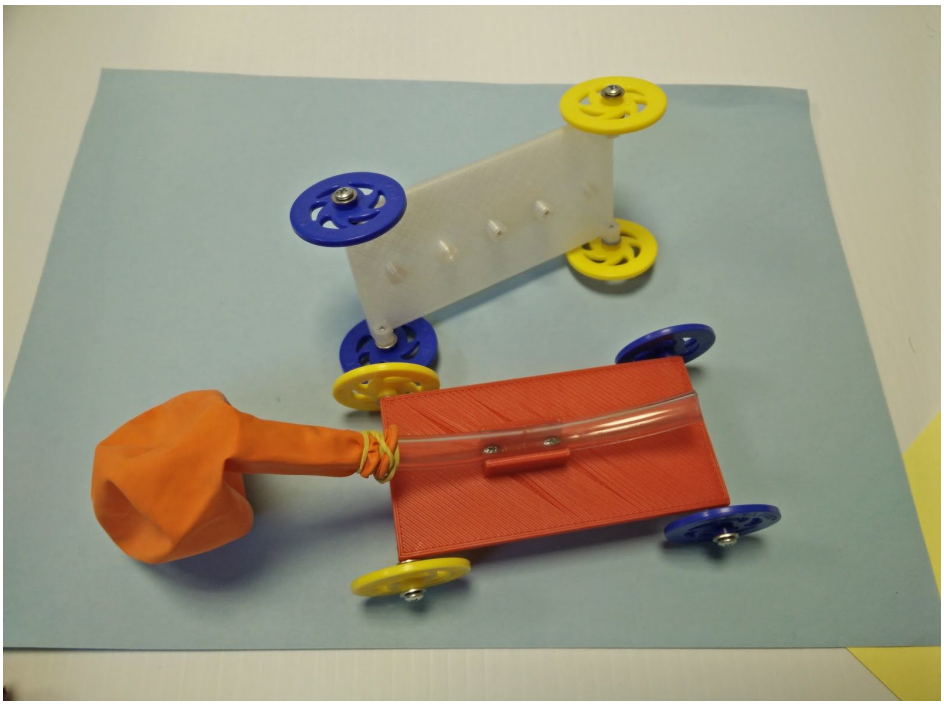
Balloon Cars

Specialized tools/technology used:	Experience level required:
Balloons, wheels, Craft materials	low tech - suitable for beginners
3D Printer (optional)	beginner (if using standard parts from a given template)

Grade Level (of this example)**:** K - 8 **Time:** 2+ class periods

Content Areas (of this example)**:** Defined by teacher

Summary of Project:
Students work individually or in small groups design and construct a balloon-powered vehicle that meets age-appropriate design criteria designated by the teacher. They can use software compatible with a 3D printer* to create a body and wheels, and any other necessary parts. Using at least one balloon, tube, fabricated parts, and shop materials, the students will construct a working vehicle. They can work individually or in a group to design, test, and complete the project. Multiple video and print examples are available online for students to research examples - consider providing limited examples to focus younger students. Depending on experience level and tech used, the activity can take 3-5 class periods, not counting printer wait time.



Possible design constraints

- specific parts (e.g. teacher allows one type of wheel for the whole class)
- Size / weight
- Must carry a set load across a set distance
- Time to print*
- Amount of plastic used*
- Distance
- Speed across a set distance
- trajectory
- specs from a fictional customer

Possible content explorations

- Class competition - debrief afterward
- If students have designed according to the specs of "customer(s)," have them rate vehicles according to customer request, or match the best vehicle to the best customer
- ELA/Social Studies - if students are reading material about racing, or about characters' or peoples' transportation needs, have them create an advertisement about the benefits of their balloon vehicle - e.g. get Ralph Mouse to give up his motorcycle for your balloon car

Modifications

- Create a balloon-powered sand/snow sled or boat
- couple with kinetic sculpture load that moves as the car's wheels turn

**Note: this activity DOES NOT require 3D printing technology to work! Students may use other craft and found materials to construct their parts.*