

Name:

Date:

Class:

Engineering a Mini EV Worksheet

Working in pairs, student teams design, build, test, and iterate a model electric vehicle of their own creation using the provided materials.

1. **Build the base:** Cut a car body out of cardboard or other material; this is the car's base.
2. **Add axles:** Glue two straws or other tubing across the underside of the front and rear of the chassis (car body). Slide one axle (wooden skewer, etc.) through each straw. If using pulleys, attach a pulley to one axle.
3. **Attach wheels:** Punch a hole in the center of each wheel and push them onto the ends of the skewers so they can spin (or hot glue the axle to the inside center of each wheel). Add rubber bands around the wheels for traction.
4. **Install the motor:** Glue the motor to the chassis so the motor spindle is outward-facing and accessible to either the front or rear axle. Secure the battery pack to the car.
5. **Connect the motor and drivetrain:** Loop a rubber band over the axle pulley and the motor shaft pulley (or directly loop the rubber band over the axle and motor shaft).
6. **Add power:** Connect the battery pack to the motor with alligator clips.
7. **Test drive:** Turn on the battery pack to test the motor and give your car a test drive.
8. **Iterate design:** Redesign your car if any component needs improvement.
9. **Decorate (optional):** Color, add extra cardboard on top to design your car's body, etc.

Initial Mini EV Design	Mini EV Redesign
Initial design sketch:	Redesign sketch:
Initial design reflections (What worked, what should be changed?):	Revised design reflections (What was changed, how did it work?):