Based on the LCA for Mere Mortals reading (attached), please answer the following questions.

1. What is Life Cycle Assessment and how is it conducted?
2. What is the difference between cradle to grave, cradle to gate, and gate to grave?
3. What is the difference between primary, secondary, and tertiary data sources?
4. How are scoping, stakeholders and the Life Cycle Impact Assessment related?

Using the Carnegie Mellon EIO-LCA website (http://www.eiolca.net/Method/LCA\_Primer.html), determine the life cycle impacts of The Papadopoulos family holiday gifts. Mrs. Papadopoulos received a new coat worth $100. Mr.Papadopoulos received two tickets to see his favorite hockey team play for $150. Their children received and XBox 1 and accessories worth $500.

a.) The Papadopoulos family lives in the United States and the year was 2013. Which EIO-LCA model should you use and why?

b.) To analyze the impact of the purchases, what EIO-LCA sectors should you use for each member of the household's gifts?

c.) The prices above are in 2013 dollars. [Use the Bureau of Labor Statistics Inflation Calculator](http://www.bls.gov/data/inflation_calculator.htm) to estimate the 2002 prices for each of their gifts.

|  |  |  |  |
| --- | --- | --- | --- |
| Dollars | Mrs.P's Coat | Mr.P's Tickets | Kids' XBox |
| 2013 | $100 | $150 | $500 |
| 2002 |  |  |  |

d.) The Papadopoulos are interested in the greenhouse gases and carcinogenic toxic releases associated with their gifts. For each gift, use the model to find the total greenhouse gas emissions in terms of kg of carbon dioxide equivalent and the range of human cancer risk.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Mrs.P's Coat | Mr.P's Tickets | Kids' XBox |
| Greenhouse Gases - kg CO2E |  |  |  |
| Cancer kg Benzene Eq |  |  |  |

Which gifts have the highest greenhouse gas and carcinogenic emissions? Look at the contributing sectors and try to explain why.

e.) What are the possible drawbacks to using EIO-LCA analysis on these gifts?