

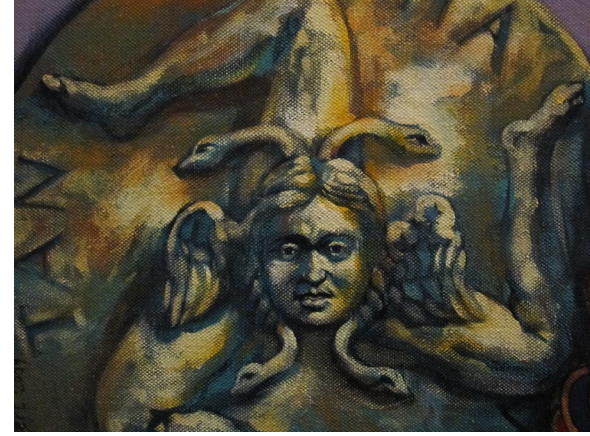
Week2 The Environment



Giovanni



Professor Novellino



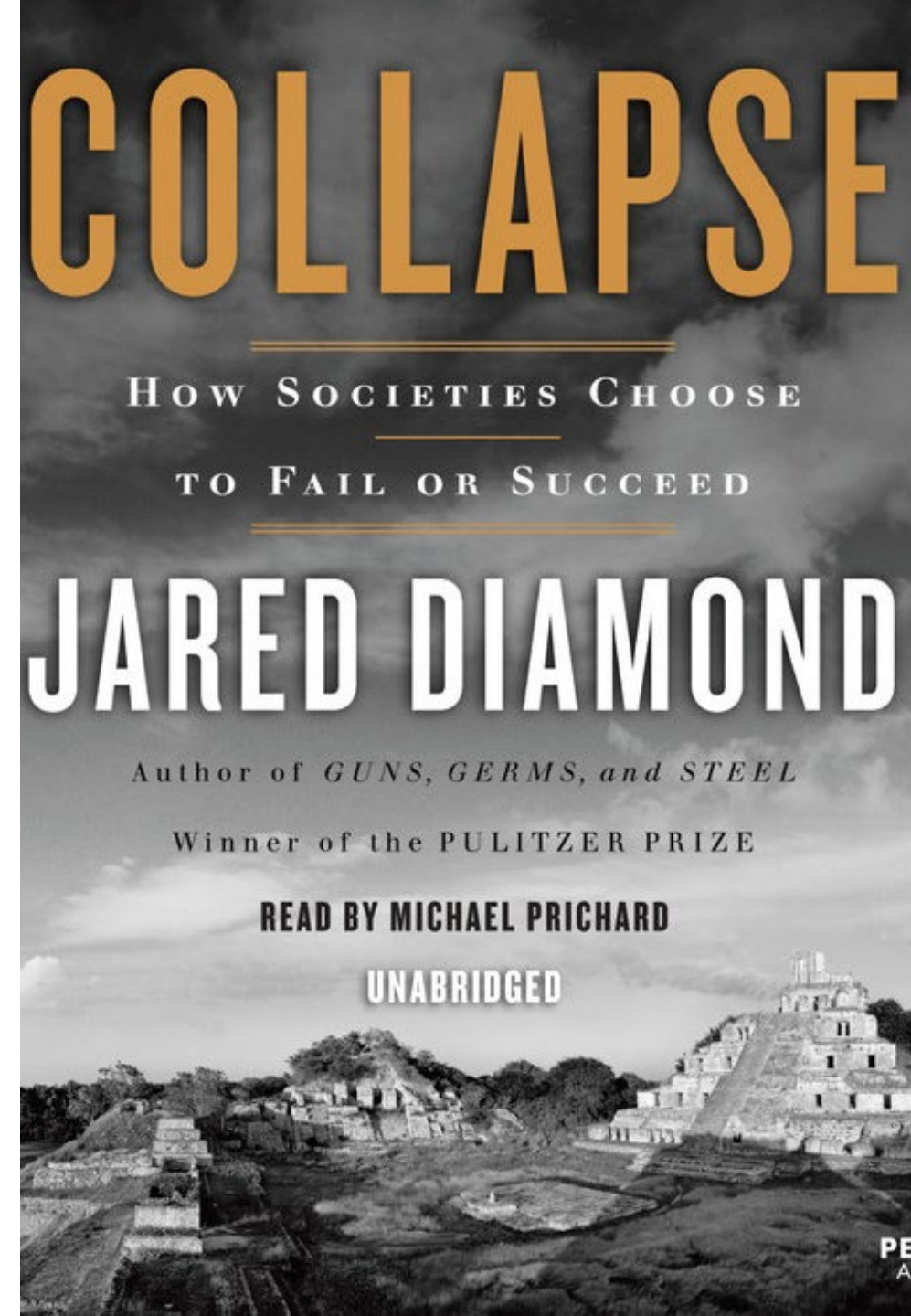
FABRIZIO NOVELLINO

Courses: History of the Mafia,

- Violence is the Mafia's primary asset.
- It is near to impossible for the individual citizen to stand up to the mafia.
- The only way past the mafia is to strengthen and enforce democratic force.

5 point framework to

1. Anthropogenic induced environmental change
2. Climate change/natural hazards
3. Hostile neighbors
4. Decreased support from once friendly neighbors
5. Societal response



Collapse cont. - Societal reactions

1. Failure to perceive the problem
2. Recognize the problem but choose to do nothing about it
2020 version recognize the problem, work to mislead the public for short term economic gain
3. Recognize the problem work effectively together, but it is not enough

