



Polio Eradication – Student Instructions



Design and Build the Vaccine Carrier

One of the big challenges with the polio **vaccine** is that it must be kept between 35-46°F (2-8°C) to remain effective. This can be particularly difficult to do in remote areas. Design a cost-effective portable carrier that will allow healthcare workers to maintain the polio **vaccine's** safety in the field. Start by researching the storage and handling concerns of the polio **vaccine**.

Suggested Materials

You may use any materials to build your cooler. Here are some suggestions:

- **Container:** box, bag, storage container, etc.
- **Insulation:** towels, cardboard, bubble wrap, cotton, foam insulation, etc.
- **Cooling:** ice, dry ice, gel packs, etc.
- **Temperature monitoring:** thermometer or digital temperature probe

Draw a diagram of your design on the data collection sheet. Make sure to include materials and measurements.



Test the Vaccine Carrier

Use the design you developed to build a prototype. Conduct field tests to see how effective your device is at maintaining a consistent temperature.

As you prepare to test your **vaccine** carrier, consider the following:

- When you open your carrier, heat will enter. Can you measure temperature without opening it?
- How often will you collect temperature data? (*Every minute? Every 15 minutes? Every hour?*)
- How does the temperature of the environment surrounding your cooler affect your data?

Record your temperature and time data on the data collection sheet.



Share Your Designs and Results

CDC plays a critical role in **eradicating** polio by providing scientific leadership and guidance at the global, regional, and country level to implement evidence-based strategies. Since 1988, CDC, ministries of health, and Global Polio Eradication Initiative (GPEI) partners have worked together across these areas to reach every community and **vaccinate** every last child.

CDC's Center for Global Health (CGH) works 24/7 around the globe to stop health threats at their source. As a citizen scientist, you can help CDC's CGH by sharing your design on their Twitter or Facebook pages to show the importance of polio **vaccination** using **@CDCGlobal**.

The David J. Sencer CDC Museum uses award-winning exhibits and innovative programming to educate visitors about the value of public health and presents the rich heritage and vast accomplishments of CDC. Your design could be a valuable contribution! Share your demonstration with the CDC Museum on Instagram using **@CDCMuseum**.