

Invention Lab: Design the Perfect Mail Delivery Vehicle

General idea:

Delivering the mail is hard work! Designing a mail delivery vehicle is even more difficult. Do you think you can do it? Design a vehicle with these three factors in mind: safety, reliability, and speed. Participants can create any type of vehicle—from wild to possible. But make sure to have them explain *why* their vehicle is safe, reliable, inexpensive, fast—and green!



Audience:

- Families
- For younger kids, translate the factors into easy-to-understand language.

Goal:

- Vehicles transport and help deliver the mail.
- Transporting mail is a *hard job*!
- Mail transportation vehicles need to be safe, reliable, fast, green (and cheap!)

Materials:

- Sign listing the five criteria for vehicles: safe, reliable, inexpensive, fast, green
- “Invention” materials such as clay, pipe cleaners, foam shapes, tape, glue, scissors, etc

Checklist:

- Think about the vehicles used to deliver the mail today and in the past. What are their **strengths** and **weaknesses**?
- **Apply the three factors** to them!
- Create signs **defining each of the factors**
- Develop your own **examples** of vehicles
- Challenge each other to **explain why** this is a perfect mail delivery vehicle (use the factors)
- Develop the role of the Test Driver (Before leaving the table, have visitors explain their vehicle to the Test Driver! Ask them **tough questions**! Congratulate them on design decisions!)



Kids focusing on their projects. The kid on the right is making a paper airplane to carry airmail.

Hypothesize

Propose a
solution

Does it work?

What do you need to know?

All mail vehicles need to have a balance between these three factors:

Safe: the mail needs to be safe, paper letter and packages are to be handled with care so they are not damaged.

Reliable: mail need to be delivered six days a week to every home and business in the United States of America.

Fast: who wants to wait to get a letter from a loved one?

Extra points will be given for vehicles that are **cheap** and **green**!

Many different vehicles have been used to move the mail



But also missiles, dogsleds, snow mobiles, etc.



In the 1980s the USPS its first costumed vehicle designed especially to deliver the mail:

According to a postal official who helped monitor the vehicle tests, it was “the most grueling road test of a government vehicle this side of the M-1 tank.” Officials tested the vehicles’ endurance and maneuverability through a series of drills, including tests that required the vehicles to:

- Drive 5,760 miles on a closed loop 5-mile-long paved road at 50 to 55 mph
- Drive 2,880 miles over a road with a shoulder, stopping every 250 feet and accelerating to 15 mph in between
- Drive 960 miles over potholes at 10 to 14 mph
- Make one hundred consecutive stops from 15 mph

The vehicle had to be able to run twenty hours a day, seven days a week, month after month, year after year.

Connections?

Want to measure? See if your vehicle can move the mail at the **Rocky Road: Going Green on the Mean Streets**