melgar, Mexico, 20

Adro López, Michoacán, 28

Agadh Uday Gupta, Chandigarh, 13

Agualabiaz, Buenos Aires, 25

Agustina Mucci, Montevideo, 18

Aila Sor U. Lanat, Davao del Norte, 17

Aiman Hasnath, Telangana, 15

Airelys Yassyr Pinzón Prado, Los Santos, 23

Aishal Tripathy, Uttar Pradesh, 14

Akhila Singha, Tamil Nadu, 25

Akira Khanduri, New Delhi, 8

Albert Amigon, New York, 15

Alexandria Quinlan, Taiwan, 26

Aline Lira Dos Reis, Pennsylvania, 28

Alisha Ahmad, West Bengal, 10

Alokit Chowdhury

Amy D. Hernández

Ana Michelle Tellez Ferrer

Ananya Modi, Uttar Pradesh, 17

Andrea Amaya Martinez, Michoacán, 28

Andrea Rogers, Arizona, 73

Angela Mae Santos, Queens, 15

Angela Zhong, Texas, 8

Angeline Rossana Ortega Lima, Guatemala, 16

Anghelina Rangel Morales

Angus, Argentina, 21

Anjila Raya, New York, 15

Ankit Tripathi

Anna Grace Burch, United States

Antonia Herrera, Lampa, 17

Anushka Kesharwani, Uttar Pradesh, 17

Anushka Singh, Uttar Pradesh, 13

Anvi Modi, West Bengal, 10

Anwasha Singh, Uttar Pradesh, 12

Anya Trivedi, British Columbia, 17

Apraupa Bhowmick, Kolkata, 38

Aqsa Muhammad, New York, 15

Archita Tater, West Bengal, 10

Arighna Som, New Delhi, 8

Arijit Das, New York, 15

Aritro Moitra, Delhi, 8

Arleth, Peru, 16

Armaan Ahmad, Uttar Pradesh, 14

Arshnoor Sahn, Delhi, 15

Ashley Hocking, Pennsylvania, 19

Ashmita Jain, New Delhi, 12

Asmi Halder, New Jersey, 2012

Avantika Singh, West Bengal, 10

Awantika, Himachal Pradesh, 16

Awsaf, Jackson Heights, 15

Aybüke Belen, 24

Ayishath Nasreena, Kerala, 26

Ayushman Dubey, Uttar Pradesh, 14

Beatrice Ndisha Mwanjala, Nairobi, 23

Belle Cerra, Connecticut, 15

Bhavika Agarwal, Kolkata, 11

Bhumi Sureka, West Bengal, 9

Binod Kumar Das, West Bengal, 35

Bismark Amefianu Kudoafor, Greater Accra, 31

Brianda Margarita Jiménez Bolívar, 24

Bruno Bahati, Kisumu, 23

Bushra Najam, Sindh/ Karachi, 18

Calvin, Lilongwe, 24

Camila Rodríguez Ferreira, Bahia, 19

Canan Vardal, New York, 15

Cassandra Bragamza, Goa, 18

Chetna Chhaje, West Bengal, 13

Chris Vena, Arizona, 43

Christine Wathoni, Central Province, 19

Cora-Mae Lemery, New Brunswick, 6

Dafne Cedano, Santo Domingo, 19

Daiana Vega, Estado de México  
Damy, Pichincha, 24  
Daniela, Argentina, 15  
Daniela Barberena  
Daniela Plascencia, Jalisco, 17  
Daniela RG, Santander, 23  
Danilo Estacio, Pasto, 27  
Debshata Choudhury, New Delhi, 17  
Delfina Scagliotti, Córdoba, 26  
Devanshi Gadia, West Bengal, 10  
Dewi Anastasia Christina, Jakarta, 24  
Dexter Komakaru, Ohio, 21  
Diana Bellam Magodi, Dar Es Salaam, 24  
Diana Díaz Verástegui, Lima, 22  
Diana Vasquez, Dominican Republic, 16  
Dianarose J. Kilabuko, Dar Es Salaam, 24  
Diego Ruiz-Acosta, Andalucía, 24  
Diva Shah, Uttar Pradesh, 11  
Edúh Vinny, Bahia, 19  
Elena Goddard, Santiago, 26  
Eliza Colin Hodges, Mexico, 25  
Elizabeth Jaffar, New York, 15  
Emese Morris, Budapest, 17  
EnDemic, Saint Catherine Parish, 25  
Eshani Singh, West Bengal, 12  
Esther Pretti, Arizona, 38  
Eva Figueroa, Jalisco, 25  
Fabiola Alarcón Fernández, Cundinamarca, 54  
Faizaan Sarwar Khan, New Delhi, 9  
Ferry Arif Setiawan Pratama, East Java, 21  
Florcita Maure, Buenos Aires, 20  
Francisca Sepulveda, Quevedo, 19  
Gangesh Verma, Delhi, 12  
Georgina Mukwirimba, Harare, 25  
Giovanni Aloi, Illinois, 45  
Godfrey Wanjala, Bungoma, 26  
Grace Bravo Vargas, Lima, 26  
Graziele Gabriel Gonçalves, Goiás, 29  
Guadalupe Molinari, Buenos Aires, 17  
Hadia, Pakistan, 15  
Hannah, Arizona, 15  
Harshita Rai, Uttar Pradesh, 15  
Hellany Graça Cardoso Lima, Xerém, 16  
Holly Hewitt, Nottinghamshire, 35  
Hongrui Su, New York, 15  
Iksha Mohta, West Bengal, 9  
Indunil Madhusankha, Washington, 28  
Ira Saxena, Gurugram, 11  
Isabela Javela Rojas  
Isabella Martínez Zapata, Risaralda, 15  
Ishika Gandhi, Delhi, 14