Psychology of well-being

Podcasts

- You can change
- Making the grade

**THE
LAB
HAPPINESS**

Create and practice constructive habits

You need to work toward happiness every
day

Individual and collective happiness

Making the grade

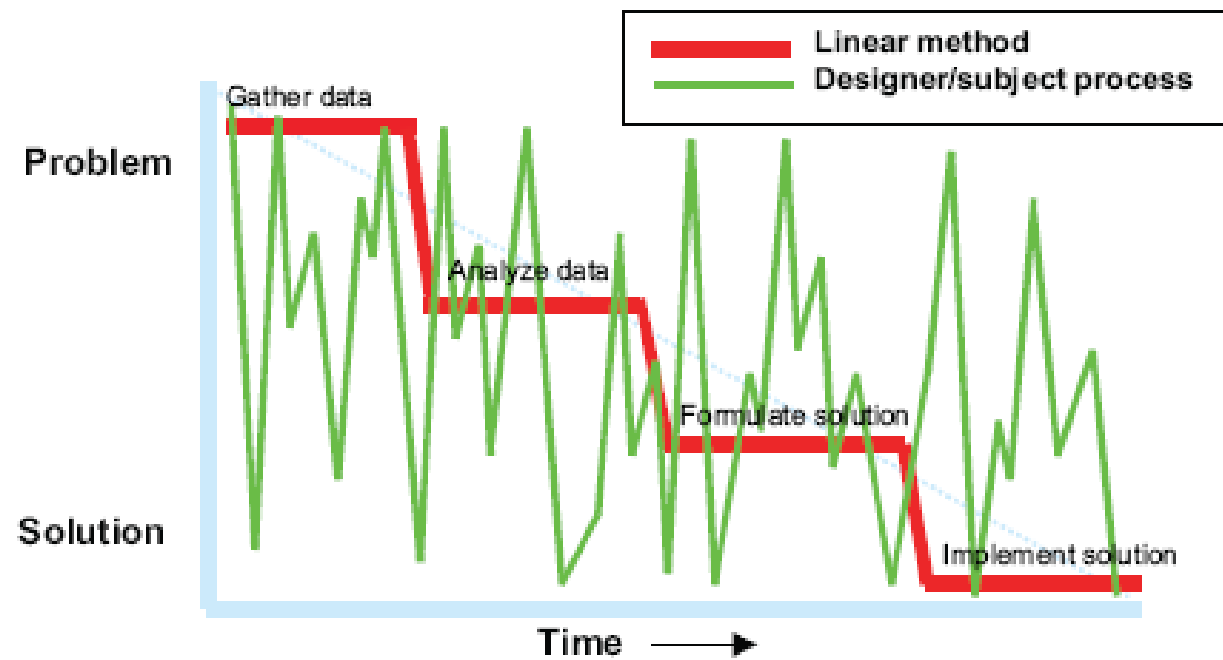
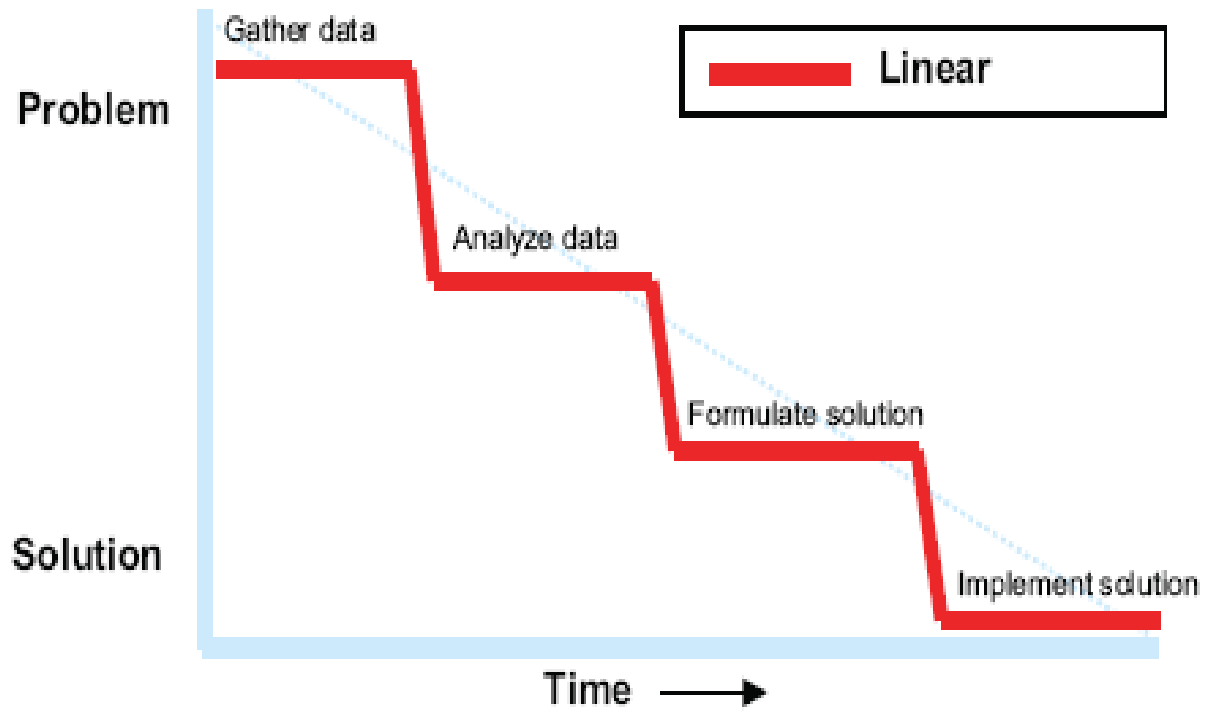


Wicked problems

- You commonly don't understand the problem until you have tried to develop a solution...
- Wicked problems have no stopping rule / No ONE solution
- Solutions to wicked problems do not fall into simple right or wrong categories...
- Every wicked problem is essentially unique and novel...

Complicating factors...

- Working together to address a shared problem is difficult. Collective intelligence is a natural property of socially shared cognition, a natural enabler of collaboration.
- Complicating factors of working together include – A. Increasing the number of people working on the problem, B. Diversity of people working on the problem (gender, ethnicity, political and or religious affiliations etc.)
- Forces of fragmentation – Natural forces that challenge collective intelligence / Forces that doom projects and make collaboration difficult to impossible.
- Simple/tame problems vs. Wicked problems – Simple/tame problems tend to be linear



Taming a wicked problem

- Lock down the problem definition - Develop a description of a related problem or a sub-problem that you can solve, and declare that to be the problem
- Assert that the problem is solved - Since a wicked problem has no definitive solution, the whole point of attempting to tame it is so that a solution can be reached
- Specify objective parameters by which to measure the solution's success - This taming approach amounts to locking the problem down (point 1), however, because what is measured becomes, officially and by definition, the problem. Whatever is not measured is then free to absorb the real problem
- Treat the problem as unique do not use the solution to a similar problem...

- How can a group reach an acceptable solution if the stakeholders cannot agree on what the problem is? The answer to this question – and the *Holy Grail* of effective collaboration – is in creating shared understanding about the problem, and shared commitment to the possible solutions.
- Shared understanding - Shared understanding does not mean we necessarily agree on the problem.
- Shared understanding means that the stakeholders understand each other's positions well enough to have intelligent dialogue about the different interpretations of the problem, and to exercise collective intelligence about how to solve it.

The Earth is Diverse



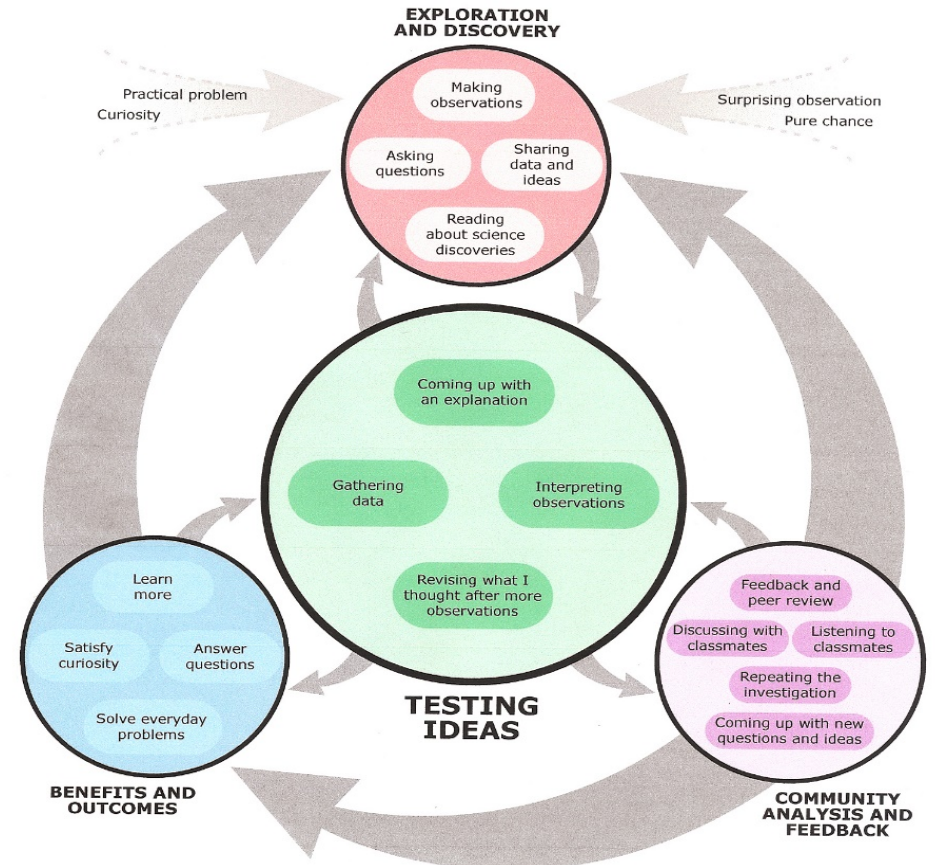


Big Idea #1

Earth Scientists use repeatable observations and testable ideas to understand and explain our planet.



