# Scientific Definition of Sustainability:

# Watch: Sustainability explained with simple natural science https://www.youtube.com/watch?v=eec0UYGIeo4&list=PLEXqjIYY5zi6hWCvm5idXYLH2Qtv7fT-f

What is the “Brundtland” definition of sustainability?

Developing a Scientific Definition requires that Scientists agreed on some facts:

* We live in the biosphere
  + *Define Biosphere:*
* Plants and Animals have a quick, balanced cycle (Carbon and Oxygen Cycle)
* Biosphere is Open in respect to energy
* Biosphere is Closed in respect to matter (1st Law of Thermodynamics)
  + *What is the implication of both of these statements?*
* Everything has the tendency to disperse. (Law of Entropy)
* Solar Energy is used via Photosynthesis to re-order and structure matter
  + What are the implications of this?
* Other slower geological cycles bring matter from the earth’s crust to the Biosphere and these cycles are balanced. (Carbon, Nitrogen, Phosphorous)
* Left to their natural device, natures cycles are in balance

So what does this tell us?

SUSTAINABILITY IS THE CAPACITY OF OUR HUMAN SOCIETY TO CONTINUE INDEFINITLY WITHIN THE NATURAL CYCLES

What are humans doing that interrupt these cycles? (search for your answers)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Carbon Cycle | Nitrogen Cycle | Phosphorous Cycle |
| Importance |  |  |  |
| Human Disruption |  |  |  |
| Repercussions |  |  |  |

Major Disruptive & Environmental Stressors

1. Relatively large flows of materials from the earths crust
2. Accumulation of substances created from society
3. Physically inhibit natural cycles
4. Barriers to people meeting their basic needs worldwide

Summarize each of the cycles below with a diagram you find online that makes sense to you

Carbon Cycle:

Nitrogen Cycle

Phosphorous Cycle