Ishita Maurya, Uttar Pradesh, 17  
Ishrita Pol, Texas, 17  
Jacob Blasius, 24  
Jaewon Lee, New York, 18  
Jaileni Moncada, 17  
James Callahan, California, 55  
Janice Fried, New Jersey, 63  
Jason Eng, New York, 14  
Jatin Arun, Uttar Pradesh, 13  
Jayasmita Nag, West Bengal, 11  
Jieyu Jiang, Arizona, 28  
John Ulric Eluna, Negros Oriental, 20  
Jord Earving Gadingan, Quezon, 27  
Jordan Guzman, Arequipa, 27  
Josefa Tauli, Baguio City, 26  
Julienne Cafino, Negros Oriental, 20  
Justice Andersen, Wisconsin, 17  
Kaavya Khandelwal, West Bengal, 10  
Kanishka Baranwal, Uttar Pradesh, 17  
Kanushi kejriwal, West Bengal, 10  
Karelle Rizk, Jounieh, 30  
Karen de Onofre Mendonça, Sao Paulo, 18  
Karla Rendon, New York, 15  
Kenner Garcia Pereira, Mato Grosso do Sul, 16  
Krishiv, West Bengal, 9  
Kwang Dae (Mitsy) Chung, British Columbia  
La Benida Hui, Taipei, 47  
Lady Edith Alcivar Zambrano, Guayas, 22  
Lalitendu Dash, New Delhi, 32  
Lalnunkimi Hnamte, New Delhi, 13  
Laura Harvey, Cheshire, 21  
Leila, London, 9  
Lesley Niveló, Queens, 15  
Lindsey Millerd, Hawaii, 20  
Lionel Cruet, Puerto Rico, 31  
Loree Chung, Michigan, 20  
Luciana Maria Sousa dos Santos  
MOOnsu, Indonesia, 24  
Maanya Sharma, West Bengal, 10  
Machi Arte, Buenos Aires, 20  
Madhu Varshini, Hyderabad, 22  
Mahersi Divannaura Salwa Atsauri, 17  
Mahi Sharma, Kolkata, 10  
Malia Hulleman, Hawaii, 26  
Marco Morales, Honduras, 24  
Maria Clara de Souza Gonçalves Bahia, 14  
María del Rosario Silva Delgado Lerma, 20  
María Diaz Faldetta, Buenos Aires, 16  
María Paula  
Maria Sanchez, New York, 15  
Maria Victoria Acevedo

Mariana Karas Zella, Paraná/Curitiba, 23  
Mariana Mastache Maldonado, Mexico City, 22  
Marisol Alejo Ramos, Arequipa, 30  
Marium Nadeem, West Bengal, 11  
Marley Pemberton, Arizona, 25  
Martina Lourdes, Santiago, 22  
Martinius Yohanes Gardena, Bali, 16  
Marts, Punjab, 21  
Maryam, Punjab, 22  
Medha Setia, New Delhi, 15  
Medhansh Kumar, New Delhi, 10  
Megan Roseman, New York, 14  
Mercedes Dalles-Steffen, South Dakota, 24  
Michelangelo Sofia, New York, 15  
Michelle Marín, Jalisco, 21  
Miles, California, 23  
Mira Sinclair, Maryland, 15  
Mirabel Ntali, Buea, 38  
Mr. Phoe, Bogotá, 22  
Ms. Sangeeta, Haryana, 45  
Mst. Aaradhya Mukherjee, New Delhi, 10  
Mudit Sharma, New Delhi, 9  
Muskan Aslam, New York, 15  
Nadia Maldonado, New York, 15  
Nafia Islam Faria, Dhaka, 24  
Natalia Escaño Lopez, Huelva, 25  
Naveen Domadia, North Carolina, 11  
Nick Mwanicha, Nairobi, 21  
Nicolás Felipe Pulido Barbudo  
Nicole Figueroa, New York, 15  
Nilanjana Sarma, Assam, 27  
Nina Helvy, Georgia, 17  
Nivedita ER, Bengaluru, 20  
Nmvk, Frutillar, 23  
Odalís Rodríguez, New York, 15  
Odil Brigoli, New York, 15  
Olivia Zhang, Florida, 16  
Owudogu kettley, Bayelsa State, 26  
P. Akshay Rao, Uttar Pradesh, 14  
Paarth Gupta, Delhi, 9  
Paloma Tyler, California, 12  
Paola, Jalisco, 17  
Paola del Carmen Novelo Denis, Yucatán, 20  
Parigul Ziad, Pakistan, 17  
Partha Sarathi Bhattacharjee, West Bengal, 47  
Patricia Kombo, Nairobi, 25  
Plumemielleuse, Haiti  
Ponani Maswanganyi, Limpopo, 22  
Pragati Modi, Uttar Pradesh, 14  
Pragya Mehta Arora, West Bengal, 35  
Prapti Kedia, Howrah, 10

