

Course Two – Project 1 - Materials and Corrosive Environments

Essential Question:

Can we make a car that is rust proof?

Engagement Scenario:

Automotive designers use a variety of materials to meet performance, weight, fuel economy, style, cost, and durability requirements. One important consideration in selecting a material is how long it will survive in the expected environment. Customers will not be satisfied if their new car starts to fall apart too soon.

You are an automobile designer and have been asked to select the best material for an under-body application. You know that some areas will be exposed to abrasion from small stones and to salt in the winter months. You want the vehicle to be light-weight, low-cost, and survive as long as possible. Aluminum, steel, plastics, and composites are used in automobiles. They are also being used in combination with each other. You need to choose the best material for the application based on performance and cost effectiveness of the material's use in the environment.