How science works



Big idea #2

Earth is 4.6 billion years old.

- Earth's rocks and other materials provide a record of its history
- Life on Earth began more than 3.5 billion years ago.
- Over Earth's vast history, both gradual and catastrophic processes have produced enormous changes.



Big idea #3

Earth is a complex system of interacting rock, water, air, and life.

- The four major systems of Earth are the geosphere, hydrosphere, atmosphere, and biosphere.
- All Earth processes are the result of energy flowing and mass cycling within and between Earth's systems.
- Earth's systems are dynamic; they continually react to changing influences.



Big idea #4

Earth is continuously changing.

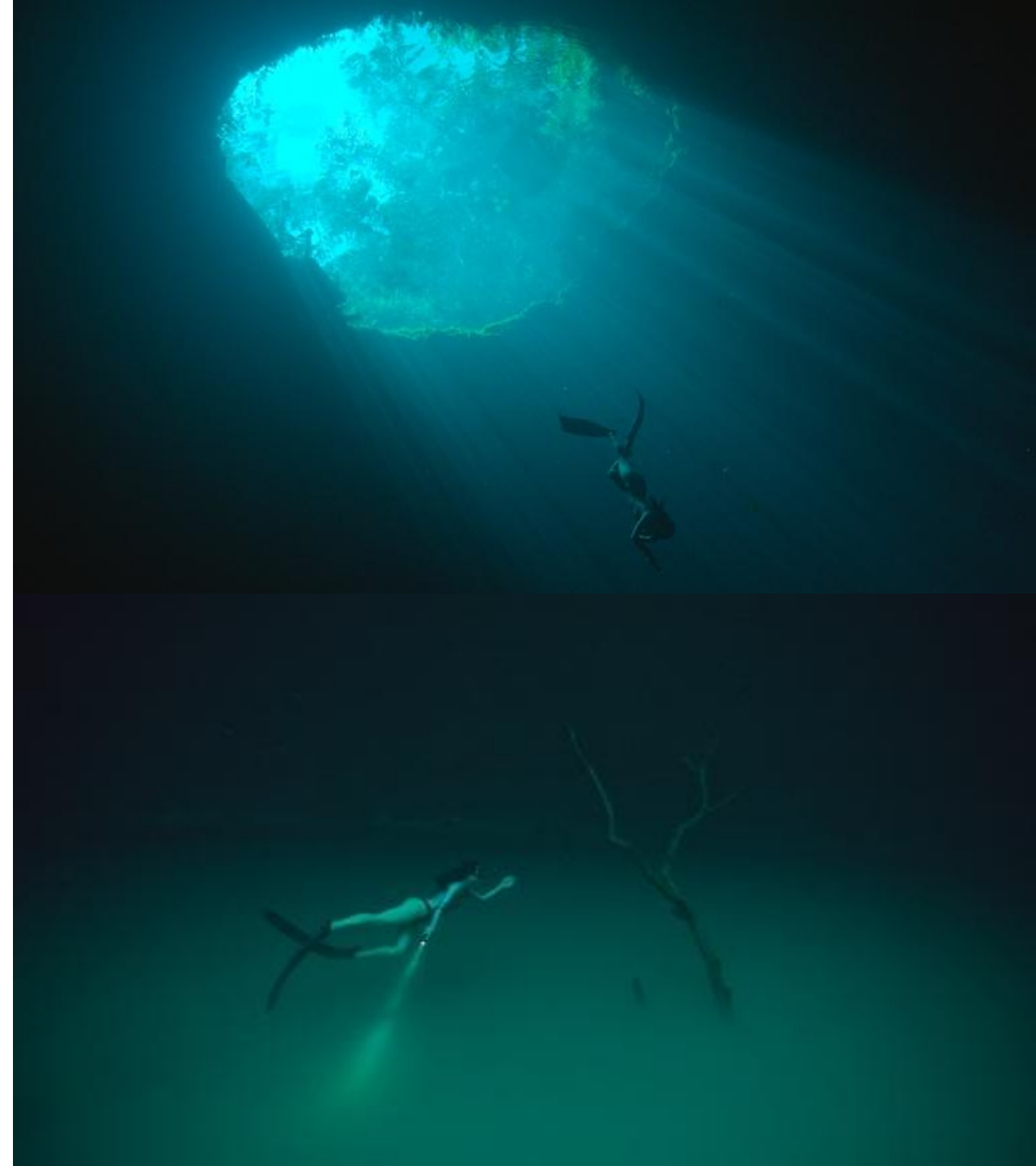
- Earth's geosphere changes through geological, hydrological, physical, chemical, and biological processes that are explained by universal laws
- Earth's interior is in constant motion through the process of convection, with important consequences for the surface.
- Landscapes result from the dynamic interplay between processes that form and uplift new crust and processes that destroy and depress the crust.



Big Idea #5

Earth is the water planet.

- Water is found everywhere on Earth, from the heights of the atmosphere to the depths of the mantle.
- Water shapes landscapes.
- Fresh water is less than 3% of the water at Earth's surface.
- Life and water on earth are connected
 - Life depends on water
 - Water remains on Earth because of life



Big idea #6

Life evolves on a dynamic Earth and continuously modifies Earth.

- Evolution, including the origination and extinction of species, is a natural and ongoing process.
- Biological diversity, both past and present, is vast and largely undiscovered.
- Mass extinctions occur when global conditions change faster than species in large numbers can adapt.



Humans depend on Earth for resources.

- Earth is our home; its resources mold civilizations, drive human exploration, and inspire human endeavors that include art, literature, and science.
- Geology affects the distribution and development of human populations
- Natural resources are limited.

Big idea #7



Big idea #8

Natural hazards pose risks to humans.