Preyosi Saha, India, 18  
Priyanjali Jain, Uttar Pradesh, 16  
Punit Khanapure, Karnataka, 24  
Quyncc Johnson, Colorado  
Rafaela Pupin, São Paulo, 24  
Rahma Sharweed, New York, 14  
Rajnandini, Delhi, 18  
Rameesha, Punjabi, 17  
Ranvir Batra, New Delhi, 12  
Rebeca, Guatemala, 21  
Rebecca Reyes, Nuevo Leon, 24  
Rexford Akrong, Accra, 29  
Reyansh Patwari, West Bengal, 10  
River Bourne, Louisiana, 30  
Robert Chevalier  
Rodrigo da Silva Pastorello, São Paulo, 24  
Rodrigo Tremembé, Ceará, Itarema, 24  
Roxanne Morris, Hanover, 30  
Rudra Singh, Varanasi, 11  
Rumana, New Delhi, 12  
Rupa Rajbongshi, West Bengal, 58  
Rushada Ghatak, New Delhi, 9  
Rutvi Mahendra, Uttar Pradesh, 16  
S Shireesha, Telangana, 20  
Sahory Dayana Silva Gil  
Sai Sonali Anmolsingh, Central Zone, 21  
Saksham Chanani, West Bengal, 10  
Sam Sure, London, 38  
Sameh Shahid, New York, 15  
Sampriti Agarwal, West Bengal, 10  
Samriddha Roy, Maharashtra, 23  
Samridhi Agarwal, West Bengal, 9  
Samridhi Agrawal, Uttar Pradesh, 14  
Samruddhi Ramesh Duratkar, Maharashtra, 20  
San-Pei Lee, Texas, 28  
Sanghamitra Sen, West Bengal, 38  
Sangye Wangmo, East Elmhurst, 15  
Sara Ohana Vieira Alves, 13  
Sarah Assina, New Jersey  
Sarah Savage, Northern Ireland, 24  
Sarath Kumar S, Kerala, 26  
Sayantan Mukherjee, West Bengal, 40  
Shagun Singha, Arizona, 28  
Shahera Amin, New York, 15  
Shaik Gousia, Andhrapradesh, 20  
Shaivi Kumar, West Bengal, 13  
Shari, Balochistan, 24  
Shaurya Srivastava, Uttar Pradesh, 13  
Shivaan Khullar, Delhi, 9  
Shizuka Stack-Tago, Scotland, 23  
Shoa, Alicante, 21

Shreya Pandey, Uttar Pradesh, 13  
 Shreya Sahi, Delhi, 14  
 Shrina Patel, West Bengal, 9  
 Sidharta Dan, 26  
 SMC, Buenos Aires, 22  
 Sneha Subudhi, Odisha, 32  
 Snehal Rodge, Maharashtra, 16  
 Society 6, New York, 15  
 Sofia, London, 9  
 Soomrit Chattopadhyay, Mumbai, 15  
 Soumya Bansal, Haryana, 19  
 Srotoswini Sinha, West Bengal, 11  
 Steny Biju, Kerala, 19  
 Sukrit Mehta, New Delhi, 10  
 Sulagna Moitra  
 Suman Joshi, Rajasthan, 46  
 Suranjani Samanta, West Bengal, 10  
 Swarnima Mudgal, Uttar Pradesh, 24  
 Swikriti Agarwal, West Bengal, 11  
 Syeda Hamnah Firdous Khalid, Sindh, 21  
 Taarush Grover, Haryana, 15  
 Tamaaliki Dutta, West Bengal, 11  
 Tania Macias, Zacatecas, 16  
 Tanisha Chhetry, New York, 15  
 Tanishka Panchamia, West Bengal, 9  
 Tanuj Samaddar, Assam, 16  
 Tariro Marekwa, Harare, 23  
 Taryenna Dickerson, Indiana, 44  
 Tatiana Vargas Brath, Bogotá, 24  
 Tenzin Gupta, California, 10  
 Teresa, London, 9  
 Thurem, Santo Domingo, 26  
 Theresa Lee, New York, 15  
 Thomas Pover, Glasgow, 21  
 Tiluck Keisam, Delhi, 13  
 Triana Gupta, New Delhi, 12  
 Tuyen Nguyen, Florida, 15  
 Tyrome Tripoli, New York, 54  
 Uditia Setia, New Delhi, 15  
 Ustha Agarwal, West Bengal, 14  
 Utpal Sir, West Bengal, 11  
 Uvika Bagaria, West Bengal, 11  
 Valentina Renda Vitale, Mendoza, 20  
 Valeska De Cárdenas, La Paz, 23  
 Vanessa Gogerty, Arizona, 21  
 Vanshika Dhanuka, Uttar Pradesh, 16  
 Victor Manuel Chirinos Salon, Venezuela, 26  
 Vidhi Upadhyay Shukla, Dubai  
 Vinisha Umashankar, Tamil Nadu, 14  
 Viraansh Malhotra, New Delhi, 12  
 Wachira Benard Kimani, Nyeri, 19

