



Prototypes Lesson Plan

Objective: Students will review gears and gear ratios and mechanical advantage. Students will learn about prototypes and why they are important and will investigate their Electric Vehicle Challenge kits provided by goHunterdon using parts from their kits to build a working prototype.

Time: 1 hour 30 minutes

Materials: chassis material (plastic), straws, duct tape, AA batteries

Remote students will need their EV Challenge kits, chassis material (cardboard is fine for this), duct tape, straws, and AA batteries.

Procedure:

1. Review the concepts of gears, gear ratios, and mechanical advantage (torque vs. speed)
2. Introduce prototypes as the first attempt at building something that will solve a defined problem.
3. Distribute student packets that give the guidelines for building the EV Challenge vehicles and review with students.
4. Distribute EV Challenge car kits from goHunterdon and explain each part in the kit, its function, and some building tips.
5. Give students time to create a drawing of their prototype. This is a great time to go over the Student Design Journal template if you are using it as a way for students to document their process and understanding as they building their EV Challenge vehicle in preparation for Race Day.
6. Have students build a working prototype and write down what did and did not work the way they expected.