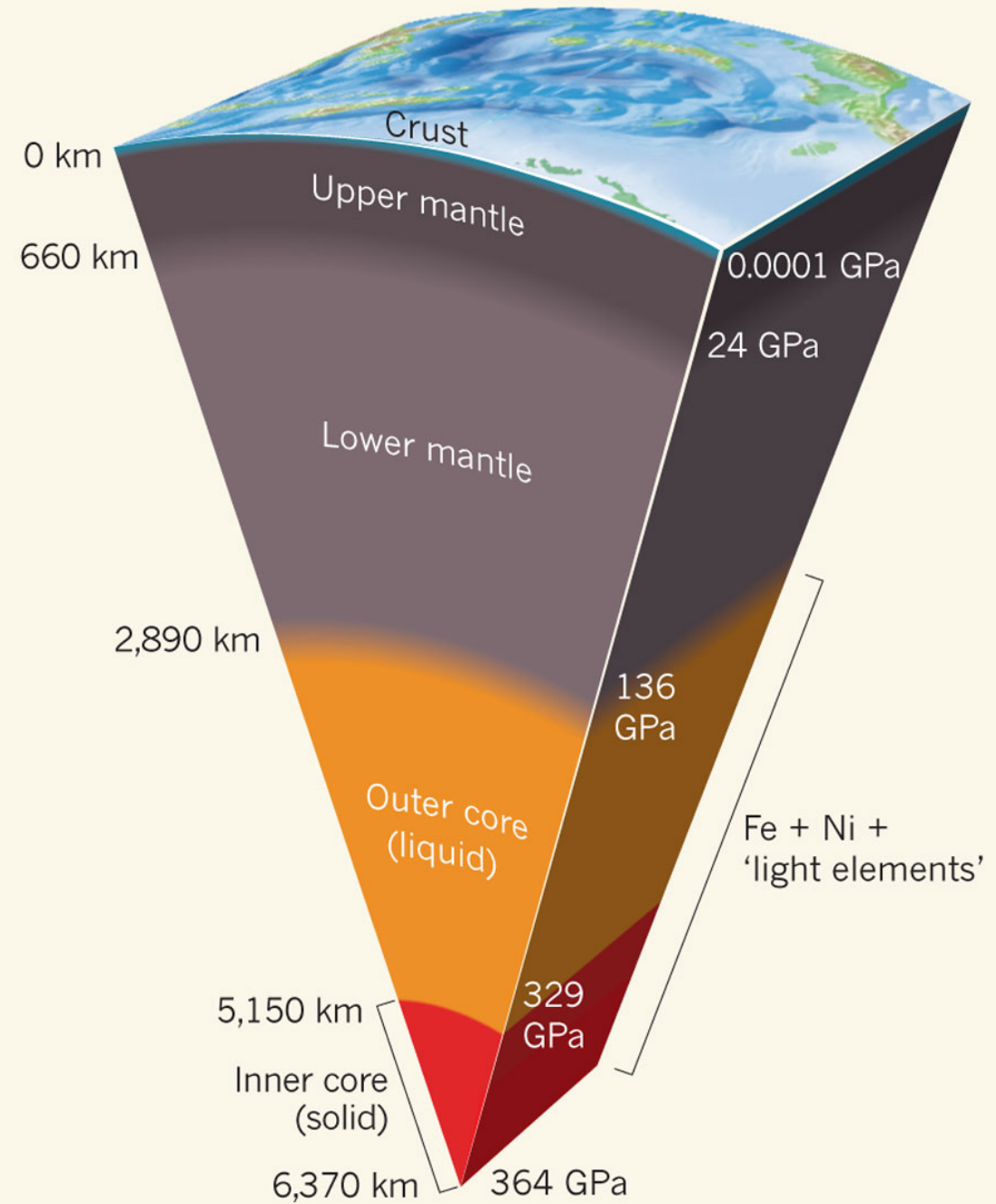
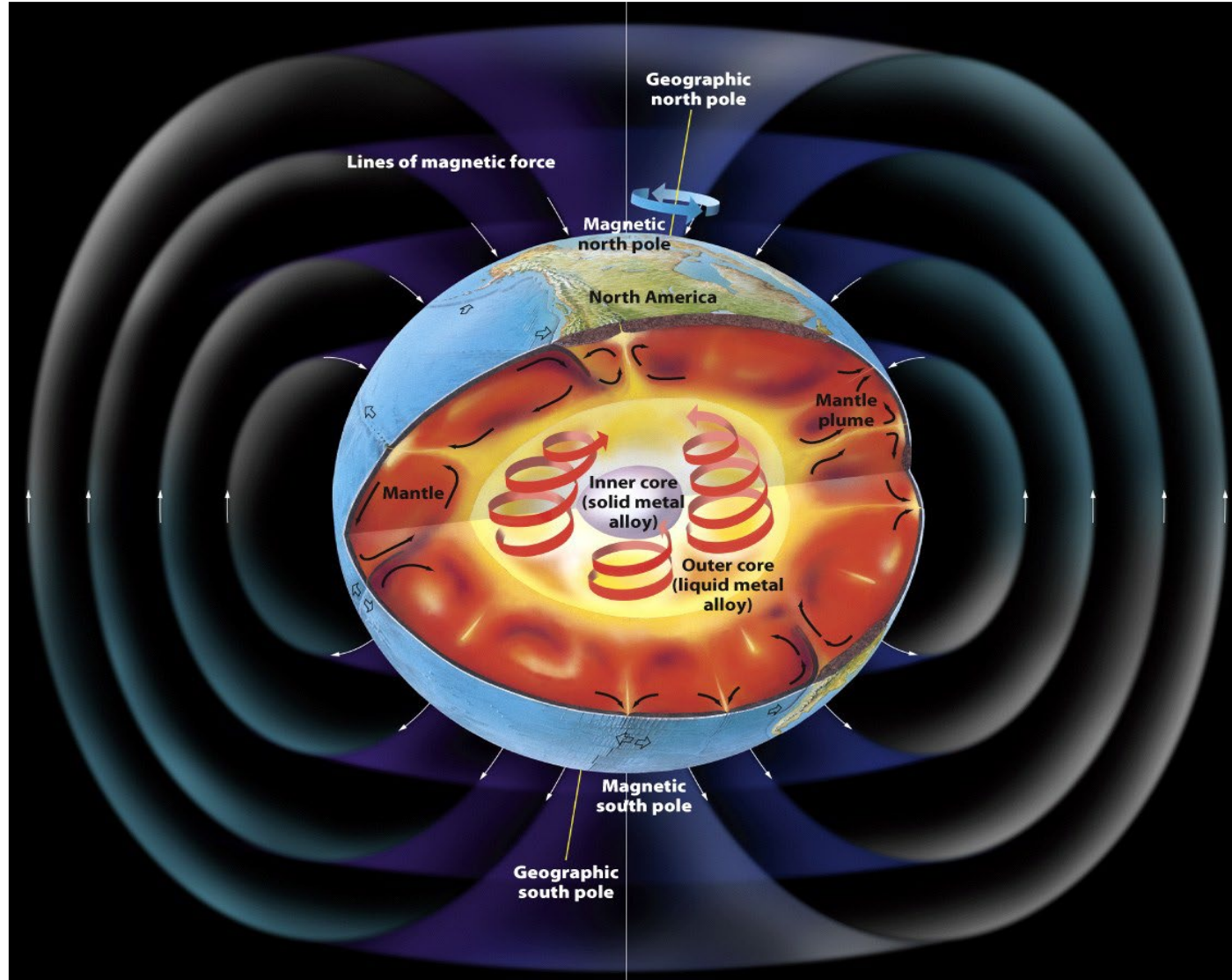
- Natural hazards result from natural Earth processes.
- Natural hazards shape the history of human societies.
- Human activities can contribute to the frequency and intensity of some natural hazards.
- Humans cannot eliminate natural hazards, but can engage in activities that reduce their impacts.