Wajeeha Mughal, Sindh, 25  
 Wendy Hernández, Chiriqui, 19  
 William, London, 9  
 Yana Sapra, New Delhi, 13  
 Yashita Gupta, New Delhi, 21  
 Yogit Agarwal, West Bengal, 9  
 YuChi Ashley Huang, Taipei, 16  
 Yuddexis Guzmán  
 Yutsil Islas Martínez, Jalisco, 16  
 Yuvaan Gupta, West Bengal, 10  
 Zane, London, 9  
 Zarin Shaima, New York, 15  
 Zi Li, New York, 14  
 Zoe Gauna  
 Zoya Hussain, Nova Scotia, 17  
 Zuhura Ahmad, Tanzania, 23

## Notes On Resources and Inspirations for Exercises

Many of the exercises included in this report were developed by students at Arizona State University. Some exercises were inspired by the work of feminist artists and climate activists, including Joanna Macy, Julia Cameron, and Starhawk.

## Climate Facts Sources

- a. IPCC (2018). Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. Online: [https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15\\_SPM\\_version\\_report\\_LR.pdf](https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf)
- b. Ibid.
- c. NASA (2022). Global climate change: Vitals signs of the planet. Online: <https://climate.nasa.gov>
- d. International Union for Conservation of Nature (2017). Coral reefs and climate change. Online: [https://www.iucn.org/sites/dev/files/coral\\_reefs\\_and\\_climate\\_change\\_issues\\_brief\\_final.pdf](https://www.iucn.org/sites/dev/files/coral_reefs_and_climate_change_issues_brief_final.pdf)
- e. Nicholls, R.J., P.P. Wong, V.R. Burkett, J.O. Codignotto, J.E. Hay, R.F. McLean, S. Ragoonaden and C.D. Woodroffe (2007): Coastal systems and low-lying areas. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson (eds.). Cambridge University Press, Cambridge, UK, 315-356.
- f. McMichael, C., Dasgupta, S., Ayeb-Karlsson, S., & Kelman, I. (2020). A review of estimating population exposure to sea-level rise and the relevance for migration. Environmental Research Letters, 15(12), 123005. <https://iopscience.iop.org/article/10.1088/1748-9326/abb398>
- g. Knotson, T. (2022). Global warming and hurricanes: An Overview of Current Research Results. Online: <https://www.gfdl.noaa.gov/global-warming-and-hurricanes/>
- h. Román-Palacio, C. & Wiens, J. (2020). Recent responses to climate change reveal the drivers of species extinction and survival. PNAS, 117 (8), 4211-4217.
- i. Convention on Biological Diversity (2019). Biodiversity and climate change. Online: <https://www.cbd.int/doc/c/326e/cf86/773f944a5e06b75dfc5866bf/sbstta-23-03-en.pdf>
- j. Lelieveld, J., Evans, J. S., Fnais, M., Giannadaki, D., & Pozzer, A. (2015). The contribution of outdoor air pollution sources to premature mortality on a global scale. Nature, 525(7569), 367-371.
- k. United States Environmental Protection Agency (2021). Climate Change Indicators: Wildfires. Online: <https://www.epa.gov/climate-indicators/climate-change-indicators-wildfires>
- l. Son, R., Kim, H., Wang, S. Y. S., Jeong, J. H., Woo, S. H., Jeong, J. Y., ... & Yoon, J. H. (2021). Changes in fire weather climatology under 1.5° C and 2.0° C warming. Environmental Research Letters, 16(3), 034-058.
- m. CDC (2021). Climate change decreases the quality of the air we breathe. Online: [https://www.cdc.gov/climateandhealth/pubs/air-quality-final\\_508.pdf](https://www.cdc.gov/climateandhealth/pubs/air-quality-final_508.pdf)
- n. National Center for Environmental Health (2022). Climate effects on health. Online: <https://www.cdc.gov/climateandhealth/effects/default.htm>
- o. Morganstein, J. C. (2019). How Extreme Weather Events Affect Mental Health. American Psychiatric Association. Online: <https://www.psychiatry.org/patients-families/climate-change-and-mental-health-connections/affects-on-mental-health>.
- p. IPCC (2018). Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. World Meteorological Organization, Geneva, Switzerland, 32 pp.
- q. Randers, J., Goluke, U. (2020). An earth system model shows self-sustained thawing of permafrost even if all man-made GHG emissions stop in 2020. Sci Rep 10, 18456. <https://doi.org/10.1038/s41598-020-75481-z>

