Balloon Car Lesson Plan

Alabama Course of Study

Design, construct, and test a device that changes energy from one form to another.

Objective SCI.4.4.1: Identify devices that change energy from one form to another.

Objective SCI.4.4.2: Identify different forms of energy.

Explain Newton’s Third Law

Vocabulary: potential energy; kinetic energy; force; motion; friction; measurement;

Materials: pieces of cardboard, milk jug lids, water or soda bottle lids, CDs that are no longer usable to listen to music, balloons, straws, skewers, tape measurer, scissors, tape, paper, pencil or marker, device that allows students to view short internet videos;

Examples of Potential Energy (from examples.yourdictionary.com; Retrieved 9-30-19)

* A coiled spring
* Wheels on roller skates before someone skates
* An archer's bow with the string pulled back
* Water that is behind a dam
* A snow pack (potential avalanche)
* A quarterback's arm before throwing a pass
* A stretched rubber band
* A car that is parked at the top of a hill
* An unopened carbonated drink
* A yoyo before it is released
* River water at the top of a waterfall

Hook: Teacher previews and shares several age-appropriate short videos from the Internet that demonstrate how to design and construct a Balloon Car Racer. Introduce vocabulary.

Teacher gathers all materials (in limited quantities, i.e. 3 straws, 2 skewers, etc.) except those that will be used as wheels. Students discuss various examples of materials already on hand at home that could be used as wheels. Students are encouraged to provide a minimum of 4 “wheels” that were not originally intended to be used as wheels. Toy cars, Lego wheels, etc. are not acceptable and should not be purchased for this project. This is a great opportunity to reinforce your recycling / upcycling program.

Teacher previews and shares one or two web pages that explain Newton’s Third Law.

Students may work alone or as partners to view various previously suggested web pages that will guide the design and construction of a Balloon Car Racer. Students will illustrate and label their design on a single piece of paper. After the teacher approves the design, the construction begins. Students will test and adjust the construction until they are satisfied with their Balloon Car’s pre-race performance.

Let the races begin! Follow up with measurements of the Balloon Car’s distance. Graph the results, especially if you have enough time for post-race adjustments and additional races.

Wait for it --- that “A-ha” moment when Newton’s Third Law becomes reality and your new engineers discover that the balloon should not be lying on the floor allowing friction to slow the whole thing down to a crawl.