Grade 5 Service Learning: Plastic Pollution
(Submitted by Lucy Thompson (Classroom Teacher) and Sujata DeHart (ES Service and Sustainability Coordinator), 2018, while serving at International School of Kuala Lumpur, Malaysia)

Tool(s) used:
- Sustainability Compass
- Pyramid Lite (VISIS) Introduction
- Behavior Over Time Graphs
- Causal Loop Diagrams
- Triangles Game
- Ladder of Inference

Purpose of using tool:
- Research
- Generating Questions
- Synthesizing Thinking
- Guiding Discussion
- Decide on Action

Overview:
Students were interested in the issue of plastic pollution, so we decided to investigate it further using VISIS. From our investigation, we made decisions on actions we could take to help solve the problem.

Context of lesson/case study:
G5 service learning project

Participants (# and description):
21 students in a Grade 5 classroom

Topic, Theme, or Key Understanding of unit/project:
Plastic Pollution

Length of unit/project:
1-2 times a week throughout the year

Resources/materials & setting required:
News online, news articles, chart paper, string/cardboard, markers, sticky notes, technology/resources dependent on their action ideas

Lesson Plan/Description of the Project and Evidence:


SAVE THE EARTH FROM PLASTIC
Students linked the SDGs to their vision. Then, we used the compass points to help us look at the issues around plastic in a broad sense.

Students used the indicators to make a series of Behavior over Time Graphs (BOTGs) to demonstrate the patterns the indicators have shown.

Systems Analysis

Students began making connections between the BOTGs by creating causal diagrams. After making an initial diagram, they began to look for feedback loops. These loops they outlined in marker to see them more clearly. There were some small loops and some big loops.
Systems Analysis
Students participated in the causal circle game to understand feedback loops that and what is needed to ensure they are sustainable.

Systems Analysis
After playing the circle game, the students returned to their causal diagrams and reexamined their observations. The started to look for leverage points (the indicators that were most significant to the loops), where we could make the most change.

Guiding Questions
1. What is an indicator that has many arrows coming in and out of it? What does this say about the indicator?  
2. Choose an indicator - what would happen if you could change that one? How would it effect other ones?  
3. Are there indicators where there are many causes, but no effects? Why is that? What do you think that means?  
4. Are the feedback loops sustainable? Why or why not?  
5. What other noticing/wonderings can you make from your causal diagrams?

Systems Analysis
Students presented their ideas to each other on the leverage points they found and we created a list of observations.

Observations from Groups
- Amount of Fossil Fuels to make plastic - can we make something like plastic without FT? (alternatives to plastic)
- Beaches have a lot of plastic, impacting underwater life
- People complaining about using plastic - increase the voice
- Ease of Accessibility and Habit of Using plastic have many connections and make loops
- Change causes feeding a habitat of using practice, it will change the loops
- More education the harm of using plastic, so they are more aware
- Dead Ends: sickness, loss of water life, etc.
Innovations

Students worked in partnerships to brainstorm ways to break down the unsustainable systems and support our vision.

Strategy

Students brainstormed their different interests/skills. We connected these to our different innovative ideas. Based on their personal interests/skills, they chose the areas they would most like to take action and where they would be most useful.
Reflection

Plusses:

- Consistent use of the Compass Education’s tools in earlier grades would have saved time and deepened understanding, as students would already be familiar with the tool and could focus on the learning.
- The students were engaged in the lessons and made deep connections during the causal diagramming. Their action choices reflect this deeper knowledge. They are also very passionate about the need to tackle this problem and are eager to work outside of class time to ensure their actions take place. Some students are going to restaurants to present their learning.
Challenges:

- Consistent use of the Compass Education’s tools in earlier grades would have saved time and deepened understanding, as students would already be familiar with the tool and could focus on the learning.
- A less spread-out time frame would have also helped, so students could have more continuity in their efforts. Perhaps doing the investigations during a week or two consistently and then doing the action once a week.

Suggestions for other practitioners and educators:

- Block out time every week to work on the service learning project your class is interested in pursuing. Ensure that you take the time to investigate the issue before jumping into action ideas.
- Use the tools often and in different settings, so that the students are familiar with them when you want to use them.