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Life Cycle Assessment: Buying and Selling Climate Change

- HS-ESS3-1. Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.
- HS-ESS3-4. Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.
- SS.912.E.2.11: Assess the economic impact of negative and positive externalities on the local, state, and national environment.
- SC.912.N.4.2: Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.

I. Introduction (5 minutes)

- A. What is PINEMAP and why am I telling you about it?
 - i. PINEMAP acronym
- B. Development of secondary module and my summer work
 - i. 13 activities developed for high school students
 - ii. Pilot testing and research

II. What is LCA and why is it important? (15 minutes)

- A. Stages of LCA
 - i. Raw Material Extraction
 - ii. Material Processing
 - iii. Manufacturing
 - iv. Product Use
 - v. Disposal
- B. Discussion of externalities (PLT Activity 8)
 - i. Definition: an impact on a third party caused by a decision made by a producer or consumer.
 - ii. Positive externality: beneficial to the third party
 - iii. Negative externality: hidden cost for the third party
- C. Explanation of trade-offs between products (PLT Activity 10)
 - i. Example: are paperbacks or e-books more environmentally friendly?
 - ii. What factors should you consider to make this decision?

III. Life Cycle Assessment Presentations (30 minutes: 15 minutes for preparation, 2 minute presentation/group)

- A. Split students into groups of 4-6 students
- B. Have each group prepare a presentation to “sell” a product to the class based on its merits as “environmentally friendly” and having the lowest impact on climate change
- C. Discuss the overall themes shown by each group’s presentation

IV. Conclusion/Reflection (10 minutes)

A. Discussion Questions

- i. What were some things you noticed from the presentations that make a product environmentally friendly?
- ii. What factors were missing that should be considered?
- iii. How can consumers use purchasing decisions to combat the effects of climate change?

B. Conclusion

- i. Are there any questions?
- ii. Secondary Module Website