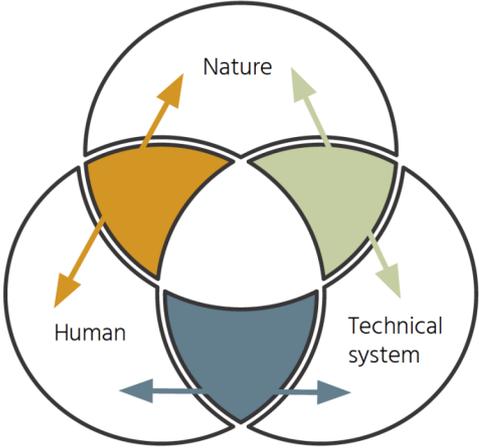


Introduction to carbon



1. Why are we talking about carbon?

- There are interactions between nature, the technosphere and human organizations.
- This cycle is disturbed by anthropogenic activities.



2. What is the link with the project?

Technical system				S <=> N	N <=> H	S <=> H
Stages	Description	Cause / Consequence	Modeling scale			
First life cycle stage : Conception		Cause	Macro			
			Meso			
			Micro			
		Consequence / impacts	Macro			
			Meso			
			Micro			
...						

3. What will you learn?

- Know the different reservoirs of carbon and how the carbon cycle works.
- Know the anthropogenic causes of the disruption of the carbon cycle.

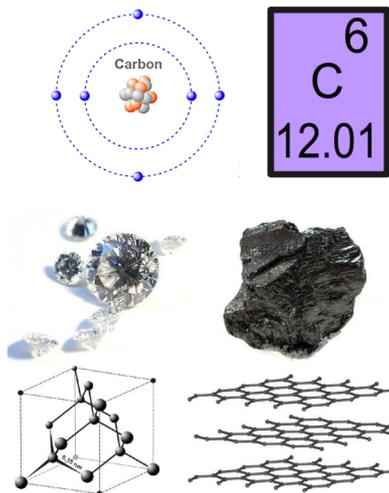
The competences developed are :

- systemic thinking
- critical thinking

4. What is carbon?



“Carbon : the building block of life. You may have heard this sentence, but have you fully considered what it really means? All living things are made of elements, the most abundant of which are, oxygen, carbon, hydrogen, nitrogen, calcium, and phosphorus. Of these, carbon is the best at joining with other elements to form compounds necessary for life, such as sugars, starches, fats, and proteins. Together, all these forms of carbon account for approximately half of the total dry mass of living things.”



Carbon atom model, diamond and graphite
(Sundqvist, 2021)

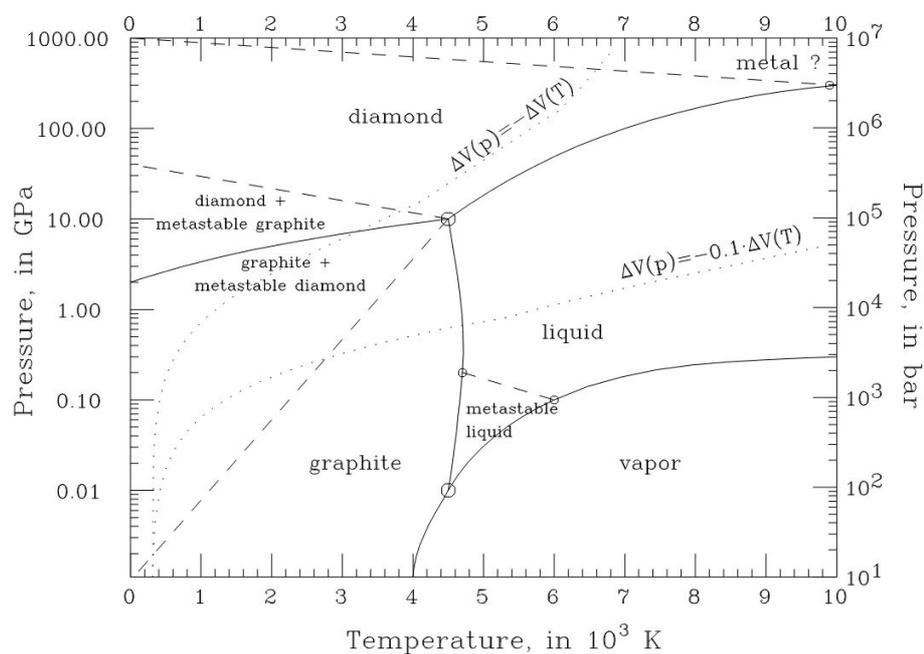
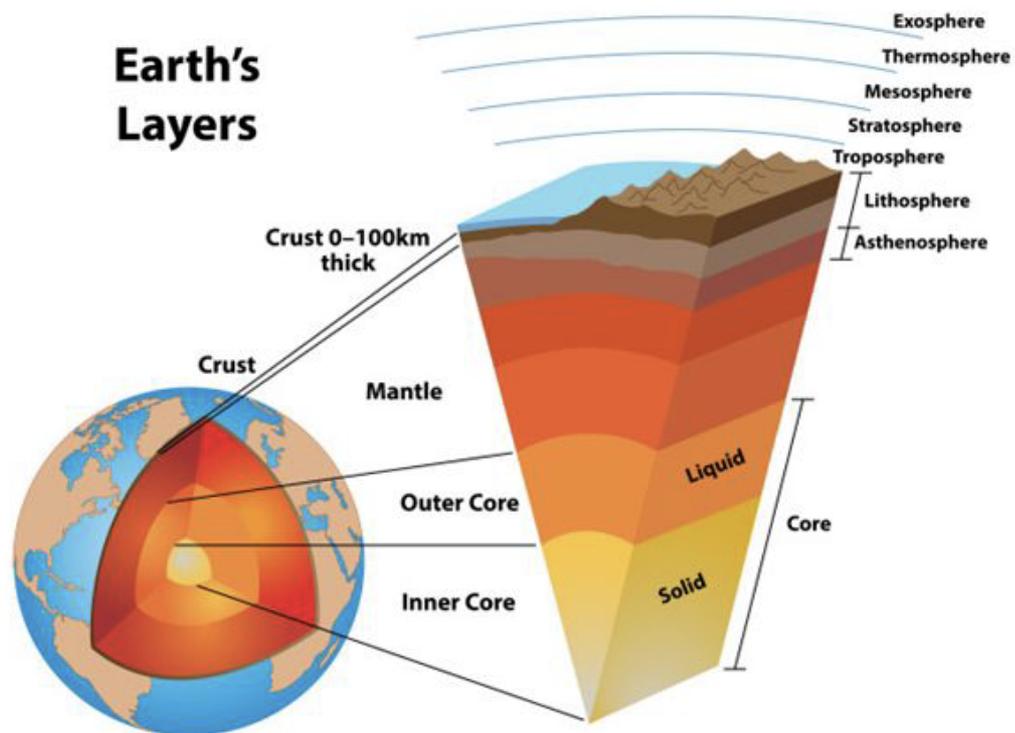


Figure : Phase diagram of carbon taken from
<http://cds.cern.ch/record/691793/files/project-note-78.pdf>

5. Reminder : Earth's Layers



Video to watch

https://www.youtube.com/watch?v=QCKr-rP_o5U

6. Media

<https://pod.utt.fr/video/4140-carboncycle-video1mov/>