

## **Lesson 10 Building a small car II: Choosing and preparing wheels and chassis**

**Objectives:** Students will have an opportunity to make design choices for their cars in choosing the wheels and chassis that they will use and placement of the motor and axles on the chassis.

**Materials:** For class:

- ∞ ¼ inch dowels, 1 per 12 students
- ∞ Bench hook/miter box and saw
- ∞ Masonite for cutting station
- ∞ Goggles
- ∞ Sand paper
- ∞ Emery board files
- ∞ Newspaper
- ∞ Cardboard for prototyping custom chassis
- ∞ Scissors
- ∞ Material to glue to wheels to make “tires”
- ∞ Elmer’s glue
- ∞ Glue gun and glue sticks
- ∞ Alligator clips
- ∞ Rulers

For each student:

- ∞ Ziplock bag with gear boxes from previous lesson
- ∞ 2 large wheels
- ∞ 2 small wheels
- ∞ 1 chassis
- ∞ Pencil
- ∞ 2 cable clamps

**Initial**

**Discussion:** Explain process and show materials from which students will be able to choose. Discuss the merits of small vs. large wheels and of chassis size. Will car go faster or slower with large wheels? With small wheels?

**Project:** Students choose a chassis and 4 wheels. Because of supply, each student must choose 2 small and 2 large wheels. If they want all the same size, they must trade with someone.

There is a possibility that wheels of different sizes could be cut and that a different chassis size could be made. If student wants a different chassis size, they need to make a prototype from cardboard, complete with markings for holes.

Students draw designs for their cars in their notebooks.

Students sand their wheels and chassis with the emery board and sandpaper.

Students mark places where screws and bolts will go. Marks need to be made for holding gear box, cable clips for front axles, brackets on back wheels. Remind students that placement must be done very carefully for the car to work well.

Students measure and cut the dowels for the front axles and sand ends. Students can glue one wheel to the axle. (Don't glue both wheels before attaching axle to chassis!)

Vocabulary: Chassis – The rectangular, usually steel frame, supported on springs and attached to the axles, that holds the body and motor of an automotive vehicle

Final

Discussion: What still needs to be done? What will be done the following day?

Clean up: Students put all of their own materials into their ziplock bags.

Home

Connection: Discuss project with families.