## Additional Sources

- IPCC (2021). Summary for Policymakers. In *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Masson- Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge, UK: Cambridge University Press.
- Lenton, T. M., Rockström, J., Gaffney, O., Rahmstorf, S., Richardson, K., Steffen, W., & Schellnhuber, H. J. (2019). Climate tipping points — too risky to bet against. *Nature* 575, 592-595.
- See a tweet by Patience Nabukalu, a Ugandan youth climate activist speaking after COP26. See also Vanessa Nakate in her book *A Bigger Picture: My Fight to Bring a New African Voice to the Climate Crisis*.
- Ripple, W.J., Wolf, C., Newsome, T.M., Barnard, P., Moomaw, W.R. (2020). World Scientists' Warning of a Climate Emergency. *BioScience* 70(1): 8–12. See also Ripple, W.J., Wolf, C., Newsome, T.M., Galetti, M., Alamgir, M., Crist, E., Mahmoud, M.I., Laurance, W.F. (2017). World scientists' warning to humanity: A second notice. *BioScience* 67: 1026–1028.
- See, for example, “Women, Gender Equality and Climate Change” for more information on global UN commitments, resolutions and other Intergovernmental outcomes, UN publications, and other resources [http://www.un.org/womenwatch/feature/climate\\_change/](http://www.un.org/womenwatch/feature/climate_change/)
- Barclay, E. & Resnick, B. (2019). How big was the global climate strike? 4 million people, activists estimate. *Vox*. <https://www.vox.com/energy-and-environment/2019/9/20/20876143/climate-strike-2019-september-20-crowd-estimate>
- See Parker, L. (2020, April). Greta wasn't the first to demand climate action. Meet more young activists. *National Geographic Magazine*.
- Walker, C. (2020). Uneven Solidarity: The School Strikes for Climate in Global and Intergenerational Perspective. *Sustainable Earth*, 3(5): 1-13. <https://doi.org/10.1186/s42055-020-00024-3>. See also Unigwe C. (2019, October 5). It's not just Greta Thunberg: Why are we Ignoring the Developing World's Inspiring Activists? *The Guardian*. <https://www.theguardian.com/commentisfree/2019/oct/05/greta-thunberg-developingworld-activists>.
- Common Worlds Research Collective (2020). Learning to Become with the World: Education for Future Survival. *Education Research and Foresight Working Paper 28*. Paris: UNESCO.
- Ibid. See also Komatsu, H., Rappleye, J., & Silova, I. (2020). Will Achieving SDG4 Promote Environmental Sustainability? Critical Reflections Looking Towards 2030. In A. Wulff (Ed.), *Grading Goal Four: Tensions, Threats and Opportunities in the Sustainable Development Goal on Quality Education* (pp. 297-231). Sense Publishers/Brill. For more on how higher socioeconomic class is associated with unethical behavior or actions that harm others and are morally objectionable to one's community, see Piff, K. P. et al. (2012) Higher class predicts increased unethical behavior. *Proceedings of the National Academy of Sciences*, 109(11), 4086-4091
- St. Pierre, E.A., Jackson, A.Y., Mazzei, L.A. (2016). New Empiricisms and New Materialisms: Conditions for New Inquiry. *Cultural Studies ↔ Critical Methodologies*, 16(2), 99-110.
- Futureholders is a term created by Juliet Davenport that positions future citizen's interests and values as a present day consideration. See Krznaric, R. (2020). *The Good Ancestor: A Radical Prescription for Long-Term Thinking*. The Experiment. LLC.
- The printed deck “Turn It Around! Flashcards for Education Futures” contains 70 artworks and 70 text responses, which were selected by an international youth review board. While not all artistic and text responses appeared in the printed deck, all submissions will be featured on the “Turn It Around!” website. Furthermore, submissions will be accepted on an ongoing basis and curated for the growing online collection.
- Hickel J. (2020). Quantifying national responsibility for climate breakdown: an equality-based attribution approach for carbon dioxide emissions in excess of the planetary boundary. *Lancet Planet Health*, 4(9), e399-e404.
- Tsing, A. L. (2015). *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*. Princeton, NJ: Princeton University Press, p. 37.
- Taylor, C. (2021). Knowledge matters: Five propositions concerning the reconceptualisation of knowledge in feminist new materialist, posthumanist and postqualitative approaches. In K. Murriss (Ed.), *Navigating the Postqualitative, New Materialist and Critical Posthumanist Terrain Across Disciplines* (pp. 22-42). New York: Routledge.
- See Pacini-Ketchabaw, V. & Kummen, K. (2016). Shifting temporal frames in children's common worlds in the Anthropocene. *Contemporary Issues in Early Childhood*, 17(4), 431-441.
