



Grade 9 EAL Lesson: Familiarizing with Systems Thinking for a Sustainable Development

(Submitted by Andres Lio Busquet, 2017, while serving as EAL Teacher at International School of Havana, Cuba)

Tool(s) used:	<ul style="list-style-type: none"> • Sustainability Compass • Systems Iceberg
Purpose of using tool:	<ul style="list-style-type: none"> • Generating Questions • Synthesizing Thinking • Guiding Discussion • Vocabulary building <p>Overview:</p> <p>Compass tool encouraged students to look at all communities from different angles, and how sustainable they were or not. Pupils also connected SDGs with the four components of the compass tool and discussed how systems thinking has been used in order to tackle global issues. The Iceberg tool contributed to discussing about origins of problems, how they have evidenced through the years.</p>
Context of lesson/case study:	EAL lesson
Participants (# and description):	IGCSE students from Grade 9
Topic, Theme, or Key Understanding of unit/project:	Familiarizing with Systems Thinking for a Sustainable Development
Length of unit/project:	Approximately 8 hours
Resources/materials & setting required:	<p>Posters, post-it notes, markers, whiteboard, data show + video, T-chart, strings, glue.</p> <p>Setting: General classroom; students sitting around table or moving around when necessary, depending whether there was group work involved or not.</p>
Lesson Plan/Description of the Project:	
<ul style="list-style-type: none"> • Introduction of topic through movie “The Giver” and the concept of what a perfect community may be like. • T-chart highlighting what would make a perfect community as opposed to an imperfect community (after group work, mark with an asterisk which of the elements in the chart coincide with our modern world). Students then must reflect and write ideas/conclusions on bottom part of chart. • Introduction of Systems Thinking: What is a system? Discussion using communities as examples. Videos on the importance of Systems thinking. Why is it necessary to analyze systems in our everyday life? Representing a system: Common agreed format by the group through discussion: Act-out. • Analysis of the community portrayed in the movie the Giver by representing its features portrayed in the movie with the help of a Compass tool introduced. (Looking at a community from every angle: 	





Nature, Economy, Society and Wellbeing: discussion and poster making).

- Establishing a contrast with the community presented in “The Giver” and our own society/ community/ world: What solutions do you propose? (debate)
- Topic of sustainability is introduced in the chart, as well as all the SDGs. SDGs icons and symbols are matched with their corresponding explanations taken from the UNO website (“Verb harvest” activity to highlight usage of formal register of language.)
- Analyzing how SDGs related to the compass tool (Nature, Economy, Society and/or Wellbeing). Students spread SDGs icons on Compass poster, and discuss how systems thinking has guided the development of goals to propose solutions to global issues.
- Students must connect every SDG with another on their own (Students are distributed some SDGs, and they need to think of instances in which any of these SDGs may be used. Students need to establish connection between the SDG and its implications with other SDGs> Strings are used to physically connect SDGs with another while students are in circles in class).
- How to analyze problems using another tool: The iceberg. Introduction to the levels and what they represent. Discussion of concrete issue to illustrate levels of the iceberg.
- Understanding iceberg levels better: students are distributed slips of papers with some notes or phrases. Sorting out notes across the iceberg, in order to distinguish between Events, Patterns of behaviour (which evidence trends and development over time) , System structures (which emphasize the implications derived from other realities; i.e possible causes and their connections with compass tool) and in the end they need to come up with Mental modes derived from those. (Discussion activity on ways to draw assumptions, ways of thinking and beliefs underlying system structure).
- Final proposals shared by students.

Teaching Tips/Ideas:

- EAL students need to be coached and guided along the way; otherwise, they may get lost in the abstraction of the language involved and their implications. For many EAL learners thinking abstractly in a foreign language is still a huge challenge.
- It is advisable to devote some activities or lessons to the meaning of the components of the tools and their exemplification in order to avoid misunderstanding.

Reflection

Plusses (Things that went well):

- Students engaged in deeper reflection despite their lack of vocabulary and language fluency.
- The tools guided students’ thinking and critical analysis of issues presented. The compass broadened their minds as to where to look when identifying possible causes or implications of issues in real life.
- Students familiarized with the tools and were able to discuss, explain and refer to the different components of the compass, as well as the various levels of the Iceberg; which evidenced the learning of the new input.

Challenges (Things I would change):

I would add more elements of research into the project, which I did not do this time due to time constraints.

Suggestions for other practitioners and educators:

- When students work on the iceberg, it is necessary to guide them along the different stages and ask them to synthesize the information as much as possible.
- Try to always depart from an attractive and appealing source: movie, real-life anecdote; issue that involves them as part of a community, ect. in order to guarantee motivation and that students see how





meaningful this experience is to them.

Evidence and Resources:



Evidence of Activities

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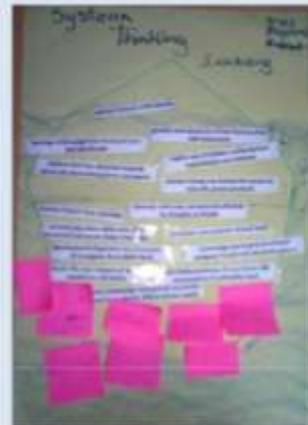
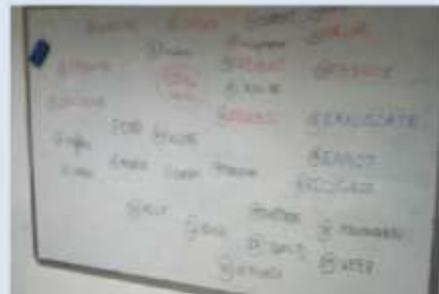
EAL students working on T-chart with Mr. Michael Lees (School Director) on T-chart highlighting what would make a perfect community as opposed to an imperfect community. Students then must reflect and write ideas/conclusions on bottom part of chart. Details of the poster created. >>>>>>>>



Students acting out a systems: They chose A Cuckoo clock to demonstrate how each component had a distinct role, but also depended on the other components' well-functioning. Images show the girl moving hands as pendulum, while others at the back perform the second, minute and hour hands, the one underneath is the cuckoo.



Analyzing how SDGs related to the compass tool (Nature, Economy, Society and/or Wellbeing). Students spread SDGs icons on Compass poster, and discuss how systems thinking has guided the development of goals to propose solutions to global issues. SDGs icons and symbols are matched with their corresponding explanations taken from the UNO website ("Verb harvest" activity to highlight usage of formal register of language.)



Understanding iceberg levels better: students distributed slips of papers across the icebergs, in order to distinguish between Events, Patterns of behaviour (which evidence trends and development over time), System structures (which emphasize the implications derived from other realities. Final proposals shared by students on the icebergs. Mental Modes added on post-it notes by students.

Other instances when icebergs have been used as thinking tools to analyze problems and their causes

