

NGSS Performance Expectation		In this unit, youth:
3-PS2-2	Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.	Observe the motion of the shuttles, identifying patterns in how different variables affect flight distance. They apply their observations to predict the flight distance of their shuttle designs.
3-5-ETS1-1	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.	Identify their shuttle must land near a person who needs rescue in only a few tries (criterion).
3-5-ETS1-2	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	Work in groups to imagine ideas and justify design decisions using evidence from investigations.
3-5-ETS1-3	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	Evaluate the results of the launch tests to determine how to improve their shuttle so that it lands in the rescue zone.

**Crosscutting
Concept**

Cause and Effect

In this unit, youth investigate how various shuttle variables (causes) affect its flight distance (effect). Through hands-on explorations, they gather evidence on the impact of shuttle length, material choice, number of weights, weight placement, and number of fins (causes). Youth analyze these cause-effect relationships to design a shuttle that lands in the designated rescue zone.