- Haraway, D. (2016). Staying with the Trouble: Making Kin in the Chthulucene. Durham and London: Duke University Press.
- See Carrie Karsgaard's analysis in “Toxic Futures and Edenic Hope in Climate Education,” presented at the World Education Research Association (WERA) Conference in 2021.
- See Karsgaard (2021).
- Wijaya, A. S. (2014, March). Climate change, global warming and global inequity in developed and developing countries. *IOP Conference Series: Earth and Environmental Science* 19(1). IOP Publishing.
- Stern, N., & Stern, N. H. (2007). *The economics of climate change: the Stern review*. Cambridge University press.
- Moore, J. (2017). The Capitalocene: On the nature and origins of our ecological crisis, *The Journal of Peasant Studies*, 44(3), 594-630. For further discussion see Haraway, D. (2015). Anthropocene, capitalocene, plantationocene, chthulucene: Making kin. *Environmental Humanities*, 6, 159-165.
- Whyte, K. (2017). The Dakota Access Pipeline, Environmental Injustice, and U.S. Colonialism. In C. Miller and J. Crane (Eds.), *The Nature of Hope: Grassroots Organizing, Environmental Justice, and Political Change* (pp. 320-337). University of Colorado Press.
- Plumwood, V. (2002). *Environmental Culture: The Ecological Crisis of Reason*. London and New York: Routledge.
- Cairns, K. A. (2018). Beyond Magic Carrots: Garden Pedagogies and the Rhetoric of Effects. *Harvard Educational Review*, 88(4), 516–537.
- Kwauk, C. (2021). The Climate Change Education Ambition Report Card: An analysis of updated Nationally Determined Contributions submitted to the UNFCCC and National Climate Change Learning Strategies. Brussels: Education International.
- United Nations Environment Programme Emissions Gap Report (2021). “The Heat Is On: A world of climate promises not yet delivered.” New York: UNEP.
- Ibid.
- For example, the 2018 IPCC report, mentioned the role of education only in passing, suggesting that, along with information and community approaches, education “can accelerate the wide scale behavior changes consistent with adapting to and limiting global warming to 1.5°C.” See IPCC (2018). *Special Report on Climate Change (Summary for Policymakers)*. Similarly, Sustainable Development Goals (SDGs) approach education as “one of the most powerful and proven vehicles for sustainable development.” See Joint SDG Fund (2021). Goal 4: Quality Education.
- Komatsu et al., 2020; Roberts, J. T., & Parks, B. C. (2009). Ecologically unequal exchange, ecological debt, and climate justice. *International Journal of Comparative Sociology*, 50(3-4), 385–409.
- Komatsu et al., 2020.
- UNESCO (2016). *Education for people and planet: Creating sustainable futures for all* (Global Education Monitoring Report 2016). Paris: UNESCO, pp. 19-22. See also Komatsu et al., 2020.
- UNESCO, 2016, p. 19.
- Komatsu et al., 2020, p. 298. See also Common Worlds Research Collective, 2020.
- Silova, I., Komatsu, H., & Rappleye, J. (2018, October 12). Facing the climate change catastrophe: Education as solution or cause? NORRAG Highlights. NORRAG blog; Schumacher, E. F. (1973). *Small is beautiful: A study of economics as if people mattered*. London: Blond & Briggs; Bowers, C. (1995). *Educating for an ecologically sustainable culture: Rethinking moral education, creativity, intelligence, and other modern orthodoxies*. Albany, NY: State University of New York Press; Bowers, C. (2002). Towards an eco-justice pedagogy. *Environmental Education Research*, 8(1), 21–34; Orr, D. (2004). *Earth in mind: On education, environment, and the human prospect*. Washington, DC: Island Press; Orr, D. (2009). *Down to the wire: Confronting climate collapse*. New York, NY: Oxford University Press; Sterling, S. (2017). Assuming the Future: Repurposing Education in a Volatile Age.' In Sterling, S. and Jickling, B. (Eds.), *Post-Sustainability and Environmental Education: Remaking Education for the Future*. Pivot Press/Palgrave.
- Orr, D. (1991). What Is Education For? Six myths about the foundations of modern education, and six new principles to replace them. *The Learning Revolution* (IC#27), p. 52.
- Read the entire address by the UN Secretary-General António Guterres, which was delivered on November 10, 2021, at <https://www.un.org/press/en/2021/sgsm21016.doc.htm>
- Macy, J. (2014). *Coming back to life*. New Society Publishers.
- Kimmerer, R. (2013). *Braiding sweetgrass*. Minneapolis, Minnesota: Milkweed Editions, p. 381.
- Ibid, p. 339.

