Young Smart Cities Learning Situation on:

CIRCULAR PACKAGING – The Plastic-Free Delivery Dilemma

KNOWLEDGE PILLS relevant to this SMART theme are:

- **Urban Circular Economy**

Driving Question

How can a plastic-free company safely ship fragile glass products and manage high-volume refills without compromising its environmental values?

Learning Situation

A local sustainable brand in your city is facing a "green paradox." The company is committed to being 100% plastic-free, selling liquid soaps and cleaning products in glass bottles. While their customers love the aesthetic and environmental benefits of glass, the business is struggling with two major logistical hurdles:

1. **The E-commerce Gap:** To ship glass bottles safely to online customers, the company currently uses heavy cardboard and paper-based fillers. However, these are bulky, expensive to ship, and often fail to prevent breakage, leading to wasted products and high carbon footprints from returns.
2. **The Refill Challenge:** In their physical stores, this company wants to implement a high-volume refill station. However, the "back-end" of this program currently relies on large industrial plastic containers to transport the bulk liquids to the store. They are searching for a way to transport and store these bulk quantities (20L–50L) using zero-plastic, durable, and hygienic alternatives.

The company has launched a "Design for Circularity" challenge, inviting students to rethink how liquids and glass can move through a city and across the country without a single piece of plastic.

Task

Analyze the lifecycle of different types of plastic free packaging and develop a solution that solves either the shipping protection problem or the industrial refill container problem (or both!). Working in groups, you will design a prototype, system, or logistical model that ensures products arrive safely and bulk refills remain truly plastic-free.

Your proposal should be grounded in the principles of the Circular Economy—focusing on durability, reusability, and biodegradable innovation.

Make sure you follow an enquiry-based approach so your proposal is grounded in solid, evidence-based reasoning. You will move through these stages:

Explore → Research → Analyse → Ideate → Present → Reflect
