

Lesson 9:Car Course

Objective: Students will design/construct a car that is able to complete the designed track(or course)that includes one large hill and a subsequent smaller hill to evaluate the effectiveness of their car (including speed, forces acting on car, etc.)

Learning Goal: Relationship between force, energy, and motion.

Vocabulary:

Engage:

1. “The final task in proving that your vehicle is worthy of mass transit requires you to proves that it is capable of traveling in realistic conditions. That means it must be able to travel over two hills, and will require you to use all of the skills you have been working on.”

Explore:

1. Teacher will remind students that this is the final test for their car design, the car must be able to travel up two hills utilizing the transfer of kinetic energy into potential energy.
2. Students will run several trails on the test track, trying to make improvements to get the best track time.

Explain:

1. The teacher leads the students to share out any norms they’ve discovered as they test their cars on the track.
2. Teacher explains the relationship between force, energy, and motion.

Elaborate:

1. Students diagram the track diagraming the energy of the cars are lost and gained.
2. Students make final changes to their vehicles and record the data for 3 trials and graphing their results.
3. Students share out their data and compare/discuss their results.

Evaluate:

1. As the culminating task, students will be asked to present their cars to the “transportation board of Los Angeles” in which they students explain why their design should be chosen for use as public transit.
2. Students should support/cite all claims with data that they have gathered from all prior investigations.
 - Summary of cars overall performance
 - Explanation as to why their car performed the way it did

- Explanation is supported by their data
- What materials were used to build their car
- Possible problems/ challenges and solutions
- Considerations and implications for the future
- Reflection on the design process