Energy drives Change

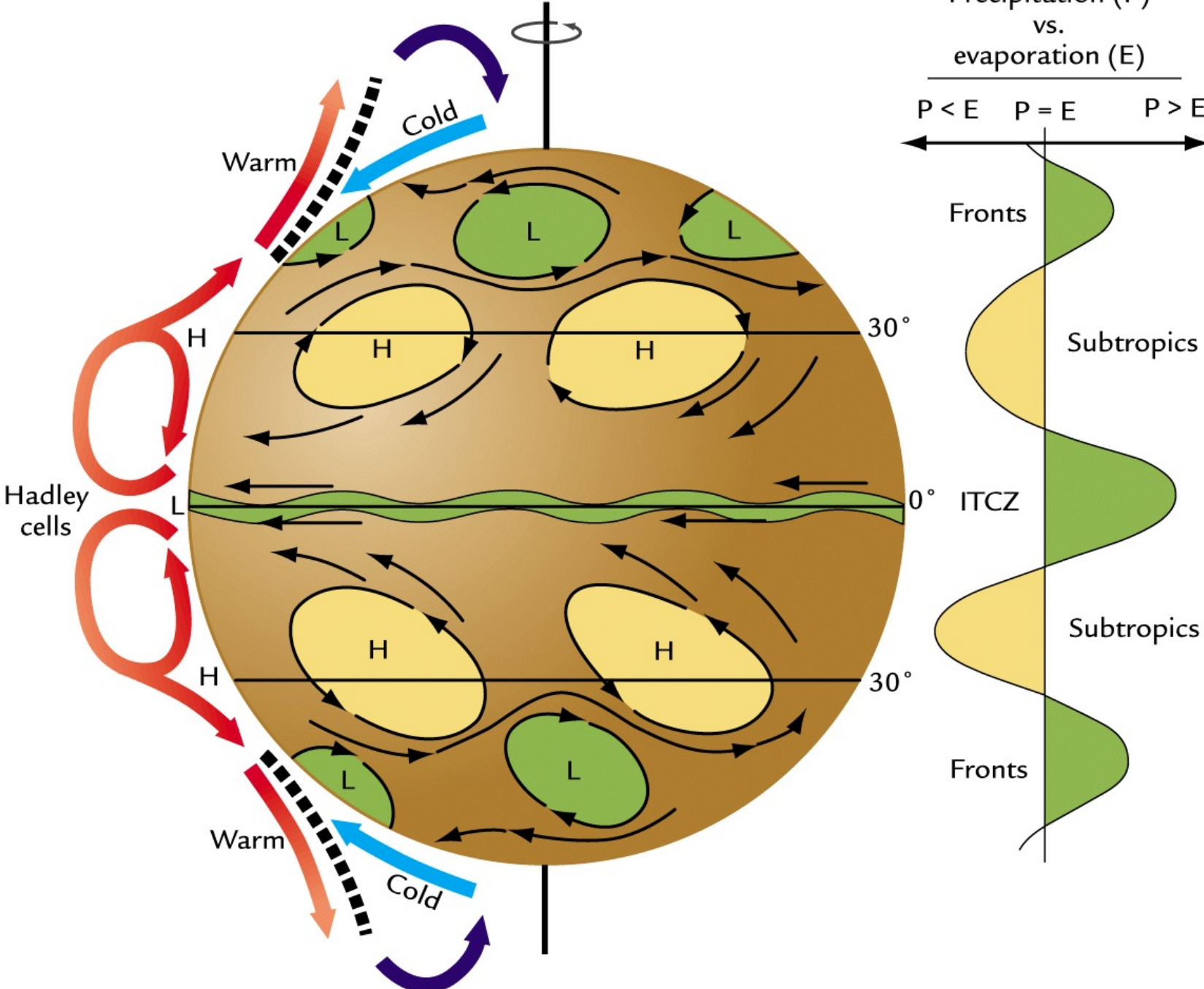


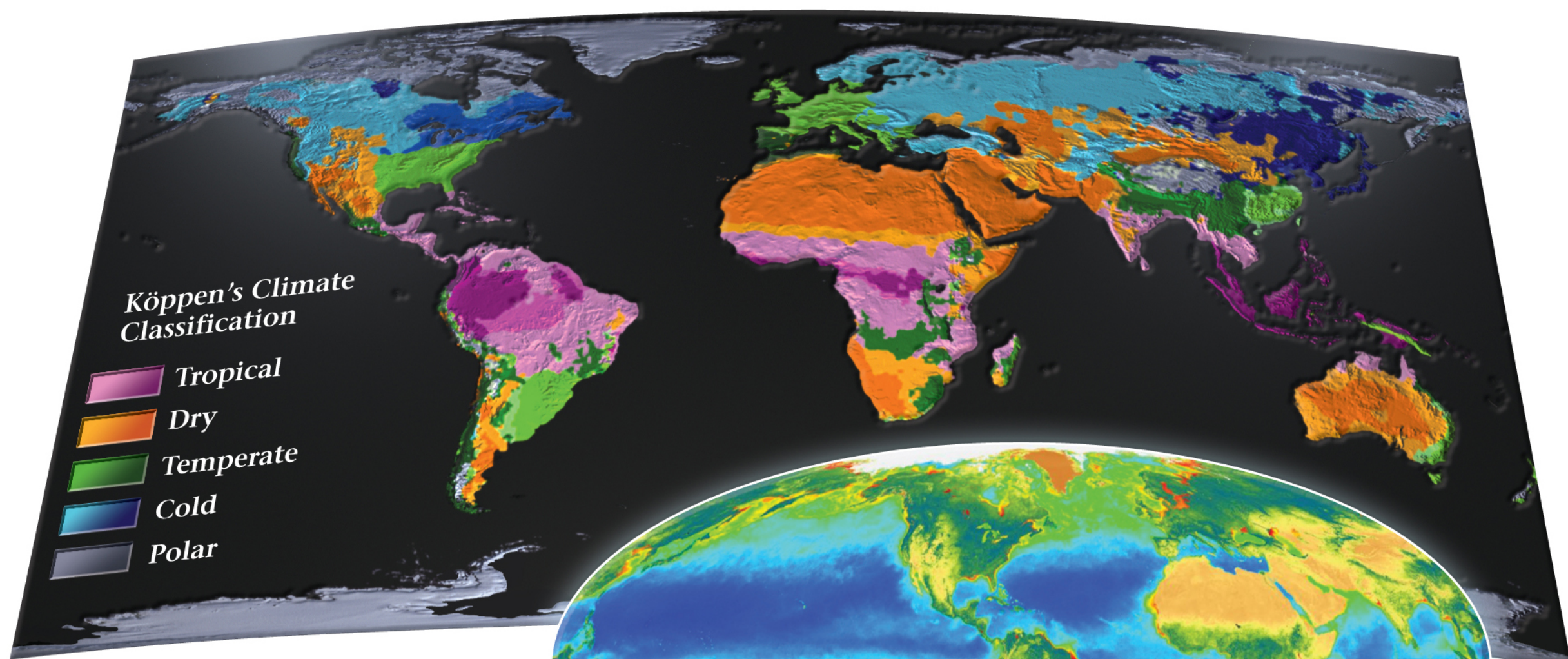
Earth's interior



