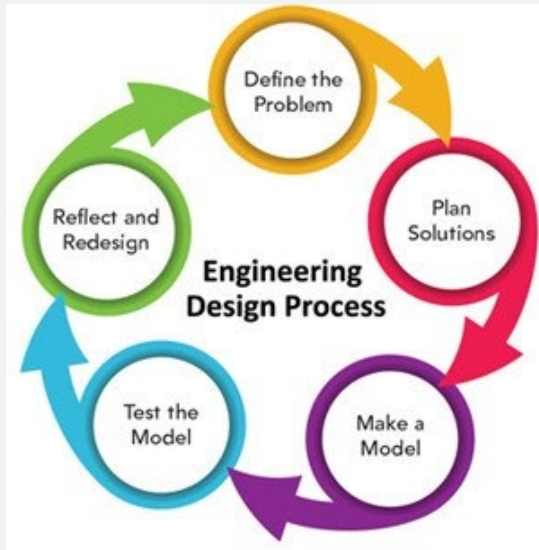


Virginia Refugee Student Achievement Project (VRSAP)

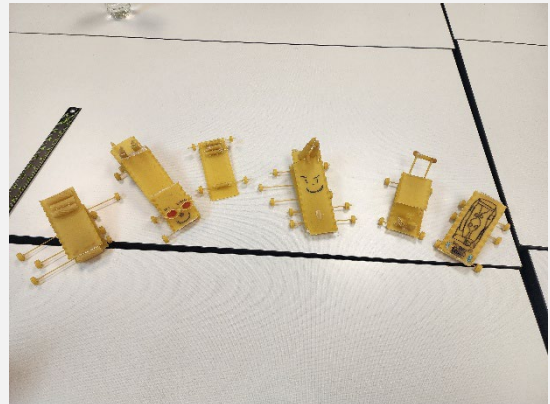
Extended Learning Program – Summer 2025



Over four exciting sessions, the students became engineers-in-training as they explored the engineering design process through hands-on challenges.

In the first two sessions, they built prototype vehicles using only dry pasta and hot glue—yes, pasta! Their goal? To create a car that could roll down a ramp and coast as far as possible using nothing but gravity and clever design. Students chose from seven types of pasta to serve different

functions—round pasta for wheels, sheet pasta for the chassis—bringing creativity and problem-solving to the forefront. Along the way, they learned key physics concepts like gravitational potential energy, kinetic energy, rolling resistance, and how these forces shape motion.



In Session 3, students explored three types of towers—cable-supported, freestanding, and self-supported—and their historical roles. Using limited craft materials, they built prototypes of each, designed to stand at



least one foot tall and support a large egg for 15 seconds. To succeed, students had to consider real-world forces like compression and bending, applying structural engineering principles to create strong, stable designs.

In Session 4, students tested their physics and engineering skills by designing prototype passenger vehicles using only



cardboard and hot glue. The goal: build a car that could protect a raw egg during a simulated side impact collision. Drawing on concepts from earlier sessions—like energy, momentum, and structural load—students designed and built vehicles that protected the raw egg test passenger from injury.

As always, it was a pleasure working with the students. Their enthusiasm, curiosity, and willingness to tackle new and challenging topics were inspiring.

Special thanks to our dedicated volunteer, Sarah, and the incredible Migration and Refugee Services team for their partnership in making this program successful.

