

# Design Must-Haves

Team name: \_\_\_\_\_ Class period: \_\_\_\_\_ Team members: \_\_\_\_\_

Your team will use a large piece of paper to model your design before you build your prototype. The following information must be clearly shown in your design, and your teacher must approve this design before you begin construction on your prototype.

Design must-haves	Team check	Teacher check
Use at least 250 mL of saltwater--write on your design how much you plan to use.		
The exact amounts of aluminum, copper sulfate you plan to use are listed.		
How you chose or calculated the amounts of reactants you will use and what trade-offs you had to make is explained. <ul style="list-style-type: none"> <li>• If you change the amount of reactants for your version 2 design, explain your reasoning (and how energy transfer has been improved since the previous design) .</li> </ul>		
A materials list including individual item costs and total cost to produce one heater is included.		
The materials you plan to use are specifically labeled in the design.		
A plan for how you will vent the gas produced during the reaction without spilling the liquid out of that opening is explicitly described.		
A way to test the temperature of your “food” at least every 5 minutes is described.		
Be sure your design includes: <ul style="list-style-type: none"> <li>• an energy transfer model showing how the energy will be transferred from the reaction system to the food system and</li> <li>• a particle level model showing what is happening to the food when this energy is transferred to it (you may use zoom-ins to show particle motion).</li> </ul>		