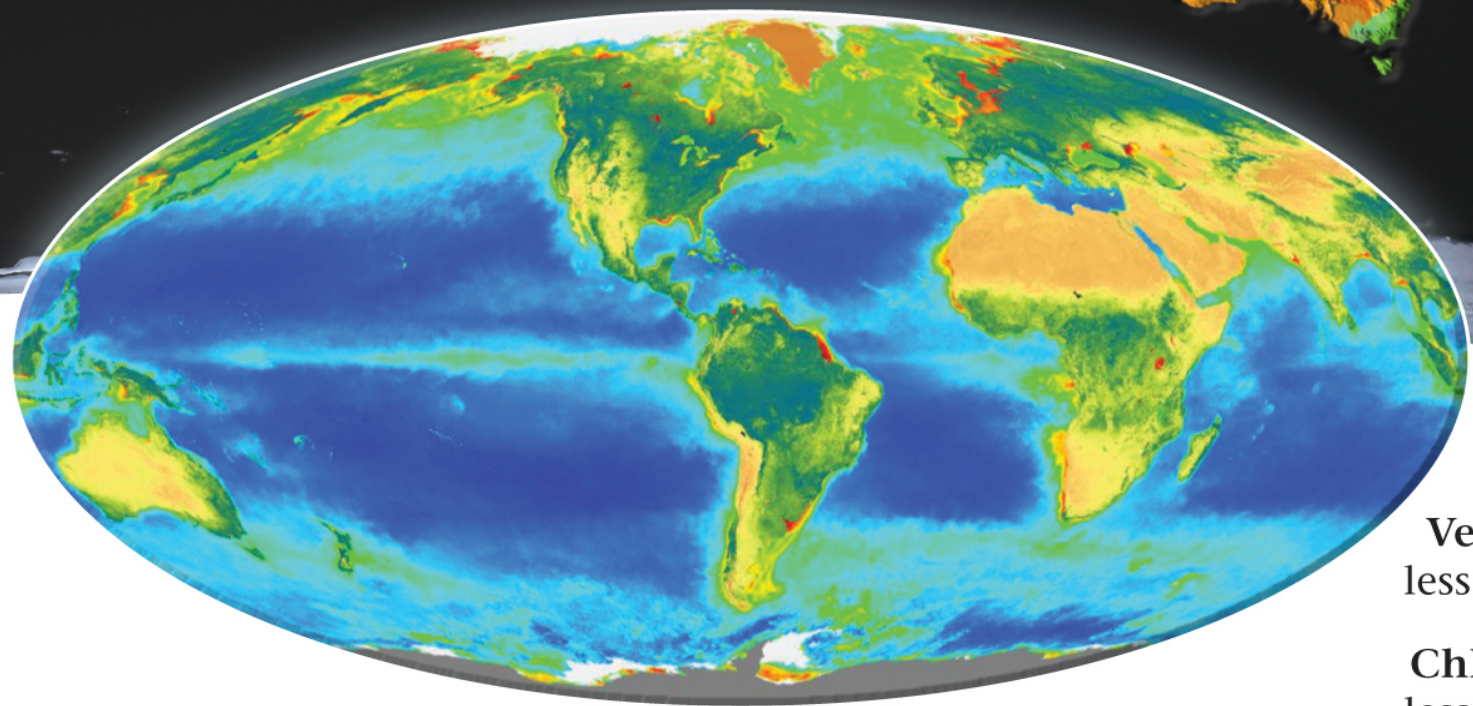
The nuts and bolts of our climate system

Incoming energy
 1368 W/m^2

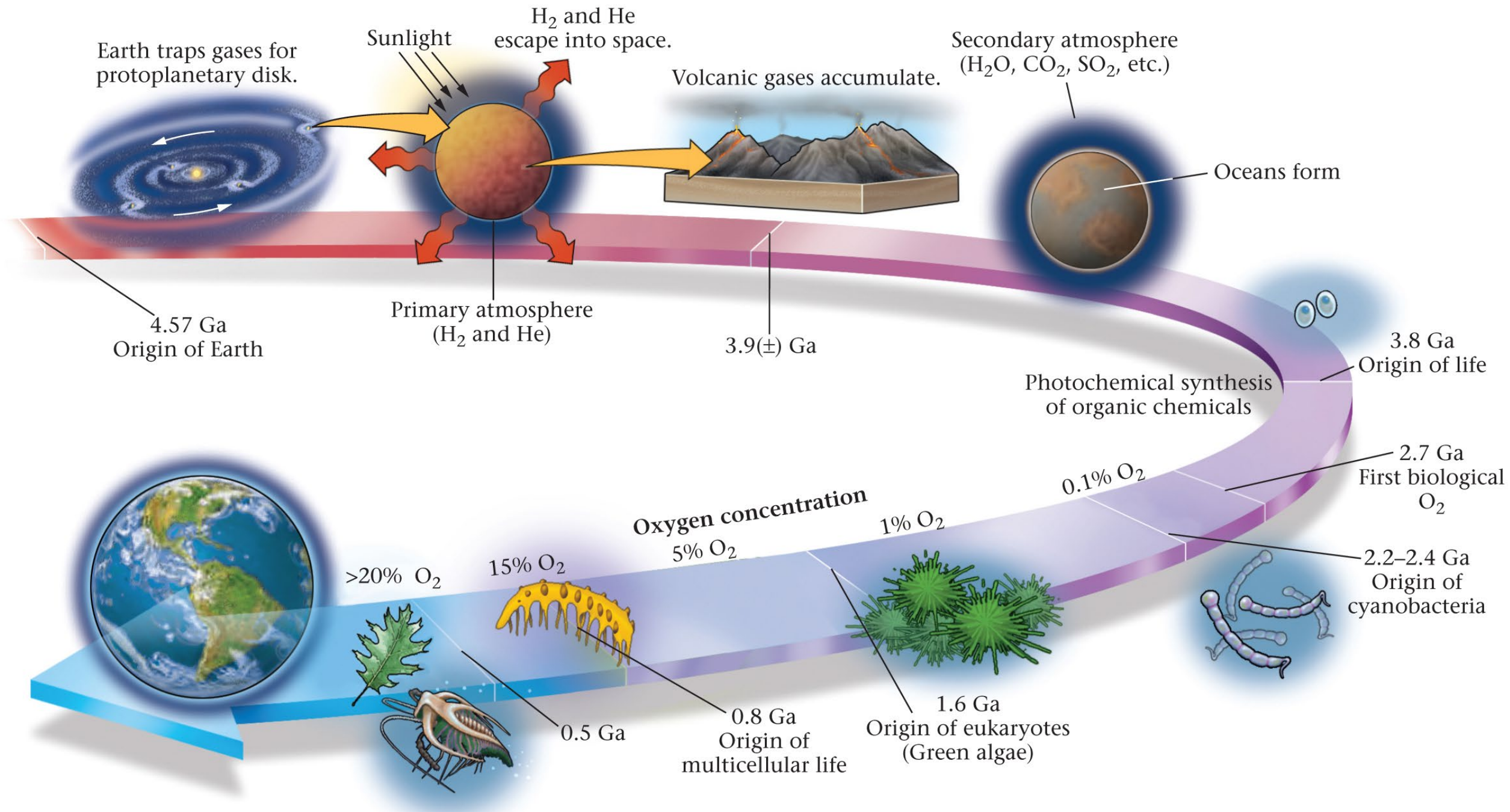




(a)



