**Heat Transfer Project**

**Engineering problem? Vaccine Handling and Storage**

* Receive vaccine shipments-
  + Open package immediately
  + Maintain the cold chain!
* Know where to put which vaccines
  + Refrigerator or freezer?
  + Monitor temperatures
* Report refrigerator power failure and other problems
* Transport vaccines properly

**Design challenge**

* Design a container to hold a vaccine. The container must meet the following requirements or the vaccine will go bad:
  + Temperature must remain between 2-8 degrees Celsius and must not freeze.
  + During transport, any ice packs used must not touch the container of inactivated vaccine vials directly.
  + The vaccines must not shift during transport.
  + You must leave a small opening just large enough for a thermometer to be inserted to monitor the vaccines temperature at all times.
  + You must keep track of heat gained or lost.

**Time restraints**

* Normally, a container would take at least 3 days to reach South America.
* Due to time restraints, the temperature of your container must be recorded for at least 30 minutes.
* A data table must be constructed by each group member to keep track of your results.
* A graph of your results must be completed.

**Storybook – Progress of work**

* Team Name
* Mini – lessons
* Initial design
* Data from first test (in a proper data table)
* Changes to design (can be put on top of first design in a different color, or new picture)
* Data from second test (in a proper data table)
* Graph of all test results
* Calculated heat loss or heat gained
* Cost to make your container