Group member names: _____ Date: _____

Life-Cycle Assessment GROUP Worksheets

~Environmental Impact of Cupcakes~

Stage 1: Wet Ingredients

Inventory Analysis

Each component used to make a cupcake has its own life cycle of production, use and waste. You will collect the values for the energy used and greenhouse gases (GHG) emitted during the *production phase* of each ingredient. From the ingredient cards, gather the data of each item needed to make cupcakes for your assigned stage. The information you gather should be enough to make **12** cupcakes.

Data Collection and Calculations

You need:			Calculate This:			
Item	**Amount**	**Unit**	**Energy Used**	**Unit**	**GHG emissions**	**Unit**
Egg	2	egg		kJ		g CO_{2e}
Milk	120	ml		kJ		g CO_{2e}
Butter	120	ml		kJ		g CO_{2e}
Vanilla	2.5	ml		kJ		g CO_{2e}
		TOTAL		**kJ**		**g CO_{2e}**

Use the space below to calculate the energy used and GHG emissions for each ingredient.

Example: 1 egg needs 2000 kJ energy and you need 2 eggs: Energy used = 2 x 2000 kJ = 4000 kJ

Group member names: _____ Date: _____

Stage 2: Dry Ingredients

Inventory Analysis

Each component used to make a cupcake has its own life cycle of production, use and waste. You will collect the values for the energy used and greenhouse gases (GHG) emitted during the *production phase* of each ingredient. From the ingredient cards, gather the data of each item needed to make cupcakes for your assigned stage. The information you gather should be enough to make **12** cupcakes.

Data Collection and Calculations

You need:			Calculate This:			
Item	**Amount**	**Unit**	**Energy Used**	**Unit**	**GHG emissions**	**Unit**
Flour	210	g		kJ		g CO_{2e}
Sugar	230	g		kJ		g CO_{2e}
Baking powder	6	g		kJ		g CO_{2e}
		Total		**kJ**		**g CO_{2e}**

Use this space to calculate the energy used and GHG emissions for each item.

Example: 1 egg needs 2000 kJ energy and you need 2 eggs: Energy used = 2 x 2000 kJ = 4000 kJ

Group member names: _____ Date: _____

Stage 3: Baking Materials

Inventory Analysis

Each component used to make a cupcake has its own life cycle of production, use and waste. You will collect the values for the energy used and greenhouse gases (GHG) emitted during the *production phase* of each ingredient. From the ingredient cards, gather the data of each item needed to make cupcakes for your assigned stage. The information you gather should be enough to make **12** cupcakes.

Data Collection and Calculations

You need:			Calculate This:			
Item	**Amount**	**Unit**	**Energy Used**	**Unit**	**GHG emissions**	**Unit**
Paper liner	12	liner		kJ		g CO_{2e}
Metal cupcake tray	1	tray		kJ		g CO_{2e}
Metal mixing bowl	1	bowl		kJ		g CO_{2e}
		Total		**kJ**		**g CO_{2e}**

Use this space to calculate the energy used and GHG emissions for each item.

Example: 1 egg needs 2000 kJ energy and you need 2 eggs: Energy used = 2 x 2000 kJ = 4000 kJ

Group member names: _____ Date: _____

Stage 4: Oven Baking

Inventory Analysis

Each component used to make a cupcake has its own life cycle of production, use and waste. You will collect the values for the energy used and greenhouse gases (GHG) emitted during the *production phase* of each ingredient. From the ingredient cards, gather the data of each item needed to make cupcakes for your assigned stage. The information you gather should be enough to make **12** cupcakes.

Data Collection and Calculations

You need:			Calculate This:			
Item	**Amount**	**Unit**	**Energy Used**	**Unit**	**GHG emissions**	**Unit**
Electricity (177°C)	20	minute		kJ		g CO_{2e}

Use this space to calculate the energy used and GHG emissions for each item.

Example: 1 egg needs 2000 kJ energy and you need 2 eggs: Energy used = 2 x 2000 kJ = 4000 kJ

Group member names: _____ Date: _____

Stage 5: Frosting

Inventory Analysis

Each component used to make a cupcake has its own life cycle of production, use and waste. You will collect the values for the energy used and greenhouse gases (GHG) emitted during the *production phase* of each ingredient. From the ingredient cards, gather the data of each item needed to make cupcakes for your assigned stage. The information you gather should be enough to make **12** cupcakes.

Data Collection and Calculations

You need:			Calculate This:			
Item	**Amount**	**Unit**	**Energy Used**	**Unit**	**GHG emissions**	**Unit**
Sugar	800	g		kJ		g CO_{2e}
Milk	5	ml		kJ		g CO_{2e}
Butter	240	ml		kJ		g CO_{2e}
Vanilla	5	ml		kJ		g CO_{2e}
		Total		**kJ**		**g CO_{2e}**

Use this space to calculate the energy used and GHG emissions for each item.

Example: 1 egg needs 2000 kJ energy and you need 2 eggs: Energy used = 2 x 2000 kJ = 4000 kJ

Group member names: _____ Date: _____

Stage 6: Disposal

Inventory Analysis

Each component used to make a cupcake has its own life cycle of production, use and waste. You will collect the values for the energy used and greenhouse gases (GHG) emitted during the *production phase* of each ingredient. From the ingredient cards, gather the data of each item needed to make cupcakes for your assigned stage. The information you gather should be enough to make **12** cupcakes.

Data Collection and Calculations

You need:			Calculate This:			
Item	**Amount**	**Unit**	**Energy Used**	**Unit**	**GHG emissions**	**Unit**
Landfill paper liner	12	liner		kJ		g CO_{2e}
Compost paper liner	12	liner		kJ		g CO_{2e}

Use this space to calculate the energy used and GHG emissions for each item.

Example: 1 egg needs 2000 kJ energy and you need 2 eggs: Energy used = 2 x 2000 kJ = 4000 kJ