

BUILDING THE SOLAR CAR

1. CHASSIS ASSEMBLY

1. With a pencil, draw a line across the cardboard base 2 cm from one end.

2. Repeat step 1 at the other end (see Figure 1).

3. Use scissors to cut the straw into four pieces, each 4 cm long.

4. Tape one piece of straw along one line on the cardboard base, with the end of the straw even with the edge of the cardboard base.

5. Repeat step 4 with a second straw on the opposite end of the line.

6. Repeat steps 4 and 5 with the other two pieces of straw on the other line (see Figure 2).

7. Obtain the accessory bag of wheels, axles, and gears.

8. Insert the end of one axle into one wheel hole.

9. Insert the other end of the axle through the straws on one end of the base.

10. Press a second wheel onto the free end of the axle. Note: If the fit is too tight, set the axle vertically with one wheel resting on the work surface. Press down on the top wheel, being careful to not bend the axle with too much pressure. It may be necessary to gently tap the wheel with a hammer or rubber mallet.

11. Select the largest gear from the accessory bag.

12. Place the flat side of the gear on the work surface.

13. Insert a second axle into the gear (see Figure 3).

14. Lift the axle and gear and push the gear about 1 cm onto the axle.

15. Insert the end of the axle with the gear into a wheel hole.

16. Repeat steps 9–10 with the other end of the base.

17. Attach the tires to the wheels.

18. Obtain the motor and the smallest gear from the accessory bag.

19. Insert the motor shaft through the hole in the gear with the flat side of the gear facing the motor (Figure 4).

20. Mount the motor on top of the base with tape so the small outer gear attached to the motor meshes with the large gear on the axle. Note: It may be necessary to raise the motor up slightly by placing a small piece of folded paper under the motor. Test for proper alignment by setting the car on the work surface and moving it back and forth. When the motor is properly placed, the gear on the motor should mesh with the gear on the axle and turn easily without slipping.

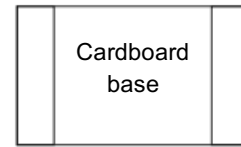


Figure 1.

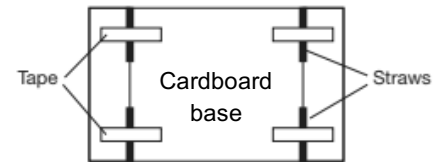


Figure 2.

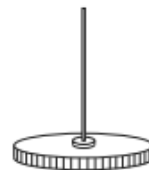


Figure 3.

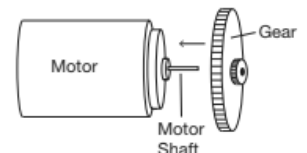


Figure 4.

2. ATTACHING THE SOLAR PANEL

1. Obtain a solar panel.

2. Note the ends of the wires. If less than 1 cm of bare wire is visible, use wire strippers to remove more of the insulation.

3. Repeat step 2 for the motor wires.

4. Make a loop of masking tape with the sticky side out and place it in the center of the upper side of the chassis.

5. Gently press the solar panel on top of the tape to secure it near the center of the chassis (see Figure 5).

6. Bend the black wires of the solar panel and the motor so they are under the chassis.

7. Turn the chassis over so the solar panel is covered.

8. Twist the bare ends together securely and tape the wires to the underside of the chassis so they won't touch the work surface.

9. Repeat steps 6–8 with the red wires of the solar panel and motor. Make sure the wires will not interfere with the motion of the car. Note: This step should be done with the solar panel covered.

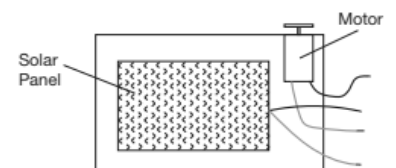


Figure 5.