

# PLANETARY BOUNDARIES

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 [planetary-boundaries.com/](https://planetary-boundaries.com/)

Winner of the 2024 Tyler Prize for Environmental Achievement

## Congratulations to Johan Rockström

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*Johan is recognized for his groundbreaking contributions to sustainability and earth science, particularly the Planetary Boundaries framework.*

### what are the 'Planetary Boundaries'

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Imagine life on Earth is a game. The game has nine domains, each with a 'safe zone' and limits that should not be crossed. As players cross those limits, risk of losing the game increases.

If we can work together to stay within the 'safe zone', we can enjoy a healthy, sustainable home for generations to come.

But breaking the rules could lead to serious problems for all living things, including us.

Unfortunately, this is no game and the risk is all too real. The actions we take in the next few years will determine if humans win... or lose forever.

### The NINE PLANETARY BOUNDARIES:

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Just like in a game, if we cross these boundaries too much, it can lead to problems like climate change, loss of wildlife, and pollution, which make it harder for all of us to live on this planet.

By understanding and respecting these boundaries, we can help keep Earth a safe and healthy home for everyone.

## **Habitat Loss**

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It's like deciding how much of your yard to use for a garden without destroying the whole lawn. We need to balance how much land we use for cities, farms, and keeping natural areas like forests.

## **Biodiversity**

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Biodiversity is all the different kinds of life on Earth. Imagine if your entire music playlist had only one song. It would be boring, right? Similarly, losing different forms of life makes the planet less healthy.

## **New Toxins**

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We don't pour harmful chemicals down the sink because it can poison the water. On Earth, we need to prevent dangerous or unknown chemicals from polluting our environment.

## **Climate Change**

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We have to keep the Earth's temperature just right, not letting it get too hot from too much carbon dioxide and other greenhouse gases in our atmosphere.

## **Air Pollution**

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This one is about tiny particles in the air, like dust or smoke. Too many of these can cause problems like making the air dirty and affecting weather patterns.

## **Fresh Water**

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We need fresh water to drink, and to grow all our food. We must use Earth's freshwater wisely and not take more than what is sustainable.

## **Nitrogen & Phosphorus**

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Nitrogen and Phosphorus are nutrients that plants need, like fertilizer. But too much of these nutrients can damage the environment, especially water bodies like lakes and rivers.

## **Ozone Layer**

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Think of this as Earth's sunscreen, protecting us from harmful sun rays. We need to make sure this protective layer isn't damaged by chemicals we release into the air.

## **Ocean Acidification**

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In your fish tank at home, if the water gets too acidic, the fish get sick. The same happens in the ocean, harming corals, fish, and all sea life.

## **breaking boundaries: the science of our planet**

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The below video is a 10-minute summary of the incredible Netflix documentary, 'Breaking Boundaries'. Narrated by Sir David Attenborough and featuring Johan Rockström and a cast of world-leading scientists, Breaking Boundaries tells the story of the most important scientific discovery of our time - that humanity has pushed Earth beyond the boundaries that have kept Earth stable for 10,000 years, since the dawn of civilization.

## **About the Tyler Prize**

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## **For Brilliance in Environmental Science**

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Founded in 1973 by John and Alice Tyler, the Tyler Prize for Environmental Achievement is awarded for environmental science, health and energy conferring great benefit upon humanity.

Recipients of the Tyler Prize are honored in an illustrious ceremony, presented with the Tyler Prize medallion and awarded US\$250,000.

Administered by the University of Southern California.

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