42. Heimans, S. (2015). Taking a ‘material turn’ in education policy research? In N. Kalervo, M. C. Gulson, Bendix Petersen, E. (Eds.), *Education Policy and Contemporary Theory: Implications for Research* (pp. 160-170). Edited by London, United Kingdom: Taylor and Francis.
43. Martusewicz, R.A., J. Edmundson, and J. Lupinacci (2015). *EcoJustice Education: Toward Diverse, Democratic, and Sustainable Communities*. London: Routledge, p. 56. For more on the power of root metaphors, see Bowers, C. (2001). “How Language Limits Our Understanding of Environmental Education.” *Environmental Education Research* 7 (2): 141–51.
44. Martusewicz et al. 2015, p. 63.
45. For discussions in education, see Martusewicz et al., 2015, Bowers, 2001, etc.
46. See Martusewicz et al., 2015, p. 66-67.
47. Merchant, C. (1980). *The Death of Nature: Women, Ecology, and the Scientific Revolution*. New York: Harper Collins, p. 193.
48. Kohn, E. (2013). *How Forests Think*. University of California Press.
49. See Rappleye, J. and Komatsu, H. (2016). Living on borrowed time: Rethinking temporality, self, nihilism, and schooling. *Comparative Education*, 52(2), 177-201.
50. Sakai, N. (1988). Modernity and Its Critique: The Problem of Universalism and Particularism. *South Atlantic Quarterly*, 475-504.
51. Tlostanova, M. & Mignolo, W. (2012). *Learning to unlearn: Decolonial Reflections from Eurasia and the Americas*. Columbus: The Ohio State University Press, p. 220.
52. Ibid, p. 7.
53. Benavente, B.R. & Cielemecka, O. (2016, August 11). (Feminist) New Materialist Pedagogies. New Materialism. <https://newmaterialism.eu/almanac/f/feminist-new-materialist-pedagogies.html>
54. Barad, K. (2007). *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning*. Duke University Press. See also Common Worlds Research Collective, 2020; and Stein, S., Andreotti, V., Suša, R., Ahenakew, C., & Čajková, T. (2022). From “education for sustainable development” to “education for the end of the world as we know it.” *Educational Philosophy and Theory*, 54(3), 274-287.
55. Ibid, p. 11.
56. Ibid, p. 14.
57. Nishihira, T. & Rappleye, J. (2021). Unlearning as (Japanese) learning. *Educational Philosophy and Theory*.
58. Idid.
59. Zhao, W. (2019). Daoist *Onto-Un-Learning* as a Radical Form of *Study*: Re-imagining Study and Learning from an Eastern Perspective. *Stud Philos Educ* 38, 261–273.
60. Bateson, G. (1973). Steps to an ecology of mind: *Collected essays in anthropology, psychiatry, evolution, and epistemology*. Paladin, Granada.
61. English, A. (2013). *Discontinuity in learning: Dewey, Herbart, and education as transformation*. Cambridge University Press.
62. Sevilla, A. (2016). Education and empty relationality: Thoughts on education and the Kyoto School of Philosophy. *Journal of Philosophy of Education*, 50(4), 639–654. See also Takayama, K. (2020). An invitation to negative comparative education. *Comparative Education Review*, 56(1), 79–95.
63. Singh, J. (2018). *Unthinking Mastery: Dehumanism and Decolonial Entanglements*. Duke University Press.
64. Common Worlds Research Collective. 2020. Learning to become with the world: Education for future survival. *Education Research and Foresight Working Paper* 28. Paris, UNESCO.
65. Taylor, A., & Giugni, M. (2012). Common worlds: Reconceptualising inclusion in early childhood communities. *Contemporary Issues in Early Childhood*, 13(2), 108-119.
66. Taylor, A., & Giugni, M. (2012). Common worlds: Reconceptualising inclusion in early childhood communities. *Contemporary Issues in Early Childhood*, 13(2), 108-119.
67. Eppert, C. (2012). Remembering Our (Re) Source: Eastern Meditations on Witnessing the Integrity of Water. In McKenzie, M., P. Hart, H. Bai, and B. Jickling (eds.), *Fields of Green: Restorying Culture, Environment, and Education*. New York: Hampton, p. 196.
68. Education International (2021, April 7). Manifesto on the Quality Climate Change Education for All, <https://www.ei-ie.org/en/item/24244:education-international-manifesto-on-quality-climate-change-education-for-all>. The manifesto aims to mobilize action around five pillars to help ensure such transformation is possible: (1) governments ensure quality climate change education for all, (2) every student leaves education climate-literate and equipped with the skills and knowledge needed to tackle climate change, adapt to uncertainties, and take part in building a more sustainable future, (3) quality climate change education is based on science, and addresses the ethical, cultural, political, social and economic dimensions of climate change, (4) teachers are trained and supported to provide quality climate change education, and (5) schools and learning environments are transformed, to support quality climate change education.
