Wet ingredients needed

- 2 eggs
- 120 ml milk
- 120 ml butter
- 2.5 ml vanilla

Eggs

- 1 egg:
  - Needs 2000 kJ energy to produce
  - Emits 300 g CO$_2$e to produce

Milk

- 10 ml milk:
  - Needs 50 kJ energy to produce
  - Emits 12 g CO$_2$e to produce

Butter

- 10 ml butter:
  - Needs 330 kJ energy to produce
  - Emits 40 g CO$_2$e to produce

Vanilla

- 1 ml vanilla:
  - Needs 4 kJ energy to produce
  - Emits 4 g CO$_2$e to produce

Dry ingredients needed

- 210 g flour
- 230 g sugar
- 6 g baking powder
Flour
• 10 g flour:
  – Needs 11 kJ energy to produce
  – Emits 11 g CO₂e to produce

Sugar
• 10 g sugar:
  – Needs 100 kJ energy to produce
  – Emits 9 g CO₂e to produce

Baking Powder
• 1 g baking powder:
  – Needs 7.5 kJ energy to produce
  – Emits 0.75 g CO₂e to produce

Baking materials needed
• 1 metal mixing bowl
• 1 metal cupcake tray
• 12 paper liners

Metal Mixing Bowl
• 1 three-quart bowl:
  – Needs 1100 kJ energy to produce
  – Emits 1000 g CO₂e to produce

Metal Cupcake Tray
• 1 pan:
  – Needs 2600 kJ energy to produce
  – Emits 2200 g CO₂e to produce
**Paper Cupcake Liners**

- 1 cupcake liner:
  - Needs 20 kJ energy to produce
  - Emits 1 g CO$_2$e to produce

**Aluminum Foil Cupcake Liners**

- 1 cupcake liner:
  - Needs 40 kJ energy to produce
  - Emits 5 g CO$_2$e to produce

**Oven Baking**

- Bake at 177 °C for 20 minutes in an electric oven

**Energy to Bake Cupcakes (electricity)**

- Baking at 177 °C for 60 minutes:
  - Needs 7200 kJ energy to produce
  - Emits 1080 g CO$_2$e to produce

**Energy to Bake Cupcakes (gas)**

- Baking at 177 °C for 60 minutes:
  - Needs 10800 kJ energy to produce
  - Emits 1800 g CO$_2$e to produce

**Frosting ingredients**

- 800 g sugar
- 5 ml milk
- 240 ml butter
- 5 ml vanilla
Sugar

• 10 g of sugar:
  – Needs 100 kJ energy to produce
  – Emits 9 g CO$_2$e to produce

Milk

• 10 ml of milk:
  – Needs 50 kJ energy to produce
  – Emits 12 g CO$_2$e to produce

Butter

• 10 ml of butter:
  – Needs 330 kJ energy to produce
  – Emits 40 g CO$_2$e to produce

Vanilla

• 1 ml of vanilla:
  – Needs 4 kJ energy to produce
  – Emits 4 g CO$_2$e to produce

Disposal

• Throw away cupcake liner in landfill
  OR
• Compost cupcake liner

Landfill Paper Cupcake Liners

• 1 cupcake liner:
  – Needs 50 kJ energy
  – Emits 1.5 g CO$_2$e
Compost Paper Cupcake Liners

• 1 cupcake liner:
  – Needs 50 kJ energy
  – Subtracts 4.0 g CO$_2$e

Set 6

Landfill Aluminum Cupcake Liners

• 1 cupcake liner:
  – Needs 50 kJ energy
  – Emits 1.0 g CO$_2$e

Set 6

Recycle Aluminum Cupcake Liners

• 1 cupcake liner:
  – Needs 60 kJ energy
  – Subtracts 3.0 g CO$_2$e

Set 6