

## Life-Cycle Assessment INDIVIDUAL Worksheet

### ~Environmental Impact of Cupcakes~

Record all stages (calculated with class answers):

Throw Away Paper Liner (Landfill)				
Stage	Energy Use	Unit	GHG emissions	Unit
Wet ingredients		kJ		g CO <sub>2e</sub>
Dry ingredients		kJ		g CO <sub>2e</sub>
Baking materials		kJ		g CO <sub>2e</sub>
Oven/baking		kJ		g CO <sub>2e</sub>
Frosting		kJ		g CO <sub>2e</sub>
Disposal (landfill)		kJ		g CO <sub>2e</sub>
<b>Total (12 cupcakes)</b>		kJ		g CO <sub>2e</sub>

  

<b>1 cupcake</b>		kJ		g CO <sub>2e</sub>
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#### Impact Analysis

- How much **energy** is needed to produce **12** cupcakes with paper liners disposed in a landfill? (Be sure to include units.)

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- How much **energy** is needed for **1** cupcake? (*Hint: The answer from "A" is for 12 cupcakes.*)

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- How much **greenhouse gas emissions** are produced from making **1** cupcake with its paper liner disposed in a **landfill**?

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Record all stages (calculated with class answers):

Compost Paper Liner				
Stage	Energy Use	Unit	GHG emissions	Unit
Wet ingredients		kJ		g CO <sub>2e</sub>
Dry ingredients		kJ		g CO <sub>2e</sub>
Baking materials		kJ		g CO <sub>2e</sub>
Oven/baking		kJ		g CO <sub>2e</sub>
Frosting		kJ		g CO <sub>2e</sub>
Disposal (compost)		kJ		g CO <sub>2e</sub>
<b>Total (12 cupcakes)</b>		kJ		g CO <sub>2e</sub>

  

<b>1 Cupcake</b>		kJ		g CO <sub>2e</sub>
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4. How much **energy** is needed to produce **1** cupcake if you **compost** the paper liner?

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5. How much **greenhouse gases** are emitted from **1** cupcake if you **compost** your cupcake liner?

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### Improvement Analysis

What could you change in the cupcake life cycle to improve its impact on the environment?

Describe your improvements below. Cite evidence from your calculations to explain your improvements.