(b)



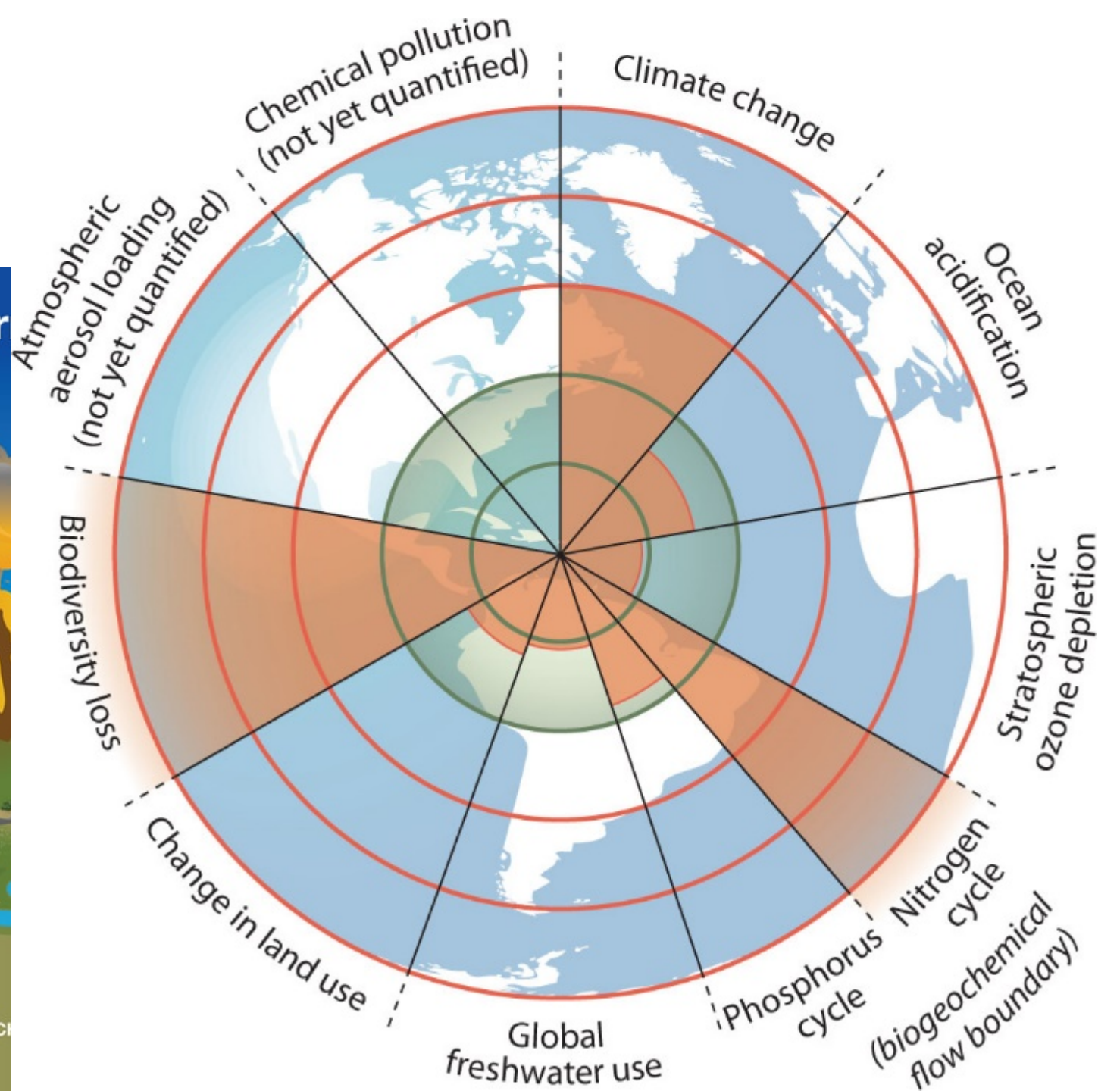
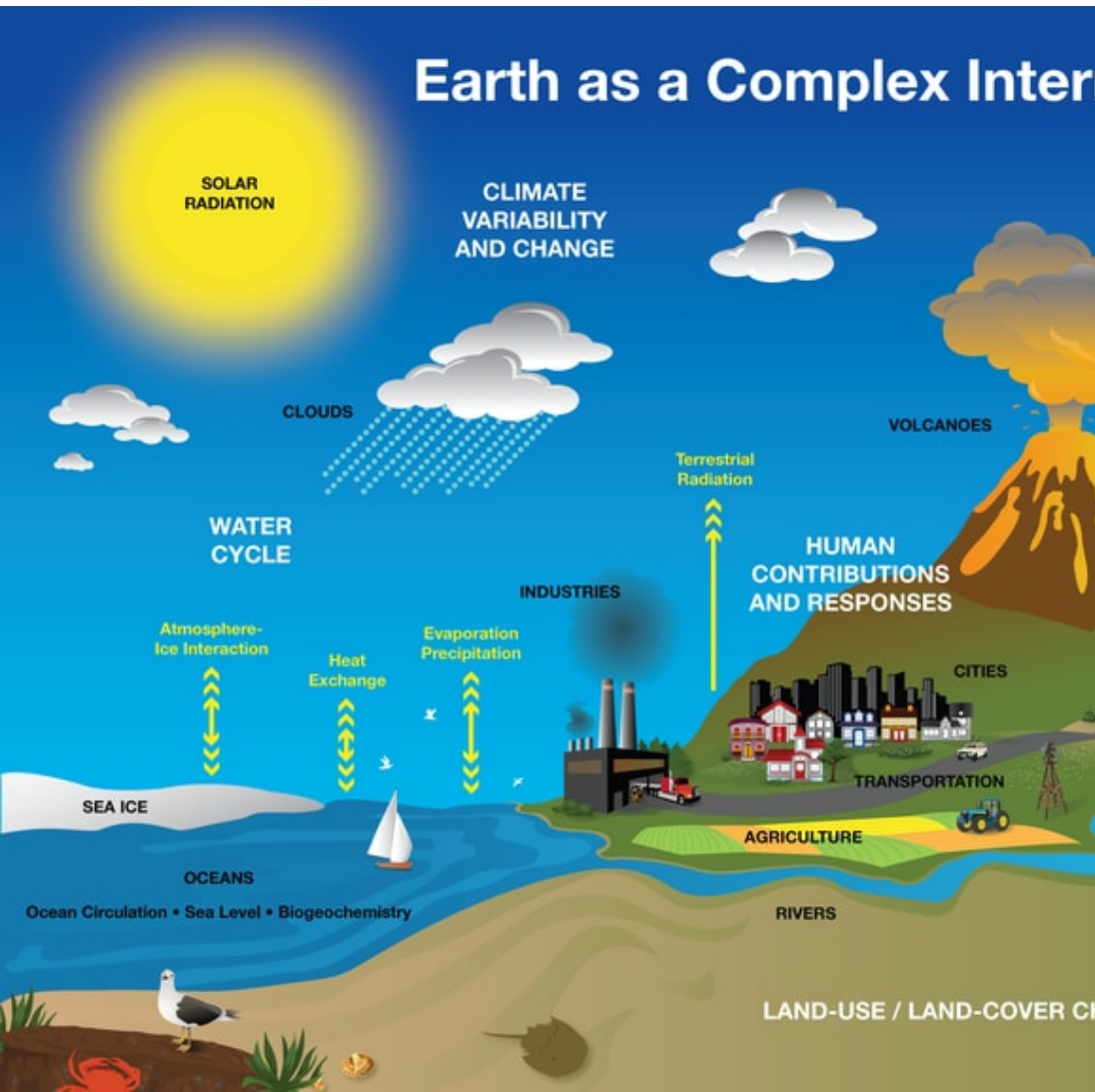
Big idea #9

Humans significantly alter the Earth.

