The Cold Chain: Activity Worksheet

What is the cold chain?

The cold chain is the process used to transport temperature-sensitive products from the farm to the table in a manner that maintains quality and safety and prevents the risk of foodborne illness.[2]

Critical Cold Chain Questions:

1. How does competitive exclusion work in poultry farming?

2. How does proper composting help to prevent the spread of bacteria?

3. What can this device detect to help us know more about the foods we eat?

4. Who could use this device to detect food contaminants?

Play the Part: Cold Chain Management

Imagine that you and your student colleagues are a group of professionals responsible for transporting a shipment of protein from a farm in Wichita, Kansas to a home in Cherry Hill, New Jersey. Your team must transport the protein from the farm to table as safely as possible. Using the chart below, transport the protein through the steps of the cold chain while maintaining the quality of the products and preventing the growth of bacteria. Once you have finished, draw your cold chain and present your solution to your class. You can use evidence from the virtual field trip or other resources to support your ideas.

Activity #1

Step of the Cold Chain	Responsibilities	Potential Risks	Solutions
Farmers			
Processors			
Transportation professionals			
Warehouse technicians			
Transportation professionals			
Retail and marketing professionals			
Consumers			

Pack and Stack: Activity Worksheet

Imagine you're walking through a grocery store. As you walk through each aisle, you look at the different products available for purchase. From vegetables to yogurt and from cans to bags, food packaging looks many different ways. In large part, that's because food packaging has to accomplish many different goals.

In this activity, you and your student colleagues will step into the shoes of the packaging professionals who are responsible for packaging protein products safely, affordably, attractively and responsibly. Using the steps of the engineering design process, you will create a new packaging method for a protein that is lightweight, environmentally friendly and conveys to consumers the importance of preventing foodborne illness.

Play the Part: Pack and Stack

You and your group members work for a packaging design firm that has been called upon to perform a special task. A protein production company has installed a new CEO who wants to limit the company's impact on the environment by replacing the Styrofoam typically used in packaging their protein products with a more environmentally-friendly solution. This new packaging must accomplish the following goals:

- It must weigh less than 5oz.
- It must fit 16oz of protein (simulated by 4.4oz. water balloons or egg)
- It must include information about how to prevent the spread of foodborne illness
- It must be water resistant and leak-proof
- It must be stackable/easily transportable
- It must be recyclable

Activity Steps

1. If using a water balloon:
   Using the funnel, fill the four balloons with 4oz of water each.
   Tie the balloons.
2. Using the chart below, use the engineering design process to create a prototype that fits the above design constraints.

Engineering Design Process Step	Notes
Define the Problem	
Identify Constraints	
Brainstorm Solutions	
Select the Best Solution	
Construct the Prototype	
Test the Prototype	
Present the Solution	