69. The UNESCO report calls for education transformation based on the broad principles that underpin human rights and governed by the commitment to education as a common good and the right to quality education throughout life. See UNESCO, 2021.
70. This event was co-organized by the United Kingdom Presidency, Government of Italy, UNESCO, and youth partners MockCOP and Youth4Climate. At the event, government officials from about twenty countries pledged to introduce climate education in their national education policies and practices.
71. The study analyzed 95 updated, revised or new Nationally Determined Contributions (NDCs) as of September 30, 2021. NDCs are countries’ national climate action plans for reducing greenhouse gas emissions and adapting to climate change. See Education International (2021). *The Climate Change Education Ambition Report Card: An analysis of updated Nationally Determined Contributions submitted to the UNFCCC and National Climate Change Learning Strategies*. Brussels: EI.
72. UNESCO (2021). Climate education in the spotlight at COP26: Ministers of Education and Environment meet for historic event. (online)
73. Barad, K. (2014). Diffracting diffraction: Cutting together-apart. *Parallax*, 20(3), p. 168.
74. See Goebel, J. (2021). What Matter(s) in Education beyond the Human? Learning as Sympoietic Storyworlding. PhD thesis, Arizona State University.
75. Barad, 2014, p. 168.
76. Hamilton, J. M. & Neimanis, A. (2018). Composting Feminisms and Environmental Humanities. *Environmental Humanities*, 10(2), 501–527.
77. Kopnina, H., Washington, H., Taylor, B., & J Piccolo, J. (2018). Anthropocentrism: More than Just a Misunderstood Problem. *Journal of Agricultural and Environmental Ethics*, 31(1), 109–127.
78. Plumwood, V. (1993). *Feminism and the Mastery of Nature*. London & New York: Routledge.
79. Abram, D. (1996). *The Spell of the Sensuous: Perception and Language in a More-Than-Human World*.
80. <https://www.sos-uk.org/>
81. Rose, D. B., (2017). Shimmer: When all you love is being trashed. In *Tsing, A. L., Bubandt, N., Gan, E., & Swanson, H. A. (Eds.), Arts of living on a damaged planet: Ghosts and monsters of the Anthropocene. U of Minnesota Press*.
82. See Janine Benyus’s quote in the “Turn it Around!” partner card by the Biomimicry Institute.
83. Orr, D. (1991). *Ecological Literacy: Education and the Transition to a Postmodern World*. Albany, NY: SUNY Press, p. 86.
84. See Komatsu, H., Rappleye, J., & Silova, I. (2021). Student-Centered Learning and Sustainability: *Solution or Problem?* *Comparative Education Review*, 65(1).
85. See Kaarsgard, C. & Davidson, D. (2021). Must we wait for youth to speak out before we listen? International youth perspectives and climate change education, *Educational Review*, DOI: 10.1080/00131911.2021.1905611
86. Taylor, A., Zakharova, T. and Cullen, M. (2021). Common Worlding Pedagogies: Opening Up to Learning with Worlds. *Journal of Childhood Studies*, 46(4), 74-88. See also Common Worlds Research Collective (2020).
87. See Kopnina et al., 2018.
88. Taylor, A. (2017). Beyond stewardship: common world pedagogies for the Anthropocene. *Environmental Education Research*, 23(10), 1448-1461.
89. Lortie, D. C. (1975). *Schoolteacher*. Chicago, IL: University of Chicago Press.
90. <https://queerbrownvegan.com/what-is-climate-doomism/>
91. Palmy David, N., & Buchanan, A. (2020). Planning Our Future: Institutionalizing Youth Participation in Local Government Planning Efforts. *Planning Theory & Practice*, 21(1), 9-38. See also Thew, H. (2018). Youth participation and agency in the United Nations framework convention on climate change. *International Environmental Agreements: Politics, Law and Economics*, 18(3), 369-389.
92. Jarkiewicz, A., & Leek, J. (2016). Youth participation and global citizenship: Challenges and recommendations for future youth school forums.
93. Krznaric, R. (2020). *The Good Ancestor: A Radical Prescription for Long-Term Thinking*. The Experiment, p. 69.
94. Rappleye, J., Komatsu, H., & Silova, I. (2021). The best vaccine: Nature, culture, and covid-19 [open access]. NORRAG Special issue ‘States of Emergency: Education in a Time of COVID-19’, 6, 120-123.

**TURN IT  
AROUND!**

[turnitaroundcards.org](http://turnitaroundcards.org)