- Humans cause global climate change through fossil fuel combustion, land-use changes, agricultural practices, and industrial processes.
- Humans affect the quality, availability, and distribution of Earth's water through the modification of streams, lakes, and groundwater.



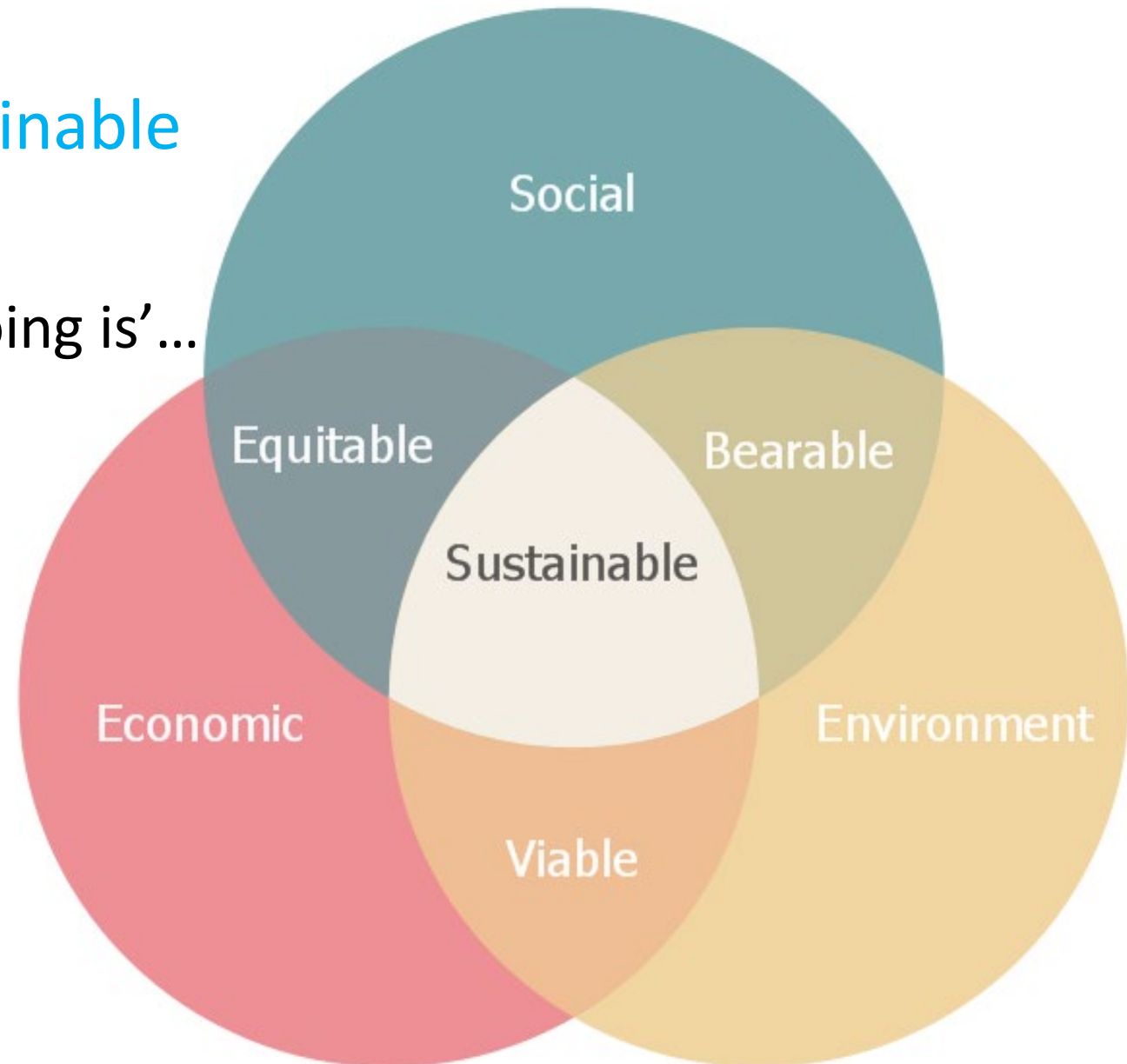
Humans & Earth Systems



Big Idea #10

Environmental Sustainability is Attainable

'It will not be easy, but nothing worth doing is'...









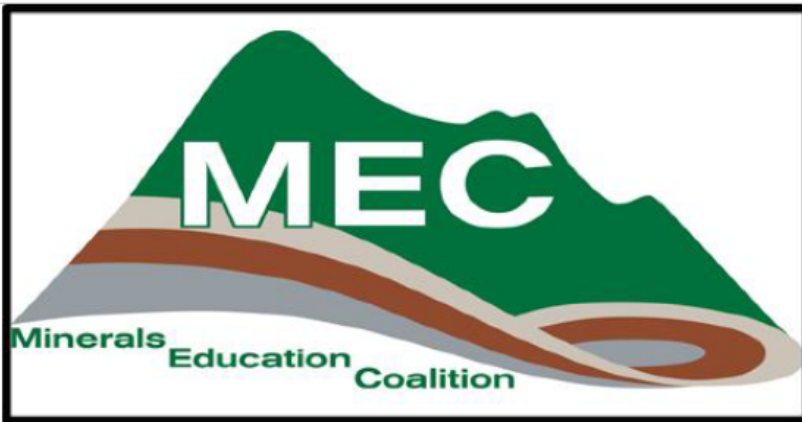












CELL PHONE MINERALS

Cell phones are used for staying connected, Internet access, text messaging, playing games, various applications, entertainment and taking photos. They have mineral components that come from mining.

Think About It: Do cell phones have anything in common with rocks and minerals? Explain. _____

Minerals and Elements in Cell Phone Parts

Arsenic	Amplifier, receiver
Copper	Electrical circuitry
Gallium	Amplifier, receiver
Gold	Electrical circuitry
Indium	Liquid Crystal Display (LCD screen)
Magnesium compounds	Phone casing
Palladium	Electrical circuitry
Platinum	Electrical circuitry
Silver	Electrical circuitry
Tin	Liquid Crystal Display (LCD screen)
Tungsten	Electrical circuitry



Final Project / Final Exam , Due By June 4

- 40 points sustainability Week 4 + 100 points Final = 140 points
- Develop a plan, using a [‘StoryMap’](#), to holistically envision your life over the ten years after graduation. This is an opportunity to: A) Summarize your background and developing skills, B) Select a dream job, location, home, C) Apply the content knowledge of our Environment, Technology and Society course, D) Identify potential road blocks and their solutions and E) Consider your role in your local community and larger civilization.